

## **SUSTAINABLE CONSTRUCTION, ENERGY AND WATER STATEMENT FOR FAIRINGS, CHURCH END, ALBURY, HERTFORDSHIRE, SG11 2JG**

This statement supports application at Fairings, Church End, Albury which proposes the construction of a replacement residential dwelling. It sets out how the design, specification and construction methods of the proposed development will meet the requirements of Sustainable Design and Construction.

The Fabric First design of the proposed development far exceeds the levels of environmental performance required by current building regulations. Our expectation is the dwelling will achieve a minimum Building CO2 Emission Rate (BER) level of 13.76 annual kg of CO2 per sq. m. versus the BER standard of 21.86 representing a -8.10 annual kg of CO2 per sq. m. improvement (37%) over existing standards.

Scandia-Hus, Ltd. uses a well-proven, high energy efficiency Swedish timber framing system. This specification is regularly reviewed in line with technical and regulatory advances thereby providing a leading-edge method of construction with a high sustainability rating. The frames use the best slow growth Scandinavian, Programme for the Endorsement of Forest Certification (PEFC) sourced, sustainable timber, harvested under a forestry management policy of long-term renewal where each tree felled is replaced by two healthy saplings. PEFC is regarded as a “gold standard” for sustainable forestry management.

Included below is the Scandia-Hus Materials and Components Specification which details the standard materials and their U-values for each major section supplied as part of the Scandia-Hus building set. This specification far exceeds Building Regulation energy usage standards.

<b>Component</b>	<b>Scandia-Hus Standard</b>	<b>Building Regulation Maximum</b>
External Wall	0.15 W/m <sup>2</sup> k	0.30 W/m <sup>2</sup> k
Sloping Roof	0.13 W/m <sup>2</sup> k	0.20 W/m <sup>2</sup> k
Floor	0.12 W/m <sup>2</sup> k	0.25 W/m <sup>2</sup> k
Windows	0.90 W/m <sup>2</sup> k	2.00 W/m <sup>2</sup> k

### **EXTERNAL WALL PANEL CONSTRUCTION:**

'U' Value - 0.15 W/m<sup>2</sup>k

- 15mm taper-edged plasterboard with fixing screws. The 15mm board provides increased density, adding the benefits of greater strength and sound insulation, and providing a medium for simple and secure wall fixings
- 38x63mm 400mm centre horizontal cross battens to provide service void
- 45mm Actis H Control Hybrid multi foil insulation across stud face

- 125mm Actis Hybris insulation between studs
- 47x147mm pressure impregnated and structurally graded studs and plates.
- 9mm Orientated Strand Board (OSB)
- Glidevale Thermo Foil Protect TF200
- Marker tapes located at 600mm centre stud positions
- 47x47mm cavity

### **SLOPING CEILINGS:**

'U' value - 0.13 W/m<sup>2</sup>k to ceilings

- 185mm Actis Hybris insulation between studs
- 45mm Actis H Control Hybrid multi foil insulation across stud face
- 38x63mm 400mm centre horizontal cross battens to provide service void
- 15mm tapered-edge plasterboard and fixing screws

### **GROUND FLOOR CONSTRUCTION:**

'U' Value - 0.12 W/m<sup>2</sup>k

- 1500-gauge DPM
- 150mm foil-backed rigid insulation
- 140x140mm block upstand
- Medium gauge (125 microns)

### **WINDOWS AND EXTERNAL DOORS:**

'U' Value – 0.9 W/m<sup>2</sup>k

#### **Main Entrance Door**

- 1000mm wide o/a frame, insulated, aluminium-lined, outward / inward opening, panelled painted / stained front door
- Multipoint locking system to meet current Part Q Building Regulations, mortise dead-lock security lock, stainless-steel door furniture
- Pre-fitted draught sealing strips
- Matching triple glazed sidelight

#### **Windows**

- Standard Scandia-Hus windows and glazed doors are made of a wood effect composite, fitted with triple glazed, sealed units and draught excluders
- Windows are site-fitted into wall panels with plate fixings and sealed with silicone
- DPC site-fixed to rebated heads, jambs and sills, stapled and siliconed to form weather seal
- Safety or laminated glass supplied to comply with statutory glazing requirements
- Obscured 'Satinovo' glass supplied for bathrooms and WCs
- Locking, 'aluminium' coloured window handles supplied to all opening windows
- Internal window boards provided for all windows (except full length)

- 40mm wide, powder coated, galvanised metal flashings to windows to form outside drip

We are also committed to building sustainable energy efficient dwelling which will incorporate a variety of renewable energy features beyond the fabric improvements including:

- i. Heat Recovery and Ventilation Systems
- ii. Underfloor Heating
- iii. Air Source Heat Pump technology
- iv. Solar Panels photovoltaics. PV panels will be incorporated where possible and we would expect to achieve an energy consumption reduction of 1,500 annual kg of CO<sub>2</sub>.
- v. Electric Vehicle charging capability.

Following completion of the build, an as built SAP assessment will be carried out taking into account the full specification of the final build and air pressure results.

On top of this, post construction testing will be carried out by the following means:

#### **Metering**

- Use a smart meter for continuous monitoring.
- Include a power socket near the consumer unit and utility meters to power data logging equipment.
- Provide a visual energy display device to raise awareness and make users responsible for their energy consumption.
- Renewables are sub-metered for generation.
- Special uses such as electric vehicle charging is sub-metered.

#### **Heating**

- Ensure heating and hot water generation is fossil fuel free
- The average carbon content of heat supplied (gCO<sub>2</sub>/kWh.yr) should be reported in-use
- Maximum 10 W/m<sup>2</sup> peak heat loss (including ventilation)
- Maximum dead leg of 1 litre for hot water pipework

#### **Demand Response**

- Reduce heating and hot water peak energy demand
- Install heating set point control and thermal storage
- Consider battery storage
- Electric vehicle turn down
- Reduce power consumption at peak times.