SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0201	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	3 bed
Property	Flat 201, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	78 C	**DER**	25.96	**TER**	24.57
Environmental	81 B	**% DER<TER**	-5.66		
CO_2 Emissions (t/year)	1.76	**DFEE**	43.39	**TFEE**	47.06
General Requirements Compliance	Fail	**% DFEE<TFEE**	7.80		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East	
Property Tenure	Unknown	
Transaction Type	New dwelling	
Terrain Type	Urban	
1.0 Property Type	Flat, Semi-Detached	
2.0 Number of Storeys	1	
3.0 Date Built	2018	
4.0 Sheltered Sides	3	
5.0 Sunlight/Shade	Average or unknown	

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	83.50 m²	2.50 m

7.0 Living Area	38.00	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	54.00	30.02

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	47.97

11.0 Heat Loss Floors

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Exposed Floor	Exposed Floor - Solid		0.13	67.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					18.90	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					5.08	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	9.59	0.300	No
Table K1 - Approved	E3 Sill	5.87	0.040	No
Table K1 - Approved	E4 Jamb	25.00	0.050	No
Table K1 - Default	E20 Exposed floor (normal)	3.36	0.320	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	18.30	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	21.66	0.070	No
Table K1 - Approved	E16 Corner (normal)	7.50	0.090	No
Table K1 - Approved	E17 Corner (inverted – internal area greater than external area)	5.00	-0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	13.89	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	19.19	0.000	No
Table K1 - Default	P7 Party Wall - Exposed floor (normal)	5.30	0.160	No

Y-value	0.081	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.56	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes

Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	

Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0201	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	3 bed
Property	Flat 201, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	78 C	**DER**	25.96	**TER**	24.57
Environmental	81 B	**% DER<TER**	-5.66		
CO_2 Emissions (t/year)	1.76	**DFEE**	43.39	**TFEE**	47.06
General Requirements Compliance	Fail	**% DFEE<TFEE**	7.80		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	24.57	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	25.96	$kgCO_2/m^2$	
Excess emissions	1.39 (5.7%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	47.06	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	43.39	$kWh/m^2/yr$	
	-3.7 (-7.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.56 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South West	5.08 m², No overhang
Windows facing North West	18.90 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.56 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0201	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	3 bed
Property	Flat 201, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	78 C	DER	25.96	TER	24.57
Environmental	81 B	% DER<TER	-5.66		
CO_2 Emissions (t/year)	1.76	DFEE	43.39	TFEE	47.06
General Requirements Compliance	Fail	% DFEE<TFEE	7.80		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	24.57	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	25.96	$kgCO_2/m^2$	
Excess emissions	1.39 (5.7%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	47.06	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	43.39	$kWh/m^2/yr$	
	-3.7 (-7.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.56 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South West Windows facing North West	5.08 m², No overhang 18.90 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.56 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

U-VALUE CALCULATOR REPORT

Property Reference	0201	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	3 bed
Project	Flat 201, 2 Old Mount Street, Manchester, M4 4GP		
Calculation Type	New Build (As Built)		

SAP Rating	78 C	**DER**	25.96	**TER**	24.57
Environmental	81 B	**% DER<TER**	-5.66		
CO_2 Emissions (t/year)	1.76	**DFEE**	43.39	**TFEE**	47.06
General Requirements Compliance	Fail	**% DFEE<TFEE**	7.80		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

Building Elements

Floor 000001

Floor Type: Exposed Floor

Layer	Description	Thickness (mm)	Conductivity (W/m²K)	Resistance (m²K/W)	Fraction (%)	Density (kg/m³)	Heat Cap. (J/kgK)
Ext surface				0.0400			
Layer 1	**Concrete, dense**						
	Main construction	250	2.0000	0.1250	100.00		
Layer 2	**Kingspan K110**						
	Main construction	140	0.0180	7.7778	100.00		
	Corrections - Air Gap: Level 1, Fasteners: None or plastic						
Int surface				0.1700			

Total resistance: **Upper limit =** 8.113 m² K/W **Lower limit =** 8.113 m² K/W **Average =** 8.113 m² K/W

Total correction = 0.0092 m² K/W **U-value (unrounded) =** 0.13 W/m² K

Unheated space: None

Total thickness: 390 mm **U-value: 0.13 W/m² K** **Kappa: 0.00 kJ/m² K**

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0202	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 202, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	23.37	**TER**	24.52
Environmental	84 B	**% DER<TER**	4.70		
CO_2 Emissions (t/year)	1.29	**DFEE**	35.76	**TFEE**	41.08
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.94		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	28.00	16.70

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	57.50

11.0 Heat Loss Floors

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Exposed Floor	Exposed Floor - Solid		0.13	47.66

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Default	E20 Exposed floor (normal)	6.61	0.320	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	4.63	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	11.24	0.070	No
Table K1 - Approved	E16 Corner (normal)	2.50	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	9.28	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	23.00	0.000	No
Table K1 - Default	P7 Party Wall - Exposed floor (normal)	13.72	0.160	No

Y-value	0.110	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.15	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	

Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0202	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 202, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	23.37	**TER**	24.52
Environmental	84 B	**% DER<TER**	4.70		
CO_2 Emissions (t/year)	1.29	**DFEE**	35.76	**TFEE**	41.08
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.94		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	24.52	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.37	$kgCO_2/m^2$	Pass
	-1.15 (-4.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	41.08	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	35.76	$kWh/m^2/yr$	
	-5.3 (-12.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.15 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.15 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.2	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0202	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 202, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	DER	23.37	TER	24.52
Environmental	84 B	% DER<TER	4.70		
CO_2 Emissions (t/year)	1.29	DFEE	35.76	TFEE	41.08
General Requirements Compliance	Pass	% DFEE<TFEE	12.94		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	24.52	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.37	$kgCO_2/m^2$	Pass
	-1.15 (-4.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	41.08	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	35.76	$kWh/m^2/yr$	
	-5.3 (-12.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.15 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.15 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.2	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0203	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 203, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.66	**TER**	21.31
Environmental	86 B	**% DER<TER**	7.75		
CO_2 Emissions (t/year)	1.12	**DFEE**	26.89	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.58		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East	
Property Tenure	Unknown	
Transaction Type	New dwelling	
Terrain Type	Urban	
1.0 Property Type	Flat, Semi-Detached	
2.0 Number of Storeys	1	
3.0 Date Built	2018	
4.0 Sheltered Sides	3	
5.0 Sunlight/Shade	Average or unknown	

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.171	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.88	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0203	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 203, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.66	**TER**	21.31
Environmental	86 B	**% DER<TER**	7.75		
CO_2 Emissions (t/year)	1.12	**DFEE**	26.89	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.58		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.66	$kgCO_2/m^2$	Pass
	-1.65 (-7.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.89	$kWh/m^2/yr$	
	-3.5 (-11.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.88 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.88 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0203	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 203, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	DER	19.66	TER	21.31
Environmental	86 B	% DER<TER	7.75		
CO_2 Emissions (t/year)	1.12	DFEE	26.89	TFEE	30.41
General Requirements Compliance	Pass	% DFEE<TFEE	11.58		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.66	$kgCO_2/m^2$	Pass
	-1.65 (-7.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.89	$kWh/m^2/yr$	
	-3.5 (-11.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.88 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.88 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0204	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 204, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.13	**TER**	21.31
Environmental	87 B	**% DER<TER**	10.24		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.56	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.66		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.171	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.35	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0204	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 204, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.13	**TER**	21.31
Environmental	87 B	**% DER<TER**	10.24		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.56	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.66		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.13	$kgCO_2/m^2$	Pass
	-2.18 (-10.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.56	$kWh/m^2/yr$	
	-3.8 (-12.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.35 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.35 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0204	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 204, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.13	**TER**	21.31
Environmental	87 B	**% DER<TER**	10.24		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.56	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.66		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.13	$kgCO_2/m^2$	Pass
	-2.18 (-10.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.56	$kWh/m^2/yr$	
	-3.8 (-12.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.35 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.35 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0205	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 205, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.56	**TER**	21.31
Environmental	86 B	**% DER<TER**	8.22		
CO_2 Emissions (t/year)	1.12	**DFEE**	26.83	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.79		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.171	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.78	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0205	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 205, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.56	**TER**	21.31
Environmental	86 B	**% DER<TER**	8.22		
CO_2 Emissions (t/year)	1.12	**DFEE**	26.83	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.79		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.56	$kgCO_2/m^2$	Pass
	-1.75 (-8.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.83	$kWh/m^2/yr$	
	-3.6 (-11.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.78 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.78 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0205	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 205, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.56	**TER**	21.31
Environmental	86 B	**% DER<TER**	8.22		
CO_2 Emissions (t/year)	1.12	**DFEE**	26.83	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.79		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.56	$kgCO_2/m^2$	Pass
	-1.75 (-8.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.83	$kWh/m^2/yr$	
	-3.6 (-11.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.78 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.78 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0206	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 206, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	18.79	**TER**	21.31
Environmental	87 B	**% DER<TER**	11.83		
CO_2 Emissions (t/year)	1.09	**DFEE**	26.37	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	13.30		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.171	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.01	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0206	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 206, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	18.79	**TER**	21.31
Environmental	87 B	**% DER<TER**	11.83		
CO_2 Emissions (t/year)	1.09	**DFEE**	26.37	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	13.30		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.79	$kgCO_2/m^2$	Pass
	-2.52 (-11.8%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.37	$kWh/m^2/yr$	
	-4.0 (-13.2%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.01 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.01 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0206	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 206, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	18.79	**TER**	21.31
Environmental	87 B	**% DER<TER**	11.83		
CO_2 Emissions (t/year)	1.09	**DFEE**	26.37	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	13.30		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.79	$kgCO_2/m^2$	Pass
	-2.52 (-11.8%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.37	$kWh/m^2/yr$	
	-4.0 (-13.2%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.01 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.01 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0208	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 208, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	83 B	**DER**	23.08	**TER**	25.43
Environmental	86 B	**% DER<TER**	9.24		
CO_2 Emissions (t/year)	0.94	**DFEE**	30.24	**TFEE**	34.45
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.22		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	31.24	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	15.50	7.86

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	56.00

11.0 Heat Loss Floors

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Exposed Floor	Exposed Floor - Solid		0.13	16.26

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (ne)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.64	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.05	0.300	No
Table K1 - Approved	E3 Sill	2.05	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Default	E20 Exposed floor (normal)	2.28	0.320	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	3.92	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.19	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No
Table K1 - Default	P7 Party Wall - Exposed floor (normal)	7.21	0.160	No

Y-value	0.148	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.83	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0208	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 208, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	83 B	**DER**	23.08	**TER**	25.43
Environmental	86 B	**% DER<TER**	9.24		
CO_2 Emissions (t/year)	0.94	**DFEE**	30.24	**TFEE**	34.45
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.22		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	25.43	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.08	$kgCO_2/m^2$	Pass
	-2.35 (-9.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	34.45	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	30.24	$kWh/m^2/yr$	
	-4.2 (-12.2%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.83 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.64 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.83 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0208	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 208, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	83 B	DER	23.08	TER	25.43
Environmental	86 B	% DER<TER	9.24		
CO_2 Emissions (t/year)	0.94	DFEE	30.24	TFEE	34.45
General Requirements Compliance	Pass	% DFEE<TFEE	12.22		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	25.43	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.08	$kgCO_2/m^2$	Pass
	-2.35 (-9.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	34.45	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	30.24	$kWh/m^2/yr$	
	-4.2 (-12.2%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.83 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North East	7.64 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.83 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0209	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 209, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	26.89	**TER**	28.68
Environmental	84 B	**% DER<TER**	6.23		
CO_2 Emissions (t/year)	1.07	**DFEE**	39.23	**TFEE**	45.32
General Requirements Compliance	Pass	**% DFEE<TFEE**	13.43		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	31.24	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	15.50	7.86

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	56.00

11.0 Heat Loss Floors

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Exposed Floor	Exposed Floor - Solid		0.13	49.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (ne)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.64	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging — Calculate Bridges

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.05	0.300	No
Table K1 - Approved	E3 Sill	2.05	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Default	E20 Exposed floor (normal)	6.20	0.320	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No
Table K1 - Default	P7 Party Wall - Exposed floor (normal)	22.40	0.160	No

Y-value	0.126	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.11	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0

Number of passive vents		0
Number of flueless gas fires		0
21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0209	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 209, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	26.89	**TER**	28.68
Environmental	84 B	**% DER<TER**	6.23		
CO_2 Emissions (t/year)	1.07	**DFEE**	39.23	**TFEE**	45.32
General Requirements Compliance	Pass	**% DFEE<TFEE**	13.43		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	28.68	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	26.89	$kgCO_2/m^2$	Pass
	-1.79 (-6.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	45.32	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	39.23	$kWh/m^2/yr$	
	-6.1 (-13.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.11 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North East	7.64 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.11 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0209	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 209, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	DER	26.89	TER	28.68
Environmental	84 B	% DER<TER	6.23		
CO_2 Emissions (t/year)	1.07	DFEE	39.23	TFEE	45.32
General Requirements Compliance	Pass	% DFEE<TFEE	13.43		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	28.68	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	26.89	$kgCO_2/m^2$	Pass
	-1.79 (-6.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	45.32	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	39.23	$kWh/m^2/yr$	
	-6.1 (-13.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.11 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North East	7.64 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.11 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0210	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 210, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	77 C	**DER**	28.24	**TER**	27.58
Environmental	80 C	**% DER<TER**	-2.38		
CO_2 Emissions (t/year)	1.71	**DFEE**	46.78	**TFEE**	53.63
General Requirements Compliance	Fail	**% DFEE<TFEE**	12.78		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	73.00 m²	2.50 m

7.0 Living Area	37.31	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	60.47	42.65

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	39.75

11.0 Heat Loss Floors

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Exposed Floor	Exposed Floor - Solid		0.13	73.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (ne)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					5.10	50
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					10.17	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					2.55	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	7.13	0.300	No
Table K1 - Approved	E3 Sill	7.13	0.040	No
Table K1 - Approved	E4 Jamb	30.00	0.050	No
Table K1 - Default	E20 Exposed floor (normal)	24.19	0.320	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	24.19	0.070	No
Table K1 - Approved	E16 Corner (normal)	5.00	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.90	0.000	No
Table K1 - Default	P7 Party Wall - Exposed floor (normal)	15.90	0.160	No

Y-value	0.127	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	2.92	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43

Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	

Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0210	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 210, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	77 C	**DER**	28.24	**TER**	27.58
Environmental	80 C	**% DER<TER**	-2.38		
CO_2 Emissions (t/year)	1.71	**DFEE**	46.78	**TFEE**	53.63
General Requirements Compliance	Fail	**% DFEE<TFEE**	12.78		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	27.58	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	28.24	$kgCO_2/m^2$	
Excess emissions	0.66 (2.4%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	53.63	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	46.78	$kWh/m^2/yr$	
	-6.8 (-12.7%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.92 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North East Windows facing South East Windows facing South West	5.10 m², No overhang 10.17 m², No overhang 2.55 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.92 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	2.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0210	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 210, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	77 C	DER	28.24	TER	27.58
Environmental	80 C	% DER<TER	-2.38		
CO_2 Emissions (t/year)	1.71	DFEE	46.78	TFEE	53.63
General Requirements Compliance	Fail	% DFEE<TFEE	12.78		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	27.58	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	28.24	$kgCO_2/m^2$	
Excess emissions	0.66 (2.4%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	53.63	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	46.78	$kWh/m^2/yr$	
	-6.8 (-12.7%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.92 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East Windows facing South East Windows facing South West	5.10 m², No overhang 10.17 m², No overhang 2.55 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.92 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	2.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0211	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 211, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	27.34	**TER**	26.70
Environmental	84 B	**% DER<TER**	-2.38		
CO_2 Emissions (t/year)	1.09	**DFEE**	38.77	**TFEE**	38.85
General Requirements Compliance	Fail	**% DFEE<TFEE**	0.20		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	30.32	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	17.50	8.75

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	53.27

11.0 Heat Loss Floors

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Exposed Floor	Exposed Floor - Solid		0.13	49.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	1.02	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Default	E20 Exposed floor (normal)	7.00	0.320	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No
Table K1 - Default	P7 Party Wall - Exposed floor (normal)	21.31	0.160	No

Y-value	0.125	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.75	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0

Number of passive vents		0
Number of flueless gas fires		0
21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0211	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 211, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	27.34	**TER**	26.70
Environmental	84 B	**% DER<TER**	-2.38		
CO_2 Emissions (t/year)	1.09	**DFEE**	38.77	**TFEE**	38.85
General Requirements Compliance	Fail	**% DFEE<TFEE**	0.20		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	26.70	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	27.34	$kgCO_2/m^2$	
Excess emissions	0.64 (2.4%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.85	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	38.77	$kWh/m^2/yr$	
	0.0 (0.0%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.75 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South East	8.75 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.75 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0211	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 211, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	DER	27.34	TER	26.70
Environmental	84 B	% DER<TER	-2.38		
CO_2 Emissions (t/year)	1.09	DFEE	38.77	TFEE	38.85
General Requirements Compliance	Fail	% DFEE<TFEE	0.20		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	26.70	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	27.34	$kgCO_2/m^2$	
Excess emissions	0.64 (2.4%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.85	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	38.77	$kWh/m^2/yr$	
	0.0 (0.0%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.75 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South East	8.75 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.75 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0212	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 212, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	23.57	**TER**	23.61
Environmental	84 B	**% DER<TER**	0.15		
CO_2 Emissions (t/year)	1.29	**DFEE**	35.75	**TFEE**	37.14
General Requirements Compliance	Pass	**% DFEE<TFEE**	3.74		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	16.12

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

11.0 Heat Loss Floors

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Exposed Floor	Exposed Floor - Solid		0.13	69.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	1.02	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Default	E20 Exposed floor (normal)	9.95	0.320	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P7 Party Wall - Exposed floor (normal)	24.26	0.160	No

Y-value	0.106	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.11	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0

Number of passive vents		0
Number of flueless gas fires		0
21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0212	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 212, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	23.57	**TER**	23.61
Environmental	84 B	**% DER<TER**	0.15		
CO_2 Emissions (t/year)	1.29	**DFEE**	35.75	**TFEE**	37.14
General Requirements Compliance	Pass	**% DFEE<TFEE**	3.74		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.61	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.57	$kgCO_2/m^2$	Pass
	-0.04 (-0.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.14	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	35.75	$kWh/m^2/yr$	
	-1.3 (-3.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.11 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.11 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0212	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 212, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	DER	23.57	TER	23.61
Environmental	84 B	% DER<TER	0.15		
CO_2 Emissions (t/year)	1.29	DFEE	35.75	TFEE	37.14
General Requirements Compliance	Pass	% DFEE<TFEE	3.74		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.61	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.57	$kgCO_2/m^2$	Pass
	-0.04 (-0.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.14	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	35.75	$kWh/m^2/yr$	
	-1.3 (-3.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.11 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South East	8.75 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.11 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0213	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 213, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	23.58	**TER**	23.61
Environmental	84 B	**% DER<TER**	0.11		
CO_2 Emissions (t/year)	1.29	**DFEE**	35.79	**TFEE**	37.14
General Requirements Compliance	Pass	**% DFEE<TFEE**	3.65		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	16.12

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

11.0 Heat Loss Floors

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Exposed Floor	Exposed Floor - Solid		0.13	69.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	1.02	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Default	E20 Exposed floor (normal)	9.95	0.320	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P7 Party Wall - Exposed floor (normal)	24.26	0.160	No

Y-value	0.106	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.17	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0

Number of passive vents		0
Number of flueless gas fires		0
21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0213	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 213, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	23.58	**TER**	23.61
Environmental	84 B	**% DER<TER**	0.11		
CO_2 Emissions (t/year)	1.29	**DFEE**	35.79	**TFEE**	37.14
General Requirements Compliance	Pass	**% DFEE<TFEE**	3.65		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.61	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.58	$kgCO_2/m^2$	Pass
	-0.03 (-0.1%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.14	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	35.79	$kWh/m^2/yr$	
	-1.3 (-3.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.17 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.17 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.2	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0213	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 213, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	DER	23.58	TER	23.61
Environmental	84 B	% DER<TER	0.11		
CO_2 Emissions (t/year)	1.29	DFEE	35.79	TFEE	37.14
General Requirements Compliance	Pass	% DFEE<TFEE	3.65		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.61	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.58	$kgCO_2/m^2$	Pass
	-0.03 (-0.1%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.14	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	35.79	$kWh/m^2/yr$	
	-1.3 (-3.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.17 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South East	8.75 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.17 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.2	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0214	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 214, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	**DER**	23.33	**TER**	23.61
Environmental	84 B	**% DER<TER**	1.17		
CO_2 Emissions (t/year)	1.28	**DFEE**	35.66	**TFEE**	37.14
General Requirements Compliance	Pass	**% DFEE<TFEE**	3.98		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	16.12

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

11.0 Heat Loss Floors

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Exposed Floor	Exposed Floor - Solid		0.13	69.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	1.02	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Default	E20 Exposed floor (normal)	9.95	0.320	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P7 Party Wall - Exposed floor (normal)	24.26	0.160	No

Y-value	0.106	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	2.96	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0

Number of passive vents		0
Number of flueless gas fires		0
21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0214	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 214, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	**DER**	23.33	**TER**	23.61
Environmental	84 B	**% DER<TER**	1.17		
CO_2 Emissions (t/year)	1.28	**DFEE**	35.66	**TFEE**	37.14
General Requirements Compliance	Pass	**% DFEE<TFEE**	3.98		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.61	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.33	$kgCO_2/m^2$	Pass
	-0.28 (-1.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.14	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	35.66	$kWh/m^2/yr$	
	-1.4 (-3.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.96 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing South East	8.75 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.96 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0214	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 214, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	DER	23.33	TER	23.61
Environmental	84 B	% DER<TER	1.17		
CO_2 Emissions (t/year)	1.28	DFEE	35.66	TFEE	37.14
General Requirements Compliance	Pass	% DFEE<TFEE	3.98		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.61	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.33	$kgCO_2/m^2$	Pass
	-0.28 (-1.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.14	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	35.66	$kWh/m^2/yr$	
	-1.4 (-3.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.96 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South East	8.75 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.96 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0215	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 215, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	27.11	**TER**	26.70
Environmental	84 B	**% DER<TER**	-1.52		
CO_2 Emissions (t/year)	1.09	**DFEE**	38.62	**TFEE**	38.85
General Requirements Compliance	Fail	**% DFEE<TFEE**	0.58		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	30.32	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	17.50	8.75

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	53.27

11.0 Heat Loss Floors

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Exposed Floor	Exposed Floor - Solid		0.13	49.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	1.02	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Default	E20 Exposed floor (normal)	7.00	0.320	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No
Table K1 - Default	P7 Party Wall - Exposed floor (normal)	21.31	0.160	No

Y-value	0.125	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.55	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0

Number of passive vents		0
Number of flueless gas fires		0
21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0215	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 215, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	27.11	**TER**	26.70
Environmental	84 B	**% DER<TER**	-1.52		
CO_2 Emissions (t/year)	1.09	**DFEE**	38.62	**TFEE**	38.85
General Requirements Compliance	Fail	**% DFEE<TFEE**	0.58		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	26.70	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	27.11	$kgCO_2/m^2$	
Excess emissions	0.41 (1.5%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.85	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	38.62	$kWh/m^2/yr$	
	-0.2 (-0.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.55 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.55 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0215	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 215, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	DER	27.11	TER	26.70
Environmental	84 B	% DER<TER	-1.52		
CO_2 Emissions (t/year)	1.09	DFEE	38.62	TFEE	38.85
General Requirements Compliance	Fail	% DFEE<TFEE	0.58		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	26.70	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	27.11	$kgCO_2/m^2$	
Excess emissions	0.41 (1.5%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.85	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	38.62	$kWh/m^2/yr$	
	-0.2 (-0.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.55 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South East	8.75 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.55 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0216	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 216, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	76 C	**DER**	33.54	**TER**	31.03
Environmental	80 C	**% DER<TER**	-8.09		
CO_2 Emissions (t/year)	1.37	**DFEE**	52.27	**TFEE**	54.83
General Requirements Compliance	Fail	**% DFEE<TFEE**	4.68		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	50.00 m²	2.50 m

7.0 Living Area	32.27	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	34.32	21.67

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	41.22

11.0 Heat Loss Floors

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Exposed Floor	Exposed Floor - Solid		0.13	50.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					5.10	50
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.55	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	5.06	0.300	No
Table K1 - Approved	E3 Sill	4.06	0.040	No
Table K1 - Approved	E4 Jamb	20.00	0.050	No
Table K1 - Default	E20 Exposed floor (normal)	13.73	0.320	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	13.73	0.070	No
Table K1 - Approved	E16 Corner (normal)	5.00	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	12.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	16.49	0.000	No
Table K1 - Default	P7 Party Wall - Exposed floor (normal)	16.49	0.160	No

Y-value	0.141	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.03	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	

Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0216	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 216, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	76 C	**DER**	33.54	**TER**	31.03
Environmental	80 C	**% DER<TER**	-8.09		
CO_2 Emissions (t/year)	1.37	**DFEE**	52.27	**TFEE**	54.83
General Requirements Compliance	Fail	**% DFEE<TFEE**	4.68		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	31.03	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	33.54	$kgCO_2/m^2$	
Excess emissions	2.51 (8.1%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	54.83	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	52.27	$kWh/m^2/yr$	
	-2.5 (-4.6%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.03 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.55 m², No overhang
Windows facing South East	5.10 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.03 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0216	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 216, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	76 C	**DER**	33.54	**TER**	31.03
Environmental	80 C	**% DER<TER**	-8.09		
CO_2 Emissions (t/year)	1.37	**DFEE**	52.27	**TFEE**	54.83
General Requirements Compliance	Fail	**% DFEE<TFEE**	4.68		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	31.03	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	33.54	$kgCO_2/m^2$	
Excess emissions	2.51 (8.1%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	54.83	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	52.27	$kWh/m^2/yr$	
	-2.5 (-4.6%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.03 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.55 m², No overhang
Windows facing South East	5.10 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.03 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0217	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 217, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	76 C	**DER**	33.23	**TER**	29.50
Environmental	80 C	**% DER<TER**	-12.64		
CO_2 Emissions (t/year)	1.35	**DFEE**	49.97	**TFEE**	49.33
General Requirements Compliance	Fail	**% DFEE<TFEE**	-1.30		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.50 m²	2.50 m

