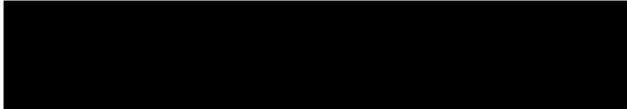


Our Ref: ZF-57-A

Ms. Julia Davies

Architectural Design & Drawing Service



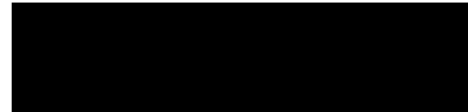
Therm Energy Limited

1 Tarrant Street

Arundel

West Sussex

BN18 9DG



9th July 2021

Dear Ms. Davies,

Re: 2no dwellings, 47 South, Way, Bognor Regis
Thermal Calculations - Part L1A of the Building Regulations

Further to your Instruction, we enclose SAP Design Calculations ZF-57-01 & 02.

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). These Calculations also address Planning Condition No.13, which requires at least 10% of the energy supply to be secured from decentralised and renewable or low carbon energy sources.

Attached is a Construction Specification showing the insulation levels and heating system assumed. Please note the following:

1)	Ground floor insulated with 165mm Celotex XR4000 or similar.
2)	External walls cavity walls insulated using 50mm Celotex CW4000 partial fill.
3)	Windows and glazed doors to have an average U-value of 1.6 Wm ² K.
4)	Thermal bridging junctions to be constructed in accordance with the Aircrete Constructive Details for partial cavity fill.
5)	A design air permeability of 5.5m ³ /h/m ² , to be confirmed by air pressure testing.
6)	Main heating using an air source heat pump. We recommend that a model is selected from the SAP Appendix Q Database. Alternatively, the heat pump installation should be supported by an MCS certificate.
7)	It is assumed there is no secondary heating.
8)	System 1 ventilation including extract fans to wet rooms. If different please advise and provide details.

Concerning Planning Condition No.13, the use of an air source heat pump satisfies the requirement to secure energy from low-carbon energy sources. For the development, the Baseline energy use (for a dwelling just meeting Part L standards) is 14 338 kWh/year. For this design, using an air source heat pump, the proposed energy use is 6 777 kWh/year, thus showing a saving of 53% above the baseline energy use. The planning requirement calls for at least 10% of the energy supply to be secured from decentralised and renewable or low carbon energy sources, and therefore this requirement is satisfied. These values can be found in the TER/DER worksheets of the attached calculations.

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



Yours sincerely



Colin Marshall SAP Assessor

1. Construction Specification for Part L1A (2013) Compliance			
Project:	Date:	Our reference:	Version
2no dwellings, 47 South, Way, Bognor Regis	9th July 2021	ZF-57	
1. Construction and insulation			
Element			U-Value (W/m ² K)
<u>a) Ground floor</u> 75mm screed on 165mm Celotex XR4000 on a beam and block concrete floor.			0.11
<u>b) External wall – facing brick</u> Facing brick, 50mm clear cavity, 50mm Celotex CW4000, 100mm Celcon Standard, 12.5mm plasterboard on dabs.			0.25
<u>c) Separating walls</u> Cavity masonry walls to be filled with 75mm Rockwool Roll (or similar), with effective edge sealing at all exposed edges and in line with insulation layers in abutting elements.			0.00
<u>d) Roofs - horizontal ceilings</u> 100mm mineral wool quilt between joists, 250mm mineral wool quilt cross-laid over joists, 12.5mm plasterboard finish.			0.12
<u>e) Windows</u> Timber or UPVC framed double-glazed, low E glass, minimum 16mm air gap between panes.			1.6
<u>f) Glazed Patio doors</u> Timber or UPVC framed double-glazed, low E glass, minimum 16mm air gap between panes.			1.6
<u>g) Single solid or half-glazed doors</u> Timber or UPVC framed, half-glazed or solid doors.			1.8
<u>h) Air tightness</u> A design air permeability of 5.5m ³ /h/m ² to be confirmed by air pressure testing.			
<u>i) Thermal Bridging Junctions</u> Thermal bridging junctions to be constructed in accordance with the Aircrete Constructive Details for partial cavity fil.			
2. Heating and Ventilation			
<u>a) Main Heating System</u> Using an air source heat pump. We recommend that a model can be selected from the SAP Appendix Q Database. Alternatively, the heat pump installation should be supported by an MCS certificate			

b) Water Heating

From main heating. A 210 litre hot water cylinder assumed, located in a heated space, with cylinderstat and a standing heat loss no greater than 2.2 kWh/day. Hot water timed separately. All primary pipework insulated.

c) Heating Controls

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

d) Secondary Heating

It is assumed there is no secondary heating.

d) Ventilation

System 1 ventilation including extract fans to wet rooms.

3. Other energy related issues
a) Lighting (internal)

90% of internal lights to be of the low-energy type in accordance with Part L1A.

b) Electricity Tariff

Standard Tariff.

4. As- Built SAP and EPC - 2no dwellings, 47 South, Way, Bognor Regis

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 :