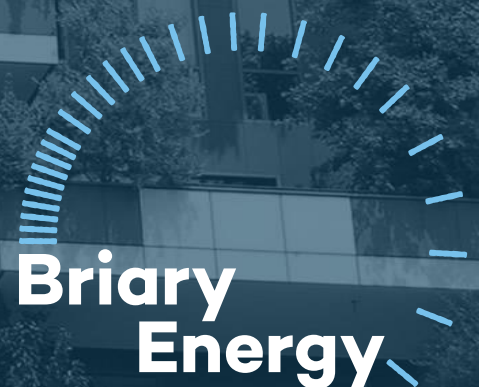


Part L1A Compliance Assessment SAP Calculations

Maidenhead Planning

PRJ012480

10 June 2022



Part L1A Compliance Assessment

Summary

Briary Energy is an independent environmental consultancy with considerable experience in the renewable energy industry. We are a focused team of professionals committed to securing success for our clients. Our service combines the personal commitment of our staff with the best of modern practices and resources. We provide independent advice within all aspects of Part L of planning for the development industry including the energy sector.

Briary Energy take an integrated approach to the areas of renewables and other low-carbon energy technologies, offering services from Energy Feasibility Studies, Energy Consumption statements, Code for Sustainable Homes Assessments, SAP and SBEM Calculations, Pressure Testing and Daylight Calculations.

Maidenhead Planning has instructed Briary Energy to undertake SAP Calculations for Rear of Whitley Wood Lane.

This project comprises of 4 plots, where compliance will be sought under the Part L1A 2013 Regs using SAP 2012. The Standard Assessment Procedure (SAP) is the methodology used by the Government to assess and compare the energy and environmental performance of dwellings.

Its purpose is to provide accurate and reliable assessments of dwelling energy performances that are needed to underpin energy and environmental policy initiatives.

Project Status

SAP Compliance Achieved

Total Target Emission Rate:

8,572 kgCO₂ per year

Total Dwelling Emission Rate:

6,786 kgCO₂ per year

This shows an overall reduction of 1,786 kgCO₂ per year from the Target Emission Rate.

This is a 20.8% reduction overall.

Total CO₂ from Appliances:

7,183 kgCO₂ per year

Total CO₂ from Cooking:

755 kgCO₂ per year

Net Site CO₂ Emissions:

14,725 kgCO₂ per year

Specification

Description		U Value W/m²K	Element	Specification	
Floors	Floor Type 1	0.13	Flr - Ground	AAC (600 kg/m3)/ concrete 150mm,Thermafloor TF70 zero ODP 120mm,Screed 75mm	
Walls	Wall Type 1	0.11	WI - Brick	Brick, outer leaf 102.5mm,Standard cavity 50mm,Orientated Strand Board 9mm,Timber frame/cavity 20mm,PIR 0.022 120mm,Timber frame/cavity 20mm,PIR 0.022 60mm,Batten Cavity Low E 25mm,Plasterboard 12.5mm,Plaster Skim 3mm	
Roofs	Roof Type 1	0.11	Rf - Staggered Roof At Front	Mineral wool 200mm,Mineral wool 200mm,Plasterboard 12.5mm,Plaster skim 3mm	
	Roof Type 2	0.11	Rf - Ins Rafter	PIR 0.022 100mm,SF60 system 75mm,Plasterboard 12.5mm,Plaster skim 3mm	
Openings	Roof Window	1.40	Manufacturer	Solar Factor 0.76, Frame Factor 0.72	
	Windows	1.40	Manufacturer	Solar Factor 0.76, Frame Factor 0.72	
	Solid Door	1.40	Manufacturer	Solar Factor 0.70, Frame Factor 0.72	
Specifics	Y Value	Modelled Figures		Airtightness m³/(hr.m²)	See Schedule
	Thermal Mass	Calculated Thermal Mass		Mechanical Ventilation	See Schedule
	Main Heating System	See Schedule		Water Heating	See Schedule
	Heating Fuel	Mains Gas		Renewables	N/A
	Controls	See Schedule		Additional Notes:	
	Low Energy Lighting	100%			

Construction Details

Below is the full list of construction details utilised by junction type within .