7.0 Living Area	34.00	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	37.45	24.72

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	37.50

11.0 Heat Loss Floors

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Exposed Floor	Exposed Floor - Solid		0.13	49.50

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					5.10	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					7.63	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	5.09	0.300	No
Table K1 - Approved	E3 Sill	4.09	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Default	E20 Exposed floor (normal)	14.98	0.320	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	14.98	0.070	No
Table K1 - Approved	E16 Corner (normal)	2.50	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.02	0.000	No
Table K1 - Default	P7 Party Wall - Exposed floor (normal)	15.02	0.160	No

Y-value	0.132	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.90	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	

Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0217	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 217, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	76 C	**DER**	33.23	**TER**	29.50
Environmental	80 C	**% DER<TER**	-12.64		
CO_2 Emissions (t/year)	1.35	**DFEE**	49.97	**TFEE**	49.33
General Requirements Compliance	Fail	**% DFEE<TFEE**	-1.30		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	29.50	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	33.23	$kgCO_2/m^2$	
Excess emissions	3.73 (12.6%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	49.33	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	49.97	$kWh/m^2/yr$	
Excess energy	0.7 (1.4%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.90 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South East Windows facing South West	5.10 m², No overhang 7.63 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.90 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0217	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 217, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	76 C	DER	33.23	TER	29.50
Environmental	80 C	% DER<TER	-12.64		
CO_2 Emissions (t/year)	1.35	DFEE	49.97	TFEE	49.33
General Requirements Compliance	Fail	% DFEE<TFEE	-1.30		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	29.50	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	33.23	$kgCO_2/m^2$	
Excess emissions	3.73 (12.6%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	49.33	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	49.97	$kWh/m^2/yr$	
Excess energy	0.7 (1.4%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.90 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South East	5.10 m², No overhang		
Windows facing South West	7.63 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.90 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0218	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 218, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	24.22	**TER**	23.72
Environmental	84 B	**% DER<TER**	-2.10		
CO_2 Emissions (t/year)	1.32	**DFEE**	36.87	**TFEE**	37.67
General Requirements Compliance	Fail	**% DFEE<TFEE**	2.10		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	68.00 m²	2.50 m

7.0 Living Area	32.37	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.45	14.25

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

11.0 Heat Loss Floors

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Exposed Floor	Exposed Floor - Solid		0.13	68.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (sw)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					10.20	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging — Calculate Bridges

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.08	0.300	No
Table K1 - Approved	E3 Sill	3.08	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Default	E20 Exposed floor (normal)	9.78	0.320	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.78	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P7 Party Wall - Exposed floor (normal)	24.26	0.160	No

Y-value	0.112	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.17	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0

Number of passive vents		0
Number of flueless gas fires		0
21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0218	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 218, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	24.22	**TER**	23.72
Environmental	84 B	**% DER<TER**	-2.10		
CO_2 Emissions (t/year)	1.32	**DFEE**	36.87	**TFEE**	37.67
General Requirements Compliance	Fail	**% DFEE<TFEE**	2.10		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.72	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	24.22	$kgCO_2/m^2$	
Excess emissions	0.50 (2.1%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.67	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.87	$kWh/m^2/yr$	
	-0.8 (-2.1%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.17 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing South West	10.20 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.17 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.2	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0218	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 218, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	DER	24.22	TER	23.72
Environmental	84 B	% DER<TER	-2.10		
CO_2 Emissions (t/year)	1.32	DFEE	36.87	TFEE	37.67
General Requirements Compliance	Fail	% DFEE<TFEE	2.10		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.72	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	24.22	$kgCO_2/m^2$	
Excess emissions	0.50 (2.1%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.67	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.87	$kWh/m^2/yr$	
	-0.8 (-2.1%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.17 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South West	10.20 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.17 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.2	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0301	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	3 bed
Property	Flat 301, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	22.48	**TER**	22.16
Environmental	83 B	**% DER<TER**	-1.46		
CO_2 Emissions (t/year)	1.53	**DFEE**	36.57	**TFEE**	39.19
General Requirements Compliance	Fail	**% DFEE<TFEE**	6.67		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East	
Property Tenure	Unknown	
Transaction Type	New dwelling	
Terrain Type	Urban	
1.0 Property Type	Flat, Semi-Detached	
2.0 Number of Storeys	1	
3.0 Date Built	2018	
4.0 Sheltered Sides	3	
5.0 Sunlight/Shade	Average or unknown	

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	83.50 m²	2.50 m

7.0 Living Area	38.00	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	54.00	30.02

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	47.97

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					18.90	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					5.08	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	9.59	0.300	No
Table K1 - Approved	E3 Sill	9.59	0.040	No
Table K1 - Approved	E4 Jamb	25.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	21.66	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	21.66	0.070	No
Table K1 - Approved	E16 Corner (normal)	7.50	0.090	No
Table K1 - Approved	E17 Corner (inverted – internal area greater than external area)	5.00	-0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	19.19	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	19.19	0.000	No

Y-value	0.152	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.55	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid

MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L

Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0301	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	3 bed
Property	Flat 301, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	22.48	**TER**	22.16
Environmental	83 B	**% DER<TER**	-1.46		
CO_2 Emissions (t/year)	1.53	**DFEE**	36.57	**TFEE**	39.19
General Requirements Compliance	Fail	**% DFEE<TFEE**	6.67		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.16	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	22.48	$kgCO_2/m^2$	
Excess emissions	0.32 (1.4%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.19	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.57	$kWh/m^2/yr$	
	-2.6 (-6.6%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.55 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South West Windows facing North West	5.08 m², No overhang 18.90 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.55 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0301	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	3 bed
Property	Flat 301, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	DER	22.48	TER	22.16
Environmental	83 B	% DER<TER	-1.46		
CO_2 Emissions (t/year)	1.53	DFEE	36.57	TFEE	39.19
General Requirements Compliance	Fail	% DFEE<TFEE	6.67		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.16	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	22.48	$kgCO_2/m^2$	
Excess emissions	0.32 (1.4%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.19	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.57	$kWh/m^2/yr$	
	-2.6 (-6.6%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.55 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South West	5.08 m², No overhang
Windows facing North West	18.90 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.55 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0302	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 302, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.93	**TER**	21.55
Environmental	86 B	**% DER<TER**	7.52		
CO_2 Emissions (t/year)	1.13	**DFEE**	27.53	**TFEE**	31.21
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.77		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	28.00	16.70

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	57.50

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	11.24	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	11.24	0.070	No
Table K1 - Approved	E16 Corner (normal)	2.50	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	23.00	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	23.00	0.000	No

Y-value	0.161	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.84	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0302	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 302, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.93	**TER**	21.55
Environmental	86 B	**% DER<TER**	7.52		
CO_2 Emissions (t/year)	1.13	**DFEE**	27.53	**TFEE**	31.21
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.77		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.55	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.93	$kgCO_2/m^2$	Pass
	-1.62 (-7.5%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	31.21	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	27.53	$kWh/m^2/yr$	
	-3.7 (-11.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.84 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.84 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0302	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 302, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.93	**TER**	21.55
Environmental	86 B	**% DER<TER**	7.52		
CO_2 Emissions (t/year)	1.13	**DFEE**	27.53	**TFEE**	31.21
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.77		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.55	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.93	$kgCO_2/m^2$	Pass
	-1.62 (-7.5%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	31.21	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	27.53	$kWh/m^2/yr$	
	-3.7 (-11.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.84 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.84 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0303	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 303, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.71	**TER**	21.31
Environmental	86 B	**% DER<TER**	7.52		
CO_2 Emissions (t/year)	1.12	**DFEE**	26.92	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.47		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.171	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.93	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0303	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 303, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.71	**TER**	21.31
Environmental	86 B	**% DER<TER**	7.52		
CO_2 Emissions (t/year)	1.12	**DFEE**	26.92	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.47		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.71	$kgCO_2/m^2$	Pass
	-1.60 (-7.5%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.92	$kWh/m^2/yr$	
	-3.5 (-11.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.93 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.93 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0303	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 303, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.71	**TER**	21.31
Environmental	86 B	**% DER<TER**	7.52		
CO_2 Emissions (t/year)	1.12	**DFEE**	26.92	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.47		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.71	$kgCO_2/m^2$	Pass
	-1.60 (-7.5%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.92	$kWh/m^2/yr$	
	-3.5 (-11.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.93 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.93 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0304	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 304, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.64	**TER**	21.31
Environmental	86 B	**% DER<TER**	7.85		
CO_2 Emissions (t/year)	1.12	**DFEE**	26.88	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.62		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.171	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.86	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0304	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 304, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.64	**TER**	21.31
Environmental	86 B	**% DER<TER**	7.85		
CO_2 Emissions (t/year)	1.12	**DFEE**	26.88	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.62		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.64	$kgCO_2/m^2$	Pass
	-1.67 (-7.8%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.88	$kWh/m^2/yr$	
	-3.5 (-11.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.86 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.86 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0304	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 304, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	DER	19.64	TER	21.31
Environmental	86 B	% DER<TER	7.85		
CO_2 Emissions (t/year)	1.12	DFEE	26.88	TFEE	30.41
General Requirements Compliance	Pass	% DFEE<TFEE	11.62		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.64	$kgCO_2/m^2$	Pass
	-1.67 (-7.8%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.88	$kWh/m^2/yr$	
	-3.5 (-11.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.86 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.86 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0305	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 305, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.51	**TER**	21.31
Environmental	86 B	**% DER<TER**	8.46		
CO_2 Emissions (t/year)	1.11	**DFEE**	26.79	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.90		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.171	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.73	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0305	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 305, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.51	**TER**	21.31
Environmental	86 B	**% DER<TER**	8.46		
CO_2 Emissions (t/year)	1.11	**DFEE**	26.79	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.90		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.51	$kgCO_2/m^2$	Pass
	-1.80 (-8.4%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.79	$kWh/m^2/yr$	
	-3.6 (-11.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.73 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.73 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0305	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 305, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.51	**TER**	21.31
Environmental	86 B	**% DER<TER**	8.46		
CO_2 Emissions (t/year)	1.11	**DFEE**	26.79	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.90		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.51	$kgCO_2/m^2$	Pass
	-1.80 (-8.4%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.79	$kWh/m^2/yr$	
	-3.6 (-11.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.73 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.73 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0306	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 306, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	18.97	**TER**	21.31
Environmental	87 B	**% DER<TER**	10.99		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.47	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.97		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.171	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.19	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0306	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 306, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	18.97	**TER**	21.31
Environmental	87 B	**% DER<TER**	10.99		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.47	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.97		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.97	$kgCO_2/m^2$	Pass
	-2.34 (-11.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.47	$kWh/m^2/yr$	
	-3.9 (-12.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.19 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.19 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.2	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0306	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 306, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	DER	18.97	TER	21.31
Environmental	87 B	% DER<TER	10.99		
CO_2 Emissions (t/year)	1.10	DFEE	26.47	TFEE	30.41
General Requirements Compliance	Pass	% DFEE<TFEE	12.97		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.97	$kgCO_2/m^2$	Pass
	-2.34 (-11.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.47	$kWh/m^2/yr$	
	-3.9 (-12.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.19 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.19 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.2	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0307	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 307, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	80 C	**DER**	24.40	**TER**	23.98
Environmental	83 B	**% DER<TER**	-1.75		
CO_2 Emissions (t/year)	1.36	**DFEE**	37.20	**TFEE**	40.54
General Requirements Compliance	Fail	**% DFEE<TFEE**	8.23		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	42.87	23.95

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	42.87

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.62	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	7.57	0.300	No
Table K1 - Approved	E3 Sill	6.67	0.040	No
Table K1 - Approved	E4 Jamb	25.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	17.15	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	17.15	0.070	No
Table K1 - Approved	E16 Corner (normal)	2.50	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	17.15	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	17.15	0.000	No

Y-value	0.160	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.62	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day

32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0307	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 307, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	80 C	**DER**	24.40	**TER**	23.98
Environmental	83 B	**% DER<TER**	-1.75		
CO_2 Emissions (t/year)	1.36	**DFEE**	37.20	**TFEE**	40.54
General Requirements Compliance	Fail	**% DFEE<TFEE**	8.23		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.98	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	24.40	$kgCO_2/m^2$	
Excess emissions	0.42 (1.8%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	40.54	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	37.20	$kWh/m^2/yr$	
	-3.3 (-8.1%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.62 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North East Windows facing North West	7.62 m², No overhang 11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.62 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0307	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 307, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	80 C	DER	24.40	TER	23.98
Environmental	83 B	% DER<TER	-1.75		
CO_2 Emissions (t/year)	1.36	DFEE	37.20	TFEE	40.54
General Requirements Compliance	Fail	% DFEE<TFEE	8.23		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.98	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	24.40	$kgCO_2/m^2$	
Excess emissions	0.42 (1.8%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	40.54	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	37.20	$kWh/m^2/yr$	
	-3.3 (-8.1%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.62 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.62 m², No overhang
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.62 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0308	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 308, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	21.06	**TER**	23.86
Environmental	87 B	**% DER<TER**	11.75		
CO_2 Emissions (t/year)	0.90	**DFEE**	25.57	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.12		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	31.24	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	15.50	7.86

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	56.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (ne)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.64	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.05	0.300	No
Table K1 - Approved	E3 Sill	2.05	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No

Y-value	0.191	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.86	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0308	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 308, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	21.06	**TER**	23.86
Environmental	87 B	**% DER<TER**	11.75		
CO_2 Emissions (t/year)	0.90	**DFEE**	25.57	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.12		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.86	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	21.06	$kgCO_2/m^2$	Pass
	-2.80 (-11.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.10	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	25.57	$kWh/m^2/yr$	
	-3.5 (-12.0%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.86 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average	
Windows facing North East	7.64 m², No overhang	
Air change rate	4.00 ach	
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours	

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.86 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0308	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 308, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	DER	21.06	TER	23.86
Environmental	87 B	% DER<TER	11.75		
CO_2 Emissions (t/year)	0.90	DFEE	25.57	TFEE	29.10
General Requirements Compliance	Pass	% DFEE<TFEE	12.12		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.86	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	21.06	$kgCO_2/m^2$	Pass
	-2.80 (-11.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.10	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	25.57	$kWh/m^2/yr$	
	-3.5 (-12.0%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.86 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.40	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.64 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.86 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0309	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 309, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	20.99	**TER**	23.86
Environmental	87 B	**% DER<TER**	12.05		
CO_2 Emissions (t/year)	0.90	**DFEE**	25.52	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.30		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	31.24	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	15.50	7.86

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	56.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (ne)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.64	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.05	0.300	No
Table K1 - Approved	E3 Sill	2.05	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No

Y-value	0.191	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.79	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0309	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 309, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	20.99	**TER**	23.86
Environmental	87 B	**% DER<TER**	12.05		
CO_2 Emissions (t/year)	0.90	**DFEE**	25.52	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.30		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.86	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.99	$kgCO_2/m^2$	Pass
	-2.87 (-12.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.10	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	25.52	$kWh/m^2/yr$	
	-3.6 (-12.4%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.79 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.64 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.79 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0309	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 309, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	20.99	**TER**	23.86
Environmental	87 B	**% DER<TER**	12.05		
CO_2 Emissions (t/year)	0.90	**DFEE**	25.52	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.30		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.86	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.99	$kgCO_2/m^2$	Pass
	-2.87 (-12.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.10	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	25.52	$kWh/m^2/yr$	
	-3.6 (-12.4%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.79 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.64 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.79 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0310	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 310, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	**DER**	21.39	**TER**	22.80
Environmental	85 B	**% DER<TER**	6.16		
CO_2 Emissions (t/year)	1.31	**DFEE**	32.96	**TFEE**	37.89
General Requirements Compliance	Pass	**% DFEE<TFEE**	13.02		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	73.00 m²	2.50 m

7.0 Living Area	37.31	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	60.47	42.65

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	39.75

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (ne)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					5.10	50
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					10.17	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					2.55	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	7.13	0.300	No
Table K1 - Approved	E3 Sill	7.13	0.040	No
Table K1 - Approved	E4 Jamb	30.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	24.19	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	24.19	0.070	No
Table K1 - Approved	E16 Corner (normal)	5.00	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.90	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.90	0.000	No

Y-value	0.138	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	2.93	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes

Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	

Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0310	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 310, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	**DER**	21.39	**TER**	22.80
Environmental	85 B	**% DER<TER**	6.16		
CO_2 Emissions (t/year)	1.31	**DFEE**	32.96	**TFEE**	37.89
General Requirements Compliance	Pass	**% DFEE<TFEE**	13.02		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.80	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	21.39	$kgCO_2/m^2$	Pass
	-1.41 (-6.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.89	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	32.96	$kWh/m^2/yr$	
	-4.9 (-12.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.93 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	5.10 m², No overhang
Windows facing South East	10.17 m², No overhang
Windows facing South West	2.55 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.93 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	2.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0310	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 310, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	DER	21.39	TER	22.80
Environmental	85 B	% DER<TER	6.16		
CO_2 Emissions (t/year)	1.31	DFEE	32.96	TFEE	37.89
General Requirements Compliance	Pass	% DFEE<TFEE	13.02		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.80	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	21.39	$kgCO_2/m^2$	Pass
	-1.41 (-6.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.89	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	32.96	$kWh/m^2/yr$	
	-4.9 (-12.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.93 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East Windows facing South East Windows facing South West	5.10 m², No overhang 10.17 m², No overhang 2.55 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.93 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	2.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0311	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 311, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	20.72	**TER**	22.44
Environmental	87 B	**% DER<TER**	7.68		
CO_2 Emissions (t/year)	0.90	**DFEE**	24.50	**TFEE**	22.56
General Requirements Compliance	Fail	**% DFEE<TFEE**	-8.60		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	30.32	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	17.50	8.75

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	53.27

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	3.50	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No

Y-value	0.187	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.59	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0311	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 311, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	20.72	**TER**	22.44
Environmental	87 B	**% DER<TER**	7.68		
CO_2 Emissions (t/year)	0.90	**DFEE**	24.50	**TFEE**	22.56
General Requirements Compliance	Fail	**% DFEE<TFEE**	-8.60		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.44	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.72	$kgCO_2/m^2$	Pass
	-1.72 (-7.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	22.56	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.50	$kWh/m^2/yr$	
Excess energy	1.9 (8.4%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.59 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.59 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0311	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 311, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	DER	20.72	TER	22.44
Environmental	87 B	% DER<TER	7.68		
CO_2 Emissions (t/year)	0.90	DFEE	24.50	TFEE	22.56
General Requirements Compliance	Fail	% DFEE<TFEE	-8.60		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.44	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.72	$kgCO_2/m^2$	Pass
	-1.72 (-7.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	22.56	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.50	$kWh/m^2/yr$	
Excess energy	1.9 (8.4%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.59 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.40	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.59 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0312	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 312, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	17.42	**TER**	19.33
Environmental	87 B	**% DER<TER**	9.86		
CO_2 Emissions (t/year)	1.07	**DFEE**	22.11	**TFEE**	21.44
General Requirements Compliance	Fail	**% DFEE<TFEE**	-3.11		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	16.12

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	3.50	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.148	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.12	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0312	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 312, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	17.42	**TER**	19.33
Environmental	87 B	**% DER<TER**	9.86		
CO_2 Emissions (t/year)	1.07	**DFEE**	22.11	**TFEE**	21.44
General Requirements Compliance	Fail	**% DFEE<TFEE**	-3.11		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.33	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	17.42	$kgCO_2/m^2$	Pass
	-1.91 (-9.9%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	21.44	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	22.11	$kWh/m^2/yr$	
Excess energy	0.7 (3.3%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.12 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.12 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0312	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 312, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	DER	17.42	TER	19.33
Environmental	87 B	% DER<TER	9.86		
CO_2 Emissions (t/year)	1.07	DFEE	22.11	TFEE	21.44
General Requirements Compliance	Fail	% DFEE<TFEE	-3.11		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.33	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	17.42	$kgCO_2/m^2$	Pass
	-1.91 (-9.9%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	21.44	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	22.11	$kWh/m^2/yr$	
Excess energy	0.7 (3.3%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.12 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.12 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0313	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 313, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	18.16	**TER**	19.40
Environmental	87 B	**% DER<TER**	6.41		
CO_2 Emissions (t/year)	1.08	**DFEE**	23.93	**TFEE**	23.68
General Requirements Compliance	Fail	**% DFEE<TFEE**	-1.05		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	4.52	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.172	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.20	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0313	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 313, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	18.16	**TER**	19.40
Environmental	87 B	**% DER<TER**	6.41		
CO_2 Emissions (t/year)	1.08	**DFEE**	23.93	**TFEE**	23.68
General Requirements Compliance	Fail	**% DFEE<TFEE**	-1.05		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.40	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.16	$kgCO_2/m^2$	Pass
	-1.24 (-6.4%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.68	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.93	$kWh/m^2/yr$	
Excess energy	0.2 (0.8%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.20 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing South East	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.20 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.2	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0313	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 313, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	DER	18.16	TER	19.40
Environmental	87 B	% DER<TER	6.41		
CO_2 Emissions (t/year)	1.08	DFEE	23.93	TFEE	23.68
General Requirements Compliance	Fail	% DFEE<TFEE	-1.05		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.40	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.16	$kgCO_2/m^2$	Pass
	-1.24 (-6.4%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.68	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.93	$kWh/m^2/yr$	
Excess energy	0.2 (0.8%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.20 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.20 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.2	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0314	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 314, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	18.09	**TER**	19.40
Environmental	87 B	**% DER<TER**	6.77		
CO_2 Emissions (t/year)	1.08	**DFEE**	23.89	**TFEE**	23.68
General Requirements Compliance	Fail	**% DFEE<TFEE**	-0.85		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	4.52	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.172	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.12	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0314	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 314, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	18.09	**TER**	19.40
Environmental	87 B	**% DER<TER**	6.77		
CO_2 Emissions (t/year)	1.08	**DFEE**	23.89	**TFEE**	23.68
General Requirements Compliance	Fail	**% DFEE<TFEE**	-0.85		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.40	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.09	$kgCO_2/m^2$	Pass
	-1.31 (-6.8%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.68	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.89	$kWh/m^2/yr$	
Excess energy	0.2 (0.8%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.12 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing South East	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.12 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0314	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 314, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	DER	18.09	TER	19.40
Environmental	87 B	% DER<TER	6.77		
CO_2 Emissions (t/year)	1.08	DFEE	23.89	TFEE	23.68
General Requirements Compliance	Fail	% DFEE<TFEE	-0.85		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.40	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.09	$kgCO_2/m^2$	Pass
	-1.31 (-6.8%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.68	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.89	$kWh/m^2/yr$	
Excess energy	0.2 (0.8%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.12 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.12 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0315	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 315, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	20.77	**TER**	22.44
Environmental	87 B	**% DER<TER**	7.46		
CO_2 Emissions (t/year)	0.90	**DFEE**	24.54	**TFEE**	22.56
General Requirements Compliance	Fail	**% DFEE<TFEE**	-8.79		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	30.32	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	17.50	8.75

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	53.27

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	3.50	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No

Y-value	0.187	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.65	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0315	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 315, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	20.77	**TER**	22.44
Environmental	87 B	**% DER<TER**	7.46		
CO_2 Emissions (t/year)	0.90	**DFEE**	24.54	**TFEE**	22.56
General Requirements Compliance	Fail	**% DFEE<TFEE**	-8.79		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.44	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.77	$kgCO_2/m^2$	Pass
	-1.67 (-7.4%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	22.56	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.54	$kWh/m^2/yr$	
Excess energy	1.9 (8.4%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.65 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.65 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0315	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 315, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	DER	20.77	TER	22.44
Environmental	87 B	% DER<TER	7.46		
CO_2 Emissions (t/year)	0.90	DFEE	24.54	TFEE	22.56
General Requirements Compliance	Fail	% DFEE<TFEE	-8.79		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.44	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.77	$kgCO_2/m^2$	Pass
	-1.67 (-7.4%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	22.56	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.54	$kWh/m^2/yr$	
Excess energy	1.9 (8.4%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.65 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.65 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0316	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 316, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	26.18	**TER**	26.07
Environmental	84 B	**% DER<TER**	-0.44		
CO_2 Emissions (t/year)	1.07	**DFEE**	37.35	**TFEE**	38.42
General Requirements Compliance	Fail	**% DFEE<TFEE**	2.77		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South West	
Property Tenure	Unknown	
Transaction Type	New dwelling	
Terrain Type	Urban	
1.0 Property Type	Flat, Semi-Detached	
2.0 Number of Storeys	1	
3.0 Date Built	2018	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	50.00 m²	2.50 m

7.0 Living Area	32.27	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	34.32	21.67

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	41.22

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					5.10	50
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.55	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	5.06	0.300	No
Table K1 - Approved	E3 Sill	4.06	0.040	No
Table K1 - Approved	E4 Jamb	20.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	13.73	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	13.73	0.070	No
Table K1 - Approved	E16 Corner (normal)	5.00	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	12.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	16.49	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	16.49	0.000	No

Y-value	0.169	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.38	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day

32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0316	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 316, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	26.18	**TER**	26.07
Environmental	84 B	**% DER<TER**	-0.44		
CO_2 Emissions (t/year)	1.07	**DFEE**	37.35	**TFEE**	38.42
General Requirements Compliance	Fail	**% DFEE<TFEE**	2.77		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	26.07	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	26.18	$kgCO_2/m^2$	
Excess emissions	0.11 (0.4%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.42	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	37.35	$kWh/m^2/yr$	
	-1.1 (-2.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.38 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North East Windows facing South East	7.55 m², No overhang 5.10 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.38 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0316	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 316, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	DER	26.18	TER	26.07
Environmental	84 B	% DER<TER	-0.44		
CO_2 Emissions (t/year)	1.07	DFEE	37.35	TFEE	38.42
General Requirements Compliance	Fail	% DFEE<TFEE	2.77		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	26.07	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	26.18	$kgCO_2/m^2$	
Excess emissions	0.11 (0.4%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.42	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	37.35	$kWh/m^2/yr$	
	-1.1 (-2.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.38 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.40	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.55 m², No overhang
Windows facing South East	5.10 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.38 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0317	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 317, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	**DER**	25.20	**TER**	24.71
Environmental	85 B	**% DER<TER**	-1.97		
CO_2 Emissions (t/year)	1.04	**DFEE**	34.51	**TFEE**	33.35
General Requirements Compliance	Fail	**% DFEE<TFEE**	-3.47		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.50 m²	2.50 m

