Covering Letter
23718 – 116 Amyand Park Road

JOSTEC
BUILDING REGULATIONS COMPLIANCE SERVICES

Wednesday, 07 August 2024

RE: Update to Energy Statement dated 4th November 2022

To whom it may concern,

We, at JosTec, have been tasked with producing SAP calculations to demonstrate compliance with Part L of the Building Regulations 2021. These calculations are also required to meet a 35% reduction in CO^2 emissions following policy LP22.

The energy statement dated 4th November 2022 has been calculated using solar PV to meet the Be Green aspect of the energy hierarchy. After careful consideration, it has been deemed more appropriate to incorporate air-source heat pumps for the dwellings.

This letter informs you of this change and reassures you that the CO^2 reduction has been met. Currently, the dwelling is achieving a higher reduction of 62.28% over the target emission Rate.

I have attached the updated SAP calculations along with a block compliance report, which gives you the average for both semi-detached houses.

Should any questions be raised by the contents of this letter, I urge you to contact the Energy Team at JosTec, who will be able to give you any additional information you require and answer any questions you may have.

Yours sincerely,

Jon Stone

Energy Team Manager
JosTec

Block Compliance

Block Reference	23718 - Amyand Park Road	**Issued on Date**	07/08/2024
Block Name			
Calculation Type	New Build (As Designed)		
Assessor Details	Mr. Jonathon Stone	**Assessor ID**	Y315-0001
Client	The Keen Partnership, Chris Keen, -, -, -		

Block Compliance Report - DER

Block Reference: 23718 - Amyand Park Road	**Block Name:**			
Property-Assessment Reference	**Floor area (m^2)**	**DER ($kgCO_2/m^2$)**	**TER ($kgCO_2/m^2$)**	**% DER/TER**
23718 - 116A - AS DESIGNED	223.58	3.30	8.76	62.33 %
23718 - 116B - AS DESIGNED	223.58	3.26	8.63	62.22 %
Totals:	447.16	6.56	17.39	
Average DER = 3.28 $kgCO_2/m^2$	**% DER/TER**	PASS		
Average TER = 8.70 $kgCO_2/m^2$	62.28 %			

Block Compliance Report - DFEE

Block Reference: 23718 - Amyand Park Road	**Block Name:**			
Property-Assessment Reference	**Floor area (m^2)**	**DFEE ($kWh/m^2/yr$)**	**TFEE ($kWh/m^2/yr$)**	**% DFEE/TFEE**
23718 - 116A - AS DESIGNED	223.58	34.72	37.87	8.32 %
23718 - 116B - AS DESIGNED	223.58	34.10	37.31	8.61 %
Totals:	447.16	68.82	75.18	
Average DFEE = 34.41 $kgCO_2/m^2$	**% DFEE/TFEE**	PASS		
Average TFEE = 37.59 $kgCO_2/m^2$	8.46 %			

Block Compliance Report - DPER

Block Reference: 23718 - Amyand Park Road	**Block Name:**			
Property-Assessment Reference	**Floor area (m^2)**	**DPER ($kWh/m^2/yr$)**	**TPER ($kWh/m^2/yr$)**	**% DPER/TPER**
23718 - 116A - AS DESIGNED	223.58	34.29	45.94	25.36 %
23718 - 116B - AS DESIGNED	223.58	33.91	45.24	25.04 %
Totals:	447.16	68.20	91.18	
Average DPER = 34.10 $kgCO_2/m^2$	**% DPER/TPER**	PASS		
Average TPER = 45.59 $kgCO_2/m^2$	25.20 %			

Summary for Input Data

elmhurst energy

Property Reference	23718 - 116A	**Issued on Date**	07/08/2024
Assessment Reference	AS DESIGNED	**Prop Type Ref**	NEW BUILD
Property			

SAP Rating	83 B	**DER**	3.30	**TER**	8.76
Environmental	96 A	**% DER < TER**			62.33
CO_2 Emissions (t/year)	0.66	**DFEE**	34.72	**TFEE**	37.87
Compliance Check	See BREL	**% DFEE < TFEE**			8.32
% DPER < TPER	25.36	**DPER**	34.29	**TPER**	45.94

Assessor Details	Mr. Jonathon Stone	**Assessor ID**	Y315-0001
Client			

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

Orientation	Northwest	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
Which Floor	0	
2.0 Number of Storeys	3	
3.0 Date Built	2023	
3.0 Property Age Band	L	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	N/A	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	No	
Smart gas meter fitted	No	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Basement:	0.00 m	0.00 m²	0.00 m
Ground floor:	27.70 m	80.57 m²	2.56 m
1st Storey:	26.55 m	83.79 m²	2.85 m
2nd Storey:	25.45 m	59.22 m²	2.78 m
3rd Storey:	0.00 m	0.00 m²	0.00 m
4th Storey:	0.00 m	0.00 m²	0.00 m
5th Storey:	0.00 m	0.00 m²	0.00 m
6th Storey:	0.00 m	0.00 m²	0.00 m
7th Storey:	0.00 m	0.00 m²	0.00 m

