FORUM ENERGY CONSULTANTS.

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ELMHURST ACCREDITED OCDEA. ATTMA ACCREDITED AIR PRESSURE TESTING ORG.

Mr S Latham
Design and Build Services
2 Colkins Cottages, Clockhouse, Boughton,
Faversham,
Kent, ME13 9LU.

Dear Simon,

8th January 2021.

Re : New Dwelling, Site Rear of 7 Horselees Road, Boughton, Faversham, Kent ME13 9TG
Planning – 50 % DER / TER Reduction, Building Regulations, Part L1A Compliance Requirements.

I have now competed a draft SAP Rating on the dwelling.

The dwelling has been assessed under Part L1A 2013 and SAP 2012. The DER must be 50 % improved when compared to the TER as a requirement of Planning.

The draft results for the proposed dwelling are as follows ;

Ground Floor. 150 mm ground bearing concrete slab and DPM
150 mm Celotex Insulation and separating layer
65 mm screed.

All floor 'U' values are calculated on each individual floor perimeter length. The Floor 'U' value is 0.14 w/m2k.

External Walls
Brick Outer 103 mm Brickwork
100 mm cavity filled with 100 mm Dritherm 32 batts
(thermal conductivity 0.032)
100 mm Thermalite Shield Blocks (thermal conductivity 0.15)
13 mm Plaster.

'U' value calculated as being 0.26 w/m2k.

Boarded Upper Timber Frame Walls	Boarding battens and vented construction over 65 mm Celotex insulation over 12 mm external quality ply 100 mm timber studs fully filled with Rigid Mineral wool batts 12.5 mm moisture resistant plasterboard and skim. 'U' value calculated as being 0.19 w/m2k.
Exposed Upper Floor	22 mm chipboard flooring 200 mm Mineral wool insulation between joists 12.5 mm + 15 mm Plasterboard & skim 12 mm ply soffit board. 'U' value calculated as being 0.21 w/m2k.
Ashlar Walls	100 mm Celotex insulation between studs and 50 mm Celotex across face of studs with 12.5 mm duplex grade plasterboard and skim finish. 'U' value calculated as being 0.18 w/m2k.
Windows and External Doors	Timber Framed, double glazed, manufacturers written declaration for 'U' value of 1.4 w/m2k for Windows and 1.4 w/m2k for the doors to be provided / confirmed.
Rooflights	Proprietary manufactured Velux rooflights from their standard range achieve a U value of 1.30 w/m2k.
Main Flat Ceiling Line.	200 mm Knauf Earthwool (0.040 conductivity) between ties 250 mm Knauf Earthwool (0.040 conductivity) over butted tightly In opposite direction. 12.5 mm duplex plasterboard and skim finish. 'U' value calculated as being 0.10 w/m2k.
Raking ceiling	100 mm Celotex insulation between rafters 50 mm Celotex under rafters 12.5 mm duplex plasterboard and skim 'U' value calculated as being 0.18 w/m2k.

Design Air Permeability	This is the Designers responsibility to specify, I have included the lower rate of 5. Design Air Permeability Rate 5m3 / hm2 (@50 Pa). The dwelling will require an Air Pressure Test at completion.
Thermal Bridging	Assessors can no longer simply state 'Robust Details' and stipulate the 'Y' value. We either enter a default 'Y' value of 0.15 which is high and detrimental to the overall result or the *client will need to confirm* <u>*in writing*</u> that *'Approved Accredited Construction Details' will be fully adopted for each Thermal Bridging junction.* As a result, I have calculated the 'Y' value and the figure calculated is 0.076 w/m2k. A sample letter will be produced and forwarded for your use with the declaration.
Low Energy Lighting	Low energy light fittings are defined as those with lamps of greater than 45 lumens per circuit watt and output greater than 400 lumens. These do not need to be dedicated fittings, IE standard fittings supplied with low energy lamps will comply. I have included for 100 % low energy lighting.
Extractor Fans	Normal extractor fans included for.
Heating	Normal Electrical Tariff Mains Gas fired Condensing Combi Boiler with a minimum SEDBUK value of 89 % Boiler Interlock Delayed start room Thermostats Radiators fitted with TRV's Time and Temperature Zone Controls required

Secondary Heating	None specified.
Hot Water	Hot water via Combination boiler
Internal Water Use.	Maximum internal use not to exceed 110 litres per person per Day.
Photo Voltaic Array	To South East orientated roof slope. (45 degrees) 2.20 kWp loading - (approx. 8no panels) Metering and inverted connected to dwelling electric intake.

