



Project Address:	Rathdrum, Co. Wicklow
Category:	Renovation Residential
Entrant:	Integrated Energy, Archie O Donnell
Company founded in:	2009
Company Address:	53a Rathgar Avenue, Dublin 6
Company Contacts:	Phone: 353 (0)87 684 3171 Email: archie@integrated.ie Web: www.integrated.ie
Architects name:	Planning by Corkish Maguire Partnership, Wicklow Enterprise Park, Technical Architect Archie O'Donnell, Foundation system design by Viking House and Hilliard Tanner Engineer
Specialities:	Passive House Construction Technology
Building Type:	House Private Dwelling, Timber frame
Size m²:	300m²
No of Floors:	2
No of Units:	1
Construction date:	Sept 2010



Project Overview

To demonstrate that the highest possible levels of thermal comfort and energy efficiency can be achieved in the renovation of existing building stock. Eliminating the need for further development of one off dwellings on green field sites.

Challenges

In 2007, Randy Ralston and Mel Cronin bought a dormer bungalow in Rathdrum, Co Wicklow. Refurbishment began soon after they bought the 35 year old house, which had seen better days. The main goals for the projects where to create an environmentally friendly house, low running costs, freedom from what Randy calls the “petroleum addiction loop”, and to inspire others to go green. Naturally, they also wanted a comfortable and beautiful home. The legacy issues associated with the shape and orientation of the existing building, High envelope surface area to volume ratio, meant that achieving high levels of airtightness was an extremely difficult task.

Performance

Energy Usage:	24 kWh/m².yr
BER:	A1
Air tightness:	0.97 m³/h.m²

Strategy

A whole house or systems approach was taken to determine where the most cost effective approach to achieving the highest possible standards of thermal comfort and healthy long life components. An evidence based approach to decision making was adopted early on and the specification was developed through the rigorous use of Passive house software and analytical tools for calculating heat loss due to cold bridging and tools to assess vapour diffusion. Parallel to this of equal importance, toolbox talks were conducted on site with blower door, smoke cannon and thermographic camera to demonstrate to operatives the crucial importance of attention to detail in the workmanship needed for passive levels of performance.