8.0 Living Area	23.57	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
EXTERNAL CAVITY	Cavity Wall	Cavity wall; dense plaster, lightweight aggregate block, filled cavity, any outside structure	0.20	140.00	150.28	123.15	0.00	None	27.13	Enter Gross Area
Ashlar Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.12	9.00	38.85	38.85	0.00	None	0.00	Enter Gross Area
DORMER CHEEKS	Timber Frame	Timber framed wall (one layer of plasterboard)	0.17	9.00	11.50	11.50	0.00	None	0.00	Enter Gross Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall 1	Filled Cavity with Edge Sealing	Dense plaster both sides, dense blocks, cavity or cavity fill	0.00	180.00	88.41	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Wall 1	Dense block, plasterboard on dabs	75.00	513.63
Internal Wall 2	Plasterboard on timber frame	9.00	244.10

10.0 External Roofs

Summary for Input Data

elmhurst energy

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Flat Roof	External Flat Roof	Plasterboard, insulated flat roof	0.10	9.00	17.74	17.74	None	0.00	Enter Gross Area	0.00
Insulation in Rafters	External Slope Roof	Plasterboard, insulated slope	0.16	9.00	51.55	49.66	None	0.00	Enter Gross Area	1.89
Ashlar Ceiling	External Plane Roof	Plasterboard, insulated at ceiling level	0.12	9.00	21.41	21.41	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)
Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	80.57
Internal Ceiling 2	+1	Plasterboard ceiling, carpeted chipboard floor	59.22

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Ground Floor	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.10	None	0.00	75.00	77.35
Exposed Floor	Exposed Floor - Timber	+1	Timber exposed floor, insulation between joists	0.14	None	0.00	20.00	3.22

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1		Plasterboard ceiling, carpeted chipboard floor	9.00	59.22
Internal Floor 2		Plasterboard ceiling, carpeted chipboard floor	9.00	80.57

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
WINDOWS	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05		None	0.63	Wood	1.00	1.20
Door	Manufacturer	Solid Door			None	0.00	Wood	0.70	1.20
ROOFLIGHT	Manufacturer	Roof Window	Double Low-E Soft 0.05		None	0.63	Wood	0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
FRONT	WINDOWS	EXTERNAL CAVITY	North West	3.50	0
SIDE	WINDOWS	EXTERNAL CAVITY	North East	1.25	0
REAR	WINDOWS	EXTERNAL CAVITY	South East	17.84	0
BAY WINDOW	WINDOWS	EXTERNAL CAVITY	North	2.27	0
BAY WINDOW	WINDOWS	EXTERNAL CAVITY	West	2.27	0
FRONT ROOFLIGHT	ROOFLIGHT	Insulation in Rafters	North West	0.85	40
SIDE ROOFLIGHHT	ROOFLIGHT	Insulation in Rafters	North East	1.04	40

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

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E2 Other lintels (including other steel lintels)	Independently assessed	16.72	0.01	0.01	mff-150-e2-01-independent-conc	No
E3 Sill	Independently assessed	15.70	0.02	0.02	mff-150-e3-01-cill_-proprietar	No
E4 Jamb	Independently assessed	41.34	0.02	0.02	mff-150-e4-01-window-jamb	No
E5 Ground floor (normal)	Independently assessed	27.70	0.17	0.17	mff-150-e5-04-beam--block-floo	No
E20 Exposed floor (normal)	Table K1 - Default	2.80	0.32	0.32		No
E21 Exposed floor (inverted)	Table K1 - Default	3.95	0.32	0.32		No
E6 Intermediate floor within a dwelling	Independently assessed	45.55	0.00	0.00	mff-150-e6-01-intermediate-flo	No
E24 Eaves (insulation at ceiling level - inverted)	Table K1 - Default	3.77	0.15	0.15		No
E11 Eaves (insulation at rafter level)	Independently assessed	22.44	0.02	0.02	mff-150-e11-01-eaves-insulatio	No
E14 Flat roof	Table K1 - Default	4.81	0.16	0.16		No
E16 Corner (normal)	Independently assessed	8.24	0.05	0.05	mff-150-e16-01-corner-normal	No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	13.38	-0.09	-0.09	mff-150-e17-01-corner-inverted	No
E18 Party wall between dwellings	Independently assessed	13.24	0.04	0.04	mff-150-e18-03-party-wall-betw	No
P1 Party wall - Ground floor	Independently assessed	10.40	0.17	0.17	mff-150-mpw-p1-04-beam--block-	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	19.88	0.00	0.00		No
P7 Party Wall - Exposed floor (normal)	Table K1 - Default	1.15	0.48	0.48		No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	4.80	0.19	0.19	mff-150-mpw-p4-01-separating-w	No
P5 Party wall - Roof (insulation at rafter level)	Independently assessed	10.18	0.05	0.05	mff-150-mpw-p5-01-separating-w	No
R1 Head of roof window	Table K1 - Default	2.71	0.24	0.24		No
R2 Sill of roof window	Table K1 - Default	2.71	0.24	0.24		No
R3 Jamb of roof window	Table K1 - Default	5.36	0.24	0.24		No
R4 Ridge (vaulted ceiling)	Table K1 - Default	4.80	0.12	0.12		No
R6 Flat ceiling	Table K1 - Default	7.79	0.12	0.12		No
R7 Flat ceiling (inverted)	Table K1 - Default	12.23	0.12	0.12		No
R9 Roof to wall (flat ceiling)	Table K1 - Default	13.04	0.32	0.32		No