Junction Type	Detail Reference	ψ -Value (W/mK)
SteelLintel - E1		0.500
OtherLintels - E2		0.300
Sill - E3		0.040
Jamb - E4		0.050
GroundFloorNormal - E5		0.160
InternalFloor - E6		0.070
PartyFloor - E7		0.070
BalconyBetweenDwellings - E9		0.020
EavesAtCeiling - E10		0.060
EavesAtRafter - E11		0.040
GableAtCeiling - E12		0.240
GableAtRafter - E13		0.040
FlatRoof - E14		0.080
FlatRoofWithParapet - E15		0.560
CornerNormal - E16		0.090
CornerInverted - E17		-0.090
PartyWall - E18		0.060
GroundFloorInverted - E19		0.070
ExposedFloorNormal - E20		0.320
ExposedFloorInverted - E21		0.320
BasementFloor - E22		0.070
BalconyBetweenDwellingsPenetrates - E23		1.000
EavesAtCeilingInverted - E24		0.240
StaggeredPart - E25		0.120

Site Sign Off

I can confirm that the site has been built in accordance with the specification reference SPEC-MP-ROWWL44722 on the previous page, where the heating, hot water and ventilation has been installed as per the plot details within this document.

Name	
Company	
Date	
Signature	

If there are any changes required to the specification or plot details, please email info@briaryenergy.co.uk so we can issue a revised document.

Plot Summary

The following table details the main features applied to all 4 plots at Rear of Whitley Wood Lane.

Plot	EPC Rating	DER/TER % Pass	DAP	WWHRS	FGHRS	PV	Weath Comp	Zoned Heating	Ventilation	Boiler Model
001 S - PRJ012480	87B	20.6%	5.01	✓	×	N/A	×	Time & Temp Zone	Unity Cv2Gip	Ideal Logic Combi Esp1 35
002 S - PRJ012480	87B	21.1%	5.01	✓	×	N/A	×	Time & Temp Zone	Greenwood Unity Cv2Gip	Ideal Logic Combi Esp1 35
003 S - PRJ012480	87B	21.1%	5.01	✓	×	N/A	×	Time & Temp Zone	Greenwood Unity Cv2Gip	Ideal Logic Combi Esp1 35
004 S - PRJ012480	87B	20.4%	5.01	✓	×	N/A	×	Time & Temp Zone	Greenwood Unity Cv2Gip	Ideal Logic Combi Esp1 35

U-Value Calculations

Maidenhead Planning

10 June 2022



**Briary
Energy**

U-Value Calculation

Flr - Ground

No. of Layers	3		
Internal Temperature (°C)	15	External Temperature (°C)	5
Internal Humidity	95%	External Humidity	95%
Element Type	Floor	Total Thickness (mm)	345.00

U-Value (W/m²K)

U_v

0.13

Heat Capacity (kJ/[m²k])

H_c

75.60

Layer	Description	Thickness (mm)	Conductivity (W/mK)	Resistance (mK/W)	Fraction %
External Surface					
Layer 1	AAC (600 kg/m3)/ concrete	150	0.180	0.833	86%
	<i>*Bridged Layer</i>				
Layer 2	Thermafloor TF70 zero ODP	120	0.022	5.455	100%
Layer 3	Screed	75	1.150	0.065	100%
Internal Surface					

U-Value Calculation

W1 - Brick

No. of Layers	10		
Internal Temperature (°C)	15	External Temperature (°C)	5
Internal Humidity	95%	External Humidity	95%
Element Type	Wall	Total Thickness (mm)	422.00

U-Value (W/m²K)

U_v

0.11

Heat Capacity (kJ/[m²k])

