SERVE Conference and Site Visits

Case Study: Site 104 – Detached House

Summary

Site 104 is a 2 Storey Detached House with a pitched roof. The dwelling has a total floor area of 215.6m2.
The house is was built by Scandinavian Homes.
The Building Energy Rating (BER) = A3

Key Elements

Foundation.
The house foundation consists of 120mm of screed on 280mm Hytherm EPS HD insulation achieving an 0.1 U-Value.

Walls
The wall construction from the interior consists of internal plasterboard finish to 70mm service cavity filled with Poroc Rockwool insulation. The 145mm timber-frame stud wall with Paroc Rockwool insulation is closed to the interior by Age Proof PE Vapour barrier. The exterior wall is finished with a 9mm masonite board and rendered.

Roof Construction
700mm of Warmcell 100 cellulose insulation is used between and over the ceiling joists as insulation.

	W/m2/K
U-Value of Floor	0.10
U-Value of Wall	0.17
U-Value of Roof	0.05

Windows
All windows fitted are triple glazed with argon filled low emissivity glass with a typical U-Value of 1.24 W/m2/K

Heating
Underfloor heating has been installed to meet the heating requirements of the house. There is 1 heating zone installed to control space temperature.

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

Ventilation
The house has a REC Indovent-Rt4005-EC mechanical heat recovery ventilation system installed to provide a constant supply of fresh air to the house.

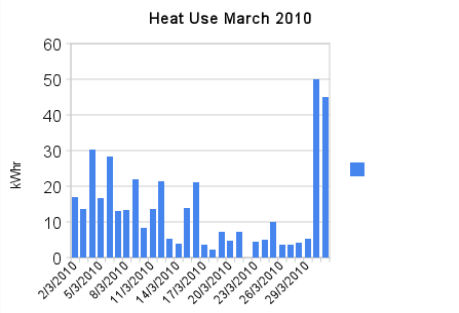
Air Tightness
A result of 0.55m3 (m2.hr) has been achieved on an air tightness test.

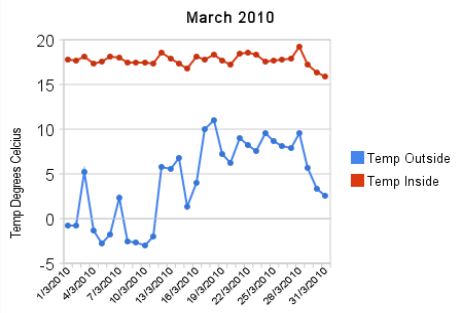
Result:

Plot Number	BER	Area m2	Primary Energy KW/hrs/m2/yr	Delivered Energy KW/hrs/m2/yr (SERVE Target < 70 KWh/m2/yr)	Air Tightness (SERVE Target < 3 m3(m2.hr)	Heating Controls (SERVE Target minimum of 1 zone space heating & 1 zone hot water)
104	A3	215.6	69.5	43	0.56	2

Energy Data:

The energy requirement of the house is being monitored and results recorded. Below is a sample of the energy requirement of the house in March 2010.





Averages

	Temp Outside	Temp inside	Daily kWhr useage
	2.65	17.60	18.97
	Min Outside	**Min Inside**	
	-8.10	15.80	
	Max Outside	**Max Inside**	
	11.00	19.60	

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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SERVE
Sustainable Energy for the Rural Village Environment

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