Summary for Input Data

Y-value	0.06	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	5.00	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP_{50}	15.00	m³/(h.m²) @ 50 Pa
19.0 Mechanical Ventilation		
Mechanical Ventilation		
Mechanical Ventilation System Present	No	
20.0 Fans, Open Fireplaces, Flues		
21.0 Fixed Cooling System	No	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Low energy Lighting	80.00	10.00	800.00	20

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	105672	
Fuel Type	Electricity	
SAP Code	0	
In Winter	270.60	
In Summer	178.14	
Model Name	WH-MDC12H6E5	
Manufacturer	Panasonic HVAC UK Ltd	
System Type	Heat Pump	
Controls SAP Code	2207	
PCDF Controls	0	
Delayed Start Stat	No	
HETAS approved System	No	
Oil Pump Inside	No	
FI Case	0.00	
FI Water	0.00	
Flue Type	None or Unknown	
Smoke Control Area	Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Underfloor Heating	Yes - Pipes in thin screed	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	No	
Electric CPSU Temperature	0.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	

Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type

Heat source 1	None	0.00	0.00	0.00	0.00	0.00
Heat source 2	None	0.00	0.00	0.00	0.00	0.00
Heat source 3	None	0.00	0.00	0.00	0.00	0.00
Heat source 4	None	0.00	0.00	0.00	0.00	0.00
Heat source 5	None	0.00	0.00	0.00	0.00	0.00

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
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
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Baths connected to WWHRS	0
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Shower	Combi boiler or unvented hot water system	11.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Insulation Thickness Type	50 mm	
Insulation Thickness	50	
Cylinder Volume	270.00	L
Loss	2.50	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	
31.0 Thermal Store	None	
Thermal Store Pipework	within a single casing	
34.0 Small-scale Hydro	None	
Electricity Generated	0.00	
Apportioned	0.00	kWh/Year
Connected to dwelling's electricity meter	Yes	
Electricity Generation	Annual	

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

Summary for Input Data

elmhurst energy

Property Reference	23718 - 116B	**Issued on Date**	07/08/2024
Assessment Reference	AS DESIGNED	**Prop Type Ref**	NEW BUILD
Property			

SAP Rating	83 B	**DER**	3.26	**TER**	8.63
Environmental	96 A	**% DER < TER**			62.22
CO_2 Emissions (t/year)	0.65	**DFEE**	34.10	**TFEE**	37.31
Compliance Check	See BREL	**% DFEE < TFEE**			8.61
% DPER < TPER	25.04	**DPER**	33.91	**TPER**	45.24

Assessor Details	Mr. Jonathon Stone	**Assessor ID**	Y315-0001
Client			

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

Orientation	Northwest	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	House, Semi-Detached	
Which Floor	0	
2.0 Number of Storeys	3	
3.0 Date Built	2023	
3.0 Property Age Band	L	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	N/A	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	No	
Smart gas meter fitted	No	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Basement:	0.00 m	0.00 m²	0.00 m
Ground floor:	27.70 m	80.57 m²	2.56 m
1st Storey:	26.55 m	83.79 m²	2.85 m
2nd Storey:	25.45 m	59.22 m²	2.78 m
3rd Storey:	0.00 m	0.00 m²	0.00 m
4th Storey:	0.00 m	0.00 m²	0.00 m
5th Storey:	0.00 m	0.00 m²	0.00 m
6th Storey:	0.00 m	0.00 m²	0.00 m
7th Storey:	0.00 m	0.00 m²	0.00 m