H_c

7.62

Layer	Description	Thickness (mm)	Conductivity (W/mK)	Resistance (mK/W)	Fraction %
External Surface					
Layer 1	Brick, outer leaf	102.5	0.770	0.133	83%
	<i>*Bridged Layer</i>				
Layer 2	Standard cavity	50	0.068	0.740	100%
Layer 3	Orientated Strand Board	9	0.130	0.069	100%
Layer 4	Timber frame/cavity	20	0.114	0.175	100%
Layer 5	PIR 0.022	120	0.022	5.455	91%
	<i>*Bridged Layer</i>				
Layer 6	Timber frame/cavity	20	0.114	0.175	100%
Layer 7	PIR 0.022	60	0.022	2.727	100%
Layer 8	Batten Cavity Low E	25	0.038	0.665	88%
	<i>*Bridged Layer</i>				
Layer 9	Plasterboard	12.5	0.210	0.060	100%
Layer 10	Plaster Skim	3	0.180	0.017	100%
Internal Surface					
Internal Surface					

Data extracted from Elmhurst Energy Systems SAP2012 Calculator (Design System) version 4.12r02

U-Value Calculation

Rf - Staggered Roof At Front

No. of Layers	4		
Internal Temperature (°C)	15	External Temperature (°C)	5
Internal Humidity	95%	External Humidity	95%
Element Type	Roof	Total Thickness (mm)	415.50

U-Value (W/m²K)

U_v

0.11

Heat Capacity (kJ/[m²k])

H_c

7.62

Layer	Description	Thickness (mm)	Conductivity (W/mK)	Resistance (mK/W)	Fraction %
External Surface					
Layer 1	Mineral wool	200	0.040	5.000	100%
Layer 2	Mineral wool	200	0.040	5.000	92%
	<i>*Bridged Layer</i>				
Layer 3	Plasterboard	12.5	0.210	0.060	100%
Layer 4	Plaster skim	3	0.180	0.017	100%
Internal Surface					

U-Value Calculation

Rf - Ins Rafter

No. of Layers	4		
Internal Temperature (°C)	15	External Temperature (°C)	5
Internal Humidity	95%	External Humidity	95%
Element Type	Roof	Total Thickness (mm)	190.50

U-Value (W/m²K)

U_v

0.11

Heat Capacity (kJ/[m²k])

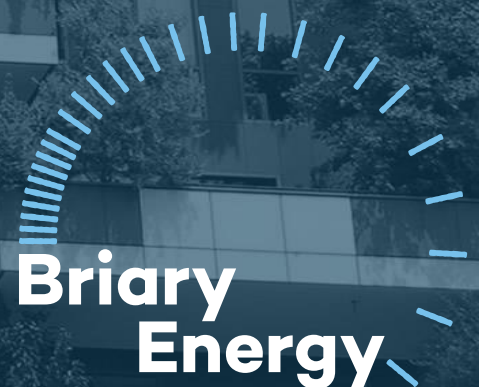
H_c

7.62

Layer	Description	Thickness (mm)	Conductivity (W/mK)	Resistance (mK/W)	Fraction %
External Surface					
Layer 1	PIR 0.022	100	0.022	4.545	88%
	<i>*Bridged Layer</i>				
Layer 2	SF60 system	75	0.012	6.250	100%
Layer 3	Plasterboard	12.5	0.210	0.060	100%
Layer 4	Plaster skim	3	0.180	0.017	100%
Internal Surface					

Air Tightness Testing Notes

Maidenhead Planning



10 June 2022

Air Testing Notes

The to be largely completed for the test, with the envelope sealed as required to create the air-barrier. Carpets or other floor coverings do not have to be in place. The fan equipment requires 240v electrical supply, so the sockets ideally need to be live in the plots to be tested. ready for the air test? To ensure compliance with the building regulations certain conditions should be in place prior to the engineer attending site. Examples are below, but attached is a comprehensive check list identifying areas to be permanently sealed.