With all of the above specifications included the draft results for the dwelling are as follows ;

Rear of 7 Horselees	SAP	92.	EI	92.	
	DER	10.21	TER	21.67	= 52.88 % reduction
	DFEE	60.47	TFEE	69.12	

The dwelling Passes the requirements of Part L1A and SAP.
The dwelling achieves a 52.88 % reduction in DER set against TER therefore complies with Planning Policy requirements.

Design Final. (for information but a requirement)

In order to issue the Design Final Documentation, I require a written letter confirming the use of the 'Accredited Construction Details'.

(drafted attached).

I also require a copy of the Architectural scheme drawings with all of the specifications indicated within this document included for.

I will then upon receipt of the information, print out the necessary documentation to indicate Building control submission compliance. I will also forward a copy in PDF format for your own use.

You will then also need to forward these to Building Control, together with copies of your upgraded drawings and other written information.

Information will remain on computer memory until required.

Should you like to discuss the enclosed please do not hesitate to contact me at your earliest convenience.

Completion. (for information but a requirement)

At completion and prior to upgrading to 'as built' and the issue of the EPC, I will require the following ;

Written confirmation that *'the dwelling is constructed in accordance with the Architectural scheme drawings and any recommendations made by Forum Energy Consultants'.*

Written confirmation from the builder that, *' the specific junctions have been built in accordance with the Accredited Construction Details and that the associated checklists have been completed'.*

Or advice on alterations to the Design Stage assessed information for upgrading.

A Certified copy of the Air Pressure Test Results,

Boiler make & model as installed to dwelling.

Confirmation of MCS Certification and details of the PV loading as installed.
The correct address and Post Code for EPC lodgement.

Yours sincerely,

A. Ironmonger.

Mr Alan Ironmonger. MCIAT, Elmhurst Accredited OCDEA. ATTMA. ORG.
Forum Energy Consultants.

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

Design SAP
elmhurst energy

Property Reference	Rear of 7 horselees	Issued on Date	08/01/2021
Assessment Reference	Rear of 7 Horselees	Prop Type Ref	
Property	Rear of 7 horselees, Horselees Road, Boughton, Faversham, Kent, ME13		

SAP Rating	92 A	DER	10.21	TER	21.67
Environmental	92 A	% DER<TER	52.88		
CO_2 Emissions (t/year)	0.51	DFEE	60.47	TFEE	69.12
General Requirements Compliance	Pass	% DFEE<TFEE	12.51		

Assessor Details	Mr. Alan Ironmonger, Forum Energy Consultants, Tel: 01303 260656, forumenergy@btinternet.com	Assessor ID	L609-0001
Client			

SUMARY 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)	21.67	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	10.21	$kgCO_2/m^2$	Pass
	-11.46 (-52.9%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	69.12	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	60.47	$kWh/m^2/yr$	
	-8.6 (-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	0.21 (max. 0.30)	0.26 (max. 0.70)	Pass
Floor	0.21 (max. 0.25)	0.21 (max. 0.70)	Pass
Roof	0.17 (max. 0.20)	0.18 (max. 0.35)	Pass
Openings	1.39 (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 manufacturer X X Combi boiler Efficiency: 89% Minimum: 88%	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	91	%	
Minimum	75	%	Pass
8 Mechanical ventilation			
Not applicable			

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (South East England)	Slight	Pass
Based on:		
Overshading	Average	
Windows facing North East	8.78 m², Overhang width less than twice window, ratio 0.05	
Windows facing South West	0.54 m², Overhang width less than twice window, ratio 0.05	
Windows facing North West	2.48 m², Overhang width less than twice window, ratio 0.05	
Air change rate	4.00 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	0.10	W/m²K
Photovoltaic array	2.20	kW

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