8.0 Living Area	23.57	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
EXTERNAL CAVITY	Cavity Wall	Cavity wall; dense plaster, lightweight aggregate block, filled cavity, any outside structure	0.20	140.00	150.28	123.15	0.00	None	27.13	Enter Gross Area
Ashlar Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.12	9.00	38.85	38.85	0.00	None	0.00	Enter Gross Area
DORMER CHEEKS	Timber Frame	Timber framed wall (one layer of plasterboard)	0.17	9.00	11.50	11.50	0.00	None	0.00	Enter Gross Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall 1	Filled Cavity with Edge Sealing	Dense plaster both sides, dense blocks, cavity or cavity fill	0.00	180.00	88.41	0.00	None

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Wall 1	Dense block, plasterboard on dabs	75.00	513.63
Internal Wall 2	Plasterboard on timber frame	9.00	244.10

10.0 External Roofs

Summary for Input Data

elmhurst energy

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings
Flat Roof	External Flat Roof	Plasterboard, insulated flat roof	0.10	9.00	17.74	17.74	None	0.00	Enter Gross Area	0.00
Insulation in Rafters	External Slope Roof	Plasterboard, insulated slope	0.16	9.00	51.55	49.66	None	0.00	Enter Gross Area	1.89
Ashlar Ceiling	External Plane Roof	Plasterboard, insulated at ceiling level	0.12	9.00	21.41	21.41	None	0.00	Enter Gross Area	0.00

10.2 Internal Ceilings

Description	Storey	Construction	Area (m²)
Internal Ceiling 1	Lowest occupied	Plasterboard ceiling, carpeted chipboard floor	80.57
Internal Ceiling 2	+1	Plasterboard ceiling, carpeted chipboard floor	59.22

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Ground Floor	Ground Floor - Solid	Lowest occupied	Suspended concrete floor, carpeted	0.10	None	0.00	75.00	77.35
Exposed Floor	Exposed Floor - Timber	+1	Timber exposed floor, insulation between joists	0.14	None	0.00	20.00	3.22

11.2 Internal Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Floor 1		Plasterboard ceiling, carpeted chipboard floor	9.00	59.22
Internal Floor 2		Plasterboard ceiling, carpeted chipboard floor	9.00	80.57

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
WINDOWS	BFRC, BSI or CERTASS data	Window	Double Low-E Soft 0.05		None	0.63	Wood	1.00	1.20
Door	Manufacturer	Solid Door			None	0.00	Wood	0.70	1.20
ROOFLIGHT	Manufacturer	Roof Window	Double Low-E Soft 0.05		None	0.63	Wood	0.70	1.20

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
FRONT	WINDOWS	EXTERNAL CAVITY	North West	3.50	0
SIDE	WINDOWS	EXTERNAL CAVITY	South West	1.25	0
REAR	WINDOWS	EXTERNAL CAVITY	South East	17.84	0
BAY WINDOW	WINDOWS	EXTERNAL CAVITY	West	2.27	0
BAY WINDOW	WINDOWS	EXTERNAL CAVITY	North	2.27	0
FRONT ROOFLIGHT	ROOFLIGHT	Insulation in Rafters	North West	0.85	40
SIDE ROOFLIGHHT	ROOFLIGHT	Insulation in Rafters	South West	1.04	40

