Your Ref: Gathurst Street, Abbey Hey

Our Ref: 2020.067

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14th April 2021

F.A.O. Sean Lansome

Dear Sean,

Further to your recent request, I am pleased to provide our response assist with the discharge of Planning Condition 21 of Decision Notice (ref. 124985/FO/2019) for the residential development at Gathurst Street, Abbey Hey, Manchester:

> Planning Condition 21
>
> *The development hereby approved shall be carried out in accordance with Document Ref: Environmental Standards Statement Rev 1 Ref: Z36466 Proposed 6 No New Build Houses at Land adjacent to 27 & 30 Gathurst Street by the Energy Council stamped as received by the City Council, as Local Planning Authority, on the 23 December 2019. A post construction review certificate/statement shall be submitted for approval, within a timescale that has been previously agreed in writing, to the City Council as Local Planning Authority.*
>
> *Reason - In order to minimise the environmental impact of the development pursuant to policies SP1, T1-T3, EN4-EN7 and DM1 of the Core Strategy and the principles contained within The Guide to Development in Manchester SPD (2007) and the National Planning Policy Framework.*

In our role as Accredited Energy Assessors providing the compliance calculations for this development and lodging the EPCs for the dwellings, we are ideally placed to provide a post construction review statement.

Environmental Standards Statement (Rev 1 Ref: Z36466)

The following table has been taken directly from document reference Z36466 and shows the target values for all six dwellings at Gathurst Street and the response to each target from Element Sustainability.

9.1. Energy Model Inputs for Part L1A (2013) Compliance

Item	Brief description	Notes	Confirm
	The following information is required for the design submission (as per requirements of approved doc L1A).	Please note submission is now in two stages. A) **Design**, B) As installed	
1. Dwelling Type			
1.1	Building Regulations Part L1A (2013) apply.		SAP2012 software used
1.2	Electricity is supplied by standard tariff rather than economy 7, 10 or 24.	*Assumed standard tariff*	Standard Tariff
1.3	Dwellings have a medium thermal mass parameter.		Low thermal mass as timber frame
1.4	Full address is:	Gathurst Street, Abbey Hey, Manchester, M188GR	Yes
2. Floor Construction Details			
2.1	Ground floor construction is insulated to achieve the U-value stated opposite.	U-Value = 0.12 W/m²K λ of insulation = 0.021 W/mK	0.12 achieved
3. Wall Construction Details			
3.1	Main external wall is an insulated cavity wall to achieve the U-value indicated opposite.	U-Value = 0.20 W/m²K	0.26 achieved
3.2	Party walls are a fully filled cavity sealed top and bottom to achieve the U-value opposite.	U-Value = 0.0 W/m²K when applied to adjacent heated space	Fully filled and sealed u=0.00
4. Roof Construction Details			
4.1	Pitched roofs insulated with 400mm mineral wool above ceiling to achieve the U-value stated opposite.	U-Value = 0.11 W/m²K	0.09 achieved
5. Openings			
5.1	All double-glazed windows and patio type doors/windows are u-PVC with argon fill to achieve the U-value opposite.	U-Value = 1.4 W/m²K G-value = 0.72	1.4 with g = 0.72 achieved
5.2	Solid front doors are insulated to achieve the U-value opposite.	U-Value = 1.4 W/m²K	1.4 achieved
6. Ventilation			
6.1	Design stage SAP calculation assumes an air permeability of 5m3/m2/hr at 50pa.		All dwellings tested
6.2	A System 3 MEV is installed in all wet areas.	Envirovent Infinity Filterless	Greenwood unity CV2GIP used
6.3	No open flues/chimneys are present in the dwellings.		None
7. Space Heating			
7.1	Heating is provided by natural gas combi boilers.	Intergas Combi Compact Eco RF30	Intergas combi 30 used with zone control and no weather compensator
7.2	The heating system has a programmer, TRVs and stat.	Delayed start thermostat included	
7.3	A weather or load compensator is not installed.		
8. Water Heating			
8.1	Water usage per person per day is ≤125 Litres.		Yes
8.2	DHW from the combi boiler.		Yes
9. Renewables			
9.1	No Renewables		None
10. Other			
10.1	Accredited Construction Details (ACD) for limiting thermal bridging are installed at every junction in the main fabric.	Refer to ACD details.	ACDs used
10.2	100% low energy (LE) lights are installed throughout apartments.		100% Low e lighting used
10.3	Windows can be 'half opened' in summer to prevent overheating.	SAP Conventions dictate for security reasons.	Yes

