

Our Ref: AD-50

Ms. Trish Paul

Sent by Email; trishjpaul@btinternet.com

Therm Energy Limited

45 Graham Road,
Worthing
BN11 1TL

9th May 2022

Dear Ms. Paul,

**Re: Flat 3, 74 London Road, Bognor Regis
Thermal Calculations - Part L1A of the Building Regulations**

Further to your Instruction, we enclose SAP Design Calculation reference AD-50-01.

The SAP Calculations confirm compliance with both the Target CO₂ Emission Rate and the Target Fabric Energy Efficiency (TFEE) rate, all in accordance with Approved Document L1A (2013 edition). Attached is a Construction Specification showing the insulation levels and heating system assumed. Please note the following:

- | | |
|----|--|
| 1) | Ground floor insulated with 100mm Ecotherm insulation. |
| 2) | External walls (metal clad or render) at 2 nd floor insulated using 120mm Ecotherm PIR between studs, 30mm Celotex GA4000 over studs. |
| 3) | Windows an average U-value of 1.4. |
| 4) | A design air permeability of 4.5m ³ /h/m ² , to be confirmed by air pressure testing. |
| 5) | Main heating using electric underfloor heating. |
| 6) | System 1 ventilation including extract fans to wet rooms. If different please advise and provide details. |
| 7) | Solar photovoltaics (PV) required. Install 1.8kWp of PV to south facing elevations. |

Please note that electric underfloor heating in new build dwellings does not perform well in terms of Part L1A compliance due to the high CO₂ emission associated with this type of fuel. To compensate for this, and to help meet Planning Condition No. 6, an array of solar photovoltaic panels (1.8kWp) is recommended. An alternative is use of an internal air source heat pump, in which case the solar panels can probably be omitted.

Regarding Planning Condition No.6, requiring at least 10% of the energy supply to be secured from decentralised sources, we advise that the Target energy emissions are estimated to be 6 855kWh/year. Based on the attached Construction Specification, the proposed energy use is 4 550kWh/year. This represents a saving in energy of 34% and thus satisfies the Planning Condition. In this case, a fabric-first approach will not achieve the requisite savings.

Additional Services

Therm Energy services also include on-site testing for Air leakage & Extract Fan performance and Acoustic testing of party walls and floors. Please ask for a quote

Should you have any queries, please do not hesitate to contact us.

Yours sincerely



Colin Marshall SAT Assessor

1. Construction Specification for Part L1A (2013) Compliance			
Project:	Date:	Our reference:	Version
Flat 3, 74 London Road, Bognor Regis PO21 1DD	9th May 2022	AD-50	
1. Construction and insulation			
Element			U-Value (W/m ² K)
<u>a) Ground floor (Entrance)</u>			
75mm screed on 100mm Ecotherm insulation on a beam and block concrete floor.			0.17
<u>b) Exposed floor – 2nd floor to unheated space below</u>			
18mm plywood, 254mm Isomass, 18mm t & g floorboard, 150mm APR acoustic quilt between joists, 15mm Soundbloc, 12.5mm Fireline board.			0.27
<u>c) External wall – Ground floor</u>			
Existing block cavity wall upgraded using 37mm Celotex PL4000 or similar.			0.46
<u>d) External wall – First Floor – K-Rend</u>			
K-Rend system on cement particle board, 25mm treated battens, breather membrane, 120mm Ecotherm PIR between studs, VCL, 12.5mm plasterboard finish.			0.20
<u>e) External wall – Second Floor – K-Rend</u>			
K-Rend system on cement particle board, 25mm treated battens, breather membrane, 18mm OSB board, 120mm Ecotherm PIR between studs, 25mm service void, VCL, 30mm Celotex GA4000, 15mm plasterboard finish.			0.15
<u>f) External wall – Second Floor – Metal clad</u>			
Metal cladding on 18mm OSB, breather membrane, 18mm OSB board, 120mm Ecotherm PIR between studs, 25mm service void, VCL, 30mm Celotex GA4000, 15mm plasterboard finish.			0.17
<u>g) Other</u>			
- First floor wall - Stair to assumed unheated space – Wall type 2			0.55
- Party walls between Flat 3 and neighbouring properties – at Ground and first floor – assumed solid masonry.			0.00
<u>h) Roof</u>			
Metal cladding, 18mm OSB board, 350mm Rockwool insulation, 12.5mm plasterboard finish.			0.12
<u>i) Windows</u>			
UPVC framed double-glazed, low E glass, minimum 16mm air gap between panes. Note – Manufacturers' confirmation of the U-value performance to be provided upon completion.			1.4
<u>j) Single solid or half-glazed doors</u>			
Timber or UPVC framed, half-glazed or solid doors.			1.6

k) Air tightness

A design air permeability of 4.5m³/h/m² to be confirmed by air pressure testing.

Note - Therm Energy can provide Air Leakage Testing.

2. Heating and Ventilation

a) Main Heating System

Underfloor electric heating.

b) Water Heating

Instantaneous hot water assumed.

c) Heating Controls

Fully independent time and temperature zone control by a suitable arrangement of plumbing and electrical services.

d) Ventilation

System 1 ventilation including extract fans to wet rooms.

3. Other energy related issues

a) Lighting (internal)

100% low-energy light fittings in accordance with Part L1A.

b) Electricity Tariff

Standard Tariff.

c) Solar photovoltaics (PV)

Install 1.8kWp of PV to south facing elevations.

4. As- Built SAP and EPC - Flat 3, 74 London Road, Bognor Regis PO21 1DD

This section is to be completed when the final SAP and EPC are required upon completion of the dwelling(s).

(1) Has there been any changes to the specification above (list changes above, or state '' no changes''

Signed :

Date ;

Name ;.

Job Title / Role :