

SERVE Conference and Site Visits

Case Study: Site 25 – Timber Frame – Terrace House

Summary

Site 25 is a 2 Storey End of Terrace House with a pitched roof.
Built by local building company Ecobuild this house has a floor area of 179.2m².
The Building Energy Rating (BER) = B1

Key Elements

Foundation

The house foundation is built using the Supergrund Foundation system with EPS 300 insulation under the floor and EPS 100 insulation around edges with thermal conductivity values of 0.035 & 0.032 W/mK respectively.

Walls

The total wall thickness is 277mm which is supported by a 218mm timber frame structure. 'Biobase 501' is a Soy based spray foam polyurethane open celled insulation and is used between the joists of the timber frame. It expands to 100 times its original size to provide airtightness & thermal insulation. The thermal conductivity value is 0.036 W/mK. The internal of the wall is finished with a Hemp/Lime render direct onto the Biobase 501. The external timberframe is closed with a 9mm panelvent board and rendered finished using a hemp/lime mix.

Roof Construction

The main roof is insulated in the 225mm rafter using Biobase 501 and finished with natural slate. The flat roof area again is 225mm in depth and is insulated with Biobase 501 giving a U-Value of 0.21 W/m²K.

	W/m ² K
U-Value of Floor	0.09
U-Value of Wall	0.20
U-Value of Roof	0.20

Windows

All windows fitted are supplied by local company CareyGlass and are double glazed, argon filled low emissivity glass with a typical U-Value of 1.4 W/m²/K

Heating

Wall heating has been installed to meet the heating requirements of the house. Each room has its own control.

Hot Water

Hot Water will be controlled by a separate zone to provide time and temperature control.

Ventilation

The house has a Vallox 90 mechanical heat recovery ventilation system installed with a recovery efficiency of 79% to provide a constant supply of fresh air to the house.

Air Tightness

Air tightness test has yet to be carried out.

Result

Plot Number	BER	Area m ²	Primary Energy KW/hrs/m ² /yr	Delivered Energy KW/hrs/m ² /yr (SERVE Target < 70 KWh/m ² /yr)	Air Tightness (SERVE Target < 3 m ³ (m ² .hr)	Heating Controls (SERVE Target minimum of 1 zone space heating & 1 zone hot water)
25	B1	179.2	81.37	52.49	TBD	Each Room Controlled

The SERVE Project

The SERVE Project aims to create a sustainable energy region in North Tipperary which achieves significant energy consumption reduction and increases the use of renewable energy. The project involves the upgrade of 400 existing buildings in terms of energy efficiency and renewable energy and the construction of the eco-village in Cloughjordan.

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