Specification and Emissions Performance Evidence

Design stage SAP calculations were completed for Gathurst Street using the same parameters as provided within the Environmental Standards Statement (document ref. Z36466). The following screenshots are taken directly from Elmhurst SAP2012 software for the thermal elements in order to demonstrate compliance with the target values –

9.0 External Walls

Description	Type	Construction	U-value	Gross Area	Openings	Nett Area
Wall 1	Timber Frame		0.26	132.65	18.59	114.06

10.0 External Roofs

Description	Type	Construction	U-value	Gross Area	Openings	Nett Area
Roof 1	External Slope Roof		0.11	36.93	0.00	36.93

11.0 Heat Loss Floors

Description	Type	Construction	U-value	Area
Floor 1	Ground Floor - Timber		0.12	35.35
Floor 2	Exposed Floor - Timber		0.28	1.58

12.0 Opening Types

Description	Data Source	Type	Glazing	Gap	Frame	Frame Factor	U-value	G-value
Opening Type 1	Manufacturer	Solid Door				0.70	1.40	0.00
Opening Type 2	Manufacturer	Window	Double Low-E Hard 0.2			0.70	1.40	0.72

As built SAP calculations have been completed using the actual build up achieved on site which is broken down further below and evidenced from pictures taken on site, as follows:

External Wall – U value

Building Elements

Wall 000001

Wall Type: Standard Wall

Layer	Description	Thickness (mm)	Conductivity (W/m²K)	Resistance (m²K/W)	Fraction (%)
Ext surface				0.0400	
Layer 1	Brick, outer leaf				
	Main construction	102.5	0.7700	0.1331	82.81
	Main construction	102.5	0.9407	0.1090	17.19
Layer 2	Low e cavity				
	Main construction	60	0.1053	0.5700	89.63
	Main construction	60	0.1300	0.4615	10.37
	Corrections - Cavity Unventilated, Emissivity: Normal				
Layer 3	Breather Membrane				
	Main construction	1	0.0000	0.0000	100.00
Layer 4	OSB				
	Main construction	9	0.1300	0.0692	100.00
Layer 5	Rockwool Slab				
	Main construction	140	0.0400	3.5000	89.63
	Main construction	140	0.1300	1.0769	10.37
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 6	Breather Membrane				
	Main construction	1	0.0000	0.0000	100.00
Layer 7	Plasterboard, standard				
	Main construction	15	0.2100	0.0714	100.00
Int surface				0.1300	

Total resistance: Upper limit = 4.012 m² K/W Lower limit = 3.833 m² K/W Average = 3.923 m² K/W

Total correction = 0.0052 m² K/W U-value (unrounded) = 0.26 W/m² K

Unheated space: None

Total thickness: 329 mm U-value: 0.26 W/m² K Kappa: n/a

Insulation Material Specified -



External Wall Site Photographs –



Roof U Value Calculation –

Building Elements

Roof 000001

Roof Type: Pitched Roof, insulated flat ceiling

Layer	Description	Thickness (mm)	Conductivity (W/m²K)	Resistance (m²K/W)	Fraction (%)
Ext surface				0.0400	
Layer 1	Mineral wool				
	Main construction	400	0.0400	10.0000	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 2	Mineral wool				
	Main construction	100	0.0400	2.5000	88.67
	Main construction	100	0.1300	0.7692	11.33
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 3	Plasterboard, standard				
	Main construction	12.5	0.2100	0.0595	100.00
Int surface				0.1000	

Total resistance: Upper limit = 12.476 m² K/W Lower limit = 12.192 m² K/W **Average =** 12.334 m² K/W

Total correction = 0.0068 m² K/W **U-value (unrounded) =** 0.09 W/m² K

Unheated space: None

Total thickness: 513 mm U-value: 0.09 W/m² K Kappa: n/a

Roof Evidence Site Photographs -









Ground Floor U value Calculation -

U-value Construction

User Details

Element type:	Beam and light block
Standard u-value:	BS EN ISO 13370

Floor Details

General

Exposed perimeter (m) :	25.00
Ground type :	Unknown
Area (m_2) :	36.00
Wall thickness (mm) :	300.00

