



SAP Report Submission for Building Regulations Compliance

Client:

Project: New Bungalow, Old Market Street
Manchester, M9 8DX

Contact: Aldrock Surveyors Ltd
adrian@aldrock.co.uk
01254 774943

Report Issue Date: 02/06/2021

EXCELLENCE
IN ENERGY
ASSESSMENT

BASIC COMPLIANCE REPORT

Calculation Type: New Build (As Designed)

Property Reference	L0286			Issued on Date	02/06/2021
Assessment Reference	Design Stage	Prop Type Ref	Detached Bungalow		
Property	New Bungalow, Old Market Street, Manchester, M9 8DX				
SAP Rating	84 B	DER	17.20	TER	19.40
Environmental	85 B	% DER<TER	11.32		
CO ₂ Emissions (t/year)	1.66	DFEE	54.74	TFEE	66.76
General Requirements Compliance	Pass	% DFEE<TFEE	18.00		
Assessor Details	Mr. Adrian Farnell, Aldrock Surveyors Ltd, Tel: 01254 774943, adrian@aldrock.co.uk			Assessor ID	M652-0001
Client					

SUMMARY FOR INPUT DATA FOR New Build (As Designed)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Mains gas		
Fuel factor	1.00 (mains gas)		
Target Carbon Dioxide Emission Rate (TER)	19.40	kgCO ₂ /m ²	
Dwelling Carbon Dioxide Emission Rate (DER)	17.20	kgCO ₂ /m ²	Pass
	-2.20 (-11.3%)	kgCO ₂ /m ²	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	66.76	kWh/m ² /yr	
Dwelling Fabric Energy Efficiency (DFEE)	54.74	kWh/m ² /yr	
	-12.1 (-18.1%)	kWh/m ² /yr	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.16 (max. 0.30)	0.16 (max. 0.70)	Pass
Floor	0.11 (max. 0.25)	0.11 (max. 0.70)	Pass
Roof	0.11 (max. 0.20)	0.11 (max. 0.35)	Pass
Openings	1.36 (max. 2.00)	1.40 (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	5.00 (design value)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Boiler system with radiators or underfloor - Mains gas Data from database Worcester Greenstar 28CDi Compact ErP Combi boiler Efficiency: 89.8% SEDBUK2009 Minimum: 88.0%	Pass
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BASIC COMPLIANCE REPORT

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Secondary heating system

None

5 Cylinder insulation

Hot water storage

No cylinder

6 Controls

Space heating controls

Time and temperature zone control

Pass

Hot water controls

No cylinder

Boiler interlock

Yes

Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings

100

%

Minimum

75

%

Pass

8 Mechanical ventilation

Not applicable

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

7.50 m², No overhang

Windows facing South East

6.10 m², No overhang

Windows facing South West

15.53 m², No overhang

Air change rate

6.00 ach

Blinds/curtains

None

Criterion 4 – Building performance consistent with DER and DFEE rate

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals

5.00 (design value)

Maximum

10.0

Pass

10 Key features

Roof U-value

0.11

W/m²K

Roof U-value

0.11

W/m²K

Floor U-value

0.11

W/m²K

Door U-value

1.00

W/m²K

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

Orientation	North West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Suburban
1.0 Property Type	Bungalow, Detached
2.0 Number of Storeys	1
3.0 Date Built	2021
4.0 Sheltered Sides	1
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements				
	Ground Floor:	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
		44.65 m	105.94 m ²	2.95 m

7.0 Living Area	13.66	m ²
8.0 Thermal Mass Parameter	Simple calculation - Medium	
Thermal Mass	250.00	kJ/m ² K

9.0 External Walls				
Description	Type	U-Value (W/m ² K)	Gross Area (m ²)	Nett Area (m ²)
External Wall 1	Cavity Wall	0.16	134.19	102.84

