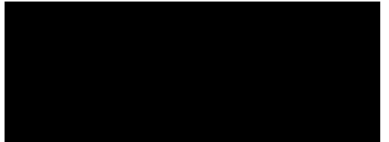




Neil St Clair
ECE Architecture
Brooklyn Chambers
11 Goring Road
Worthing BN12 4AP

Therm Energy Ltd
1 Tarrant Street
Arundel
BN18 9AZ



Our Reference : XG-10-revised

Sent By : E-Mail

Software: Stroma FSAP 2012

04/05.2020

Dear Neil

Re : Roffey Homes, Manor Nursery Site, Angmering - Thermal Calculations (Part L)

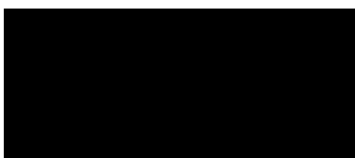
Further to receipt of your emails (together with drawings), and subsequent correspondence, please find enclosed thermal calculation reference XG-10-revised.

This confirms the SAP energy rating and Environmental Impact rating of the dwelling, and the DER<TER and DFEE<TFEE (Part L1A compliance), all in accordance with Approved Document L1A (2013 edition).

The DER (dwelling emission rate, CO₂) is at least 10% lower than the TER (target emission rate, CO₂), to Plots 1-11,13-16,27,28 and 31 by PV Panels to South Facing Roofs as required by Planning.

Attached is the specification upon which the calculations are based.

Yours sincerely



Construction and Insulation	
<u>Element</u>	<u>U-Value</u> (W/m²K)
<u>Exposed Wall</u> (brick cavity) 102.5mm facing brick outer leaf + 125mm Knauf Drithemr 32 insulation + 100mm Celcon Standard 3.6N block inner leaf + 12.5mm plasterboard on dabs internal finish.	0.20
<u>Exposed Wall</u> (weatherboarding cavity) Weatherboarding onto battens + 100mm Celcon Standard 3.6N block outer leaf + 125mm Knauf Drithemr 32 insulation + 100mm Celcon Standard 3.6N block inner leaf + 12.5mm plasterboard on dabs internal finish.	0.17
<u>Exposed Wall</u> (weatherboarding cavity) 100mm Flint blockwork outer leaf + 125mm Knauf Drithem 32 insulation + 100mm Celcon Standard 3.6N block inner leaf + 12.5mm plasterboard on dabs internal finish.	0.20
<u>Exposed Wall</u> (dormer cheeks) 18mm ply + battens + 100mm Kingspan Kooltherm K12 insulation (between 100mm studs) + 12mm OSB board 32.5mm Kingspan Kooltherm K118 insulated plasterboard internal finish.	0.20
<u>Exposed Wall</u> (attic stud) 120mm Kingspan Kooltherm K7 insulation (between 140studs) + 32.5mm Kingspan Kooltherm K118 insulated plasterboard internal finish.	0.18
<u>Exposed Wall</u> (semi exposed between garage and dwelling) 100mm Celcon Standard 3.6N block + 125mm Knauf Drithemr 32 insulation + 100mm Celcon Standard 3.6N block + 12.5mm plasterboard on dabs internal finish.	0.19
<u>Party Wall</u> All party walls to be either solid walls or fully filled cavity walls with effective edge sealing at all exposed edges and in line with insulation layers in abutting elements.	0.00
<u>Ground Floor</u> 70mm Screed + 120mm Celotex XR4000 insulation + solid or suspended concrete floor.	0.11-0.12
<u>Exposed Upper Floor</u> 200mm mineral wool insulation quilt (between timber floor joists) + 100mm mineral wool insulation (below floor joists)	0.15
<u>Roof</u> (sloping ceilings - ventilated) Tiles on battens + membrane/roofing felt + 50mm ventilated air gap (between rafters) + 120mm Kingspan Thermapitch TP10 nsulation (between rafters) + 52.5mm Kingspan K118 insulated plasterboard internal finish.	0.15
<u>Main Roof</u> 450mm Crown roll 44 insulation quilt (150mm between joists + 300mm cross-laid over joists).	0.11
<u>Roof</u> (flat roof) Single Ply roof + 18mm ply + 150mm Kingspan insulation TR27 + 175mm joists + 12.5mm plasterboard finish.	0.15
<u>Roof</u> (dormer flat roof) 18mm Ply deck + 25mm firrings + 120mm Kingspan TP10 insulation (between 150mm Joists) + 52.5mm Kingspan K118 insulated plasterboard internal finish.	0.15
<u>Windows/Doors/Roof Glazing</u> PVC-u or timber frame double-glazed + 16mm cavity (air or argon gas fill) + low-E soft coat glass, to achieve a U-value of 1.40W/m²K. *** A Copy of the Window Energy Rating Certificate will be required for our records on completion***	1.40

Heating & Ventilation

Main Heating System

Conventional (mains) gas-fired central heating (ground floor = underfloor heating, first floor = radiators). Condensing boiler with annual efficiency 89% (or higher).

Water Heating

From central heating boiler. Hot water cylinder (210L) with maximum manufacturers declared heat loss of 1.97 kWh/24h (and thermostat). Based on Range Tribune HE cylinder data.

Heating Controls

Fully independent time and temperature zone control (*note: separate plumbing circuits required, either with its own programmer, or separate channels in the same programmer*). Delayed Start Thermostat to be fitted as additional control for heating system.

Ventilation

System 3 - Continuous mechanical extract (system 3 as defined in Approved Document F1, 2010).

Nuaire DMEV decentralised mechanical mechanical extract ventilation (SAP appendix Q registered) unit used for SAP purposes.

****please note other units may effect the SAP Calculation results****

Other

Detailing

Junction details designed in accordance with The Constructive Details Checklists - see www.constructivedetails.co.uk.

The dwelling must be constructed to this standard, and the relevant forms must be completed as building work progresses.

Note : Therm Energy may not be able to produce EPCs on completion unless all forms are completed as work progresses.

Lighting

100% Low-energy light fittings in accordance with Part L1 (*Note: This is over and above Part L minimum standards*).

Renewables

Solar PV panels, , facing approx south, angled at approx 30° (+/- 5°) with little over-shading).

Plots 1 to 6 = 0.35 kWp photovoltaic array (approximately 2.50m²).

Plots 7 to 10 = 0.40 kWp photovoltaic array (approximately 2.80m²).

Plots 11,13-16,27,28 and 31 = 0.75 kWp photovoltaic array (approximately 5.25m²).

Air Tightness

Design air permeability is 5m³/h/m² - to be achieved by air pressure test (please note that on multiple unit sites the actual air leakage results for tested properties will need to be 2 less than the design figure in order for the untested units to comply with AD Part L1 2010).

Note: Therm Energy Can Provide Air Leakage Testing.