Edge Insulation

Insulation :	No Insulation

Under Floor Details

Depth of u/f space below ground(m) :	0.30
Floor height above ground (m) :	0.23

Floor Parameters

U-value for walls above ground :	1.70
Thermal resistance of solum :	0.000
Mean wind speed :	5.00
Area of vent :	0.0015
Number of vents :	25.00
Wind shielding factor :	Average

Construction Details

Layer Index	Material Name	Thickness (mm)	Conductivity (W/mK)	Fraction	Resistance (m^2K/W)
1	Concrete screed	75.00	1.150	1.00	0.065
2	Insulation	150.00	0.022	1.00	6.818
3	AAC (600) block	100.00	0.180	0.85	0.556
+	Concrete beam	N/A	1.350	0.15	0.074
Total Thickness		325.00			
Upper Resistance					7.703
Lower Resistance					7.504

Interim U-value

Interim U-value :	0.121

U-value Fixing Corrections

Total Fastening Correction :	0.0000

U-value Air Gaps Corrections

Total Airgap Correction :	0.0000

U-value

U-value (Corrected) :	0.121 W/m^2K
U-value (Rounded) :	0.12 W/m^2K

Ground Floor Evidence Photographs -





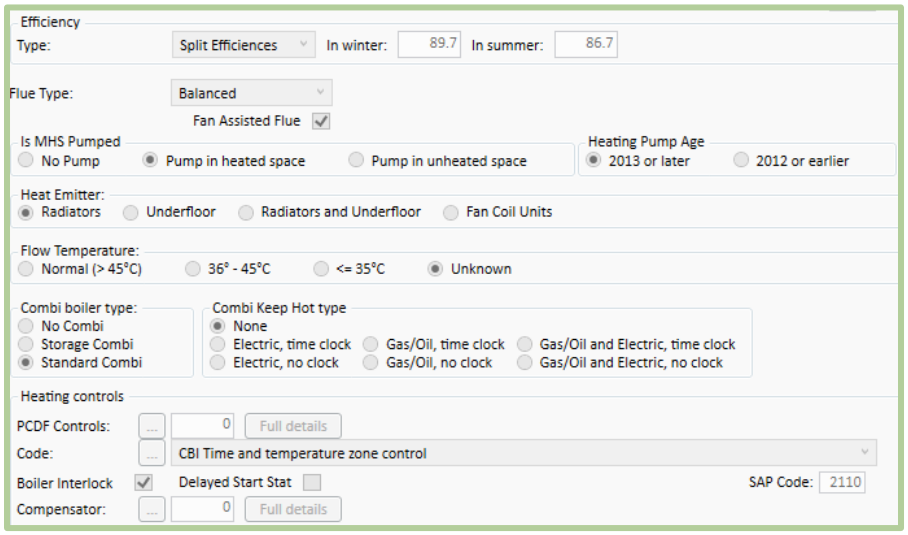


Heating System 'As Designed' -

7. Space Heating			
7.1	Heating is provided by natural gas combi boilers.	Intergas Combi Compact Eco RF30	
7.2	The heating system has a programmer, TRVs and stat.	Delayed start thermostat included	
7.3	A weather or load compensator is not installed.		

24.0 Main Heating 1

Main Heating 1 Source	Database		
Description:			
Percentage of Heat:	100.00 %		
Database Ref. No.:	17389 ...	Ref Number:	17389
	Clear Full details	Boiler:	Intergas Combi Compact ECO RF 30
Fuel Type:	Mains gas	ID:	
		From:	Intergas Heating Ltd
Main Heating Code:	BGW	Mains gas BGW Post 98 Combi condens. with auto ign.	
		SAP Code:	104



Heating System and Controls, Site Photographs -



Lighting 'As Designed' –

10.2	100% low energy (LE) lights are installed throughout apartments.		