7.0 Living Area	34.00	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	37.45	24.72

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	37.50

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					5.10	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					7.63	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	5.09	0.300	No
Table K1 - Approved	E3 Sill	4.09	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	14.98	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	14.98	0.070	No
Table K1 - Approved	E16 Corner (normal)	2.50	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.02	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.02	0.000	No

Y-value	0.143	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.60	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day

32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0317	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 317, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	**DER**	25.20	**TER**	24.71
Environmental	85 B	**% DER<TER**	-1.97		
CO_2 Emissions (t/year)	1.04	**DFEE**	34.51	**TFEE**	33.35
General Requirements Compliance	Fail	**% DFEE<TFEE**	-3.47		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	24.71	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	25.20	$kgCO_2/m^2$	
Excess emissions	0.49 (2.0%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	33.35	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	34.51	$kWh/m^2/yr$	
Excess energy	1.2 (3.6%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.60 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South East Windows facing South West	5.10 m², No overhang 7.63 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.60 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0317	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 317, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	DER	25.20	TER	24.71
Environmental	85 B	% DER<TER	-1.97		
CO_2 Emissions (t/year)	1.04	DFEE	34.51	TFEE	33.35
General Requirements Compliance	Fail	% DFEE<TFEE	-3.47		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	24.71	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	25.20	$kgCO_2/m^2$	
Excess emissions	0.49 (2.0%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	33.35	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	34.51	$kWh/m^2/yr$	
Excess energy	1.2 (3.6%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.60 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.40	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	5.10 m², No overhang
Windows facing South West	7.63 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.60 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0318	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 318, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	17.88	**TER**	19.49
Environmental	87 B	**% DER<TER**	8.24		
CO_2 Emissions (t/year)	1.07	**DFEE**	23.21	**TFEE**	23.27
General Requirements Compliance	Pass	**% DFEE<TFEE**	0.25		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	68.00 m²	2.50 m

7.0 Living Area	32.37	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.45	14.25

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (sw)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					10.20	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.08	0.300	No
Table K1 - Approved	E3 Sill	3.08	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.78	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.78	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.166	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.07	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0318	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 318, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	17.88	**TER**	19.49
Environmental	87 B	**% DER<TER**	8.24		
CO_2 Emissions (t/year)	1.07	**DFEE**	23.21	**TFEE**	23.27
General Requirements Compliance	Pass	**% DFEE<TFEE**	0.25		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.49	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	17.88	$kgCO_2/m^2$	Pass
	-1.61 (-8.3%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.27	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.21	$kWh/m^2/yr$	
	-0.1 (-0.4%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.07 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing South West	10.20 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.07 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0318	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 318, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	DER	17.88	TER	19.49
Environmental	87 B	% DER<TER	8.24		
CO_2 Emissions (t/year)	1.07	DFEE	23.21	TFEE	23.27
General Requirements Compliance	Pass	% DFEE<TFEE	0.25		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.49	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	17.88	$kgCO_2/m^2$	Pass
	-1.61 (-8.3%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.27	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.21	$kWh/m^2/yr$	
	-0.1 (-0.4%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.07 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South West	10.20 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.07 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0401	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	3 bed
Property	Flat 401, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	22.39	**TER**	22.11
Environmental	83 B	**% DER<TER**	-1.25		
CO_2 Emissions (t/year)	1.52	**DFEE**	36.45	**TFEE**	39.04
General Requirements Compliance	Fail	**% DFEE<TFEE**	6.64		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East	
Property Tenure	Unknown	
Transaction Type	New dwelling	
Terrain Type	Urban	
1.0 Property Type	Flat, Semi-Detached	
2.0 Number of Storeys	1	
3.0 Date Built	2018	
4.0 Sheltered Sides	3	
5.0 Sunlight/Shade	Average or unknown	

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	83.50 m²	2.50 m

7.0 Living Area	38.00	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	54.00	30.02

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	47.97

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					18.90	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					5.08	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	9.59	0.300	No
Table K1 - Approved	E3 Sill	5.87	0.040	No
Table K1 - Approved	E4 Jamb	25.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	21.66	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	21.66	0.070	No
Table K1 - Approved	E16 Corner (normal)	7.50	0.090	No
Table K1 - Approved	E17 Corner (inverted – internal area greater than external area)	5.00	-0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	19.19	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	19.19	0.000	No

Y-value	0.149	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.51	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid

MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L

Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0401	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	3 bed
Property	Flat 401, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	22.39	**TER**	22.11
Environmental	83 B	**% DER<TER**	-1.25		
CO_2 Emissions (t/year)	1.52	**DFEE**	36.45	**TFEE**	39.04
General Requirements Compliance	Fail	**% DFEE<TFEE**	6.64		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.11	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	22.39	$kgCO_2/m^2$	
Excess emissions	0.28 (1.3%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.04	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.45	$kWh/m^2/yr$	
	-2.6 (-6.7%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.51 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South West	5.08 m², No overhang
Windows facing North West	18.90 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.51 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.5	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0401	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	3 bed
Property	Flat 401, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	DER	22.39	TER	22.11
Environmental	83 B	% DER<TER	-1.25		
CO_2 Emissions (t/year)	1.52	DFEE	36.45	TFEE	39.04
General Requirements Compliance	Fail	% DFEE<TFEE	6.64		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.11	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	22.39	$kgCO_2/m^2$	
Excess emissions	0.28 (1.3%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.04	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.45	$kWh/m^2/yr$	
	-2.6 (-6.7%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.51 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South West	5.08 m², No overhang
Windows facing North West	18.90 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.51 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.5	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0402	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 402, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.48	**TER**	21.55
Environmental	86 B	**% DER<TER**	9.60		
CO_2 Emissions (t/year)	1.11	**DFEE**	27.26	**TFEE**	31.21
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.64		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	28.00	16.70

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	57.50

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	11.24	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	11.24	0.070	No
Table K1 - Approved	E16 Corner (normal)	2.50	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	23.00	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	23.00	0.000	No

Y-value	0.161	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.40	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0402	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 402, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.48	**TER**	21.55
Environmental	86 B	**% DER<TER**	9.60		
CO_2 Emissions (t/year)	1.11	**DFEE**	27.26	**TFEE**	31.21
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.64		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.55	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.48	$kgCO_2/m^2$	Pass
	-2.07 (-9.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	31.21	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	27.26	$kWh/m^2/yr$	
	-3.9 (-12.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.40 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.40 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0402	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 402, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	DER	19.48	TER	21.55
Environmental	86 B	% DER<TER	9.60		
CO_2 Emissions (t/year)	1.11	DFEE	27.26	TFEE	31.21
General Requirements Compliance	Pass	% DFEE<TFEE	12.64		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.55	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.48	$kgCO_2/m^2$	Pass
	-2.07 (-9.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	31.21	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	27.26	$kWh/m^2/yr$	
	-3.9 (-12.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.40 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.40 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0403	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 403, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.18	**TER**	21.31
Environmental	87 B	**% DER<TER**	10.00		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.59	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.56		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.171	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.40	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0403	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 403, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.18	**TER**	21.31
Environmental	87 B	**% DER<TER**	10.00		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.59	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.56		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.18	$kgCO_2/m^2$	Pass
	-2.13 (-10.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.59	$kWh/m^2/yr$	
	-3.8 (-12.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.40 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.40 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0403	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 403, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.18	**TER**	21.31
Environmental	87 B	**% DER<TER**	10.00		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.59	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.56		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.18	$kgCO_2/m^2$	Pass
	-2.13 (-10.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.59	$kWh/m^2/yr$	
	-3.8 (-12.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.40 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.40 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0404	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 404, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.17	**TER**	21.31
Environmental	87 B	**% DER<TER**	10.05		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.58	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.58		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.171	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.39	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0404	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 404, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.17	**TER**	21.31
Environmental	87 B	**% DER<TER**	10.05		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.58	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.58		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.17	$kgCO_2/m^2$	Pass
	-2.14 (-10.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.58	$kWh/m^2/yr$	
	-3.8 (-12.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.39 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.39 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0404	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 404, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.17	**TER**	21.31
Environmental	87 B	**% DER<TER**	10.05		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.58	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.58		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.17	$kgCO_2/m^2$	Pass
	-2.14 (-10.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.58	$kWh/m^2/yr$	
	-3.8 (-12.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.39 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.39 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0405	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 405, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	18.86	**TER**	21.31
Environmental	87 B	**% DER<TER**	11.51		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.40	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	13.17		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.171	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.08	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0405	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 405, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	18.86	**TER**	21.31
Environmental	87 B	**% DER<TER**	11.51		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.40	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	13.17		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.86	$kgCO_2/m^2$	Pass
	-2.45 (-11.5%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.40	$kWh/m^2/yr$	
	-4.0 (-13.2%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.08 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.08 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0405	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 405, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	18.86	**TER**	21.31
Environmental	87 B	**% DER<TER**	11.51		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.40	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	13.17		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.86	$kgCO_2/m^2$	Pass
	-2.45 (-11.5%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.40	$kWh/m^2/yr$	
	-4.0 (-13.2%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.08 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.08 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0406	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 406, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.19	**TER**	21.31
Environmental	87 B	**% DER<TER**	9.96		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.60	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.54		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.171	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.41	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0406	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 406, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.19	**TER**	21.31
Environmental	87 B	**% DER<TER**	9.96		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.60	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.54		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.19	$kgCO_2/m^2$	Pass
	-2.12 (-9.9%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.60	$kWh/m^2/yr$	
	-3.8 (-12.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.41 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.41 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0406	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 406, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.19	**TER**	21.31
Environmental	87 B	**% DER<TER**	9.96		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.60	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.54		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.19	$kgCO_2/m^2$	Pass
	-2.12 (-9.9%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.60	$kWh/m^2/yr$	
	-3.8 (-12.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.41 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.41 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0407	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 407, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	24.02	**TER**	23.98
Environmental	83 B	**% DER<TER**	-0.17		
CO_2 Emissions (t/year)	1.34	**DFEE**	36.98	**TFEE**	40.54
General Requirements Compliance	Fail	**% DFEE<TFEE**	8.78		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	42.87	23.95

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	42.87

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.62	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	7.57	0.300	No
Table K1 - Approved	E3 Sill	6.67	0.040	No
Table K1 - Approved	E4 Jamb	25.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	17.15	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	17.15	0.070	No
Table K1 - Approved	E16 Corner (normal)	2.50	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	17.15	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	17.15	0.000	No

Y-value	0.160	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.30	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day

32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0407	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 407, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	24.02	**TER**	23.98
Environmental	83 B	**% DER<TER**	-0.17		
CO_2 Emissions (t/year)	1.34	**DFEE**	36.98	**TFEE**	40.54
General Requirements Compliance	Fail	**% DFEE<TFEE**	8.78		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.98	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	24.02	$kgCO_2/m^2$	
Excess emissions	0.04 (0.2%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	40.54	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.98	$kWh/m^2/yr$	
	-3.5 (-8.6%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.30 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average	
Windows facing North East Windows facing North West	7.62 m², No overhang 11.30 m², No overhang	
Air change rate	4.00 ach	
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours	

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.30 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.3	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0407	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 407, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	DER	24.02	TER	23.98
Environmental	83 B	% DER<TER	-0.17		
CO_2 Emissions (t/year)	1.34	DFEE	36.98	TFEE	40.54
General Requirements Compliance	Fail	% DFEE<TFEE	8.78		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.98	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	24.02	$kgCO_2/m^2$	
Excess emissions	0.04 (0.2%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	40.54	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.98	$kWh/m^2/yr$	
	-3.5 (-8.6%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.30 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.62 m², No overhang
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.30 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.3	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0408	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 408, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	20.08	**TER**	23.86
Environmental	87 B	**% DER<TER**	15.86		
CO_2 Emissions (t/year)	0.89	**DFEE**	24.81	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	14.72		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	31.24	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	15.50	7.86

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	56.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (ne)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.64	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.05	0.300	No
Table K1 - Approved	E3 Sill	2.05	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No

Y-value	0.191	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	2.77	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0408	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 408, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	20.08	**TER**	23.86
Environmental	87 B	**% DER<TER**	15.86		
CO_2 Emissions (t/year)	0.89	**DFEE**	24.81	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	14.72		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.86	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.08	$kgCO_2/m^2$	Pass
	-3.78 (-15.8%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.10	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.81	$kWh/m^2/yr$	
	-4.3 (-14.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.77 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North East	7.64 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.77 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	2.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0408	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 408, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	DER	20.08	TER	23.86
Environmental	87 B	% DER<TER	15.86		
CO_2 Emissions (t/year)	0.89	DFEE	24.81	TFEE	29.10
General Requirements Compliance	Pass	% DFEE<TFEE	14.72		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.86	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.08	$kgCO_2/m^2$	Pass
	-3.78 (-15.8%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.10	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.81	$kWh/m^2/yr$	
	-4.3 (-14.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.77 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North East	7.64 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.77 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	2.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0409	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 409, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	20.29	**TER**	23.86
Environmental	87 B	**% DER<TER**	14.98		
CO_2 Emissions (t/year)	0.89	**DFEE**	24.98	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	14.16		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	31.24	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	15.50	7.86

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	56.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (ne)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.64	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.05	0.300	No
Table K1 - Approved	E3 Sill	2.05	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No

Y-value	0.191	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.02	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0409	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 409, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	20.29	**TER**	23.86
Environmental	87 B	**% DER<TER**	14.98		
CO_2 Emissions (t/year)	0.89	**DFEE**	24.98	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	14.16		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.86	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.29	$kgCO_2/m^2$	Pass
	-3.57 (-15.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.10	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.98	$kWh/m^2/yr$	
	-4.1 (-14.1%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.02 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.64 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.02 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0409	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 409, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	20.29	**TER**	23.86
Environmental	87 B	**% DER<TER**	14.98		
CO_2 Emissions (t/year)	0.89	**DFEE**	24.98	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	14.16		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.86	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.29	$kgCO_2/m^2$	Pass
	-3.57 (-15.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.10	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.98	$kWh/m^2/yr$	
	-4.1 (-14.1%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.02 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.64 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.02 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0410	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 410, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	**DER**	21.53	**TER**	22.80
Environmental	85 B	**% DER<TER**	5.55		
CO_2 Emissions (t/year)	1.31	**DFEE**	33.05	**TFEE**	37.89
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.76		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	73.00 m²	2.50 m

7.0 Living Area	37.31	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	60.47	42.65

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	39.75

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (ne)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					5.10	50
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					10.17	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					2.55	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	7.13	0.300	No
Table K1 - Approved	E3 Sill	7.13	0.040	No
Table K1 - Approved	E4 Jamb	30.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	24.19	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	24.19	0.070	No
Table K1 - Approved	E16 Corner (normal)	5.00	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.90	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.90	0.000	No

Y-value	0.138	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.06	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes

Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	

Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0410	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 410, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	**DER**	21.53	**TER**	22.80
Environmental	85 B	**% DER<TER**	5.55		
CO_2 Emissions (t/year)	1.31	**DFEE**	33.05	**TFEE**	37.89
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.76		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.80	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	21.53	$kgCO_2/m^2$	Pass
	-1.27 (-5.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.89	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	33.05	$kWh/m^2/yr$	
	-4.8 (-12.7%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.06 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North East Windows facing South East Windows facing South West	5.10 m², No overhang 10.17 m², No overhang 2.55 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.06 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0410	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 410, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	DER	21.53	TER	22.80
Environmental	85 B	% DER<TER	5.55		
CO_2 Emissions (t/year)	1.31	DFEE	33.05	TFEE	37.89
General Requirements Compliance	Pass	% DFEE<TFEE	12.76		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.80	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	21.53	$kgCO_2/m^2$	Pass
	-1.27 (-5.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.89	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	33.05	$kWh/m^2/yr$	
	-4.8 (-12.7%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.06 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East Windows facing South East Windows facing South West	5.10 m², No overhang 10.17 m², No overhang 2.55 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.06 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0411	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 411, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	20.29	**TER**	22.40
Environmental	87 B	**% DER<TER**	9.43		
CO_2 Emissions (t/year)	0.89	**DFEE**	24.06	**TFEE**	22.40
General Requirements Compliance	Fail	**% DFEE<TFEE**	-7.41		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	30.32	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	17.50	8.75

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	53.27

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	1.02	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No

Y-value	0.181	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.14	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0411	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 411, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	20.29	**TER**	22.40
Environmental	87 B	**% DER<TER**	9.43		
CO_2 Emissions (t/year)	0.89	**DFEE**	24.06	**TFEE**	22.40
General Requirements Compliance	Fail	**% DFEE<TFEE**	-7.41		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.40	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.29	$kgCO_2/m^2$	Pass
	-2.11 (-9.4%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	22.40	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.06	$kWh/m^2/yr$	
Excess energy	1.7 (7.6%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.14 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.14 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0411	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 411, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	DER	20.29	TER	22.40
Environmental	87 B	% DER<TER	9.43		
CO_2 Emissions (t/year)	0.89	DFEE	24.06	TFEE	22.40
General Requirements Compliance	Fail	% DFEE<TFEE	-7.41		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.40	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.29	$kgCO_2/m^2$	Pass
	-2.11 (-9.4%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	22.40	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.06	$kWh/m^2/yr$	
Excess energy	1.7 (7.6%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.14 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.14 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0412	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 412, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	17.46	**TER**	19.29
Environmental	87 B	**% DER<TER**	9.50		
CO_2 Emissions (t/year)	1.07	**DFEE**	22.07	**TFEE**	21.33
General Requirements Compliance	Fail	**% DFEE<TFEE**	-3.48		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	16.12

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	1.02	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.144	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.20	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0412	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 412, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	17.46	**TER**	19.29
Environmental	87 B	**% DER<TER**	9.50		
CO_2 Emissions (t/year)	1.07	**DFEE**	22.07	**TFEE**	21.33
General Requirements Compliance	Fail	**% DFEE<TFEE**	-3.48		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.29	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	17.46	$kgCO_2/m^2$	Pass
	-1.83 (-9.5%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	21.33	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	22.07	$kWh/m^2/yr$	
Excess energy	0.8 (3.8%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.20 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.20 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.2	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0412	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 412, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	DER	17.46	TER	19.29
Environmental	87 B	% DER<TER	9.50		
CO_2 Emissions (t/year)	1.07	DFEE	22.07	TFEE	21.33
General Requirements Compliance	Fail	% DFEE<TFEE	-3.48		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.29	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	17.46	$kgCO_2/m^2$	Pass
	-1.83 (-9.5%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	21.33	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	22.07	$kWh/m^2/yr$	
Excess energy	0.8 (3.8%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.20 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.20 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.2	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0413	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 413, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	18.28	**TER**	19.37
Environmental	87 B	**% DER<TER**	5.64		
CO_2 Emissions (t/year)	1.09	**DFEE**	23.95	**TFEE**	23.58
General Requirements Compliance	Fail	**% DFEE<TFEE**	-1.58		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	2.04	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.168	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.37	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0413	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 413, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	18.28	**TER**	19.37
Environmental	87 B	**% DER<TER**	5.64		
CO_2 Emissions (t/year)	1.09	**DFEE**	23.95	**TFEE**	23.58
General Requirements Compliance	Fail	**% DFEE<TFEE**	-1.58		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.37	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.28	$kgCO_2/m^2$	Pass
	-1.09 (-5.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.58	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.95	$kWh/m^2/yr$	
Excess energy	0.3 (1.3%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.37 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing South East	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.37 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0413	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 413, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	18.28	**TER**	19.37
Environmental	87 B	**% DER<TER**	5.64		
CO_2 Emissions (t/year)	1.09	**DFEE**	23.95	**TFEE**	23.58
General Requirements Compliance	Fail	**% DFEE<TFEE**	-1.58		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.37	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.28	$kgCO_2/m^2$	Pass
	-1.09 (-5.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.58	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.95	$kWh/m^2/yr$	
Excess energy	0.3 (1.3%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.37 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.37 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0414	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 414, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	18.07	**TER**	19.37
Environmental	87 B	**% DER<TER**	6.72		
CO_2 Emissions (t/year)	1.08	**DFEE**	23.81	**TFEE**	23.58
General Requirements Compliance	Fail	**% DFEE<TFEE**	-1.00		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	2.04	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.168	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.14	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0414	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 414, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	18.07	**TER**	19.37
Environmental	87 B	**% DER<TER**	6.72		
CO_2 Emissions (t/year)	1.08	**DFEE**	23.81	**TFEE**	23.58
General Requirements Compliance	Fail	**% DFEE<TFEE**	-1.00		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.37	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.07	$kgCO_2/m^2$	Pass
	-1.30 (-6.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.58	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.81	$kWh/m^2/yr$	
Excess energy	0.2 (0.8%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.14 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.14 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0414	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 414, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	DER	18.07	TER	19.37
Environmental	87 B	% DER<TER	6.72		
CO_2 Emissions (t/year)	1.08	DFEE	23.81	TFEE	23.58
General Requirements Compliance	Fail	% DFEE<TFEE	-1.00		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.37	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.07	$kgCO_2/m^2$	Pass
	-1.30 (-6.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.58	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.81	$kWh/m^2/yr$	
Excess energy	0.2 (0.8%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.14 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.14 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0415	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 415, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	20.36	**TER**	22.44
Environmental	87 B	**% DER<TER**	9.29		
CO_2 Emissions (t/year)	0.89	**DFEE**	24.21	**TFEE**	22.56
General Requirements Compliance	Fail	**% DFEE<TFEE**	-7.32		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	30.32	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	17.50	8.75

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	53.27

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	3.50	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No

Y-value	0.187	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.18	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0415	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 415, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	20.36	**TER**	22.44
Environmental	87 B	**% DER<TER**	9.29		
CO_2 Emissions (t/year)	0.89	**DFEE**	24.21	**TFEE**	22.56
General Requirements Compliance	Fail	**% DFEE<TFEE**	-7.32		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.44	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.36	$kgCO_2/m^2$	Pass
	-2.08 (-9.3%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	22.56	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.21	$kWh/m^2/yr$	
Excess energy	1.6 (7.1%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.18 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.18 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.2	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0415	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 415, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	20.36	**TER**	22.44
Environmental	87 B	**% DER<TER**	9.29		
CO_2 Emissions (t/year)	0.89	**DFEE**	24.21	**TFEE**	22.56
General Requirements Compliance	Fail	**% DFEE<TFEE**	-7.32		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.44	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.36	$kgCO_2/m^2$	Pass
	-2.08 (-9.3%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	22.56	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.21	$kWh/m^2/yr$	
Excess energy	1.6 (7.1%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.18 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.40	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.18 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.2	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0416	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 416, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	**DER**	25.37	**TER**	26.07
Environmental	85 B	**% DER<TER**	2.67		
CO_2 Emissions (t/year)	1.05	**DFEE**	36.82	**TFEE**	38.42
General Requirements Compliance	Pass	**% DFEE<TFEE**	4.15		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South West	
Property Tenure	Unknown	
Transaction Type	New dwelling	
Terrain Type	Urban	
1.0 Property Type	Flat, Semi-Detached	
2.0 Number of Storeys	1	
3.0 Date Built	2018	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	50.00 m²	2.50 m

7.0 Living Area	32.27	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	34.32	21.67

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	41.22

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					5.10	50
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.55	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	5.06	0.300	No
Table K1 - Approved	E3 Sill	4.06	0.040	No
Table K1 - Approved	E4 Jamb	20.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	13.73	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	13.73	0.070	No
Table K1 - Approved	E16 Corner (normal)	5.00	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	12.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	16.49	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	16.49	0.000	No

Y-value	0.169	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	2.72	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day

32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0416	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 416, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	**DER**	25.37	**TER**	26.07
Environmental	85 B	**% DER<TER**	2.67		
CO_2 Emissions (t/year)	1.05	**DFEE**	36.82	**TFEE**	38.42
General Requirements Compliance	Pass	**% DFEE<TFEE**	4.15		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	26.07	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	25.37	$kgCO_2/m^2$	Pass
	-0.70 (-2.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.42	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.82	$kWh/m^2/yr$	
	-1.6 (-4.2%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.72 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North East Windows facing South East	7.55 m², No overhang 5.10 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.72 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	2.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0416	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 416, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	**DER**	25.37	**TER**	26.07
Environmental	85 B	**% DER<TER**	2.67		
CO_2 Emissions (t/year)	1.05	**DFEE**	36.82	**TFEE**	38.42
General Requirements Compliance	Pass	**% DFEE<TFEE**	4.15		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	26.07	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	25.37	$kgCO_2/m^2$	Pass
	-0.70 (-2.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.42	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.82	$kWh/m^2/yr$	
	-1.6 (-4.2%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.72 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.40	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.55 m², No overhang
Windows facing South East	5.10 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.72 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	2.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0417	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 417, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	83 B	**DER**	23.94	**TER**	24.71
Environmental	85 B	**% DER<TER**	3.13		
CO_2 Emissions (t/year)	1.00	**DFEE**	33.64	**TFEE**	33.35
General Requirements Compliance	Fail	**% DFEE<TFEE**	-0.89		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.50 m²	2.50 m

7.0 Living Area	34.00	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	37.45	24.72

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	37.50

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					5.10	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					7.63	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	5.09	0.300	No
Table K1 - Approved	E3 Sill	4.09	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	14.98	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	14.98	0.070	No
Table K1 - Approved	E16 Corner (normal)	2.50	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.02	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.02	0.000	No

Y-value	0.143	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	2.51	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day

