

UK PASSIVHAUS AWARDS 2012

Grove Cottage Simmonds.Mills Architects



FRONT ELEVATION

Grove Cottage was the first retrofit project to be certified to the EnerPHit standard in the UK. The design approach was to leave the retrofitted street elevation as similar as possible to original to demonstrate how radical measures can deliver subtle decarbonisation of the existing architecture of the street. The rear elevations are more playful and give form to a link with the garden area and represent an architecture of passive solar and daylighting. Other sustainability credentials include increased biodiversity through extensive living roofs, through reuse of roofing slates and FSC certified and reclaimed timber. Combined with the choice of a clean burning heating fuel and a designed form and fenestration sensitive to both neighbours, the project represents an integrated & responsible approach to the local community. A clothes drying cupboard has proved very successful and valuable understanding of product specific & general MVHR issues have been explored with supplier & manufacturer. A carefully considered approach was taken to select natural fibre insulations where technical requirements warranted it. The use of intelligent membranes to manage the risk for an innovative approach to the timber ground floor is being complemented by localised moisture monitoring of the construction.



SECOND FLOOR GREEN ROOF, JUNE 2012



REAR ELEVATION



REAR CONTEXT VIEW

Internal Environment



SECTION

Project Overview

Name: Grove Cottage
Location: Hereford
Building Type: Single family house
Construction type: Externally insulated masonry
Completed in: 2009
Occupancy status: Occupied
Construction Cost: £450/sqm

Sustainability features

Primary Energy Demand: 109 kWh/(m²a)
Heating and Cooling Demand: 25 kWh/(m²a)
Ventilation strategy: MVHR
Heating strategy: Gas boiler & radiators
Shading strategy: not required
U values: External wall 0.113
Roof 0.084
Floor 0.187
Windows 0.987
Doors 0.987

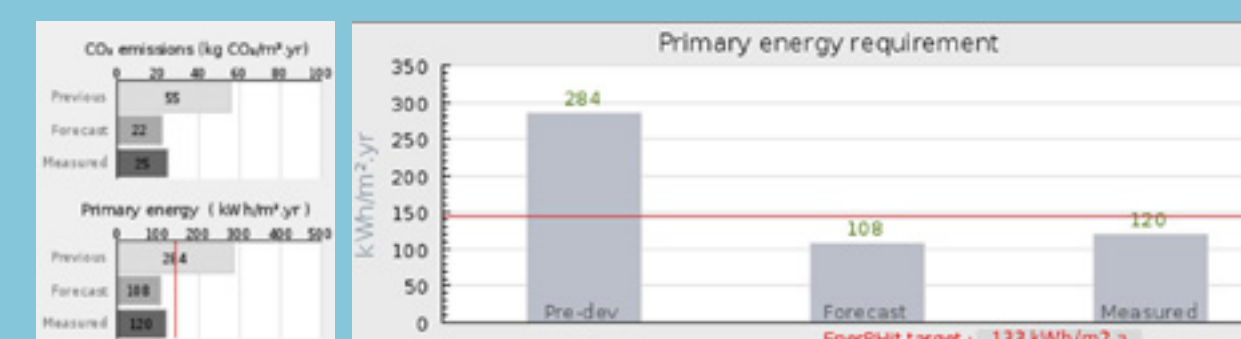
Other features: Water-efficient appliances & sanitary ware, clothes drying cupboard using MVHR, re-use of roofing slates & timbers from original house, FSC & locally sourced timber, species-rich living roofs

Monitoring

Two years plus of energy consumption & internal environment data has been widely shared. With no grant funding owners undertook internal temperature and relative humidity monitoring. Fuel bills are taken monthly.

Measured Performance

Analysis of measured energy use:
Gas (water,space heating & gas hob): 51.4 kWh/(m²a)
Electricity (inc. separate home office): 24.5 kWh/(m²a)
Total Primary Energy: 122 kWh/(m²a)



Air pressure result: 1.0 ach @50Pa

Occupant Feedback:

"All year round the house is the right temperature, no messing with controls, fretting about getting the children to shut doors and no excessive clothing!"
- Lorna Pearcey, Resident - homeowner



FRONT ELEVATION: INFRARED IMAGE POST-RETROFIT

TEAM CREDITS

Client: Lorna Pearcey & Andy Simmonds
Architect: Simmonds.Mills architects
Consultants: David Olivier, EAA – Energy
Contractor: Eco-DC
Certifier: Passive House Institute, Enerphit Certified

Retrofit award sponsored by



Your environment. It's the nature of our business.