22.0 Lighting

Internal

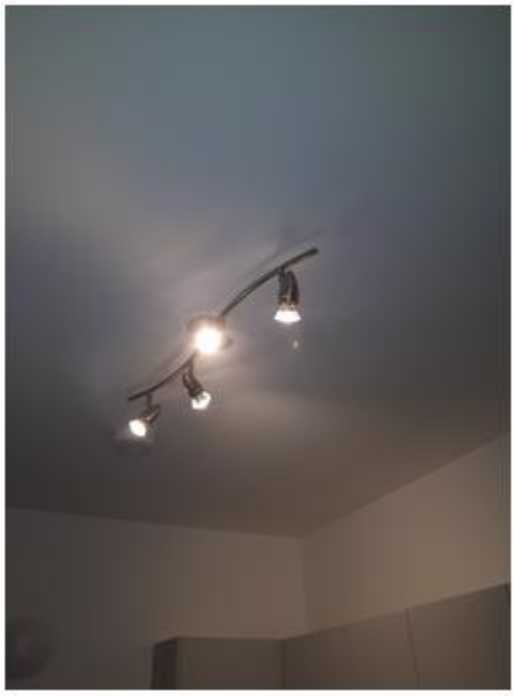
Total number of light fittings:	12
Total number of L.E.L. fittings:	12
Percentage of L.E.L. fittings:	100 %

External

☐ External lights fitted

Lighting, Site Photographs -

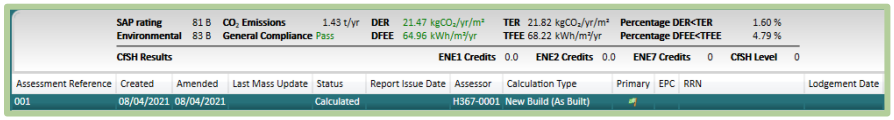




Conclusion

Element Sustainabilty confirm the development has been carried out in accordance with Document Ref: Environmental Standards Statement Rev 1 Ref: Z36466.

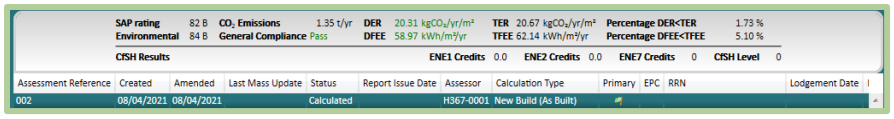
We can also confirm all the dwellings are passing part L1A Dwelling Emissions Rate by more than the 1.3% per plot specified in the Environmental Standards Statement. The below screenshots have been taken from SAP2012 software based upo nthe As Built Final SAP calcualtions for these dwellings.



SAP rating	81 B	CO_2 Emissions	1.43 t/yr	DER	21.47 $kgCO_2/yr/m^2$	TER	21.82 $kgCO_2/yr/m^2$	Percentage DER<TER	1.60 %
Environmental	83 B	General Compliance	Pass	DFEE	64.96 $kWh/m^2/yr$	TFEE	68.22 $kWh/m^2/yr$	Percentage DFEE<TFEE	4.79 %

CfSH Results — ENE1 Credits 0.0 — ENE2 Credits 0.0 — ENE7 Credits 0 — CfSH Level 0

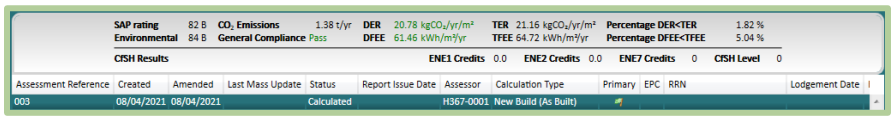
Assessment Reference	Created	Amended	Last Mass Update	Status	Report Issue Date	Assessor	Calculation Type	Primary	EPC	RRN	Lodgement Date
001	08/04/2021	08/04/2021		Calculated		H367-0001	New Build (As Built)				



SAP rating	82 B	CO_2 Emissions	1.35 t/yr	DER	20.31 $kgCO_2/yr/m^2$	TER	20.67 $kgCO_2/yr/m^2$	Percentage DER<TER	1.73 %
Environmental	84 B	General Compliance	Pass	DFEE	58.97 $kWh/m^2/yr$	TFEE	62.14 $kWh/m^2/yr$	Percentage DFEE<TFEE	5.10 %

CfSH Results — ENE1 Credits 0.0 — ENE2 Credits 0.0 — ENE7 Credits 0 — CfSH Level 0

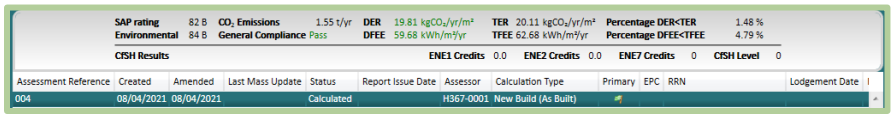
Assessment Reference	Created	Amended	Last Mass Update	Status	Report Issue Date	Assessor	Calculation Type	Primary	EPC	RRN	Lodgement Date
002	08/04/2021	08/04/2021		Calculated		H367-0001	New Build (As Built)				