32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0417	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 417, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	83 B	**DER**	23.94	**TER**	24.71
Environmental	85 B	**% DER<TER**	3.13		
CO_2 Emissions (t/year)	1.00	**DFEE**	33.64	**TFEE**	33.35
General Requirements Compliance	Fail	**% DFEE<TFEE**	-0.89		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	24.71	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.94	$kgCO_2/m^2$	Pass
	-0.77 (-3.1%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	33.35	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	33.64	$kWh/m^2/yr$	
Excess energy	0.3 (0.9%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.51 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South East Windows facing South West	5.10 m², No overhang 7.63 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.51 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	2.5	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0417	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 417, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	83 B	DER	23.94	TER	24.71
Environmental	85 B	% DER<TER	3.13		
CO_2 Emissions (t/year)	1.00	DFEE	33.64	TFEE	33.35
General Requirements Compliance	Fail	% DFEE<TFEE	-0.89		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	24.71	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.94	$kgCO_2/m^2$	Pass
	-0.77 (-3.1%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	33.35	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	33.64	$kWh/m^2/yr$	
Excess energy	0.3 (0.9%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.51 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.40	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East Windows facing South West	5.10 m², No overhang 7.63 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.51 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	2.5	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0418	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 418, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	18.11	**TER**	19.49
Environmental	87 B	**% DER<TER**	7.06		
CO_2 Emissions (t/year)	1.07	**DFEE**	23.36	**TFEE**	23.27
General Requirements Compliance	Fail	**% DFEE<TFEE**	-0.41		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	68.00 m²	2.50 m

7.0 Living Area	32.37	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.45	14.25

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (sw)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					10.20	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.08	0.300	No
Table K1 - Approved	E3 Sill	3.08	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.78	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.78	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.166	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.33	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0418	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 418, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	18.11	**TER**	19.49
Environmental	87 B	**% DER<TER**	7.06		
CO_2 Emissions (t/year)	1.07	**DFEE**	23.36	**TFEE**	23.27
General Requirements Compliance	Fail	**% DFEE<TFEE**	-0.41		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.49	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.11	$kgCO_2/m^2$	Pass
	-1.38 (-7.1%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.27	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.36	$kWh/m^2/yr$	
Excess energy	0.1 (0.4%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.33 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing South West	10.20 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.33 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.3	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0418	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 418, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	DER	18.11	TER	19.49
Environmental	87 B	% DER<TER	7.06		
CO_2 Emissions (t/year)	1.07	DFEE	23.36	TFEE	23.27
General Requirements Compliance	Fail	% DFEE<TFEE	-0.41		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.49	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.11	$kgCO_2/m^2$	Pass
	-1.38 (-7.1%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.27	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.36	$kWh/m^2/yr$	
Excess energy	0.1 (0.4%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.33 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South West	10.20 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.33 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.3	m³/m²h
Photovoltaic array	132.35	kWh/Year

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This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0501	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	3 bed
Property	Flat 501, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	22.37	**TER**	22.16
Environmental	83 B	**% DER<TER**	-0.96		
CO_2 Emissions (t/year)	1.52	**DFEE**	36.50	**TFEE**	39.19
General Requirements Compliance	Fail	**% DFEE<TFEE**	6.84		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	83.50 m²	2.50 m

7.0 Living Area	38.00	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	54.00	30.02

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	47.97

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					18.90	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					5.08	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging — Calculate Bridges

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	9.59	0.300	No
Table K1 - Approved	E3 Sill	9.59	0.040	No
Table K1 - Approved	E4 Jamb	25.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	21.66	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	21.66	0.070	No
Table K1 - Approved	E16 Corner (normal)	7.50	0.090	No
Table K1 - Approved	E17 Corner (inverted – internal area greater than external area)	5.00	-0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	19.19	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	19.19	0.000	No

Y-value: 0.152 W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.44	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid

MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L

Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0501	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	3 bed
Property	Flat 501, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	22.37	**TER**	22.16
Environmental	83 B	**% DER<TER**	-0.96		
CO_2 Emissions (t/year)	1.52	**DFEE**	36.50	**TFEE**	39.19
General Requirements Compliance	Fail	**% DFEE<TFEE**	6.84		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.16	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	22.37	$kgCO_2/m^2$	
Excess emissions	0.21 (0.9%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.19	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.50	$kWh/m^2/yr$	
	-2.7 (-6.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.44 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South West Windows facing North West	5.08 m², No overhang 18.90 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.44 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0501	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	3 bed
Property	Flat 501, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	DER	22.37	TER	22.16
Environmental	83 B	% DER<TER	-0.96		
CO_2 Emissions (t/year)	1.52	DFEE	36.50	TFEE	39.19
General Requirements Compliance	Fail	% DFEE<TFEE	6.84		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.16	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	22.37	$kgCO_2/m^2$	
Excess emissions	0.21 (0.9%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.19	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.50	$kWh/m^2/yr$	
	-2.7 (-6.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.44 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South West	5.08 m², No overhang
Windows facing North West	18.90 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.44 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0502	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 502, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.11	**TER**	21.55
Environmental	87 B	**% DER<TER**	11.32		
CO_2 Emissions (t/year)	1.10	**DFEE**	27.05	**TFEE**	31.21
General Requirements Compliance	Pass	**% DFEE<TFEE**	13.31		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	28.00	16.70

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	57.50

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	11.24	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	11.24	0.070	No
Table K1 - Approved	E16 Corner (normal)	2.50	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	23.00	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	23.00	0.000	No

Y-value	0.161	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.04	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0502	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 502, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.11	**TER**	21.55
Environmental	87 B	**% DER<TER**	11.32		
CO_2 Emissions (t/year)	1.10	**DFEE**	27.05	**TFEE**	31.21
General Requirements Compliance	Pass	**% DFEE<TFEE**	13.31		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.55	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.11	$kgCO_2/m^2$	Pass
	-2.44 (-11.3%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	31.21	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	27.05	$kWh/m^2/yr$	
	-4.1 (-13.1%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.04 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average	
Windows facing North West	11.30 m², No overhang	
Air change rate	4.00 ach	
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours	

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.04 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0502	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 502, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.11	**TER**	21.55
Environmental	87 B	**% DER<TER**	11.32		
CO_2 Emissions (t/year)	1.10	**DFEE**	27.05	**TFEE**	31.21
General Requirements Compliance	Pass	**% DFEE<TFEE**	13.31		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.55	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.11	$kgCO_2/m^2$	Pass
	-2.44 (-11.3%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	31.21	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	27.05	$kWh/m^2/yr$	
	-4.1 (-13.1%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.04 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.04 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

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This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0503	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 503, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	18.83	**TER**	21.31
Environmental	87 B	**% DER<TER**	11.65		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.39	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	13.23		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.171	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.05	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0503	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 503, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	18.83	**TER**	21.31
Environmental	87 B	**% DER<TER**	11.65		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.39	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	13.23		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.83	$kgCO_2/m^2$	Pass
	-2.48 (-11.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.39	$kWh/m^2/yr$	
	-4.0 (-13.2%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.05 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average	
Windows facing North West	11.30 m², No overhang	
Air change rate	4.00 ach	
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours	

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.05 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0503	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 503, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	18.83	**TER**	21.31
Environmental	87 B	**% DER<TER**	11.65		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.39	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	13.23		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.83	$kgCO_2/m^2$	Pass
	-2.48 (-11.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.39	$kWh/m^2/yr$	
	-4.0 (-13.2%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.05 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.05 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0504	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 504, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	18.85	**TER**	21.31
Environmental	87 B	**% DER<TER**	11.55		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.40	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	13.19		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.171	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.07	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0504	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 504, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	18.85	**TER**	21.31
Environmental	87 B	**% DER<TER**	11.55		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.40	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	13.19		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.85	$kgCO_2/m^2$	Pass
	-2.46 (-11.5%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.40	$kWh/m^2/yr$	
	-4.0 (-13.2%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.07 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.07 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0504	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 504, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	DER	18.85	TER	21.31
Environmental	87 B	% DER<TER	11.55		
CO_2 Emissions (t/year)	1.10	DFEE	26.40	TFEE	30.41
General Requirements Compliance	Pass	% DFEE<TFEE	13.19		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.85	$kgCO_2/m^2$	Pass
	-2.46 (-11.5%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.40	$kWh/m^2/yr$	
	-4.0 (-13.2%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.07 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.07 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0505	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 505, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.06	**TER**	21.31
Environmental	87 B	**% DER<TER**	10.57		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.52	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.80		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.171	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.28	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0505	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 505, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.06	**TER**	21.31
Environmental	87 B	**% DER<TER**	10.57		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.52	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.80		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.06	$kgCO_2/m^2$	Pass
	-2.25 (-10.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.52	$kWh/m^2/yr$	
	-3.9 (-12.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.28 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average	
Windows facing North West	11.30 m², No overhang	
Air change rate	4.00 ach	
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours	

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.28 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.3	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0505	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 505, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	19.06	**TER**	21.31
Environmental	87 B	**% DER<TER**	10.57		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.52	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.80		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.06	$kgCO_2/m^2$	Pass
	-2.25 (-10.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.52	$kWh/m^2/yr$	
	-3.9 (-12.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.28 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.28 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.3	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0506	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 506, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	18.96	**TER**	21.31
Environmental	87 B	**% DER<TER**	11.04		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.46	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.99		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.171	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.18	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0506	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 506, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	18.96	**TER**	21.31
Environmental	87 B	**% DER<TER**	11.04		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.46	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.99		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.96	$kgCO_2/m^2$	Pass
	-2.35 (-11.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.46	$kWh/m^2/yr$	
	-3.9 (-12.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.18 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.18 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.2	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0506	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 506, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	84 B	**DER**	18.96	**TER**	21.31
Environmental	87 B	**% DER<TER**	11.04		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.46	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.99		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.96	$kgCO_2/m^2$	Pass
	-2.35 (-11.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.46	$kWh/m^2/yr$	
	-3.9 (-12.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.18 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.18 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.2	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0507	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 507, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	23.54	**TER**	23.98
Environmental	84 B	**% DER<TER**	1.84		
CO_2 Emissions (t/year)	1.32	**DFEE**	36.71	**TFEE**	40.54
General Requirements Compliance	Pass	**% DFEE<TFEE**	9.44		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East	
Property Tenure	Unknown	
Transaction Type	New dwelling	
Terrain Type	Urban	
1.0 Property Type	Flat, Semi-Detached	
2.0 Number of Storeys	1	
3.0 Date Built	2018	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	42.87	23.95

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	42.87

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.62	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	7.57	0.300	No
Table K1 - Approved	E3 Sill	6.67	0.040	No
Table K1 - Approved	E4 Jamb	25.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	17.15	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	17.15	0.070	No
Table K1 - Approved	E16 Corner (normal)	2.50	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	17.15	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	17.15	0.000	No

Y-value	0.160	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	2.89	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day

32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0507	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 507, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	23.54	**TER**	23.98
Environmental	84 B	**% DER<TER**	1.84		
CO_2 Emissions (t/year)	1.32	**DFEE**	36.71	**TFEE**	40.54
General Requirements Compliance	Pass	**% DFEE<TFEE**	9.44		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.98	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.54	$kgCO_2/m^2$	Pass
	-0.44 (-1.8%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	40.54	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.71	$kWh/m^2/yr$	
	-3.8 (-9.4%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.89 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North East Windows facing North West	7.62 m², No overhang 11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.89 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	2.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0507	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 507, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	81 B	**DER**	23.54	**TER**	23.98
Environmental	84 B	**% DER<TER**	1.84		
CO_2 Emissions (t/year)	1.32	**DFEE**	36.71	**TFEE**	40.54
General Requirements Compliance	Pass	**% DFEE<TFEE**	9.44		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.98	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.54	$kgCO_2/m^2$	Pass
	-0.44 (-1.8%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	40.54	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.71	$kWh/m^2/yr$	
	-3.8 (-9.4%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.89 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.62 m², No overhang
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.89 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	2.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0508	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 508, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	20.23	**TER**	23.86
Environmental	87 B	**% DER<TER**	15.23		
CO_2 Emissions (t/year)	0.89	**DFEE**	24.93	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	14.32		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	31.24	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	15.50	7.86

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	56.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (ne)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.64	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.05	0.300	No
Table K1 - Approved	E3 Sill	2.05	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No

Y-value	0.191	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	2.95	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0508	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 508, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	20.23	**TER**	23.86
Environmental	87 B	**% DER<TER**	15.23		
CO_2 Emissions (t/year)	0.89	**DFEE**	24.93	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	14.32		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.86	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.23	$kgCO_2/m^2$	Pass
	-3.63 (-15.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.10	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.93	$kWh/m^2/yr$	
	-4.2 (-14.4%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.95 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.64 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.95 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0508	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 508, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	20.23	**TER**	23.86
Environmental	87 B	**% DER<TER**	15.23		
CO_2 Emissions (t/year)	0.89	**DFEE**	24.93	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	14.32		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.86	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.23	$kgCO_2/m^2$	Pass
	-3.63 (-15.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.10	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.93	$kWh/m^2/yr$	
	-4.2 (-14.4%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.95 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.64 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.95 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0509	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 509, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	20.29	**TER**	23.86
Environmental	87 B	**% DER<TER**	14.98		
CO_2 Emissions (t/year)	0.89	**DFEE**	24.98	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	14.16		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	31.24	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	15.50	7.86

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	56.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (ne)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.64	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.05	0.300	No
Table K1 - Approved	E3 Sill	2.05	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No

Y-value	0.191	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.02	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0509	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 509, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	20.29	**TER**	23.86
Environmental	87 B	**% DER<TER**	14.98		
CO_2 Emissions (t/year)	0.89	**DFEE**	24.98	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	14.16		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.86	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.29	$kgCO_2/m^2$	Pass
	-3.57 (-15.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.10	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.98	$kWh/m^2/yr$	
	-4.1 (-14.1%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.02 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.64 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.02 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0509	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 509, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	DER	20.29	TER	23.86
Environmental	87 B	% DER<TER	14.98		
CO_2 Emissions (t/year)	0.89	DFEE	24.98	TFEE	29.10
General Requirements Compliance	Pass	% DFEE<TFEE	14.16		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.86	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.29	$kgCO_2/m^2$	Pass
	-3.57 (-15.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.10	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.98	$kWh/m^2/yr$	
	-4.1 (-14.1%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.02 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.64 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.02 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0510	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 510, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	**DER**	21.27	**TER**	22.80
Environmental	85 B	**% DER<TER**	6.69		
CO_2 Emissions (t/year)	1.30	**DFEE**	32.88	**TFEE**	37.89
General Requirements Compliance	Pass	**% DFEE<TFEE**	13.23		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	73.00 m²	2.50 m

7.0 Living Area	37.31	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	60.47	42.65

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	39.75

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (ne)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					5.10	50
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					10.17	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					2.55	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	7.13	0.300	No
Table K1 - Approved	E3 Sill	7.13	0.040	No
Table K1 - Approved	E4 Jamb	30.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	24.19	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	24.19	0.070	No
Table K1 - Approved	E16 Corner (normal)	5.00	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.90	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.90	0.000	No

Y-value	0.138	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	2.82	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes

Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	

Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0510	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 510, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	**DER**	21.27	**TER**	22.80
Environmental	85 B	**% DER<TER**	6.69		
CO_2 Emissions (t/year)	1.30	**DFEE**	32.88	**TFEE**	37.89
General Requirements Compliance	Pass	**% DFEE<TFEE**	13.23		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.80	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	21.27	$kgCO_2/m^2$	Pass
	-1.53 (-6.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.89	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	32.88	$kWh/m^2/yr$	
	-5.0 (-13.2%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.82 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North East Windows facing South East Windows facing South West	5.10 m², No overhang 10.17 m², No overhang 2.55 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.82 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	2.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0510	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 510, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	DER	21.27	TER	22.80
Environmental	85 B	% DER<TER	6.69		
CO_2 Emissions (t/year)	1.30	DFEE	32.88	TFEE	37.89
General Requirements Compliance	Pass	% DFEE<TFEE	13.23		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.80	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	21.27	$kgCO_2/m^2$	Pass
	-1.53 (-6.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.89	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	32.88	$kWh/m^2/yr$	
	-5.0 (-13.2%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.82 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East Windows facing South East Windows facing South West	5.10 m², No overhang 10.17 m², No overhang 2.55 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.82 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	2.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0511	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 511, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	19.64	**TER**	22.40
Environmental	87 B	**% DER<TER**	12.33		
CO_2 Emissions (t/year)	0.88	**DFEE**	23.55	**TFEE**	22.40
General Requirements Compliance	Fail	**% DFEE<TFEE**	-5.13		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	30.32	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	17.50	8.75

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	53.27

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	1.02	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No

Y-value	0.181	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	2.33	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0511	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 511, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	19.64	**TER**	22.40
Environmental	87 B	**% DER<TER**	12.33		
CO_2 Emissions (t/year)	0.88	**DFEE**	23.55	**TFEE**	22.40
General Requirements Compliance	Fail	**% DFEE<TFEE**	-5.13		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.40	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.64	$kgCO_2/m^2$	Pass
	-2.76 (-12.3%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	22.40	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.55	$kWh/m^2/yr$	
Excess energy	1.2 (5.4%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.33 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average	
Windows facing South East	8.75 m², No overhang	
Air change rate	4.00 ach	
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours	

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.33 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	2.3	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0511	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 511, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	DER	19.64	TER	22.40
Environmental	87 B	% DER<TER	12.33		
CO_2 Emissions (t/year)	0.88	DFEE	23.55	TFEE	22.40
General Requirements Compliance	Fail	% DFEE<TFEE	-5.13		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.40	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.64	$kgCO_2/m^2$	Pass
	-2.76 (-12.3%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	22.40	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.55	$kWh/m^2/yr$	
Excess energy	1.2 (5.4%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.33 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.33 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	2.3	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0512	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 512, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	17.43	**TER**	19.29
Environmental	87 B	**% DER<TER**	9.66		
CO_2 Emissions (t/year)	1.07	**DFEE**	22.05	**TFEE**	21.33
General Requirements Compliance	Fail	**% DFEE<TFEE**	-3.40		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	16.12

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	1.02	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.144	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.17	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0512	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 512, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	17.43	**TER**	19.29
Environmental	87 B	**% DER<TER**	9.66		
CO_2 Emissions (t/year)	1.07	**DFEE**	22.05	**TFEE**	21.33
General Requirements Compliance	Fail	**% DFEE<TFEE**	-3.40		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.29	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	17.43	$kgCO_2/m^2$	Pass
	-1.86 (-9.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	21.33	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	22.05	$kWh/m^2/yr$	
Excess energy	0.8 (3.8%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.17 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average	
Windows facing South East	8.75 m², No overhang	
Air change rate	4.00 ach	
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours	

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.17 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.2	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0512	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 512, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	17.43	**TER**	19.29
Environmental	87 B	**% DER<TER**	9.66		
CO_2 Emissions (t/year)	1.07	**DFEE**	22.05	**TFEE**	21.33
General Requirements Compliance	Fail	**% DFEE<TFEE**	-3.40		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.29	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	17.43	$kgCO_2/m^2$	Pass
	-1.86 (-9.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	21.33	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	22.05	$kWh/m^2/yr$	
Excess energy	0.8 (3.8%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.17 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.17 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.2	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0513	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 513, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	17.98	**TER**	19.37
Environmental	87 B	**% DER<TER**	7.19		
CO_2 Emissions (t/year)	1.08	**DFEE**	23.75	**TFEE**	23.58
General Requirements Compliance	Fail	**% DFEE<TFEE**	-0.76		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					11.30	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	2.04	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.168	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.04	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0513	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 513, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	17.98	**TER**	19.37
Environmental	87 B	**% DER<TER**	7.19		
CO_2 Emissions (t/year)	1.08	**DFEE**	23.75	**TFEE**	23.58
General Requirements Compliance	Fail	**% DFEE<TFEE**	-0.76		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.37	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	17.98	$kgCO_2/m^2$	Pass
	-1.39 (-7.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.58	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.75	$kWh/m^2/yr$	
Excess energy	0.2 (0.8%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.04 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing South East	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.04 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0513	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 513, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	17.98	**TER**	19.37
Environmental	87 B	**% DER<TER**	7.19		
CO_2 Emissions (t/year)	1.08	**DFEE**	23.75	**TFEE**	23.58
General Requirements Compliance	Fail	**% DFEE<TFEE**	-0.76		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.37	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	17.98	$kgCO_2/m^2$	Pass
	-1.39 (-7.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.58	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.75	$kWh/m^2/yr$	
Excess energy	0.2 (0.8%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.04 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.04 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0514	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 514, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	17.81	**TER**	19.37
Environmental	87 B	**% DER<TER**	8.07		
CO_2 Emissions (t/year)	1.08	**DFEE**	23.65	**TFEE**	23.58
General Requirements Compliance	Fail	**% DFEE<TFEE**	-0.31		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					11.30	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	2.04	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.168	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	2.85	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0514	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 514, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	17.81	**TER**	19.37
Environmental	87 B	**% DER<TER**	8.07		
CO_2 Emissions (t/year)	1.08	**DFEE**	23.65	**TFEE**	23.58
General Requirements Compliance	Fail	**% DFEE<TFEE**	-0.31		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.37	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	17.81	$kgCO_2/m^2$	Pass
	-1.56 (-8.1%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.58	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.65	$kWh/m^2/yr$	
	0.0 (0.0%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.85 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.85 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	2.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0514	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 514, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	17.81	**TER**	19.37
Environmental	87 B	**% DER<TER**	8.07		
CO_2 Emissions (t/year)	1.08	**DFEE**	23.65	**TFEE**	23.58
General Requirements Compliance	Fail	**% DFEE<TFEE**	-0.31		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.37	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	17.81	$kgCO_2/m^2$	Pass
	-1.56 (-8.1%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.58	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.65	$kWh/m^2/yr$	
	0.0 (0.0%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.85 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.85 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	2.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0515	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 515, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	20.16	**TER**	22.44
Environmental	87 B	**% DER<TER**	10.18		
CO_2 Emissions (t/year)	0.89	**DFEE**	24.05	**TFEE**	22.56
General Requirements Compliance	Fail	**% DFEE<TFEE**	-6.62		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	30.32	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	17.50	8.75

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	53.27

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	3.50	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No

Y-value	0.187	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	2.94	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0515	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 515, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	20.16	**TER**	22.44
Environmental	87 B	**% DER<TER**	10.18		
CO_2 Emissions (t/year)	0.89	**DFEE**	24.05	**TFEE**	22.56
General Requirements Compliance	Fail	**% DFEE<TFEE**	-6.62		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.44	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.16	$kgCO_2/m^2$	Pass
	-2.28 (-10.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	22.56	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.05	$kWh/m^2/yr$	
Excess energy	1.5 (6.6%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.94 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.94 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	2.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0515	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 515, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	20.16	**TER**	22.44
Environmental	87 B	**% DER<TER**	10.18		
CO_2 Emissions (t/year)	0.89	**DFEE**	24.05	**TFEE**	22.56
General Requirements Compliance	Fail	**% DFEE<TFEE**	-6.62		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.44	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.16	$kgCO_2/m^2$	Pass
	-2.28 (-10.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	22.56	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.05	$kWh/m^2/yr$	
Excess energy	1.5 (6.6%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.94 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.94 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	2.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0516	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 516, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	**DER**	25.70	**TER**	26.07
Environmental	84 B	**% DER<TER**	1.40		
CO_2 Emissions (t/year)	1.06	**DFEE**	37.03	**TFEE**	38.42
General Requirements Compliance	Pass	**% DFEE<TFEE**	3.60		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South West	
Property Tenure	Unknown	
Transaction Type	New dwelling	
Terrain Type	Urban	
1.0 Property Type	Flat, Semi-Detached	
2.0 Number of Storeys	1	
3.0 Date Built	2018	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	50.00 m²	2.50 m

7.0 Living Area	32.27	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	34.32	21.67

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	41.22

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					5.10	50
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.55	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	5.06	0.300	No
Table K1 - Approved	E3 Sill	4.06	0.040	No
Table K1 - Approved	E4 Jamb	20.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	13.73	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	13.73	0.070	No
Table K1 - Approved	E16 Corner (normal)	5.00	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	12.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	16.49	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	16.49	0.000	No

Y-value	0.169	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	2.99	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day

32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0516	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 516, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	**DER**	25.70	**TER**	26.07
Environmental	84 B	**% DER<TER**	1.40		
CO_2 Emissions (t/year)	1.06	**DFEE**	37.03	**TFEE**	38.42
General Requirements Compliance	Pass	**% DFEE<TFEE**	3.60		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	26.07	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	25.70	$kgCO_2/m^2$	Pass
	-0.37 (-1.4%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.42	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	37.03	$kWh/m^2/yr$	
	-1.4 (-3.6%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.99 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North East Windows facing South East	7.55 m², No overhang 5.10 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.99 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0516	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 516, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	**DER**	25.70	**TER**	26.07
Environmental	84 B	**% DER<TER**	1.40		
CO_2 Emissions (t/year)	1.06	**DFEE**	37.03	**TFEE**	38.42
General Requirements Compliance	Pass	**% DFEE<TFEE**	3.60		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	26.07	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	25.70	$kgCO_2/m^2$	Pass
	-0.37 (-1.4%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.42	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	37.03	$kWh/m^2/yr$	
	-1.4 (-3.6%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	2.99 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.40	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.55 m², No overhang
Windows facing South East	5.10 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	2.99 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0517	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 517, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	**DER**	24.84	**TER**	24.71
Environmental	85 B	**% DER<TER**	-0.51		
CO_2 Emissions (t/year)	1.03	**DFEE**	34.25	**TFEE**	33.35
General Requirements Compliance	Fail	**% DFEE<TFEE**	-2.69		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.50 m²	2.50 m

7.0 Living Area	34.00	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	37.45	24.72

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	37.50

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					5.10	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					7.63	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	5.09	0.300	No
Table K1 - Approved	E3 Sill	4.09	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	14.98	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	14.98	0.070	No
Table K1 - Approved	E16 Corner (normal)	2.50	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.02	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.02	0.000	No

Y-value	0.143	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.29	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day