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

Bridge Type	Source Type	Length	Psi	Adjusted	Reference:	Imported
E2 Other lintels (including other steel lintels)	Independently assessed	16.72	0.01	0.01	mff-150-e2-01-independent-conc	No
E3 Sill	Independently assessed	15.70	0.02	0.02	mff-150-e3-01-cill_-proprietar	No
E4 Jamb	Independently assessed	41.34	0.02	0.02	mff-150-e4-01-window-jamb	No
E5 Ground floor (normal)	Independently assessed	27.70	0.17	0.17	mff-150-e5-04-beam--block-floo	No
E20 Exposed floor (normal)	Table K1 - Default	2.80	0.32	0.32		No
E21 Exposed floor (inverted)	Table K1 - Default	3.95	0.32	0.32		No
E6 Intermediate floor within a dwelling	Independently assessed	45.55	0.00	0.00	mff-150-e6-01-intermediate-flo	No
E24 Eaves (insulation at ceiling level - inverted)	Table K1 - Default	3.77	0.15	0.15		No
E11 Eaves (insulation at rafter level)	Independently assessed	22.44	0.02	0.02	mff-150-e11-01-eaves-insulatio	No
E14 Flat roof	Table K1 - Default	4.81	0.16	0.16		No
E16 Corner (normal)	Independently assessed	8.24	0.05	0.05	mff-150-e16-01-corner-normal	No
E17 Corner (inverted – internal area greater than external area)	Independently assessed	13.38	-0.09	-0.09	mff-150-e17-01-corner-inverted	No
E18 Party wall between dwellings	Independently assessed	13.24	0.04	0.04	mff-150-e18-03-party-wall-betw	No
P1 Party wall - Ground floor	Independently assessed	10.40	0.17	0.17	mff-150-mpw-p1-04-beam--block-	No
P2 Party wall - Intermediate floor within a dwelling	Table K1 - Default	19.88	0.00	0.00		No
P7 Party Wall - Exposed floor (normal)	Table K1 - Default	1.15	0.48	0.48		No
P4 Party wall - Roof (insulation at ceiling level)	Independently assessed	4.80	0.19	0.19	mff-150-mpw-p4-01-separating-w	No
P5 Party wall - Roof (insulation at rafter level)	Independently assessed	10.18	0.05	0.05	mff-150-mpw-p5-01-separating-w	No
R1 Head of roof window	Table K1 - Default	2.71	0.24	0.24		No
R2 Sill of roof window	Table K1 - Default	2.71	0.24	0.24		No
R3 Jamb of roof window	Table K1 - Default	5.36	0.24	0.24		No
R4 Ridge (vaulted ceiling)	Table K1 - Default	4.80	0.12	0.12		No
R6 Flat ceiling	Table K1 - Default	7.79	0.12	0.12		No
R7 Flat ceiling (inverted)	Table K1 - Default	12.23	0.12	0.12		No
R9 Roof to wall (flat ceiling)	Table K1 - Default	13.04	0.32	0.32		No

Summary for Input Data

Y-value	0.06	W/m²K
18.0 Pressure Testing	Yes	
Designed AP_{50}	5.00	m³/(h.m²) @ 50 Pa
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP_{50}	15.00	m³/(h.m²) @ 50 Pa
19.0 Mechanical Ventilation		
Mechanical Ventilation		
Mechanical Ventilation System Present	No	
20.0 Fans, Open Fireplaces, Flues		
21.0 Fixed Cooling System	No	
22.0 Lighting		
No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Low energy Lighting	80.00	10.00	800.00	20

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	105672	
Fuel Type	Electricity	
SAP Code	0	
In Winter	270.60	
In Summer	178.14	
Model Name	WH-MDC12H6E5	
Manufacturer	Panasonic HVAC UK Ltd	
System Type	Heat Pump	
Controls SAP Code	2207	
PCDF Controls	0	
Delayed Start Stat	No	
HETAS approved System	No	
Oil Pump Inside	No	
FI Case	0.00	
FI Water	0.00	
Flue Type	None or Unknown	
Smoke Control Area	Unknown	
Fan Assisted Flue	No	
Is MHS Pumped	Pump in heated space	
Heating Pump Age	2013 or later	
Heat Emitter	Radiators	
Underfloor Heating	Yes - Pipes in thin screed	
Flow Temperature	Enter value	
Flow Temperature Value	55.00	
Boiler Interlock	No	
Electric CPSU Temperature	0.00	
25.0 Main Heating 2	None	
26.0 Heat Networks	None	

Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type

Heat source 1	None	0.00	0.00	0.00	0.00	0.00
Heat source 2	None	0.00	0.00	0.00	0.00	0.00
Heat source 3	None	0.00	0.00	0.00	0.00	0.00
Heat source 4	None	0.00	0.00	0.00	0.00	0.00
Heat source 5	None	0.00	0.00	0.00	0.00	0.00

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
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
Summer Immersion	No
Cold Water Source	From mains
Bath Count	1
Baths connected to WWHRS	0
Supplementary Immersion	No
Immersion Only Heating Hot Water	No

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
Shower	Combi boiler or unvented hot water system	11.00		No	

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder Stat	Yes	
Cylinder In Heated Space	Yes	
Independent Time Control	Yes	
Insulation Type	Measured Loss	
Insulation Thickness	50	
Cylinder Volume	270.00	L
Loss	2.50	kWh/day
Pipes insulation	Fully insulated primary pipework	
In Airing Cupboard	No	

31.0 Thermal Store	None	
Thermal Store Pipework	within a single casing	

34.0 Small-scale Hydro	None	
Electricity Generated	0.00	
Apportioned	0.00	kWh/Year
Connected to dwelling's electricity meter	Yes	
Electricity Generation	Annual	

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None