SAP rating	82 B	CO_2 Emissions	1.38 t/yr	DER	20.78 $kgCO_2/yr/m^2$	TER	21.16 $kgCO_2/yr/m^2$	Percentage DER<TER	1.82 %
Environmental	84 B	General Compliance	Pass	DFEE	61.46 $kWh/m^2/yr$	TFEE	64.72 $kWh/m^2/yr$	Percentage DFEE<TFEE	5.04 %

CfSH Results — ENE1 Credits 0.0 — ENE2 Credits 0.0 — ENE7 Credits 0 — CfSH Level 0

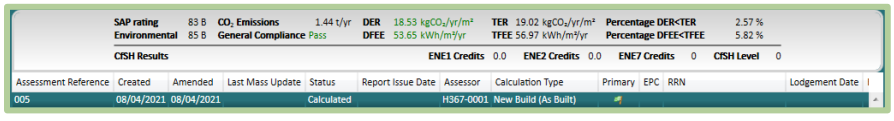
Assessment Reference	Created	Amended	Last Mass Update	Status	Report Issue Date	Assessor	Calculation Type	Primary	EPC	RRN	Lodgement Date
003	08/04/2021	08/04/2021		Calculated		H367-0001	New Build (As Built)				



SAP rating	82 B	CO_2 Emissions	1.55 t/yr	DER	19.81 $kgCO_2/yr/m^2$	TER	20.11 $kgCO_2/yr/m^2$	Percentage DER<TER	1.48 %
Environmental	84 B	General Compliance	Pass	DFEE	59.68 $kWh/m^2/yr$	TFEE	62.68 $kWh/m^2/yr$	Percentage DFEE<TFEE	4.79 %

CfSH Results — ENE1 Credits 0.0 — ENE2 Credits 0.0 — ENE7 Credits 0 — CfSH Level 0

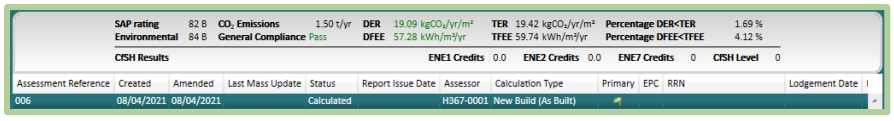
Assessment Reference	Created	Amended	Last Mass Update	Status	Report Issue Date	Assessor	Calculation Type	Primary	EPC	RRN	Lodgement Date
004	08/04/2021	08/04/2021		Calculated		H367-0001	New Build (As Built)				



SAP rating	83 B	CO_2 Emissions	1.44 t/yr	DER	18.53 $kgCO_2/yr/m^2$	TER	19.02 $kgCO_2/yr/m^2$	Percentage DER<TER	2.57 %
Environmental	85 B	General Compliance	Pass	DFEE	53.65 $kWh/m^2/yr$	TFEE	56.97 $kWh/m^2/yr$	Percentage DFEE<TFEE	5.82 %

CfSH Results — ENE1 Credits 0.0 — ENE2 Credits 0.0 — ENE7 Credits 0 — CfSH Level 0

Assessment Reference	Created	Amended	Last Mass Update	Status	Report Issue Date	Assessor	Calculation Type	Primary	EPC	RRN	Lodgement Date
005	08/04/2021	08/04/2021		Calculated		H367-0001	New Build (As Built)				



SAP rating	82 B	CO_2 Emissions	1.50 t/yr	DER	19.09 $kgCO_2/yr/m^2$	TER	19.42 $kgCO_2/yr/m^2$	Percentage DER<TER	1.69 %
Environmental	84 B	General Compliance	Pass	DFEE	57.28 $kWh/m^2/yr$	TFEE	59.74 $kWh/m^2/yr$	Percentage DFEE<TFEE	4.12 %

CfSH Results — ENE1 Credits 0.0 — ENE2 Credits 0.0 — ENE7 Credits 0 — CfSH Level 0

Assessment Reference	Created	Amended	Last Mass Update	Status	Report Issue Date	Assessor	Calculation Type	Primary	EPC	RRN	Lodgement Date
006	08/04/2021	08/04/2021		Calculated		H367-0001	New Build (As Built)				

Yours sincerely,



Colin Sowerbutts

For and on behalf of Element Sustainability Ltd.