32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0517	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 517, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	**DER**	24.84	**TER**	24.71
Environmental	85 B	**% DER<TER**	-0.51		
CO_2 Emissions (t/year)	1.03	**DFEE**	34.25	**TFEE**	33.35
General Requirements Compliance	Fail	**% DFEE<TFEE**	-2.69		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	24.71	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	24.84	$kgCO_2/m^2$	
Excess emissions	0.13 (0.5%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	33.35	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	34.25	$kWh/m^2/yr$	
Excess energy	0.9 (2.7%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.29 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South East Windows facing South West	5.10 m², No overhang 7.63 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.29 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.3	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0517	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 517, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	82 B	**DER**	24.84	**TER**	24.71
Environmental	85 B	**% DER<TER**	-0.51		
CO_2 Emissions (t/year)	1.03	**DFEE**	34.25	**TFEE**	33.35
General Requirements Compliance	Fail	**% DFEE<TFEE**	-2.69		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	24.71	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	24.84	$kgCO_2/m^2$	
Excess emissions	0.13 (0.5%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	33.35	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	34.25	$kWh/m^2/yr$	
Excess energy	0.9 (2.7%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.29 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.40	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East Windows facing South West	5.10 m², No overhang 7.63 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.29 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.3	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0518	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 518, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	17.94	**TER**	19.49
Environmental	87 B	**% DER<TER**	7.93		
CO_2 Emissions (t/year)	1.07	**DFEE**	23.25	**TFEE**	23.27
General Requirements Compliance	Pass	**% DFEE<TFEE**	0.08		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	68.00 m²	2.50 m

7.0 Living Area	32.37	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.45	14.25

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (sw)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					10.20	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.08	0.300	No
Table K1 - Approved	E3 Sill	3.08	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.78	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.78	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.166	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.14	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0518	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 518, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	**DER**	17.94	**TER**	19.49
Environmental	87 B	**% DER<TER**	7.93		
CO_2 Emissions (t/year)	1.07	**DFEE**	23.25	**TFEE**	23.27
General Requirements Compliance	Pass	**% DFEE<TFEE**	0.08		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.49	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	17.94	$kgCO_2/m^2$	Pass
	-1.55 (-8.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.27	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.25	$kWh/m^2/yr$	
	-0.1 (-0.4%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.14 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing South West	10.20 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.14 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0518	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 518, 2 Old Mount Street, Manchester, M4 4GP		

SAP Rating	85 B	DER	17.94	TER	19.49
Environmental	87 B	% DER<TER	7.93		
CO_2 Emissions (t/year)	1.07	DFEE	23.25	TFEE	23.27
General Requirements Compliance	Pass	% DFEE<TFEE	0.08		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.49	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	17.94	$kgCO_2/m^2$	Pass
	-1.55 (-8.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.27	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.25	$kWh/m^2/yr$	
	-0.1 (-0.4%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.14 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South West	10.20 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.14 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.1	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0601	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	3 bed
Property	Flat 601, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	22.15	**TER**	22.11
Environmental	84 B	**% DER<TER**	-0.16		
CO_2 Emissions (t/year)	1.51	**DFEE**	36.31	**TFEE**	39.04
General Requirements Compliance	Fail	**% DFEE<TFEE**	7.01		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East	
Property Tenure	Unknown	
Transaction Type	New dwelling	
Terrain Type	Urban	
1.0 Property Type	Flat, Semi-Detached	
2.0 Number of Storeys	1	
3.0 Date Built	2018	
4.0 Sheltered Sides	3	
5.0 Sunlight/Shade	Average or unknown	

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	83.50 m²	2.50 m

7.0 Living Area	38.00	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	54.00	30.02

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	47.97

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					18.90	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					5.08	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	9.59	0.300	No
Table K1 - Approved	E3 Sill	5.87	0.040	No
Table K1 - Approved	E4 Jamb	25.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	21.66	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	21.66	0.070	No
Table K1 - Approved	E16 Corner (normal)	7.50	0.090	No
Table K1 - Approved	E17 Corner (inverted – internal area greater than external area)	5.00	-0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	19.19	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	19.19	0.000	No

Y-value	0.149	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.28	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid

MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L

Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0601	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	3 bed
Property	Flat 601, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	22.15	**TER**	22.11
Environmental	84 B	**% DER<TER**	-0.16		
CO_2 Emissions (t/year)	1.51	**DFEE**	36.31	**TFEE**	39.04
General Requirements Compliance	Fail	**% DFEE<TFEE**	7.01		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.11	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	22.15	$kgCO_2/m^2$	
Excess emissions	0.04 (0.2%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.04	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.31	$kWh/m^2/yr$	
	-2.7 (-6.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.28 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average	
Windows facing South West Windows facing North West	5.08 m², No overhang 18.90 m², No overhang	
Air change rate	4.00 ach	
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours	

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.28 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.3	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0601	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	3 bed
Property	Flat 601, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	DER	22.15	TER	22.11
Environmental	84 B	% DER<TER	-0.16		
CO_2 Emissions (t/year)	1.51	DFEE	36.31	TFEE	39.04
General Requirements Compliance	Fail	% DFEE<TFEE	7.01		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.11	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	22.15	$kgCO_2/m^2$	
Excess emissions	0.04 (0.2%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.04	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.31	$kWh/m^2/yr$	
	-2.7 (-6.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.28 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South West	5.08 m², No overhang
Windows facing North West	18.90 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.28 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.3	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0602	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 602, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	19.90	**TER**	21.55
Environmental	86 B	**% DER<TER**	7.66		
CO_2 Emissions (t/year)	1.13	**DFEE**	27.52	**TFEE**	31.21
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.83		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	28.00	16.70

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	57.50

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	11.24	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	11.24	0.070	No
Table K1 - Approved	E16 Corner (normal)	2.50	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	23.00	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	23.00	0.000	No

Y-value	0.161	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.81	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0602	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 602, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	19.90	**TER**	21.55
Environmental	86 B	**% DER<TER**	7.66		
CO_2 Emissions (t/year)	1.13	**DFEE**	27.52	**TFEE**	31.21
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.83		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.55	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.90	$kgCO_2/m^2$	Pass
	-1.65 (-7.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	31.21	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	27.52	$kWh/m^2/yr$	
	-3.7 (-11.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.81 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.81 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0602	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 602, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	19.90	**TER**	21.55
Environmental	86 B	**% DER<TER**	7.66		
CO_2 Emissions (t/year)	1.13	**DFEE**	27.52	**TFEE**	31.21
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.83		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.55	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.90	$kgCO_2/m^2$	Pass
	-1.65 (-7.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	31.21	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	27.52	$kWh/m^2/yr$	
	-3.7 (-11.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.81 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.81 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0603	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 603, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	19.53	**TER**	21.31
Environmental	86 B	**% DER<TER**	8.36		
CO_2 Emissions (t/year)	1.12	**DFEE**	26.81	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.85		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East	
Property Tenure	Unknown	
Transaction Type	New dwelling	
Terrain Type	Urban	
1.0 Property Type	Flat, Semi-Detached	
2.0 Number of Storeys	1	
3.0 Date Built	2018	
4.0 Sheltered Sides	3	
5.0 Sunlight/Shade	Average or unknown	

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.171	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.75	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0603	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 603, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	19.53	**TER**	21.31
Environmental	86 B	**% DER<TER**	8.36		
CO_2 Emissions (t/year)	1.12	**DFEE**	26.81	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.85		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.53	$kgCO_2/m^2$	Pass
	-1.78 (-8.4%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.81	$kWh/m^2/yr$	
	-3.6 (-11.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.75 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.75 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0603	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 603, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	19.53	**TER**	21.31
Environmental	86 B	**% DER<TER**	8.36		
CO_2 Emissions (t/year)	1.12	**DFEE**	26.81	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.85		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.53	$kgCO_2/m^2$	Pass
	-1.78 (-8.4%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.81	$kWh/m^2/yr$	
	-3.6 (-11.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.75 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.75 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0604	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 604, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	19.49	**TER**	21.31
Environmental	86 B	**% DER<TER**	8.55		
CO_2 Emissions (t/year)	1.11	**DFEE**	26.78	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.94		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East	
Property Tenure	Unknown	
Transaction Type	New dwelling	
Terrain Type	Urban	
1.0 Property Type	Flat, Semi-Detached	
2.0 Number of Storeys	1	
3.0 Date Built	2018	
4.0 Sheltered Sides	3	
5.0 Sunlight/Shade	Average or unknown	

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.171	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.71	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0604	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 604, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	19.49	**TER**	21.31
Environmental	86 B	**% DER<TER**	8.55		
CO_2 Emissions (t/year)	1.11	**DFEE**	26.78	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.94		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.49	$kgCO_2/m^2$	Pass
	-1.82 (-8.5%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.78	$kWh/m^2/yr$	
	-3.6 (-11.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.71 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.71 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0604	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 604, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	19.49	**TER**	21.31
Environmental	86 B	**% DER<TER**	8.55		
CO_2 Emissions (t/year)	1.11	**DFEE**	26.78	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.94		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.49	$kgCO_2/m^2$	Pass
	-1.82 (-8.5%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.78	$kWh/m^2/yr$	
	-3.6 (-11.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.71 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.71 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0605	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 605, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	19.71	**TER**	21.31
Environmental	86 B	**% DER<TER**	7.52		
CO_2 Emissions (t/year)	1.12	**DFEE**	26.92	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.47		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East	
Property Tenure	Unknown	
Transaction Type	New dwelling	
Terrain Type	Urban	
1.0 Property Type	Flat, Semi-Detached	
2.0 Number of Storeys	1	
3.0 Date Built	2018	
4.0 Sheltered Sides	3	
5.0 Sunlight/Shade	Average or unknown	

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.171	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.93	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0605	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 605, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	19.71	**TER**	21.31
Environmental	86 B	**% DER<TER**	7.52		
CO_2 Emissions (t/year)	1.12	**DFEE**	26.92	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.47		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.71	$kgCO_2/m^2$	Pass
	-1.60 (-7.5%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.92	$kWh/m^2/yr$	
	-3.5 (-11.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.93 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.93 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0605	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 605, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	19.71	**TER**	21.31
Environmental	86 B	**% DER<TER**	7.52		
CO_2 Emissions (t/year)	1.12	**DFEE**	26.92	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.47		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.71	$kgCO_2/m^2$	Pass
	-1.60 (-7.5%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.92	$kWh/m^2/yr$	
	-3.5 (-11.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.93 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.93 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

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This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0606	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 606, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	19.18	**TER**	21.31
Environmental	87 B	**% DER<TER**	10.00		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.59	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.56		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.171	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.40	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0606	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 606, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	19.18	**TER**	21.31
Environmental	87 B	**% DER<TER**	10.00		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.59	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.56		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.18	$kgCO_2/m^2$	Pass
	-2.13 (-10.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.59	$kWh/m^2/yr$	
	-3.8 (-12.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.40 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.40 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0606	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 606, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	19.18	**TER**	21.31
Environmental	87 B	**% DER<TER**	10.00		
CO_2 Emissions (t/year)	1.10	**DFEE**	26.59	**TFEE**	30.41
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.56		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	21.31	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.18	$kgCO_2/m^2$	Pass
	-2.13 (-10.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	30.41	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	26.59	$kWh/m^2/yr$	
	-3.8 (-12.5%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.40 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.40 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0607	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 607, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	23.97	**TER**	23.98
Environmental	83 B	**% DER<TER**	0.04		
CO_2 Emissions (t/year)	1.34	**DFEE**	36.94	**TFEE**	40.54
General Requirements Compliance	Pass	**% DFEE<TFEE**	8.86		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East	
Property Tenure	Unknown	
Transaction Type	New dwelling	
Terrain Type	Urban	
1.0 Property Type	Flat, Semi-Detached	
2.0 Number of Storeys	1	
3.0 Date Built	2018	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	42.87	23.95

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	42.87

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.62	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	7.57	0.300	No
Table K1 - Approved	E3 Sill	6.67	0.040	No
Table K1 - Approved	E4 Jamb	25.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	17.15	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	17.15	0.070	No
Table K1 - Approved	E16 Corner (normal)	2.50	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	17.15	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	17.15	0.000	No

Y-value	0.160	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.25	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day

32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0607	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 607, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	23.97	**TER**	23.98
Environmental	83 B	**% DER<TER**	0.04		
CO_2 Emissions (t/year)	1.34	**DFEE**	36.94	**TFEE**	40.54
General Requirements Compliance	Pass	**% DFEE<TFEE**	8.86		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.98	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.97	$kgCO_2/m^2$	Pass
	-0.01 (0.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	40.54	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.94	$kWh/m^2/yr$	
	-3.6 (-8.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.25 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North East Windows facing North West	7.62 m², No overhang 11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.25 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.3	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0607	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 607, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	23.97	**TER**	23.98
Environmental	83 B	**% DER<TER**	0.04		
CO_2 Emissions (t/year)	1.34	**DFEE**	36.94	**TFEE**	40.54
General Requirements Compliance	Pass	**% DFEE<TFEE**	8.86		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.98	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.97	$kgCO_2/m^2$	Pass
	-0.01 (0.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	40.54	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.94	$kWh/m^2/yr$	
	-3.6 (-8.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.25 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.62 m², No overhang
Windows facing North West	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.25 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.3	m³/m²h
Photovoltaic array	132.35	kWh/Year

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This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0608	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 608, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	21.01	**TER**	23.86
Environmental	87 B	**% DER<TER**	11.96		
CO_2 Emissions (t/year)	0.90	**DFEE**	25.53	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.25		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	31.24	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	15.50	7.86

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	56.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (ne)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.64	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.05	0.300	No
Table K1 - Approved	E3 Sill	2.05	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No

Y-value	0.191	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.81	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0608	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 608, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	21.01	**TER**	23.86
Environmental	87 B	**% DER<TER**	11.96		
CO_2 Emissions (t/year)	0.90	**DFEE**	25.53	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.25		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.86	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	21.01	$kgCO_2/m^2$	Pass
	-2.85 (-11.9%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.10	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	25.53	$kWh/m^2/yr$	
	-3.6 (-12.4%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.81 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.64 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.81 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0608	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 608, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	21.01	**TER**	23.86
Environmental	87 B	**% DER<TER**	11.96		
CO_2 Emissions (t/year)	0.90	**DFEE**	25.53	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.25		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.86	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	21.01	$kgCO_2/m^2$	Pass
	-2.85 (-11.9%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.10	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	25.53	$kWh/m^2/yr$	
	-3.6 (-12.4%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.81 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.64 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.81 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0609	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 609, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	20.74	**TER**	23.86
Environmental	87 B	**% DER<TER**	13.09		
CO_2 Emissions (t/year)	0.89	**DFEE**	25.32	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.98		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	31.24	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	15.50	7.86

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	56.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (ne)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.64	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.05	0.300	No
Table K1 - Approved	E3 Sill	2.05	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No

Y-value	0.191	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.52	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0609	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 609, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	20.74	**TER**	23.86
Environmental	87 B	**% DER<TER**	13.09		
CO_2 Emissions (t/year)	0.89	**DFEE**	25.32	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.98		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.86	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.74	$kgCO_2/m^2$	Pass
	-3.12 (-13.1%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.10	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	25.32	$kWh/m^2/yr$	
	-3.8 (-13.1%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.52 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.64 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.52 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.5	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0609	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 609, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	20.74	**TER**	23.86
Environmental	87 B	**% DER<TER**	13.09		
CO_2 Emissions (t/year)	0.89	**DFEE**	25.32	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.98		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.86	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.74	$kgCO_2/m^2$	Pass
	-3.12 (-13.1%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.10	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	25.32	$kWh/m^2/yr$	
	-3.8 (-13.1%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.52 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.64 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.52 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.5	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0610	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 610, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	22.52	**TER**	22.80
Environmental	84 B	**% DER<TER**	1.21		
CO_2 Emissions (t/year)	1.36	**DFEE**	33.77	**TFEE**	37.89
General Requirements Compliance	Pass	**% DFEE<TFEE**	10.86		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	73.00 m²	2.50 m

7.0 Living Area	37.31	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	60.47	42.65

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	39.75

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (ne)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					5.10	50
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					10.17	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					2.55	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	7.13	0.300	No
Table K1 - Approved	E3 Sill	7.13	0.040	No
Table K1 - Approved	E4 Jamb	30.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	24.19	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	24.19	0.070	No
Table K1 - Approved	E16 Corner (normal)	5.00	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.90	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.90	0.000	No

Y-value	0.138	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.96	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes

Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	

Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0610	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 610, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	22.52	**TER**	22.80
Environmental	84 B	**% DER<TER**	1.21		
CO_2 Emissions (t/year)	1.36	**DFEE**	33.77	**TFEE**	37.89
General Requirements Compliance	Pass	**% DFEE<TFEE**	10.86		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.80	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	22.52	$kgCO_2/m^2$	Pass
	-0.28 (-1.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.89	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	33.77	$kWh/m^2/yr$	
	-4.1 (-10.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.96 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	5.10 m², No overhang
Windows facing South East	10.17 m², No overhang
Windows facing South West	2.55 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.96 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	4.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0610	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 610, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	22.52	**TER**	22.80
Environmental	84 B	**% DER<TER**	1.21		
CO_2 Emissions (t/year)	1.36	**DFEE**	33.77	**TFEE**	37.89
General Requirements Compliance	Pass	**% DFEE<TFEE**	10.86		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.80	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	22.52	$kgCO_2/m^2$	Pass
	-0.28 (-1.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.89	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	33.77	$kWh/m^2/yr$	
	-4.1 (-10.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.96 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East Windows facing South East Windows facing South West	5.10 m², No overhang 10.17 m², No overhang 2.55 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.96 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	4.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0611	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 611, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	20.56	**TER**	22.40
Environmental	87 B	**% DER<TER**	8.22		
CO_2 Emissions (t/year)	0.90	**DFEE**	24.28	**TFEE**	22.40
General Requirements Compliance	Fail	**% DFEE<TFEE**	-8.40		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	30.32	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	17.50	8.75

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	53.27

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	1.02	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No

Y-value	0.181	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.46	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0611	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 611, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	20.56	**TER**	22.40
Environmental	87 B	**% DER<TER**	8.22		
CO_2 Emissions (t/year)	0.90	**DFEE**	24.28	**TFEE**	22.40
General Requirements Compliance	Fail	**% DFEE<TFEE**	-8.40		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.40	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.56	$kgCO_2/m^2$	Pass
	-1.84 (-8.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	22.40	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.28	$kWh/m^2/yr$	
Excess energy	1.9 (8.5%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.46 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing South East	8.75 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.46 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.5	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0611	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 611, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	20.56	**TER**	22.40
Environmental	87 B	**% DER<TER**	8.22		
CO_2 Emissions (t/year)	0.90	**DFEE**	24.28	**TFEE**	22.40
General Requirements Compliance	Fail	**% DFEE<TFEE**	-8.40		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.40	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.56	$kgCO_2/m^2$	Pass
	-1.84 (-8.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	22.40	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.28	$kWh/m^2/yr$	
Excess energy	1.9 (8.5%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.46 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.46 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.5	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0612	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 612, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	85 B	**DER**	17.86	**TER**	19.29
Environmental	87 B	**% DER<TER**	7.43		
CO_2 Emissions (t/year)	1.08	**DFEE**	22.35	**TFEE**	21.33
General Requirements Compliance	Fail	**% DFEE<TFEE**	-4.79		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	16.12

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	1.02	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.144	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.65	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0612	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 612, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	85 B	**DER**	17.86	**TER**	19.29
Environmental	87 B	**% DER<TER**	7.43		
CO_2 Emissions (t/year)	1.08	**DFEE**	22.35	**TFEE**	21.33
General Requirements Compliance	Fail	**% DFEE<TFEE**	-4.79		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.29	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	17.86	$kgCO_2/m^2$	Pass
	-1.43 (-7.4%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	21.33	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	22.35	$kWh/m^2/yr$	
Excess energy	1.0 (4.7%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.65 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.65 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0612	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 612, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	85 B	DER	17.86	TER	19.29
Environmental	87 B	% DER<TER	7.43		
CO_2 Emissions (t/year)	1.08	DFEE	22.35	TFEE	21.33
General Requirements Compliance	Fail	% DFEE<TFEE	-4.79		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.29	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	17.86	$kgCO_2/m^2$	Pass
	-1.43 (-7.4%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	21.33	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	22.35	$kWh/m^2/yr$	
Excess energy	1.0 (4.7%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.65 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.65 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0613	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 613, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	18.47	**TER**	19.37
Environmental	87 B	**% DER<TER**	4.66		
CO_2 Emissions (t/year)	1.09	**DFEE**	24.07	**TFEE**	23.58
General Requirements Compliance	Fail	**% DFEE<TFEE**	-2.09		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	2.04	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.168	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.57	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0613	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 613, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	18.47	**TER**	19.37
Environmental	87 B	**% DER<TER**	4.66		
CO_2 Emissions (t/year)	1.09	**DFEE**	24.07	**TFEE**	23.58
General Requirements Compliance	Fail	**% DFEE<TFEE**	-2.09		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.37	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.47	$kgCO_2/m^2$	Pass
	-0.90 (-4.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.58	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.07	$kWh/m^2/yr$	
Excess energy	0.5 (2.1%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.57 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing South East	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.57 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0613	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 613, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	DER	18.47	TER	19.37
Environmental	87 B	% DER<TER	4.66		
CO_2 Emissions (t/year)	1.09	DFEE	24.07	TFEE	23.58
General Requirements Compliance	Fail	% DFEE<TFEE	-2.09		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.37	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.47	$kgCO_2/m^2$	Pass
	-0.90 (-4.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.58	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.07	$kWh/m^2/yr$	
Excess energy	0.5 (2.1%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.57 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.57 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

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This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0614	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 614, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	18.49	**TER**	19.37
Environmental	87 B	**% DER<TER**	4.56		
CO_2 Emissions (t/year)	1.09	**DFEE**	24.08	**TFEE**	23.58
General Requirements Compliance	Fail	**% DFEE<TFEE**	-2.15		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					11.30	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	2.04	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.168	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.59	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0614	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 614, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	18.49	**TER**	19.37
Environmental	87 B	**% DER<TER**	4.56		
CO_2 Emissions (t/year)	1.09	**DFEE**	24.08	**TFEE**	23.58
General Requirements Compliance	Fail	**% DFEE<TFEE**	-2.15		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.37	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.49	$kgCO_2/m^2$	Pass
	-0.88 (-4.5%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.58	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.08	$kWh/m^2/yr$	
Excess energy	0.5 (2.1%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.59 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.59 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0614	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 614, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	DER	18.49	TER	19.37
Environmental	87 B	% DER<TER	4.56		
CO_2 Emissions (t/year)	1.09	DFEE	24.08	TFEE	23.58
General Requirements Compliance	Fail	% DFEE<TFEE	-2.15		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.37	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.49	$kgCO_2/m^2$	Pass
	-0.88 (-4.5%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.58	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.08	$kWh/m^2/yr$	
Excess energy	0.5 (2.1%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.59 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.59 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0615	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 615, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	20.73	**TER**	22.44
Environmental	87 B	**% DER<TER**	7.64		
CO_2 Emissions (t/year)	0.90	**DFEE**	24.51	**TFEE**	22.56
General Requirements Compliance	Fail	**% DFEE<TFEE**	-8.66		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	30.32	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	17.50	8.75

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	53.27

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	3.50	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No

Y-value	0.187	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.61	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0615	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 615, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	20.73	**TER**	22.44
Environmental	87 B	**% DER<TER**	7.64		
CO_2 Emissions (t/year)	0.90	**DFEE**	24.51	**TFEE**	22.56
General Requirements Compliance	Fail	**% DFEE<TFEE**	-8.66		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.44	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.73	$kgCO_2/m^2$	Pass
	-1.71 (-7.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	22.56	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.51	$kWh/m^2/yr$	
Excess energy	1.9 (8.4%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.61 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.61 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0615	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 615, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	DER	20.73	TER	22.44
Environmental	87 B	% DER<TER	7.64		
CO_2 Emissions (t/year)	0.90	DFEE	24.51	TFEE	22.56
General Requirements Compliance	Fail	% DFEE<TFEE	-8.66		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.44	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.73	$kgCO_2/m^2$	Pass
	-1.71 (-7.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	22.56	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.51	$kWh/m^2/yr$	
Excess energy	1.9 (8.4%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.61 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.40	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.61 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

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This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0616	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 616, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	26.91	**TER**	26.07
Environmental	84 B	**% DER<TER**	-3.24		
CO_2 Emissions (t/year)	1.09	**DFEE**	37.86	**TFEE**	38.42
General Requirements Compliance	Fail	**% DFEE<TFEE**	1.45		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	50.00 m²	2.50 m

7.0 Living Area	32.27	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	34.32	21.67

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	41.22

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					5.10	50
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.55	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	5.06	0.300	No
Table K1 - Approved	E3 Sill	4.06	0.040	No
Table K1 - Approved	E4 Jamb	20.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	13.73	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	13.73	0.070	No
Table K1 - Approved	E16 Corner (normal)	5.00	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	12.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	16.49	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	16.49	0.000	No

Y-value	0.169	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.96	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day

32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0616	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 616, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	26.91	**TER**	26.07
Environmental	84 B	**% DER<TER**	-3.24		
CO_2 Emissions (t/year)	1.09	**DFEE**	37.86	**TFEE**	38.42
General Requirements Compliance	Fail	**% DFEE<TFEE**	1.45		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	26.07	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	26.91	$kgCO_2/m^2$	
Excess emissions	0.84 (3.2%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.42	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	37.86	$kWh/m^2/yr$	
	-0.5 (-1.3%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.96 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North East Windows facing South East	7.55 m², No overhang 5.10 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.96 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	4.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0616	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 616, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	26.91	**TER**	26.07
Environmental	84 B	**% DER<TER**	-3.24		
CO_2 Emissions (t/year)	1.09	**DFEE**	37.86	**TFEE**	38.42
General Requirements Compliance	Fail	**% DFEE<TFEE**	1.45		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	26.07	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	26.91	$kgCO_2/m^2$	
Excess emissions	0.84 (3.2%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.42	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	37.86	$kWh/m^2/yr$	
	-0.5 (-1.3%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.96 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.40	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.55 m², No overhang
Windows facing South East	5.10 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.96 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	4.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0617	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 617, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	82 B	**DER**	25.42	**TER**	24.71
Environmental	84 B	**% DER<TER**	-2.86		
CO_2 Emissions (t/year)	1.05	**DFEE**	34.66	**TFEE**	33.35
General Requirements Compliance	Fail	**% DFEE<TFEE**	-3.94		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West	
Property Tenure	Unknown	
Transaction Type	New dwelling	
Terrain Type	Urban	
1.0 Property Type	Flat, Semi-Detached	
2.0 Number of Storeys	1	
3.0 Date Built	2018	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.50 m²	2.50 m