10.0 External Roofs				
Description	Type	U-Value (W/m ² K)	Gross Area (m ²)	Nett Area (m ²)
External Roof 1	External Slope Roof	0.11	55.62	50.55
External Roof 2	External Plane Roof	0.11	52.97	52.97

11.0 Heat Loss Floors				
Description	Type	Construction	U-Value (W/m ² K)	Area (m ²)
Heat Loss Floor 1	Ground Floor - Solid		0.11	105.94

12.0 Opening Types

SUMMARY FOR INPUT DATA

Calculation Type: New Build (As Designed)

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	Manufacturer	Window	Double glazed			0.76		0.70	1.40
Rooflight	Manufacturer	Roof Window	Double glazed			0.76		0.70	1.30
Door	Manufacturer	Solid Door							1.00

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
Windows NE	Window	[1] External Wall 1	North East	None	0.00					7.50	
Windows SW	Window	[1] External Wall 1	South West	None	0.00					15.53	
Windows SE	Window	[1] External Wall 1	South East	None	0.00					6.10	
Door	Solid Door	[1] External Wall 1	North West							2.22	
Rooflights	Roof Window	[1] External Roof 1	South West	None						5.07	

14.0 Conservatory

15.0 Draught Proofing

 %

16.0 Draught Lobby

17.0 Thermal Bridging

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	18.01	0.300	Yes
Table K1 - Approved	E3 Sill	12.34	0.040	No
Table K1 - Approved	E4 Jamb	30.36	0.050	Yes
Table K1 - Approved	E5 Ground floor (normal)	44.65	0.160	Yes
Table K1 - Approved	E16 Corner (normal)	18.12	0.090	No
Table K1 - Approved	E17 Corner (inverted – internal area greater than external area)	6.04	-0.090	No
Table K1 - Default	R1 Head of roof window	3.90	0.080	No
Table K1 - Default	R2 Sill of roof window	3.90	0.060	No
Table K1 - Default	R3 Jamb of roof window	7.80	0.080	No
Table K1 - Approved	E10 Eaves (insulation at ceiling level)	12.33	0.060	No
Table K1 - Approved	E11 Eaves (insulation at rafter level)	12.91	0.040	No
Table K1 - Approved	E12 Gable (insulation at ceiling level)	8.96	0.240	No
Table K1 - Approved	E13 Gable (insulation at rafter level)	10.97	0.040	No

Y-value	0.059	W/m²K
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18.0 Pressure Testing

Designed AP ₅₀	5.00	m³/(h.m²) @ 50 Pa
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Property Tested ?		
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As Built AP ₅₀		m³/(h.m²) @ 50 Pa
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19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Windows fully open
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Cross ventilation possible	Yes
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Night Ventilation	No
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Air change rate	6.00
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Mechanical Ventilation

Mechanical Ventilation System Present	No
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20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0

SUMMARY FOR INPUT DATA

Calculation Type: New Build (As Designed)

Number of open flues	0	0	0
Number of intermittent fans			3
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	30	
Total number of L.E.L. fittings	30	
Percentage of L.E.L. fittings	100.00	%

External

External lights fitted	No
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23.0 Electricity Tariff

Standard

24.0 Main Heating 1

	Database	
Percentage of Heat	100	%
Database Ref. No.	17511	
Fuel Type	Mains gas	
Main Heating	BGW	
SAP Code	104	
In Winter	90.7	
In Summer	87.2	
Controls	CBI Time and temperature zone control	
PCDF Controls	0	
Delayed Start Stat	Yes	
Sap Code	2110	
Flue Type	Balanced	
Fan Assisted Flue	Yes	
Is MHS Pumped	Pump in heated space	
Heat Emitter	Radiators	
Flow Temperature	Normal (> 45°C)	
Combi boiler type	Standard Combi	
Combi keep hot type	Gas/Oil, time clock	

25.0 Main Heating 2

None

Community Heating	None
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28.0 Water Heating

