

SUSTAINABILITY

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.

Component	Scandia-Hus Standard 'U' Value	Building Regulation Maximum Limiting 'U' Value
External Wall	0.15 W/m ² k	0.18 W/m ² k
Sloping Roof	0.13 W/m ² k	0.13 W/m ² k
Gable Head	0.16 W/m ² k	0.18 W/m ² k
Floor	0.12 W/m ² k	0.13 W/m ² k
Windows	0.90 W/m ² k	1.40 W/m ² k

EXTERNAL WALL PANEL AND GABLE HEAD CONSTRUCTION:

'U' Value - 0.15 W/m²k / 'U' Value - 0.16 W/m²k

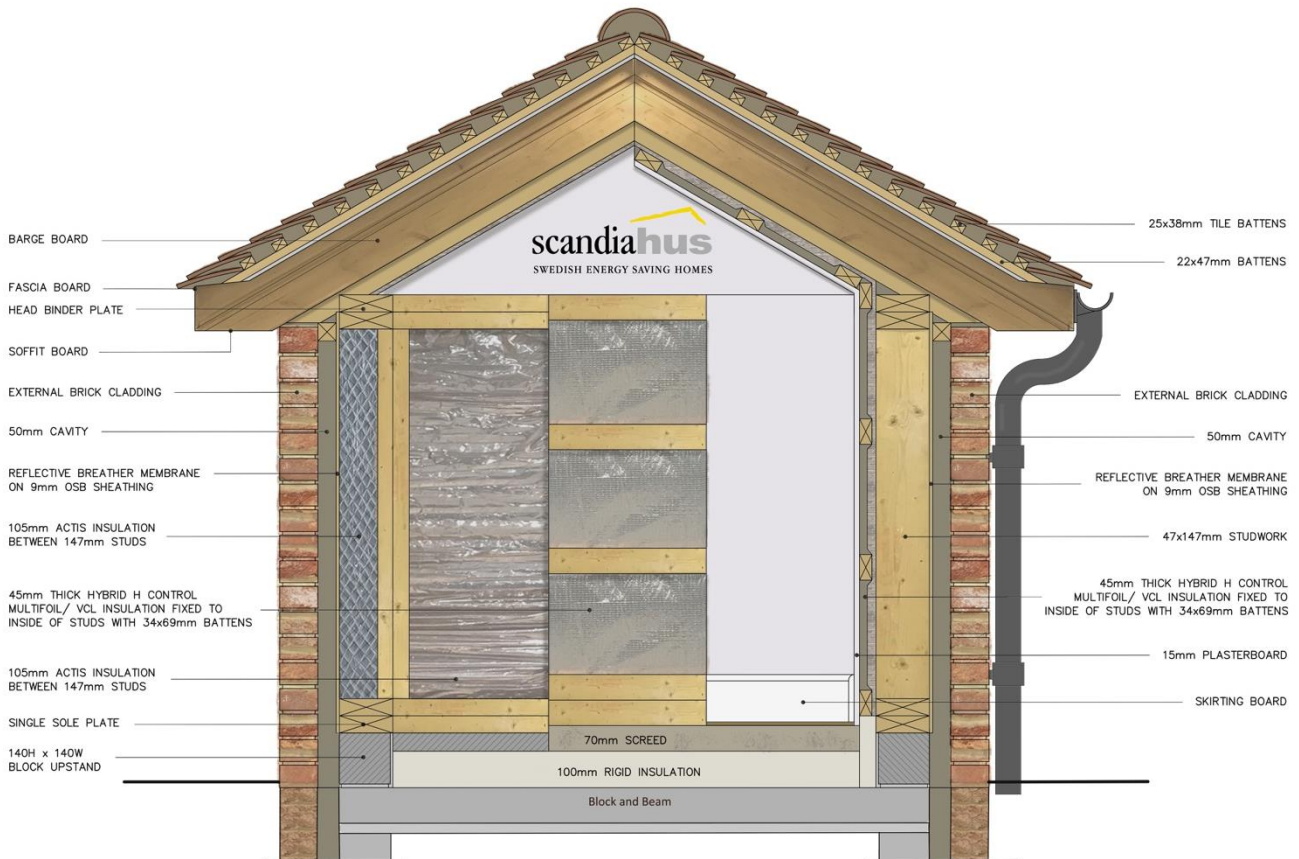
- 15mm taper-edged plasterboard with fixing screws. The 15mm board provides increased density, adding the benefits of greater strength and sound insulation, and providing a medium for simple and secure wall fixings
- 38x63mm 400mm centre horizontal cross battens to provide service void
- 45mm Actis H Control Hybrid multi foil insulation across stud face
- 105mm 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/m²k to ceilings

- 155mm 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/m²k
- 1000 x 600mm trench footings
- 150mm void
- Beam and Block floor
- 1200-gauge DPM
- 150mm foil-backed rigid insulation
- 140x140mm block upstand
- Medium gauge (125 microns)

WINDOWS AND EXTERNAL DOORS:

Windows

- Residence 9 composite triple glazed units
- 'U' Value – 0.8 W/m²k
- 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

Main Entrance Door

- Level access will be provided throughout the ground floor of the dwelling meaning it will meet Approved Document M: Access to and use of buildings.
- 1000mm wide o/a frame, insulated, aluminium-lined, 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

RENEWABLE TECHNOLOGIES

Our client is committed to building a sustainable energy efficient dwelling which will incorporate a variety of renewable energy features including:

- i. Heat Recovery and Ventilation Systems
- ii. Underfloor Heating
- iii. Air Source Heat Pump technology
- iv. Solar Panels photovoltaics.

Solar Photovoltaic

Photovoltaics' convert energy from the sun into electricity through semi-conductor cells mounted in solar panels. The panels are connected to an inverter to turn DC output into AC for use in the building to which they are attached and to be fed back into the grid when not required. This technology is considered suitable for dwellings with solar collectors facing South/East located on the dwellings' main roof.

The Photovoltaic panels on a new build dwelling can be set into the roof running flush with the roof tiles making them much more discrete and attractive than retrofitted panels that are fixed onto frames bolted to the roof making them much more prominent.



Solar Hot Water Systems

Solar water heating systems use energy from the sun to heat water stored in a hot water cylinder via solar collectors on the flat roof of the building. This technology is considered suitable for the development.

Air Source Heat Pumps

Air source heat pumps are used to extract heat from the air to provide both space and water heating. Heat pumps take in heat at a certain temperature and release it at a higher temperature, using the same process as a refrigerator. Air passes through a heat exchanger in the heat pump which extracts heat from the fluid. The heat pump raises the temperature of the fluid via the compression cycle to supply hot water to the building. This technology is considered suitable for the development.

SUMMARY:

The proposed new build dwelling has been designed to deliver a high-quality, energy-efficient family home, incorporating enhanced levels of insulation, thermal performance and air tightness that exceed the minimum standards required by Building Regulations. The result will be a modern, sustainable dwelling offering improved energy efficiency, comfort and long-term performance.