7.0 Living Area	34.00	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	37.45	24.72

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	37.50

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					5.10	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					7.63	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	5.09	0.300	No
Table K1 - Approved	E3 Sill	4.09	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	14.98	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	14.98	0.070	No
Table K1 - Approved	E16 Corner (normal)	2.50	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.02	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.02	0.000	No

Y-value	0.143	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.78	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day

32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0617	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 617, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	82 B	**DER**	25.42	**TER**	24.71
Environmental	84 B	**% DER<TER**	-2.86		
CO_2 Emissions (t/year)	1.05	**DFEE**	34.66	**TFEE**	33.35
General Requirements Compliance	Fail	**% DFEE<TFEE**	-3.94		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	24.71	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	25.42	$kgCO_2/m^2$	
Excess emissions	0.71 (2.9%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	33.35	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	34.66	$kWh/m^2/yr$	
Excess energy	1.4 (4.2%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.78 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South East Windows facing South West	5.10 m², No overhang 7.63 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.78 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0617	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 617, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	82 B	**DER**	25.42	**TER**	24.71
Environmental	84 B	**% DER<TER**	-2.86		
CO_2 Emissions (t/year)	1.05	**DFEE**	34.66	**TFEE**	33.35
General Requirements Compliance	Fail	**% DFEE<TFEE**	-3.94		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	24.71	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	25.42	$kgCO_2/m^2$	
Excess emissions	0.71 (2.9%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	33.35	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	34.66	$kWh/m^2/yr$	
Excess energy	1.4 (4.2%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.78 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.40	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	5.10 m², No overhang
Windows facing South West	7.63 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.78 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0618	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 618, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	85 B	**DER**	18.40	**TER**	19.49
Environmental	87 B	**% DER<TER**	5.57		
CO_2 Emissions (t/year)	1.08	**DFEE**	23.55	**TFEE**	23.27
General Requirements Compliance	Fail	**% DFEE<TFEE**	-1.24		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	68.00 m²	2.50 m

7.0 Living Area	32.37	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.45	14.25

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (sw)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					10.20	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.08	0.300	No
Table K1 - Approved	E3 Sill	3.08	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.78	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.78	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.166	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.64	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0618	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 618, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	85 B	**DER**	18.40	**TER**	19.49
Environmental	87 B	**% DER<TER**	5.57		
CO_2 Emissions (t/year)	1.08	**DFEE**	23.55	**TFEE**	23.27
General Requirements Compliance	Fail	**% DFEE<TFEE**	-1.24		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.49	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.40	$kgCO_2/m^2$	Pass
	-1.09 (-5.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.27	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.55	$kWh/m^2/yr$	
Excess energy	0.3 (1.3%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.64 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing South West	10.20 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.64 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0618	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 618, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	85 B	DER	18.40	TER	19.49
Environmental	87 B	% DER<TER	5.57		
CO_2 Emissions (t/year)	1.08	DFEE	23.55	TFEE	23.27
General Requirements Compliance	Fail	% DFEE<TFEE	-1.24		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.49	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.40	$kgCO_2/m^2$	Pass
	-1.09 (-5.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.27	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.55	$kWh/m^2/yr$	
Excess energy	0.3 (1.3%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.64 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South West	10.20 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.64 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0701	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	3 bed
Property	Flat 701, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	22.29	**TER**	22.16
Environmental	83 B	**% DER<TER**	-0.60		
CO_2 Emissions (t/year)	1.52	**DFEE**	36.46	**TFEE**	39.19
General Requirements Compliance	Fail	**% DFEE<TFEE**	6.95		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East	
Property Tenure	Unknown	
Transaction Type	New dwelling	
Terrain Type	Urban	
1.0 Property Type	Flat, Semi-Detached	
2.0 Number of Storeys	1	
3.0 Date Built	2018	
4.0 Sheltered Sides	3	
5.0 Sunlight/Shade	Average or unknown	

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	83.50 m²	2.50 m

7.0 Living Area	38.00	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	54.00	30.02

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	47.97

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					18.90	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					5.08	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	9.59	0.300	No
Table K1 - Approved	E3 Sill	9.59	0.040	No
Table K1 - Approved	E4 Jamb	25.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	21.66	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	21.66	0.070	No
Table K1 - Approved	E16 Corner (normal)	7.50	0.090	No
Table K1 - Approved	E17 Corner (inverted – internal area greater than external area)	5.00	-0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	19.19	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	19.19	0.000	No

Y-value	0.152	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.37	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid

MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L

Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0701	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	3 bed
Property	Flat 701, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	22.29	**TER**	22.16
Environmental	83 B	**% DER<TER**	-0.60		
CO_2 Emissions (t/year)	1.52	**DFEE**	36.46	**TFEE**	39.19
General Requirements Compliance	Fail	**% DFEE<TFEE**	6.95		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.16	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	22.29	$kgCO_2/m^2$	
Excess emissions	0.13 (0.6%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.19	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.46	$kWh/m^2/yr$	
	-2.7 (-6.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.37 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South West Windows facing North West	5.08 m², No overhang 18.90 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.37 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0701	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	3 bed
Property	Flat 701, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	DER	22.29	TER	22.16
Environmental	83 B	% DER<TER	-0.60		
CO_2 Emissions (t/year)	1.52	DFEE	36.46	TFEE	39.19
General Requirements Compliance	Fail	% DFEE<TFEE	6.95		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.16	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	22.29	$kgCO_2/m^2$	
Excess emissions	0.13 (0.6%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.19	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.46	$kWh/m^2/yr$	
	-2.7 (-6.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.37 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South West	5.08 m², No overhang
Windows facing North West	18.90 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.37 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0702	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 702, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	23.45	**TER**	23.83
Environmental	84 B	**% DER<TER**	1.60		
CO_2 Emissions (t/year)	1.29	**DFEE**	34.67	**TFEE**	38.79
General Requirements Compliance	Pass	**% DFEE<TFEE**	10.62		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	28.00	16.70

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	57.50

10.0 External Roofs

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Roof	External Flat Roof	0.14	16.65	16.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	10.77	0.070	No
Table K1 - Default	E15 Flat roof with parapet	10.77	0.560	No
Table K1 - Approved	E16 Corner (normal)	2.50	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	23.00	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	20.00	0.000	No
Table K1 - Default	P4 Party wall - Roof (insulation at ceiling level)	2.90	0.240	No

Y-value	0.233	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.91	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0702	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 702, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	23.45	**TER**	23.83
Environmental	84 B	**% DER<TER**	1.60		
CO_2 Emissions (t/year)	1.29	**DFEE**	34.67	**TFEE**	38.79
General Requirements Compliance	Pass	**% DFEE<TFEE**	10.62		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.83	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.45	$kgCO_2/m^2$	Pass
	-0.38 (-1.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.79	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	34.67	$kWh/m^2/yr$	
	-4.1 (-10.6%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.91 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.91 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0702	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 702, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	DER	23.45	TER	23.83
Environmental	84 B	% DER<TER	1.60		
CO_2 Emissions (t/year)	1.29	DFEE	34.67	TFEE	38.79
General Requirements Compliance	Pass	% DFEE<TFEE	10.62		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.83	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.45	$kgCO_2/m^2$	Pass
	-0.38 (-1.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	38.79	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	34.67	$kWh/m^2/yr$	
	-4.1 (-10.6%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.91 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.91 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0703	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 703, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	82 B	**DER**	23.18	**TER**	23.56
Environmental	84 B	**% DER<TER**	1.62		
CO_2 Emissions (t/year)	1.27	**DFEE**	34.08	**TFEE**	37.89
General Requirements Compliance	Pass	**% DFEE<TFEE**	10.06		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

10.0 External Roofs

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Roof	External Flat Roof	0.14	17.30	17.30

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Default	E15 Flat roof with parapet	9.95	0.560	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	19.98	0.000	No
Table K1 - Default	P4 Party wall - Roof (insulation at ceiling level)	4.28	0.240	No

Y-value	0.241	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.94	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0

Number of open flues	0	0	0
Number of intermittent fans			0
Number of passive vents			0
Number of flueless gas fires			0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0703	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 703, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	82 B	**DER**	23.18	**TER**	23.56
Environmental	84 B	**% DER<TER**	1.62		
CO_2 Emissions (t/year)	1.27	**DFEE**	34.08	**TFEE**	37.89
General Requirements Compliance	Pass	**% DFEE<TFEE**	10.06		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.56	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.18	$kgCO_2/m^2$	Pass
	-0.38 (-1.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.89	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	34.08	$kWh/m^2/yr$	
	-3.8 (-10.0%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.94 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.94 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0703	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 703, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	82 B	DER	23.18	TER	23.56
Environmental	84 B	% DER<TER	1.62		
CO_2 Emissions (t/year)	1.27	DFEE	34.08	TFEE	37.89
General Requirements Compliance	Pass	% DFEE<TFEE	10.06		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.56	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.18	$kgCO_2/m^2$	Pass
	-0.38 (-1.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.89	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	34.08	$kWh/m^2/yr$	
	-3.8 (-10.0%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.94 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.94 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0704	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 704, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	82 B	**DER**	22.92	**TER**	23.56
Environmental	84 B	**% DER<TER**	2.72		
CO_2 Emissions (t/year)	1.26	**DFEE**	33.93	**TFEE**	37.89
General Requirements Compliance	Pass	**% DFEE<TFEE**	10.45		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2019
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

10.0 External Roofs

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Roof	External Flat Roof	0.14	17.30	17.30

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Default	E15 Flat roof with parapet	9.95	0.560	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	19.98	0.000	No
Table K1 - Default	P4 Party wall - Roof (insulation at ceiling level)	4.28	0.240	No

Y-value	0.241	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.71	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0

Number of open flues	0	0	0
Number of intermittent fans			0
Number of passive vents			0
Number of flueless gas fires			0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0704	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 704, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	82 B	**DER**	22.92	**TER**	23.56
Environmental	84 B	**% DER<TER**	2.72		
CO_2 Emissions (t/year)	1.26	**DFEE**	33.93	**TFEE**	37.89
General Requirements Compliance	Pass	**% DFEE<TFEE**	10.45		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.56	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	22.92	$kgCO_2/m^2$	Pass
	-0.64 (-2.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.89	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	33.93	$kWh/m^2/yr$	
	-4.0 (-10.6%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.71 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.71 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0704	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 704, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	82 B	DER	22.92	TER	23.56
Environmental	84 B	% DER<TER	2.72		
CO_2 Emissions (t/year)	1.26	DFEE	33.93	TFEE	37.89
General Requirements Compliance	Pass	% DFEE<TFEE	10.45		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.56	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	22.92	$kgCO_2/m^2$	Pass
	-0.64 (-2.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.89	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	33.93	$kWh/m^2/yr$	
	-4.0 (-10.6%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.71 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.71 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0705	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 705, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	82 B	**DER**	23.10	**TER**	23.56
Environmental	84 B	**% DER<TER**	1.96		
CO_2 Emissions (t/year)	1.27	**DFEE**	34.03	**TFEE**	37.89
General Requirements Compliance	Pass	**% DFEE<TFEE**	10.18		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2019
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

10.0 External Roofs

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Roof	External Flat Roof	0.14	17.30	17.30

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Default	E15 Flat roof with parapet	9.95	0.560	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	19.98	0.000	No
Table K1 - Default	P4 Party wall - Roof (insulation at ceiling level)	4.28	0.240	No

Y-value	0.241	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.87	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0

Number of open flues	0	0	0
Number of intermittent fans			0
Number of passive vents			0
Number of flueless gas fires			0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0705	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 705, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	82 B	**DER**	23.10	**TER**	23.56
Environmental	84 B	**% DER<TER**	1.96		
CO_2 Emissions (t/year)	1.27	**DFEE**	34.03	**TFEE**	37.89
General Requirements Compliance	Pass	**% DFEE<TFEE**	10.18		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.56	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.10	$kgCO_2/m^2$	Pass
	-0.46 (-2.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.89	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	34.03	$kWh/m^2/yr$	
	-3.9 (-10.3%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.87 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.87 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0705	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 705, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	82 B	DER	23.10	TER	23.56
Environmental	84 B	% DER<TER	1.96		
CO_2 Emissions (t/year)	1.27	DFEE	34.03	TFEE	37.89
General Requirements Compliance	Pass	% DFEE<TFEE	10.18		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.56	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.10	$kgCO_2/m^2$	Pass
	-0.46 (-2.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.89	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	34.03	$kWh/m^2/yr$	
	-3.9 (-10.3%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.87 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.87 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0706	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 706, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	82 B	**DER**	23.18	**TER**	23.56
Environmental	84 B	**% DER<TER**	1.62		
CO_2 Emissions (t/year)	1.27	**DFEE**	34.08	**TFEE**	37.89
General Requirements Compliance	Pass	**% DFEE<TFEE**	10.06		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2019
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

10.0 External Roofs

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Roof	External Flat Roof	0.14	17.30	17.30

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	3.62	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Default	E15 Flat roof with parapet	9.95	0.560	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	19.98	0.000	No
Table K1 - Default	P4 Party wall - Roof (insulation at ceiling level)	4.28	0.240	No

Y-value	0.241	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.94	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0

Number of open flues	0	0	0
Number of intermittent fans			0
Number of passive vents			0
Number of flueless gas fires			0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0706	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 706, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	82 B	**DER**	23.18	**TER**	23.56
Environmental	84 B	**% DER<TER**	1.62		
CO_2 Emissions (t/year)	1.27	**DFEE**	34.08	**TFEE**	37.89
General Requirements Compliance	Pass	**% DFEE<TFEE**	10.06		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.56	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.18	$kgCO_2/m^2$	Pass
	-0.38 (-1.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.89	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	34.08	$kWh/m^2/yr$	
	-3.8 (-10.0%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.94 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.94 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0706	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 706, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	82 B	DER	23.18	TER	23.56
Environmental	84 B	% DER<TER	1.62		
CO_2 Emissions (t/year)	1.27	DFEE	34.08	TFEE	37.89
General Requirements Compliance	Pass	% DFEE<TFEE	10.06		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.56	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.18	$kgCO_2/m^2$	Pass
	-0.38 (-1.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.89	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	34.08	$kWh/m^2/yr$	
	-3.8 (-10.0%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.94 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North West	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.94 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0707	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 707, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	77 C	**DER**	28.15	**TER**	26.26
Environmental	80 C	**% DER<TER**	-7.20		
CO_2 Emissions (t/year)	1.57	**DFEE**	44.23	**TFEE**	48.01
General Requirements Compliance	Fail	**% DFEE<TFEE**	7.87		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East	
Property Tenure	Unknown	
Transaction Type	New dwelling	
Terrain Type	Urban	
1.0 Property Type	Flat, Semi-Detached	
2.0 Number of Storeys	1	
3.0 Date Built	2018	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	42.87	23.95

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	42.87

10.0 External Roofs

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Roof	External Flat Roof	0.14	17.22	17.22

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					11.30	50
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.62	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	7.57	0.300	No
Table K1 - Approved	E3 Sill	6.67	0.040	No
Table K1 - Approved	E4 Jamb	25.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	17.15	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.24	0.070	No
Table K1 - Default	E15 Flat roof with parapet	10.91	0.560	No
Table K1 - Approved	E16 Corner (normal)	2.50	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	17.15	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	14.25	0.000	No
Table K1 - Default	P4 Party wall - Roof (insulation at ceiling level)	2.90	0.240	No

Y-value	0.215	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.79	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43

Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	

Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0707	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 707, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	77 C	**DER**	28.15	**TER**	26.26
Environmental	80 C	**% DER<TER**	-7.20		
CO_2 Emissions (t/year)	1.57	**DFEE**	44.23	**TFEE**	48.01
General Requirements Compliance	Fail	**% DFEE<TFEE**	7.87		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	26.26	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	28.15	$kgCO_2/m^2$	
Excess emissions	1.89 (7.2%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	48.01	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	44.23	$kWh/m^2/yr$	
	-3.8 (-7.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.79 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North East Windows facing North West	7.62 m², No overhang 11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.79 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0707	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 707, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	77 C	DER	28.15	TER	26.26
Environmental	80 C	% DER<TER	-7.20		
CO_2 Emissions (t/year)	1.57	DFEE	44.23	TFEE	48.01
General Requirements Compliance	Fail	% DFEE<TFEE	7.87		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	26.26	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	28.15	$kgCO_2/m^2$	
Excess emissions	1.89 (7.2%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	48.01	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	44.23	$kWh/m^2/yr$	
	-3.8 (-7.9%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.79 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North East Windows facing North West	7.62 m², No overhang 11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.79 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0708	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 708, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	21.18	**TER**	23.86
Environmental	87 B	**% DER<TER**	11.25		
CO_2 Emissions (t/year)	0.90	**DFEE**	25.67	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.78		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	31.24	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	15.50	7.86

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	56.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (ne)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.64	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.05	0.300	No
Table K1 - Approved	E3 Sill	2.05	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No

Y-value	0.191	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.99	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0708	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 708, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	21.18	**TER**	23.86
Environmental	87 B	**% DER<TER**	11.25		
CO_2 Emissions (t/year)	0.90	**DFEE**	25.67	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.78		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.86	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	21.18	$kgCO_2/m^2$	Pass
	-2.68 (-11.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.10	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	25.67	$kWh/m^2/yr$	
	-3.4 (-11.7%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.99 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average	
Windows facing North East	7.64 m², No overhang	
Air change rate	4.00 ach	
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours	

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.99 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	4.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0708	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 708, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	21.18	**TER**	23.86
Environmental	87 B	**% DER<TER**	11.25		
CO_2 Emissions (t/year)	0.90	**DFEE**	25.67	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.78		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.86	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	21.18	$kgCO_2/m^2$	Pass
	-2.68 (-11.2%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.10	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	25.67	$kWh/m^2/yr$	
	-3.4 (-11.7%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.99 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.64 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.99 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	4.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0709	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 709, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	21.07	**TER**	23.86
Environmental	87 B	**% DER<TER**	11.71		
CO_2 Emissions (t/year)	0.90	**DFEE**	25.59	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.07		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	31.24	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	15.50	7.86

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	56.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (ne)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.64	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.05	0.300	No
Table K1 - Approved	E3 Sill	2.05	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No

Y-value	0.191	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.88	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0709	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 709, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	21.07	**TER**	23.86
Environmental	87 B	**% DER<TER**	11.71		
CO_2 Emissions (t/year)	0.90	**DFEE**	25.59	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.07		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.86	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	21.07	$kgCO_2/m^2$	Pass
	-2.79 (-11.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.10	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	25.59	$kWh/m^2/yr$	
	-3.5 (-12.0%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.88 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.64 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.88 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0709	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 709, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	21.07	**TER**	23.86
Environmental	87 B	**% DER<TER**	11.71		
CO_2 Emissions (t/year)	0.90	**DFEE**	25.59	**TFEE**	29.10
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.07		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	23.86	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	21.07	$kgCO_2/m^2$	Pass
	-2.79 (-11.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	29.10	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	25.59	$kWh/m^2/yr$	
	-3.5 (-12.0%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.88 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	7.64 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.88 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0710	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 710, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	82 B	**DER**	21.95	**TER**	22.80
Environmental	84 B	**% DER<TER**	3.71		
CO_2 Emissions (t/year)	1.33	**DFEE**	33.35	**TFEE**	37.89
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.99		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West	
Property Tenure	Unknown	
Transaction Type	New dwelling	
Terrain Type	Urban	
1.0 Property Type	Flat, Semi-Detached	
2.0 Number of Storeys	1	
3.0 Date Built	2018	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	73.00 m²	2.50 m

7.0 Living Area	37.31	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	60.47	42.65

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	39.75

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (ne)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					5.10	50
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					10.17	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					2.55	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	7.13	0.300	No
Table K1 - Approved	E3 Sill	7.13	0.040	No
Table K1 - Approved	E4 Jamb	30.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	24.19	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	24.19	0.070	No
Table K1 - Approved	E16 Corner (normal)	5.00	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.90	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.90	0.000	No

Y-value	0.138	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.44	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes

Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	

Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0710	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 710, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	82 B	**DER**	21.95	**TER**	22.80
Environmental	84 B	**% DER<TER**	3.71		
CO_2 Emissions (t/year)	1.33	**DFEE**	33.35	**TFEE**	37.89
General Requirements Compliance	Pass	**% DFEE<TFEE**	11.99		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.80	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	21.95	$kgCO_2/m^2$	Pass
	-0.85 (-3.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.89	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	33.35	$kWh/m^2/yr$	
	-4.6 (-12.1%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.44 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	5.10 m², No overhang
Windows facing South East	10.17 m², No overhang
Windows facing South West	2.55 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.44 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0710	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 710, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	82 B	DER	21.95	TER	22.80
Environmental	84 B	% DER<TER	3.71		
CO_2 Emissions (t/year)	1.33	DFEE	33.35	TFEE	37.89
General Requirements Compliance	Pass	% DFEE<TFEE	11.99		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.80	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	21.95	$kgCO_2/m^2$	Pass
	-0.85 (-3.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.89	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	33.35	$kWh/m^2/yr$	
	-4.6 (-12.1%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.44 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East Windows facing South East Windows facing South West	5.10 m², No overhang 10.17 m², No overhang 2.55 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.44 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0711	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 711, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	20.96	**TER**	22.40
Environmental	87 B	**% DER<TER**	6.44		
CO_2 Emissions (t/year)	0.90	**DFEE**	24.62	**TFEE**	22.40
General Requirements Compliance	Fail	**% DFEE<TFEE**	-9.90		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	30.32	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	17.50	8.75

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	53.27

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	1.02	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No

Y-value	0.181	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.92	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0711	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 711, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	20.96	**TER**	22.40
Environmental	87 B	**% DER<TER**	6.44		
CO_2 Emissions (t/year)	0.90	**DFEE**	24.62	**TFEE**	22.40
General Requirements Compliance	Fail	**% DFEE<TFEE**	-9.90		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.40	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.96	$kgCO_2/m^2$	Pass
	-1.44 (-6.4%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	22.40	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.62	$kWh/m^2/yr$	
Excess energy	2.2 (9.8%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.92 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.92 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0711	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 711, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	DER	20.96	TER	22.40
Environmental	87 B	% DER<TER	6.44		
CO_2 Emissions (t/year)	0.90	DFEE	24.62	TFEE	22.40
General Requirements Compliance	Fail	% DFEE<TFEE	-9.90		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.40	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.96	$kgCO_2/m^2$	Pass
	-1.44 (-6.4%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	22.40	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.62	$kWh/m^2/yr$	
Excess energy	2.2 (9.8%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.92 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.92 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0712	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 712, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	85 B	**DER**	18.13	**TER**	19.29
Environmental	87 B	**% DER<TER**	6.03		
CO_2 Emissions (t/year)	1.08	**DFEE**	22.55	**TFEE**	21.33
General Requirements Compliance	Fail	**% DFEE<TFEE**	-5.71		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	16.12

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	1.02	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.144	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.95	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0712	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 712, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	85 B	**DER**	18.13	**TER**	19.29
Environmental	87 B	**% DER<TER**	6.03		
CO_2 Emissions (t/year)	1.08	**DFEE**	22.55	**TFEE**	21.33
General Requirements Compliance	Fail	**% DFEE<TFEE**	-5.71		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.29	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.13	$kgCO_2/m^2$	Pass
	-1.16 (-6.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	21.33	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	22.55	$kWh/m^2/yr$	
Excess energy	1.2 (5.6%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.95 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average	
Windows facing South East	8.75 m², No overhang	
Air change rate	4.00 ach	
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours	

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.95 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	4.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0712	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 712, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	85 B	DER	18.13	TER	19.29
Environmental	87 B	% DER<TER	6.03		
CO_2 Emissions (t/year)	1.08	DFEE	22.55	TFEE	21.33
General Requirements Compliance	Fail	% DFEE<TFEE	-5.71		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.29	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.13	$kgCO_2/m^2$	Pass
	-1.16 (-6.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	21.33	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	22.55	$kWh/m^2/yr$	
Excess energy	1.2 (5.6%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.95 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.95 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	4.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

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This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0713	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 713, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	18.85	**TER**	19.37
Environmental	87 B	**% DER<TER**	2.70		
CO_2 Emissions (t/year)	1.10	**DFEE**	24.33	**TFEE**	23.58
General Requirements Compliance	Fail	**% DFEE<TFEE**	-3.19		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					11.30	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	2.04	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.168	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.97	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0713	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 713, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	18.85	**TER**	19.37
Environmental	87 B	**% DER<TER**	2.70		
CO_2 Emissions (t/year)	1.10	**DFEE**	24.33	**TFEE**	23.58
General Requirements Compliance	Fail	**% DFEE<TFEE**	-3.19		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.37	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.85	$kgCO_2/m^2$	Pass
	-0.52 (-2.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.58	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.33	$kWh/m^2/yr$	
Excess energy	0.7 (3.0%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.97 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing South East	11.30 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.97 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	4.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0713	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 713, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	DER	18.85	TER	19.37
Environmental	87 B	% DER<TER	2.70		
CO_2 Emissions (t/year)	1.10	DFEE	24.33	TFEE	23.58
General Requirements Compliance	Fail	% DFEE<TFEE	-3.19		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.37	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.85	$kgCO_2/m^2$	Pass
	-0.52 (-2.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.58	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.33	$kWh/m^2/yr$	
Excess energy	0.7 (3.0%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.97 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.97 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	4.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0714	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 714, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	18.62	**TER**	19.37
Environmental	87 B	**% DER<TER**	3.89		
CO_2 Emissions (t/year)	1.09	**DFEE**	24.17	**TFEE**	23.58
General Requirements Compliance	Fail	**% DFEE<TFEE**	-2.52		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.50 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.87	13.57