	HWP From main heating 1
Water Heating	Main Heating 1
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

SUMMARY FOR INPUT DATA

Calculation Type: New Build (As Designed)

SAP Code

901

29.0 Hot Water Cylinder

None

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar water heating	£4,000 - £6,000	£28	B 85	
	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
Solar photovoltaic panels, 2.5 kWp	£3,500 - £5,500	£303	A 94	

THERMAL BRIDGING

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Environmental	85 B	TER	19.40
CO ₂ Emissions (t/year)	1.66	% DER<TER	11.32
General Requirements Compliance	Pass	DFEE	54.74
		TFEE	66.76
		% DFEE<TFEE	18.00
Assessor Details	Mr. Adrian Farnell, Aldrock Surveyors Ltd, Tel: 01254 774943, adrian@aldrock.co.uk		Assessor ID
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	Junction detail	Source Type	Psi (W/mK)	Length (m)	Result	Reference
External wall	E2 Other lintels (including other steel lintels)	Table K1 - Approved	0.300	18.01	5.40	
External wall	E3 Sill	Table K1 - Approved	0.040	12.34	0.49	
External wall	E4 Jamb	Table K1 - Approved	0.050	30.36	1.52	
External wall	E5 Ground floor (normal)	Table K1 - Approved	0.160	44.65	7.14	
External wall	E16 Corner (normal)	Table K1 - Approved	0.090	18.12	1.63	
External wall	E17 Corner (inverted – internal area greater than external area)	Table K1 - Approved	-0.090	6.04	-0.54	
External roof	R1 Head of roof window	Table K1 - Default	0.080	3.90	0.31	
External roof	R2 Sill of roof window	Table K1 - Default	0.060	3.90	0.23	
External roof	R3 Jamb of roof window	Table K1 - Default	0.080	7.80	0.62	
External wall	E10 Eaves (insulation at ceiling level)	Table K1 - Approved	0.060	12.33	0.74	
External wall	E11 Eaves (insulation at rafter level)	Table K1 - Approved	0.040	12.91	0.52	
External wall	E12 Gable (insulation at ceiling level)	Table K1 - Approved	0.240	8.96	2.15	
External wall	E13 Gable (insulation at rafter level)	Table K1 - Approved	0.040	10.97	0.44	

Total: **20.66** W/mK:
Y-Value: **0.059** W/m²K:

PREDICTED ENERGY ASSESSMENT

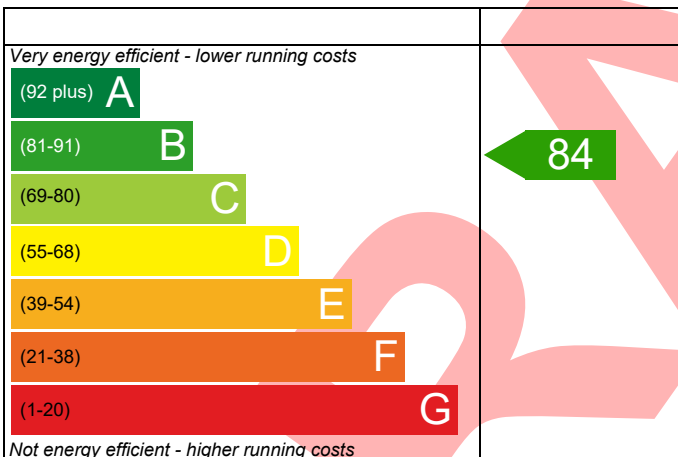
New Bungalow, Old Market Street,
Manchester,
M9 8DX

Dwelling type: Bungalow, Detached
Date of assessment: 02/06/2021
Produced by: Adrian Farnell
Total floor area: 105.94 m²
DRRN:

This document is a Predicted Energy Assessment for properties marketed when they are incomplete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, this rating will be updated and an official Energy Performance Certificate will be created for the property. This will include more detailed information about the energy performance of the completed property.