- The building envelope should be in a finished state (ready to be occupied), i.e. doors, windows (any cladding if applicable) should be fitted
- Any boxed in elements are sealed i.e. waste pipe/soil pipe/duct work for MVHR systems
- Door and window thresholds and frames are sealed
- Light fittings fitted and down lighters sealed
- Sockets and Light switches fitted
- Access panels and loft hatches fitted
- Bath panels fitted and sealed
- Plumbing fittings permanently sealed
- Skirting boards fitted and sealed

Examples of the Common Areas of Leakage

- Around boiler flues
- Through and around doors - particularly double doors
- Around loft hatches
- Around water and heating pipes that penetrate into hollow floor voids and partition walls
- Cracks or holes through a masonry inner leaf
- Around supplies from external meter boxes
- Gaps around pipes to cold water and/or heating header tanks
- Between and around sections of suspended floors
- Beneath doors and doorframes
- Through windows and/or hollow window frames
- Roof Lights
- Around and through wall-mounted extract fans, cooker hood vents, tumble dryer vents
- Around waste pipes, gas and water supplies, cables, which penetrate the lower floor and through walls
- Along the top and bottom edges of skirting boards
- Beneath inner window sills and around window frames
- Through gaps behind plasterboard on dabs or hollow studwork walls
- Around waste pipes passing into floor voids or boxed in soil stacks
- Around wall mounted fan or radiant heaters; around and through fused spurs and pull switches
- Around and through recessed spotlights
- Hole around the top of a soil stack



Air Testing Plot Checklist

It is recommended that the building fabric has a suitably robust air barrier installed. In the event that the final finishes are used as the air barrier this is a simple check list which simplifies what needs to be sealed prior to the air testing. In some cases you may not be able to seal all items listed.

Item No	Item Description	Tradesperson Responsible	Tick Once Complete
1	SEAL ALL SKIRTING BOARDS	1	
2	SEAL SKIRTING BOARDS UNDER THE KITCHEN UNITS, OR SEAL PLASTERBOARD TO FLOOR	1 6	
3	SILICONE SEAL KITCHEN WASTE PIPES	2 3	
4	SEAL KITCHEN BOILER PIPES AND FLUE PIPES	5	
5	ONCE THE FAN KITCHEN EXTRACT IS INSTALLED IT NEEDS A TIGHT SEAL	3 4 6	
6	INSTALL ALL KITCHEN LIGHTS AND LIGHT/ SOCKET FACE PLATES	4	
7	SEAL AROUND GROUND FLOOR TOILET WASTE PIPES AND WATER PIPES	2	
8	SEAL AROUND ALL BOXING IN THE GROUND FLOOR TOILET	1	
9	ALL WINDOWS NEED TO BE SEALED AND WINDOW SILL BOARDS NEED A SILICONE SEAL	1	
10	RADIATOR - SEAL AROUND THE BACK OF THE PUSH-FIT CAPS AND FLEX PIPES	5	
11	DOOR THRESHOLD NEEDS TO BE SEALED	1	
12	DOOR RUBBER DRAUGHT EXCLUDER NEEDS TO BE INSTALLED	1	
13	ANY FLOOR PENETRATIONS FOR ELECTRICAL CABLES NEED TO BE SEALED WITH SILICONE	4	
14	UPSTAIRS BATHROOM PIPEWORK UNDER BATH NEEDS TO BE SEALED	2	
15	UNDER BATH - PLASTERBOARD NEEDS SEALING TO FLOOR	2 6	
16	WASTE PIPE BOXING IN UPSTAIRS BATHROOM THAT GOES TO THE LOFT/ EXTERNAL- SEAL	1	
17	BATHROOM EXTRACT NEEDS SEALING TO THE WALL	4	
18	BATH PANEL NEEDS FITTING AND SEALING	2	
19	ANY MDF BOXING IN UPSTAIRS BATHROOM IS TO BE SEALED WITH SILICONE	1	
20	LOFT HATCH NEEDS TO BE INSTALLED	1	
21	LOFT HATCH NEEDS TO BE SEALED WITH CAULK AROUND THE FRAME	1	
22	NO LARGE HOLES OR VOIDS CUT IN PLASTERBOARD ARE TO BE LEFT UNSEALED	2 4 6	
23	NO LARGE VOIDS BEHIND RADIATORS IF PLASTIC CAPS ARE NOT INSTALLED- SEAL	5	

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