

Object name

Larch House, Ebbw Vale, Wales**United Kingdom**

Object photo



Object description

The Larch House is the UK's first zero carbon (code 6), low cost Certified Passivhaus, built as prototype social housing.

Designed by bere:architects, the three bedroom house has been built 1000ft above sea level in an exposed and misty hilltop location. In spite of this, most energy needs are met by heat from the sun, occupants and appliances. Indeed the Larch House generates as much energy from the sun in the summer months, from solar thermal and photovoltaic panels (with an estimated feed-in tariff of over £900 a year) as well as by glazing, as it uses for the whole year making it Zero Carbon by UK definition and showing how we can live comfortably with minimal impact on the natural world.

The Larch House has been designed with: insulation 48cm under the floors, 43cm in the walls and 56cm in the roof; draught free, with a closed panel timber frame constructed from mostly Welsh timber; triple glazed Passive House certified windows with insulated timber frames; a low energy heat recovery ventilation system saving over 90% of the heat, topped up if necessary by means of a tiny gas boiler. Summer temperatures are controlled by external blinds.

Both the Larch House prototype and the Lime House (under construction) offer light, airy, comfortable living environments. They have been developed with the United Welsh Housing Association who would like to replicate the innovative features of these two houses in future affordable housing schemes, reducing their tenants' household energy bills and protecting people from fuel poverty.

Fact sheet

Social house in Wales

Treated Floor Area	86.72m ²
Number of homes	1
Completion date	2010

Energy standard [PHPP]

Heat requirement /year	13 kWh/m ² a
Heat load	11 W/m ²
Primary energy requ.	83 kWh/m ² a
Air-tightness (n ₅₀ -value)	0.2 1/h
Building type	Timber frame

U-value

Exterior wall	0.095 W/m ² K
Roof	0.074 W/m ² K
Basement floor / Floor slab	0.076 W/m ² K
Windows / average	0.8 W/m ² K

Specification ventilation system**Paul Focus 200****Heating installation**

4m² solar hot water collector, 250 litre hot water cylinder. Post heater with two 600w towel radiators.

Construction costs Basic Euro/m²**Building owner****United Welsh Housing Association****Architect/Planner**

bere:architects

Photo credits