The energy performance has been assessed using the Government approved SAP2012 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO₂) emissions.

Energy Efficiency Rating

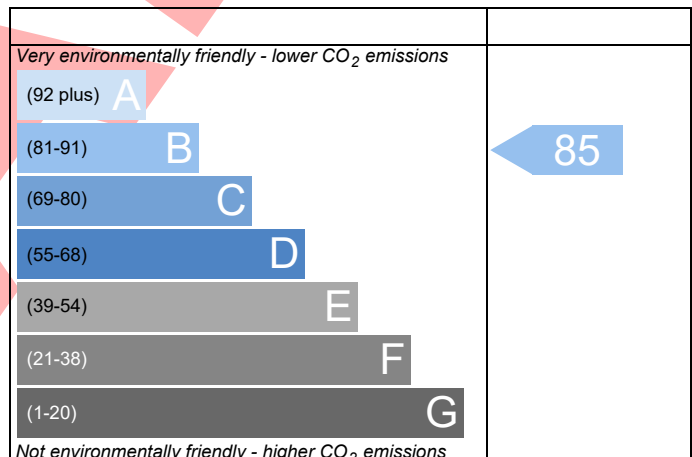


England

EU Directive
2002/91/EC

The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower the fuel bills are likely to be.

Environmental Impact (CO₂) Rating



England

EU Directive
2002/91/EC

The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO₂) emissions. The higher the rating the less impact it has on the environment.

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BUILDING REGULATION COMPLIANCE

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SUMMARY FOR INPUT DATA FOR New Build (As Designed)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Mains gas		
Fuel factor	1.00 (mains gas)		
Target Carbon Dioxide Emission Rate (TER)	19.40	kgCO ₂ /m ²	
Dwelling Carbon Dioxide Emission Rate (DER)	17.20	kgCO ₂ /m ²	Pass
	-2.20 (-11.3%)	kgCO ₂ /m ²	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	66.76	kWh/m ² /yr	
Dwelling Fabric Energy Efficiency (DFEE)	54.74	kWh/m ² /yr	
	-12.1 (-18.1%)	kWh/m ² /yr	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.16 (max. 0.30)	0.16 (max. 0.70)	Pass
Floor	0.11 (max. 0.25)	0.11 (max. 0.70)	Pass
Roof	0.11 (max. 0.20)	0.11 (max. 0.35)	Pass
Openings	1.36 (max. 2.00)	1.40 (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	5.00 (design value)	m ³ /(h.m ²) @ 50 Pa	
Maximum	10.0	m ³ /(h.m ²) @ 50 Pa	Pass

Limiting System Efficiencies

4 Heating efficiency

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BUILDING REGULATION COMPLIANCE

Calculation Type: New Build (As Designed)

Main heating system

Boiler system with radiators or underfloor - Mains gas
Data from database
Worcester Greenstar 28CDi Compact ErP
Combi boiler
Efficiency: 89.8% SEDBUK2009
Minimum: 88.0%

Pass

Secondary heating system

None

5 Cylinder insulation

Hot water storage

No cylinder

6 Controls

Space heating controls

Time and temperature zone control

Pass

Hot water controls

No cylinder

Boiler interlock

Yes

Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings

100 %

Minimum

75 %

Pass

8 Mechanical ventilation

Not applicable

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

7.50 m², No overhang

Windows facing South East

6.10 m², No overhang

Windows facing South West

15.53 m², No overhang

Air change rate

6.00 ach

Blinds/curtains

None

Criterion 4 – Building performance consistent with DER and DFEE rate

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals

5.00 (design value) m³/(h.m²) @ 50 Pa

Maximum

10.0 m³/(h.m²) @ 50 Pa

Pass

10 Key features

Roof U-value

0.11 W/m²K

Roof U-value

0.11 W/m²K

Floor U-value

0.11 W/m²K

Door U-value

1.00 W/m²K

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