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					11.30	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.52	0.300	No
Table K1 - Approved	E3 Sill	2.04	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.168	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.73	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0714	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 714, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	18.62	**TER**	19.37
Environmental	87 B	**% DER<TER**	3.89		
CO_2 Emissions (t/year)	1.09	**DFEE**	24.17	**TFEE**	23.58
General Requirements Compliance	Fail	**% DFEE<TFEE**	-2.52		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.37	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.62	$kgCO_2/m^2$	Pass
	-0.75 (-3.9%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.58	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.17	$kWh/m^2/yr$	
Excess energy	0.6 (2.5%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.73 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.73 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0714	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 714, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	DER	18.62	TER	19.37
Environmental	87 B	% DER<TER	3.89		
CO_2 Emissions (t/year)	1.09	DFEE	24.17	TFEE	23.58
General Requirements Compliance	Fail	% DFEE<TFEE	-2.52		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.37	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.62	$kgCO_2/m^2$	Pass
	-0.75 (-3.9%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.58	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.17	$kWh/m^2/yr$	
Excess energy	0.6 (2.5%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.73 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	11.30 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.73 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0715	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 715, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	20.89	**TER**	22.44
Environmental	87 B	**% DER<TER**	6.93		
CO_2 Emissions (t/year)	0.90	**DFEE**	24.64	**TFEE**	22.56
General Requirements Compliance	Fail	**% DFEE<TFEE**	-9.25		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	2.50 m

7.0 Living Area	30.32	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	17.50	8.75

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	53.27

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	3.50	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No

Y-value	0.187	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.79	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0715	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 715, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	20.89	**TER**	22.44
Environmental	87 B	**% DER<TER**	6.93		
CO_2 Emissions (t/year)	0.90	**DFEE**	24.64	**TFEE**	22.56
General Requirements Compliance	Fail	**% DFEE<TFEE**	-9.25		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.44	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.89	$kgCO_2/m^2$	Pass
	-1.55 (-6.9%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	22.56	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.64	$kWh/m^2/yr$	
Excess energy	2.0 (8.8%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.79 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.79 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0715	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 715, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	20.89	**TER**	22.44
Environmental	87 B	**% DER<TER**	6.93		
CO_2 Emissions (t/year)	0.90	**DFEE**	24.64	**TFEE**	22.56
General Requirements Compliance	Fail	**% DFEE<TFEE**	-9.25		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.44	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	20.89	$kgCO_2/m^2$	Pass
	-1.55 (-6.9%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	22.56	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	24.64	$kWh/m^2/yr$	
Excess energy	2.0 (8.8%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.79 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.40	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.79 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0716	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 716, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	77 C	**DER**	32.58	**TER**	29.57
Environmental	80 C	**% DER<TER**	-10.17		
CO_2 Emissions (t/year)	1.32	**DFEE**	48.97	**TFEE**	50.04
General Requirements Compliance	Fail	**% DFEE<TFEE**	2.15		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	50.00 m²	2.50 m

7.0 Living Area	32.27	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	34.32	21.67

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	41.22

10.0 External Roofs

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Roof	External Flat Roof	0.14	28.00	28.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					5.10	50
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.55	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	5.06	0.300	No
Table K1 - Approved	E3 Sill	4.06	0.040	No
Table K1 - Approved	E4 Jamb	20.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	13.73	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	2.93	0.070	No
Table K1 - Default	E15 Flat roof with parapet	10.80	0.560	No
Table K1 - Approved	E16 Corner (normal)	5.00	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	12.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	16.49	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	16.49	0.000	No

Y-value	0.178	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.92	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid

MVHR Efficiency	94.00	
Wet Rooms	1	

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L

Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0716	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 716, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	77 C	**DER**	32.58	**TER**	29.57
Environmental	80 C	**% DER<TER**	-10.17		
CO_2 Emissions (t/year)	1.32	**DFEE**	48.97	**TFEE**	50.04
General Requirements Compliance	Fail	**% DFEE<TFEE**	2.15		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	29.57	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	32.58	$kgCO_2/m^2$	
Excess emissions	3.01 (10.2%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	50.04	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	48.97	$kWh/m^2/yr$	
	-1.0 (-2.0%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.92 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North East Windows facing South East	7.55 m², No overhang 5.10 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.92 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0716	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 716, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	77 C	DER	32.58	TER	29.57
Environmental	80 C	% DER<TER	-10.17		
CO_2 Emissions (t/year)	1.32	DFEE	48.97	TFEE	50.04
General Requirements Compliance	Fail	% DFEE<TFEE	2.15		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	29.57	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	32.58	$kgCO_2/m^2$	
Excess emissions	3.01 (10.2%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	50.04	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	48.97	$kWh/m^2/yr$	
	-1.0 (-2.0%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.92 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average	
Windows facing North East	7.55 m², No overhang	
Windows facing South East	5.10 m², No overhang	
Air change rate	4.00 ach	
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours	

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.92 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0717	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 717, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	82 B	**DER**	25.36	**TER**	24.71
Environmental	85 B	**% DER<TER**	-2.62		
CO_2 Emissions (t/year)	1.05	**DFEE**	34.62	**TFEE**	33.35
General Requirements Compliance	Fail	**% DFEE<TFEE**	-3.81		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.50 m²	2.50 m

7.0 Living Area	34.00	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	37.45	24.72

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	37.50

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					5.10	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					7.63	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	5.09	0.300	No
Table K1 - Approved	E3 Sill	4.09	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	14.98	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	14.98	0.070	No
Table K1 - Approved	E16 Corner (normal)	2.50	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.02	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.02	0.000	No

Y-value	0.143	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.73	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day

32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0717	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 717, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	82 B	**DER**	25.36	**TER**	24.71
Environmental	85 B	**% DER<TER**	-2.62		
CO_2 Emissions (t/year)	1.05	**DFEE**	34.62	**TFEE**	33.35
General Requirements Compliance	Fail	**% DFEE<TFEE**	-3.81		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	24.71	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	25.36	$kgCO_2/m^2$	
Excess emissions	0.65 (2.6%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	33.35	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	34.62	$kWh/m^2/yr$	
Excess energy	1.3 (3.9%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.73 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South East Windows facing South West	5.10 m², No overhang 7.63 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.73 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

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BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0717	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 717, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	82 B	DER	25.36	TER	24.71
Environmental	85 B	% DER<TER	-2.62		
CO_2 Emissions (t/year)	1.05	DFEE	34.62	TFEE	33.35
General Requirements Compliance	Fail	% DFEE<TFEE	-3.81		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	24.71	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	25.36	$kgCO_2/m^2$	
Excess emissions	0.65 (2.6%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	33.35	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	34.62	$kWh/m^2/yr$	
Excess energy	1.3 (3.9%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.73 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

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5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.40	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East Windows facing South West	5.10 m², No overhang 7.63 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.73 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0718	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 718, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	85 B	**DER**	18.19	**TER**	19.49
Environmental	87 B	**% DER<TER**	6.65		
CO_2 Emissions (t/year)	1.07	**DFEE**	23.41	**TFEE**	23.27
General Requirements Compliance	Fail	**% DFEE<TFEE**	-0.62		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	68.00 m²	2.50 m

7.0 Living Area	32.37	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.45	14.25

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (sw)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					10.20	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.08	0.300	No
Table K1 - Approved	E3 Sill	3.08	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.78	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.78	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.166	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.41	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0718	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 718, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	85 B	**DER**	18.19	**TER**	19.49
Environmental	87 B	**% DER<TER**	6.65		
CO_2 Emissions (t/year)	1.07	**DFEE**	23.41	**TFEE**	23.27
General Requirements Compliance	Fail	**% DFEE<TFEE**	-0.62		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.49	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.19	$kgCO_2/m^2$	Pass
	-1.30 (-6.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.27	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.41	$kWh/m^2/yr$	
Excess energy	0.1 (0.4%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.41 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing South West	10.20 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.41 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0718	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 718, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	85 B	DER	18.19	TER	19.49
Environmental	87 B	% DER<TER	6.65		
CO_2 Emissions (t/year)	1.07	DFEE	23.41	TFEE	23.27
General Requirements Compliance	Fail	% DFEE<TFEE	-0.62		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.49	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.19	$kgCO_2/m^2$	Pass
	-1.30 (-6.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.27	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.41	$kWh/m^2/yr$	
Excess energy	0.1 (0.4%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.41 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South West	10.20 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.41 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0803	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	3 bed
Property	Flat 803, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	69 C	**DER**	33.82	**TER**	31.32
Environmental	73 C	**% DER<TER**	-7.97		
CO_2 Emissions (t/year)	2.71	**DFEE**	65.02	**TFEE**	73.04
General Requirements Compliance	Fail	**% DFEE<TFEE**	10.98		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East	
Property Tenure	Unknown	
Transaction Type	New dwelling	
Terrain Type	Urban	
1.0 Property Type	Flat, Semi-Detached	
2.0 Number of Storeys	1	
3.0 Date Built	2018	
4.0 Sheltered Sides	3	
5.0 Sunlight/Shade	Average or unknown	

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	98.00 m²	3.80 m

7.0 Living Area	44.32	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	88.00	63.59

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	104.00

10.0 External Roofs

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Roof (rafters)	External Slope Roof	0.14	106.00	106.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					24.41	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging — Calculate Bridges

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	6.69	0.300	No
Table K1 - Approved	E3 Sill	0.68	0.040	No
Table K1 - Approved	E4 Jamb	34.50	0.050	No
Table K1 - Default	E24 Eaves (insulation at ceiling level - inverted)	20.47	0.240	No
Table K1 - Approved	E13 Gable (insulation at rafter level)	20.47	0.040	No
Table K1 - Approved	E17 Corner (inverted – internal area greater than external area)	2.93	-0.090	No
Table K1 - Approved	E18 Party wall between dwellings	17.86	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	31.89	0.000	No
Table K1 - Default	P4 Party wall - Roof (insulation at ceiling level)	20.17	0.240	No
Table K1 - Default	P5 Party wall - Roof (insulation at rafter level)	11.92	0.080	No
Table K1 - Default	R5 Ridge (inverted)	3.95	0.040	No

Y-value	0.084	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.40	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	Yes	
Cooled Area	98.00	m^2
Data Source	SAP table	
Cooling Type	Split or Multi-Split	
Energy Class	A	
System Control	On/Off	
22.0 Lighting		
Internal		
Total number of light fittings	16	
Total number of L.E.L. fittings	16	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	

Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0803	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	3 bed
Property	Flat 803, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	69 C	**DER**	33.82	**TER**	31.32
Environmental	73 C	**% DER<TER**	-7.97		
CO_2 Emissions (t/year)	2.71	**DFEE**	65.02	**TFEE**	73.04
General Requirements Compliance	Fail	**% DFEE<TFEE**	10.98		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	31.32	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	33.82	$kgCO_2/m^2$	
Excess emissions	2.50 (8.0%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	73.04	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	65.02	$kWh/m^2/yr$	
	-8.0 (-11.0%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.40 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average	
Windows facing North West	24.41 m², No overhang	
Air change rate	4.00 ach	
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours	

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.40 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0803	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	3 bed
Property	Flat 803, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	69 C	DER	33.82	TER	31.32
Environmental	73 C	% DER<TER	-7.97		
CO_2 Emissions (t/year)	2.71	DFEE	65.02	TFEE	73.04
General Requirements Compliance	Fail	% DFEE<TFEE	10.98		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	31.32	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	33.82	$kgCO_2/m^2$	
Excess emissions	2.50 (8.0%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	73.04	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	65.02	$kWh/m^2/yr$	
	-8.0 (-11.0%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.40 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North West	24.41 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.40 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.4	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0804	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	3 bed
Property	Flat 804, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	67 D	**DER**	35.47	**TER**	32.54
Environmental	71 C	**% DER<TER**	-9.00		
CO_2 Emissions (t/year)	2.86	**DFEE**	68.00	**TFEE**	77.11
General Requirements Compliance	Fail	**% DFEE<TFEE**	11.82		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	98.00 m²	3.80 m

7.0 Living Area	44.32	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	110.00	85.59

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	82.00

10.0 External Roofs

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Roof (rafters)	External Slope Roof	0.14	106.00	106.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (nw)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (nw)	Window	[1] Wall	North West	Dark-coloured curtain or roller blind	0.00					24.41	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	6.69	0.300	No
Table K1 - Approved	E3 Sill	0.68	0.040	No
Table K1 - Approved	E4 Jamb	34.50	0.050	No
Table K1 - Default	E24 Eaves (insulation at ceiling level - inverted)	25.81	0.240	No
Table K1 - Approved	E11 Eaves (insulation at rafter level)	5.70	0.040	No
Table K1 - Approved	E13 Gable (insulation at rafter level)	20.47	0.040	No
Table K1 - Approved	E16 Corner (normal)	7.62	0.090	No
Table K1 - Approved	E17 Corner (inverted – internal area greater than external area)	2.93	-0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.62	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	31.89	0.000	No
Table K1 - Default	P4 Party wall - Roof (insulation at ceiling level)	20.17	0.240	No
Table K1 - Default	P5 Party wall - Roof (insulation at rafter level)	5.96	0.080	No
Table K1 - Default	R5 Ridge (inverted)	3.95	0.040	No

Y-value	0.080	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.21	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	Yes	
Cooled Area	98.00	m^2
Data Source	SAP table	
Cooling Type	Split or Multi-Split	
Energy Class	A	
System Control	On/Off	
22.0 Lighting		
Internal		
Total number of light fittings	16	
Total number of L.E.L. fittings	16	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	

Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0804	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	3 bed
Property	Flat 804, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	67 D	**DER**	35.47	**TER**	32.54
Environmental	71 C	**% DER<TER**	-9.00		
CO_2 Emissions (t/year)	2.86	**DFEE**	68.00	**TFEE**	77.11
General Requirements Compliance	Fail	**% DFEE<TFEE**	11.82		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	32.54	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	35.47	$kgCO_2/m^2$	
Excess emissions	2.93 (9.0%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	77.11	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	68.00	$kWh/m^2/yr$	
	-9.1 (-11.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.21 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North West	24.41 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.21 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.2	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0804	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	3 bed
Property	Flat 804, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	67 D	DER	35.47	TER	32.54
Environmental	71 C	% DER<TER	-9.00		
CO_2 Emissions (t/year)	2.86	DFEE	68.00	TFEE	77.11
General Requirements Compliance	Fail	% DFEE<TFEE	11.82		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	32.54	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	35.47	$kgCO_2/m^2$	
Excess emissions	2.93 (9.0%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	77.11	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	68.00	$kWh/m^2/yr$	
	-9.1 (-11.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.21 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

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This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North West	24.41 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.21 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.2	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0805	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 805, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	79 C	**DER**	30.76	**TER**	32.29
Environmental	82 B	**% DER<TER**	4.73		
CO_2 Emissions (t/year)	1.21	**DFEE**	50.37	**TFEE**	57.28
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.06		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	3.63 m

7.0 Living Area	31.24	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	25.85	18.21

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	56.00

10.0 External Roofs

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Roof	External Slope Roof	0.14	50.53	50.53

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (ne)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.64	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.05	0.300	No
Table K1 - Approved	E3 Sill	2.05	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E11 Eaves (insulation at rafter level)	6.20	0.040	No
Table K1 - Approved	E16 Corner (normal)	4.17	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	10.09	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No
Table K1 - Default	P5 Party wall - Roof (insulation at rafter level)	22.50	0.080	No

Y-value	0.065	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.75	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0

Number of intermittent fans		0
Number of passive vents		0
Number of flueless gas fires		0
21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0805	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 805, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	79 C	**DER**	30.76	**TER**	32.29
Environmental	82 B	**% DER<TER**	4.73		
CO_2 Emissions (t/year)	1.21	**DFEE**	50.37	**TFEE**	57.28
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.06		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	32.29	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	30.76	$kgCO_2/m^2$	Pass
	-1.53 (-4.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	57.28	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	50.37	$kWh/m^2/yr$	
	-6.9 (-12.0%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.75 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North East	7.64 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.75 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0805	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 805, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	79 C	DER	30.76	TER	32.29
Environmental	82 B	% DER<TER	4.73		
CO_2 Emissions (t/year)	1.21	DFEE	50.37	TFEE	57.28
General Requirements Compliance	Pass	% DFEE<TFEE	12.06		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	32.29	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	30.76	$kgCO_2/m^2$	Pass
	-1.53 (-4.7%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	57.28	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	50.37	$kWh/m^2/yr$	
	-6.9 (-12.0%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.75 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North East	7.64 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.75 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0806	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 806, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	79 C	**DER**	30.59	**TER**	32.23
Environmental	82 B	**% DER<TER**	5.10		
CO_2 Emissions (t/year)	1.20	**DFEE**	50.17	**TFEE**	57.11
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.14		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	South West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	3.63 m

7.0 Living Area	31.24	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	25.85	18.21

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	56.00

10.0 External Roofs

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Roof	External Slope Roof	0.14	50.53	50.53

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (ne)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					7.64	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging — Calculate Bridges

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.05	0.300	No
Table K1 - Approved	E3 Sill	2.05	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	6.20	0.070	No
Table K1 - Approved	E11 Eaves (insulation at rafter level)	6.20	0.040	No
Table K1 - Approved	E18 Party wall between dwellings	14.26	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	22.40	0.000	No
Table K1 - Default	P5 Party wall - Roof (insulation at rafter level)	22.50	0.080	No

Y-value	0.063	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.70	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0

Number of passive vents		0
Number of flueless gas fires		0
21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0806	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 806, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	79 C	**DER**	30.59	**TER**	32.23
Environmental	82 B	**% DER<TER**	5.10		
CO_2 Emissions (t/year)	1.20	**DFEE**	50.17	**TFEE**	57.11
General Requirements Compliance	Pass	**% DFEE<TFEE**	12.14		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	32.23	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	30.59	$kgCO_2/m^2$	Pass
	-1.64 (-5.1%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	57.11	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	50.17	$kWh/m^2/yr$	
	-6.9 (-12.1%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.70 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North East	7.64 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.70 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0806	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 806, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	79 C	DER	30.59	TER	32.23
Environmental	82 B	% DER<TER	5.10		
CO_2 Emissions (t/year)	1.20	DFEE	50.17	TFEE	57.11
General Requirements Compliance	Pass	% DFEE<TFEE	12.14		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	32.23	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	30.59	$kgCO_2/m^2$	Pass
	-1.64 (-5.1%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	57.11	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	50.17	$kWh/m^2/yr$	
	-6.9 (-12.1%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.70 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North East	7.64 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.70 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0807	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 807, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	76 C	**DER**	28.71	**TER**	28.21
Environmental	79 C	**% DER<TER**	-1.76		
CO_2 Emissions (t/year)	1.72	**DFEE**	49.14	**TFEE**	55.70
General Requirements Compliance	Fail	**% DFEE<TFEE**	11.78		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	73.00 m²	3.19 m

7.0 Living Area	37.31	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	70.00	52.18

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	39.75

10.0 External Roofs

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Roof	External Slope Roof	0.14	75.00	75.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (ne)	Manufacturer	Window	Double Low-E Soft 0.05			0.60		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					5.10	50
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					10.17	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					2.55	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	7.13	0.300	No
Table K1 - Approved	E3 Sill	7.13	0.040	No
Table K1 - Approved	E4 Jamb	30.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	24.19	0.070	No
Table K1 - Approved	E11 Eaves (insulation at rafter level)	11.25	0.040	No
Table K1 - Approved	E13 Gable (insulation at rafter level)	8.15	0.040	No
Table K1 - Approved	E16 Corner (normal)	6.67	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	11.67	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	15.90	0.000	No
Table K1 - Default	P5 Party wall - Roof (insulation at rafter level)	8.15	0.080	No

Y-value	0.058	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.56	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes

Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	

Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0807	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 807, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	76 C	**DER**	28.71	**TER**	28.21
Environmental	79 C	**% DER<TER**	-1.76		
CO_2 Emissions (t/year)	1.72	**DFEE**	49.14	**TFEE**	55.70
General Requirements Compliance	Fail	**% DFEE<TFEE**	11.78		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	28.21	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	28.71	$kgCO_2/m^2$	
Excess emissions	0.50 (1.8%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	55.70	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	49.14	$kWh/m^2/yr$	
	-6.6 (-11.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.56 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	5.10 m², No overhang
Windows facing South East	10.17 m², No overhang
Windows facing South West	2.55 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.56 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0807	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 807, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	76 C	DER	28.71	TER	28.21
Environmental	79 C	% DER<TER	-1.76		
CO_2 Emissions (t/year)	1.72	DFEE	49.14	TFEE	55.70
General Requirements Compliance	Fail	% DFEE<TFEE	11.78		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	28.21	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	28.71	$kgCO_2/m^2$	
Excess emissions	0.50 (1.8%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	55.70	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	49.14	$kWh/m^2/yr$	
	-6.6 (-11.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.56 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North East Windows facing South East Windows facing South West	5.10 m², No overhang 10.17 m², No overhang 2.55 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.56 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0808	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 808, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	80 C	**DER**	29.11	**TER**	28.24
Environmental	83 B	**% DER<TER**	-3.09		
CO_2 Emissions (t/year)	1.15	**DFEE**	44.28	**TFEE**	44.01
General Requirements Compliance	Fail	**% DFEE<TFEE**	-0.60		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	3.19 m

7.0 Living Area	30.32	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	23.50	14.75

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	72.00

10.0 External Roofs

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Roof	External Flat Roof	0.14	50.00	50.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	1.02	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Default	E13 Gable (insulation at rafter level)	7.00	0.080	No
Table K1 - Approved	E18 Party wall between dwellings	13.76	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No
Table K1 - Default	P5 Party wall - Roof (insulation at rafter level)	21.31	0.080	No

Y-value	0.070	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	4.14	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0

Number of passive vents		0
Number of flueless gas fires		0
21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0808	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 808, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	80 C	**DER**	29.11	**TER**	28.24
Environmental	83 B	**% DER<TER**	-3.09		
CO_2 Emissions (t/year)	1.15	**DFEE**	44.28	**TFEE**	44.01
General Requirements Compliance	Fail	**% DFEE<TFEE**	-0.60		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	28.24	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	29.11	$kgCO_2/m^2$	
Excess emissions	0.87 (3.1%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	44.01	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	44.28	$kWh/m^2/yr$	
Excess energy	0.3 (0.7%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	4.14 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing South East	8.75 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	4.14 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0808	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 808, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	80 C	DER	29.11	TER	28.24
Environmental	83 B	% DER<TER	-3.09		
CO_2 Emissions (t/year)	1.15	DFEE	44.28	TFEE	44.01
General Requirements Compliance	Fail	% DFEE<TFEE	-0.60		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	28.24	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	29.11	$kgCO_2/m^2$	
Excess emissions	0.87 (3.1%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	44.01	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	44.28	$kWh/m^2/yr$	
Excess energy	0.3 (0.7%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	4.14 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South East	8.75 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	4.14 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0809	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 809, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	24.15	**TER**	24.17
Environmental	84 B	**% DER<TER**	0.09		
CO_2 Emissions (t/year)	1.32	**DFEE**	37.93	**TFEE**	39.05
General Requirements Compliance	Pass	**% DFEE<TFEE**	2.87		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.95 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	29.00	20.25

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	68.00

10.0 External Roofs

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Roof	External Flat Roof	0.14	70.00	70.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	1.02	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E13 Gable (insulation at rafter level)	9.82	0.040	No
Table K1 - Approved	E18 Party wall between dwellings	10.88	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P5 Party wall - Roof (insulation at rafter level)	24.26	0.080	No

Y-value	0.053	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.63	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0

Number of passive vents		0
Number of flueless gas fires		0
21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0809	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 809, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	24.15	**TER**	24.17
Environmental	84 B	**% DER<TER**	0.09		
CO_2 Emissions (t/year)	1.32	**DFEE**	37.93	**TFEE**	39.05
General Requirements Compliance	Pass	**% DFEE<TFEE**	2.87		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	24.17	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	24.15	$kgCO_2/m^2$	Pass
	-0.02 (-0.1%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.05	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	37.93	$kWh/m^2/yr$	
	-1.1 (-2.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.63 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.63 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0809	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 809, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	DER	24.15	TER	24.17
Environmental	84 B	% DER<TER	0.09		
CO_2 Emissions (t/year)	1.32	DFEE	37.93	TFEE	39.05
General Requirements Compliance	Pass	% DFEE<TFEE	2.87		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	24.17	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	24.15	$kgCO_2/m^2$	Pass
	-0.02 (-0.1%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.05	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	37.93	$kWh/m^2/yr$	
	-1.1 (-2.8%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.63 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South East	8.75 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.63 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0810	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 810, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	24.21	**TER**	24.17
Environmental	84 B	**% DER<TER**	-0.16		
CO_2 Emissions (t/year)	1.32	**DFEE**	37.96	**TFEE**	39.05
General Requirements Compliance	Fail	**% DFEE<TFEE**	2.79		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.95 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	29.00	20.25

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	68.00

10.0 External Roofs

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Roof	External Flat Roof	0.14	70.00	70.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	1.02	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E13 Gable (insulation at rafter level)	9.82	0.040	No
Table K1 - Approved	E18 Party wall between dwellings	10.88	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P5 Party wall - Roof (insulation at rafter level)	24.26	0.080	No

Y-value	0.053	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.67	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0

Number of passive vents		0
Number of flueless gas fires		0
21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0810	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 810, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	24.21	**TER**	24.17
Environmental	84 B	**% DER<TER**	-0.16		
CO_2 Emissions (t/year)	1.32	**DFEE**	37.96	**TFEE**	39.05
General Requirements Compliance	Fail	**% DFEE<TFEE**	2.79		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	24.17	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	24.21	$kgCO_2/m^2$	
Excess emissions	0.04 (0.2%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.05	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	37.96	$kWh/m^2/yr$	
	-1.0 (-2.6%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.67 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.67 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0810	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 810, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	DER	24.21	TER	24.17
Environmental	84 B	% DER<TER	-0.16		
CO_2 Emissions (t/year)	1.32	DFEE	37.96	TFEE	39.05
General Requirements Compliance	Fail	% DFEE<TFEE	2.79		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	24.17	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	24.21	$kgCO_2/m^2$	
Excess emissions	0.04 (0.2%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.05	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	37.96	$kWh/m^2/yr$	
	-1.0 (-2.6%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.67 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South East	8.75 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.67 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0811	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 811, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	24.25	**TER**	24.17
Environmental	84 B	**% DER<TER**	-0.32		
CO_2 Emissions (t/year)	1.32	**DFEE**	37.98	**TFEE**	39.05
General Requirements Compliance	Fail	**% DFEE<TFEE**	2.74		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	69.00 m²	2.95 m

7.0 Living Area	32.63	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	29.00	20.25

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	68.00

10.0 External Roofs

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Roof	External Flat Roof	0.14	70.00	70.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	1.02	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.95	0.070	No
Table K1 - Approved	E13 Gable (insulation at rafter level)	9.82	0.040	No
Table K1 - Approved	E18 Party wall between dwellings	10.88	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P5 Party wall - Roof (insulation at rafter level)	24.26	0.080	No

Y-value	0.053	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.70	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0

Number of passive vents		0
Number of flueless gas fires		0
21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0811	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 811, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	24.25	**TER**	24.17
Environmental	84 B	**% DER<TER**	-0.32		
CO_2 Emissions (t/year)	1.32	**DFEE**	37.98	**TFEE**	39.05
General Requirements Compliance	Fail	**% DFEE<TFEE**	2.74		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	24.17	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	24.25	$kgCO_2/m^2$	
Excess emissions	0.08 (0.3%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.05	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	37.98	$kWh/m^2/yr$	
	-1.0 (-2.6%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.70 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average	
Windows facing South East	8.75 m², No overhang	
Air change rate	4.00 ach	
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours	

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.70 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0811	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 811, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	DER	24.25	TER	24.17
Environmental	84 B	% DER<TER	-0.32		
CO_2 Emissions (t/year)	1.32	DFEE	37.98	TFEE	39.05
General Requirements Compliance	Fail	% DFEE<TFEE	2.74		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	24.17	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	24.25	$kgCO_2/m^2$	
Excess emissions	0.08 (0.3%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.05	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	37.98	$kWh/m^2/yr$	
	-1.0 (-2.6%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.70 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South East	8.75 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.70 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0812	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 812, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	80 C	**DER**	28.82	**TER**	28.24
Environmental	83 B	**% DER<TER**	-2.07		
CO_2 Emissions (t/year)	1.14	**DFEE**	44.11	**TFEE**	44.01
General Requirements Compliance	Fail	**% DFEE<TFEE**	-0.22		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	49.00 m²	3.19 m

7.0 Living Area	30.32	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	23.50	14.75

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	72.00

10.0 External Roofs

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Roof	External Flat Roof	0.14	50.00	50.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					8.75	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	3.50	0.300	No
Table K1 - Approved	E3 Sill	1.02	0.040	No
Table K1 - Approved	E4 Jamb	10.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	7.00	0.070	No
Table K1 - Default	E13 Gable (insulation at rafter level)	7.00	0.080	No
Table K1 - Approved	E18 Party wall between dwellings	13.76	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	21.31	0.000	No
Table K1 - Default	P5 Party wall - Roof (insulation at rafter level)	21.31	0.080	No

Y-value	0.070	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.95	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	1
MVHR Duct Insulated	Yes
Manufacturer SFP	0.40
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	1

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0

Number of passive vents		0
Number of flueless gas fires		0
21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	6	
Total number of L.E.L. fittings	6	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0812	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	1 bed
Property	Flat 812, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	80 C	**DER**	28.82	**TER**	28.24
Environmental	83 B	**% DER<TER**	-2.07		
CO_2 Emissions (t/year)	1.14	**DFEE**	44.11	**TFEE**	44.01
General Requirements Compliance	Fail	**% DFEE<TFEE**	-0.22		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	28.24	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	28.82	$kgCO_2/m^2$	
Excess emissions	0.58 (2.1%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	44.01	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	44.11	$kWh/m^2/yr$	
Excess energy	0.1 (0.2%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.95 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South East	8.75 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.95 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	4.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0812	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	1 bed
Property	Flat 812, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	80 C	DER	28.82	TER	28.24
Environmental	83 B	% DER<TER	-2.07		
CO_2 Emissions (t/year)	1.14	DFEE	44.11	TFEE	44.01
General Requirements Compliance	Fail	% DFEE<TFEE	-0.22		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	28.24	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	28.82	$kgCO_2/m^2$	
Excess emissions	0.58 (2.1%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	44.01	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	44.11	$kWh/m^2/yr$	
Excess energy	0.1 (0.2%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.95 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.40		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing South East	8.75 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.95 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	4.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0813	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 813, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	23.88	**TER**	22.97
Environmental	83 B	**% DER<TER**	-3.96		
CO_2 Emissions (t/year)	1.39	**DFEE**	37.15	**TFEE**	37.99
General Requirements Compliance	Fail	**% DFEE<TFEE**	2.20		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	73.00 m²	2.50 m

7.0 Living Area	38.69	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	61.85	46.61

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	32.30

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					7.62	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					2.55	50
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					5.07	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	6.10	0.300	No
Table K1 - Approved	E3 Sill	4.06	0.040	No
Table K1 - Approved	E4 Jamb	20.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	17.97	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	24.74	0.070	No
Table K1 - Default	E24 Eaves (insulation at ceiling level - inverted)	6.77	0.240	No
Table K1 - Approved	E16 Corner (normal)	5.00	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	12.92	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	12.92	0.000	No

Y-value	0.138	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.53	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2

MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	8	
Total number of L.E.L. fittings	8	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	

Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0813	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 813, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	23.88	**TER**	22.97
Environmental	83 B	**% DER<TER**	-3.96		
CO_2 Emissions (t/year)	1.39	**DFEE**	37.15	**TFEE**	37.99
General Requirements Compliance	Fail	**% DFEE<TFEE**	2.20		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.97	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.88	$kgCO_2/m^2$	
Excess emissions	0.91 (4.0%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.99	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	37.15	$kWh/m^2/yr$	
	-0.8 (-2.1%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.53 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	5.07 m², No overhang
Windows facing South East	7.62 m², No overhang
Windows facing South West	2.55 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.53 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.5	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0813	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 813, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	DER	23.88	TER	22.97
Environmental	83 B	% DER<TER	-3.96		
CO_2 Emissions (t/year)	1.39	DFEE	37.15	TFEE	37.99
General Requirements Compliance	Fail	% DFEE<TFEE	2.20		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.97	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.88	$kgCO_2/m^2$	
Excess emissions	0.91 (4.0%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	37.99	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	37.15	$kWh/m^2/yr$	
	-0.8 (-2.1%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.53 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East Windows facing South East Windows facing South West	5.07 m², No overhang 7.62 m², No overhang 2.55 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.53 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.5	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0814	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 814, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	85 B	**DER**	18.43	**TER**	19.49
Environmental	87 B	**% DER<TER**	5.42		
CO_2 Emissions (t/year)	1.08	**DFEE**	23.57	**TFEE**	23.27
General Requirements Compliance	Fail	**% DFEE<TFEE**	-1.32		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	68.00 m²	2.50 m

7.0 Living Area	32.37	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.45	14.25

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (sw)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					10.20	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.08	0.300	No
Table K1 - Approved	E3 Sill	3.08	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.78	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.78	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.166	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.67	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0814	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 814, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	85 B	**DER**	18.43	**TER**	19.49
Environmental	87 B	**% DER<TER**	5.42		
CO_2 Emissions (t/year)	1.08	**DFEE**	23.57	**TFEE**	23.27
General Requirements Compliance	Fail	**% DFEE<TFEE**	-1.32		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.49	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.43	$kgCO_2/m^2$	Pass
	-1.06 (-5.4%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.27	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.57	$kWh/m^2/yr$	
Excess energy	0.3 (1.3%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.67 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing South West	10.20 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.67 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0814	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 814, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	85 B	DER	18.43	TER	19.49
Environmental	87 B	% DER<TER	5.42		
CO_2 Emissions (t/year)	1.08	DFEE	23.57	TFEE	23.27
General Requirements Compliance	Fail	% DFEE<TFEE	-1.32		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.49	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.43	$kgCO_2/m^2$	Pass
	-1.06 (-5.4%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.27	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.57	$kWh/m^2/yr$	
Excess energy	0.3 (1.3%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.67 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South West	10.20 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.67 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.7	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0902	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 902, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	23.80	**TER**	22.66
Environmental	83 B	**% DER<TER**	-5.02		
CO_2 Emissions (t/year)	1.38	**DFEE**	36.47	**TFEE**	36.97
General Requirements Compliance	Fail	**% DFEE<TFEE**	1.34		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	73.00 m²	2.50 m

7.0 Living Area	38.69	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	61.85	46.61

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	32.30

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					7.62	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					2.55	50
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					5.07	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	6.10	0.300	No
Table K1 - Approved	E3 Sill	4.06	0.040	No
Table K1 - Approved	E4 Jamb	20.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	24.74	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	24.74	0.070	No
Table K1 - Approved	E16 Corner (normal)	5.00	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	12.92	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	12.92	0.000	No

Y-value	0.119	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.84	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes

Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting

Internal

Total number of light fittings	8	
Total number of L.E.L. fittings	8	
Percentage of L.E.L. fittings	100.00	%

External

External lights fitted	No	

23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	

Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0902	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 902, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	23.80	**TER**	22.66
Environmental	83 B	**% DER<TER**	-5.02		
CO_2 Emissions (t/year)	1.38	**DFEE**	36.47	**TFEE**	36.97
General Requirements Compliance	Fail	**% DFEE<TFEE**	1.34		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.66	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.80	$kgCO_2/m^2$	
Excess emissions	1.14 (5.0%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	36.97	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.47	$kWh/m^2/yr$	
	-0.5 (-1.4%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.84 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	5.07 m², No overhang
Windows facing South East	7.62 m², No overhang
Windows facing South West	2.55 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.84 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0902	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 902, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	DER	23.80	TER	22.66
Environmental	83 B	% DER<TER	-5.02		
CO_2 Emissions (t/year)	1.38	DFEE	36.47	TFEE	36.97
General Requirements Compliance	Fail	% DFEE<TFEE	1.34		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.66	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.80	$kgCO_2/m^2$	
Excess emissions	1.14 (5.0%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	36.97	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.47	$kWh/m^2/yr$	
	-0.5 (-1.4%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.84 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East Windows facing South East Windows facing South West	5.07 m², No overhang 7.62 m², No overhang 2.55 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.84 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	0903	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 903, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	85 B	**DER**	18.32	**TER**	19.49
Environmental	87 B	**% DER<TER**	5.98		
CO_2 Emissions (t/year)	1.08	**DFEE**	23.50	**TFEE**	23.27
General Requirements Compliance	Fail	**% DFEE<TFEE**	-1.02		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	68.00 m²	2.50 m

7.0 Living Area	32.37	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.45	14.25

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (sw)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					10.20	50

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.08	0.300	No
Table K1 - Approved	E3 Sill	3.08	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.78	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.78	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.166	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.56	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	0903	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 903, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	85 B	**DER**	18.32	**TER**	19.49
Environmental	87 B	**% DER<TER**	5.98		
CO_2 Emissions (t/year)	1.08	**DFEE**	23.50	**TFEE**	23.27
General Requirements Compliance	Fail	**% DFEE<TFEE**	-1.02		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.49	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.32	$kgCO_2/m^2$	Pass
	-1.17 (-6.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.27	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.50	$kWh/m^2/yr$	
Excess energy	0.2 (0.9%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.56 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing South West	10.20 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.56 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	0903	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 903, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	85 B	DER	18.32	TER	19.49
Environmental	87 B	% DER<TER	5.98		
CO_2 Emissions (t/year)	1.08	DFEE	23.50	TFEE	23.27
General Requirements Compliance	Fail	% DFEE<TFEE	-1.02		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.49	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.32	$kgCO_2/m^2$	Pass
	-1.17 (-6.0%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.27	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.50	$kWh/m^2/yr$	
Excess energy	0.2 (0.9%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.56 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South West	10.20 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.56 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.6	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	1002	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 1002, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	23.77	**TER**	22.66
Environmental	83 B	**% DER<TER**	-4.89		
CO_2 Emissions (t/year)	1.38	**DFEE**	36.45	**TFEE**	36.97
General Requirements Compliance	Fail	**% DFEE<TFEE**	1.39		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West	
Property Tenure	Unknown	
Transaction Type	New dwelling	
Terrain Type	Urban	
1.0 Property Type	Flat, Semi-Detached	
2.0 Number of Storeys	1	
3.0 Date Built	2018	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	73.00 m²	2.50 m

7.0 Living Area	38.69	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	61.85	46.61

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	32.30

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					7.62	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					2.55	50
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					5.07	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	6.10	0.300	No
Table K1 - Approved	E3 Sill	4.06	0.040	No
Table K1 - Approved	E4 Jamb	20.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	24.74	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	24.74	0.070	No
Table K1 - Approved	E16 Corner (normal)	5.00	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	12.92	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	12.92	0.000	No

Y-value	0.119	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.82	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes

Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting

Internal

Total number of light fittings	8	
Total number of L.E.L. fittings	8	
Percentage of L.E.L. fittings	100.00	%

External

External lights fitted	No	

23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	

Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	1002	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 1002, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	**DER**	23.77	**TER**	22.66
Environmental	83 B	**% DER<TER**	-4.89		
CO_2 Emissions (t/year)	1.38	**DFEE**	36.45	**TFEE**	36.97
General Requirements Compliance	Fail	**% DFEE<TFEE**	1.39		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.66	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.77	$kgCO_2/m^2$	
Excess emissions	1.11 (4.9%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	36.97	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.45	$kWh/m^2/yr$	
	-0.5 (-1.4%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.82 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East	5.07 m², No overhang
Windows facing South East	7.62 m², No overhang
Windows facing South West	2.55 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.82 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	1002	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 1002, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	81 B	DER	23.77	TER	22.66
Environmental	83 B	% DER<TER	-4.89		
CO_2 Emissions (t/year)	1.38	DFEE	36.45	TFEE	36.97
General Requirements Compliance	Fail	% DFEE<TFEE	1.39		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	22.66	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	23.77	$kgCO_2/m^2$	
Excess emissions	1.11 (4.9%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	36.97	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	36.45	$kWh/m^2/yr$	
	-0.5 (-1.4%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.82 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North East Windows facing South East Windows facing South West	5.07 m², No overhang 7.62 m², No overhang 2.55 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.82 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.8	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	1003	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 1003, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	18.73	**TER**	19.49
Environmental	87 B	**% DER<TER**	3.88		
CO_2 Emissions (t/year)	1.08	**DFEE**	23.78	**TFEE**	23.27
General Requirements Compliance	Fail	**% DFEE<TFEE**	-2.22		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	68.00 m²	2.50 m

7.0 Living Area	32.37	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.45	14.25

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (sw)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					10.20	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.08	0.300	No
Table K1 - Approved	E3 Sill	3.08	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.78	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.78	0.070	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No

Y-value	0.166	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.99	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	1003	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 1003, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	**DER**	18.73	**TER**	19.49
Environmental	87 B	**% DER<TER**	3.88		
CO_2 Emissions (t/year)	1.08	**DFEE**	23.78	**TFEE**	23.27
General Requirements Compliance	Fail	**% DFEE<TFEE**	-2.22		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.49	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.73	$kgCO_2/m^2$	Pass
	-0.76 (-3.9%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.27	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.78	$kWh/m^2/yr$	
Excess energy	0.5 (2.1%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.99 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing South West	10.20 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.99 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	4.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

Property Reference	1003	Issued on Date	20/05/2021
Assessment Reference	001	Prop Type Ref	2 bed
Property	Flat 1003, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	84 B	DER	18.73	TER	19.49
Environmental	87 B	% DER<TER	3.88		
CO_2 Emissions (t/year)	1.08	DFEE	23.78	TFEE	23.27
General Requirements Compliance	Fail	% DFEE<TFEE	-2.22		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	19.49	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	18.73	$kgCO_2/m^2$	Pass
	-0.76 (-3.9%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	23.27	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	23.78	$kWh/m^2/yr$	
Excess energy	0.5 (2.1%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.99 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

DRAFT

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30	Pass
Primary pipework insulated	No primary pipework	

6 Controls

Space heating controls	Programmer and room thermostat	Pass
Hot water controls	Cylinderstat	Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100 %	
Minimum	75 %	Pass

8 Mechanical ventilation

Continuous supply and extract system		
Specific fan power	0.43	
Maximum	1.5	Pass
MVHR efficiency	94 %	
Minimum	70 %	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing South West	10.20 m², No overhang
Air change rate	4.00 ach
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.99 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	4.0	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	1102	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 1102, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	77 C	**DER**	28.37	**TER**	25.23
Environmental	80 C	**% DER<TER**	-12.45		
CO_2 Emissions (t/year)	1.65	**DFEE**	45.10	**TFEE**	45.43
General Requirements Compliance	Fail	**% DFEE<TFEE**	0.71		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	73.00 m²	2.50 m

7.0 Living Area	38.69	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	61.85	46.61

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	32.30

10.0 External Roofs

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Roof	External Flat Roof	0.14	73.00	73.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (se)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (se)	Window	[1] Wall	South East	Dark-coloured curtain or roller blind	0.00					7.62	50
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					2.55	50
Window (ne)	Window	[1] Wall	North East	Dark-coloured curtain or roller blind	0.00					5.07	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	
17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	6.10	0.300	No
Table K1 - Approved	E3 Sill	4.06	0.040	No
Table K1 - Approved	E4 Jamb	20.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	24.74	0.070	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	24.74	0.070	No
Table K1 - Approved	E16 Corner (normal)	5.00	0.090	No
Table K1 - Approved	E18 Party wall between dwellings	7.50	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	12.92	0.000	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	12.92	0.000	No

Y-value	0.055	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	4.01	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes

Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	

22.0 Lighting

Internal

Total number of light fittings	8	
Total number of L.E.L. fittings	8	
Percentage of L.E.L. fittings	100.00	%

External

External lights fitted	No	

23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	

Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	1102	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 1102, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	77 C	**DER**	28.37	**TER**	25.23
Environmental	80 C	**% DER<TER**	-12.45		
CO_2 Emissions (t/year)	1.65	**DFEE**	45.10	**TFEE**	45.43
General Requirements Compliance	Fail	**% DFEE<TFEE**	0.71		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	25.23	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	28.37	$kgCO_2/m^2$	
Excess emissions	3.14 (12.4%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	45.43	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	45.10	$kWh/m^2/yr$	
	-0.3 (-0.7%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	4.01 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing North East Windows facing South East Windows facing South West	5.07 m², No overhang 7.62 m², No overhang 2.55 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	4.01 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Photovoltaic array	132.35	kWh/Year

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

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Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	Assessor ID	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

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Fuel for main heating	Electricity		
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	-0.3 (-0.7%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

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External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.14 (max. 0.20)	0.14 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	4.01 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass
Based on:			
Overshading	Average		
Windows facing North East Windows facing South East Windows facing South West	5.07 m², No overhang 7.62 m², No overhang 2.55 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	4.01 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Photovoltaic array	132.35	kWh/Year

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Property Reference	1103	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 1103, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	79 C	**DER**	27.02	**TER**	24.12
Environmental	82 B	**% DER<TER**	-12.01		
CO_2 Emissions (t/year)	1.46	**DFEE**	41.17	**TFEE**	39.01
General Requirements Compliance	Fail	**% DFEE<TFEE**	-5.52		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	North East
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Urban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2018
4.0 Sheltered Sides	3
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	1.00 m	68.00 m²	2.50 m

7.0 Living Area	32.37	m²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m²K

9.0 External Walls

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Wall	Steel Frame	0.17	24.45	14.25

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing		0.00	60.65

10.0 External Roofs

Description	Type	U-Value (W/m²K)	Gross Area (m²)	Nett Area (m²)
Roof	External Flat Roof	0.13	68.00	68.00

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Window (sw)	Manufacturer	Window	Double Low-E Soft 0.05			0.37		0.70	1.43

13.0 Openings

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Built)

zero3

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Window (sw)	Window	[1] Wall	South West	Dark-coloured curtain or roller blind	0.00					10.20	50

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	4.08	0.300	No
Table K1 - Approved	E3 Sill	3.08	0.040	No
Table K1 - Approved	E4 Jamb	15.00	0.050	No
Table K1 - Approved	E7 Party floor between dwellings (in blocks of flats)	9.78	0.070	No
Table K1 - Default	E15 Flat roof with parapet	9.78	0.560	No
Table K1 - Approved	E18 Party wall between dwellings	10.00	0.060	No
Table K1 - Default	P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	24.26	0.000	No
Table K1 - Default	P4 Party wall - Roof (insulation at ceiling level)	24.26	0.240	No

Y-value	0.159	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	4.00	m³/(h.m²) @ 50 Pa
Property Tested ?	Yes	
As Built AP_{50}	3.87	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Calculated rate
Night Ventilation	No
Air change rate	4.00

Mechanical Ventilation

Mechanical Ventilation System Present	Yes
Approved Installation	Yes
Mechanical Ventilation data Type	Database
Type	Balanced mechanical ventilation with heat recovery
MV Reference Number	500298
Configuration	2
MVHR Duct Insulated	Yes
Manufacturer SFP	0.43
Duct Type	Rigid
MVHR Efficiency	94.00
Wet Rooms	2

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				0

Number of passive vents		0
Number of flueless gas fires		0
21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	10	
Total number of L.E.L. fittings	10	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	210.00	L
Loss	1.56	kWh/day
32.0 Photovoltaic Unit	More Dwellings, One Block	
Apportioned	132.35	kWh/Year

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Built)

zero3

Property Reference	1103	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Property	Flat 1103, 2 Old Mount Street, Manchester, M4 4GQ		

SAP Rating	79 C	**DER**	27.02	**TER**	24.12
Environmental	82 B	**% DER<TER**	-12.01		
CO_2 Emissions (t/year)	1.46	**DFEE**	41.17	**TFEE**	39.01
General Requirements Compliance	Fail	**% DFEE<TFEE**	-5.52		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Built)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Electricity		
Fuel factor	1.55 (electricity)		
Target Carbon Dioxide Emission Rate (TER)	24.12	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	27.02	$kgCO_2/m^2$	
Excess emissions	2.90 (12.0%)	$kgCO_2/m^2$	Fail

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	39.01	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	41.17	$kWh/m^2/yr$	
Excess energy	2.2 (5.6%)	$kWh/m^2/yr$	Fail

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.17 (max. 0.30)	0.17 (max. 0.70)	Pass
Party wall	0.00 (max. 0.20)	-	Pass
Roof	0.13 (max. 0.20)	0.13 (max. 0.35)	Pass
Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.87 (measured in this dwelling)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	
Secondary heating system	None	

5 Cylinder insulation

Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		

6 Controls

Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant		Pass

Based on:

Overshading	Average		
Windows facing South West	10.20 m², No overhang		
Air change rate	4.00 ach		
Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.87 (measured in this dwelling)		
Maximum	10.0		Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

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BUILDING REGULATION COMPLIANCE
Calculation Type: New Build (As Built)

zero3

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Openings	1.43 (max. 2.00)	1.43 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	3.87 (measured in this dwelling)	$m^3/(h.m^2)$ @ 50 Pa	
Maximum	10.0	$m^3/(h.m^2)$ @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Room heaters with radiators or underfloor - Electric Panel, convector or radiant heaters	

DRAFT

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Secondary heating system	None		
5 Cylinder insulation			
Hot water storage	Measured cylinder loss: 1.56 kWh/day Permitted by DBSCG 2.30		Pass
Primary pipework insulated	No primary pipework		
6 Controls			
Space heating controls	Programmer and room thermostat		Pass
Hot water controls	Cylinderstat		Pass
7 Low energy lights			
Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Continuous supply and extract system			
Specific fan power	0.43		
Maximum	1.5		Pass
MVHR efficiency	94	%	
Minimum	70	%	Pass

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9 Summertime temperature

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Windows facing South West	10.20 m², No overhang		
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Blinds/curtains	Dark-coloured curtain or roller blind, closed 50% of daylight hours		

Criterion 4 – Building performance consistent with DER and DFEE rate

Party Walls

Type	U-value		
Filled Cavity with Edge Sealing	0.00	W/m²K	Pass

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	3.87 (measured in this dwelling)	m³/(h.m²) @ 50 Pa	
Maximum	10.0	m³/(h.m²) @ 50 Pa	Pass

10 Key features

Party wall U-value	0.00	W/m²K
Air permeability	3.9	m³/m²h
Photovoltaic array	132.35	kWh/Year

DRAFT

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U-VALUE CALCULATOR REPORT

Property Reference	1103	**Issued on Date**	20/05/2021
Assessment Reference	001	**Prop Type Ref**	2 bed
Project	Flat 1103, 2 Old Mount Street, Manchester, M4 4GQ		
Calculation Type	New Build (As Built)		

SAP Rating	79 C	**DER**	27.02	**TER**	24.12
Environmental	82 B	**% DER<TER**	-12.01		
CO_2 Emissions (t/year)	1.46	**DFEE**	41.17	**TFEE**	39.01
General Requirements Compliance	Fail	**% DFEE<TFEE**	-5.52		

Assessor Details	Mr. Ryan Stocks, Zero3 Consulting Ltd, Tel: 07703572911, ryan@zero3.co.uk	**Assessor ID**	W652-0001
Client			

Building Elements

Roof 000001 - Flat roof - tapered insulation layer

Roof Type: Flat Roof standard (no precipitation)

Layer	Description	Thickness (mm)	Conductivity (W/m²K)	Resistance (m²K/W)	Fraction (%)
Ext surface				0.0400	
Layer 1	**Kingspan KS1000**				
	Main construction	150	0.0220	6.8182	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 2	**Standard cavity**				
	Main construction	500	3.1250	0.1600	100.00
	Corrections - Cavity Unventilated, Emissivity: Normal				
Layer 3	**Mineral wool quilt**				
	Main construction	50	0.0420	1.1905	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 4	**Plasterboard, standard**				
	Main construction	12.5	0.2100	0.0595	100.00
Layer 5	**Plaster, standard**				
	Main construction	3	0.4000	0.0075	100.00
Int surface				0.1000	

Total resistance: **Upper limit =** 8.376 m² K/W **Lower limit =** 8.376 m² K/W **Average =** 8.376 m² K/W

Total correction = 0.0068 m² K/W **U-value (unrounded) =** 0.13 W/m² K

Unheated space: None

Total thickness: 716 mm **U-value: 0.13 W/m² K** **Kappa: n/a**