Object name

4 Ranulf Road, London — United Kingdom

Object photo

Object description

Designed by bere:architects, the timber frame 101.9 m^2 two bedroom home has predicted annual heating bills of less than £ 65 (at standard occupancy maintained at 20℃ in w inter). This is achieved by high levels of insulation, overall negative psi values, triple glazing, Passivhaus sliding windows, draught free construction, and 92% efficient heat recovery ventilation. Summer comfort is maintained by blinds, natural ventilation, a well insulated structure, and two green roofs.

The site is located in London which means that the over-shadowing of adjacent buildings had a major impact on the energy balance and design decisions. The PHPP was used from the very start of the project to determine the optimum position for the house on the site and the optimum percentage and orientation of the glazing.

Biodiversity was very important for this project which incorporates two wild flower meadow green roofs, a south facing planted garden and an ivy covered gabion stone wall.

This project is the first certified Passivhaus in London, setting a new high benchmark for energy efficient design for the city.

bere:architects worked with the Energy Consultant and Building Services Engineer Alan Clarke on the design of the mechanical services and with the Green Building Store for the design of the heat recovery ventilation system. Lighting consultants GIA Equation were consulted on the low energy LED and fluorescent lighting design.

Fact sheet

Single Family Home in London

Treated Floor Area	101.9 m² each
Number of homes	1
Completion date	April 2010

Energy standard [PHPP]

Heat requirement / year	13 kWh/m²a
Heat load (Manchester data)	9 W/m²
Primary energy requ.	90 kWh/m²a
Air-tightness (n_{50}-value)	0.44 1/h
Building type	Prefabricated timber

U-value

Exterior wall lower	0.122 W/m²K
Exterior wall upper	0.110 W/m²K
Roof flat	0.067 W/m²K
Roof sloping	0.110 W/m²K
Floor slab	0.103 W/m²K
Windows / average	0.76 W/m²K

Specification ventilation system

PAUL thermos 200 DC

Heating installation

Ventilation as above with post air heater, 3m^2 solar collector & 2no towel rad. A small gas boiler was specified as an integral part of the solar tank and tops up the tank when there has been insufficient sunshine.

Construction costs TBC Euro/m²

Building owner

Private client

Architect/Planer

bere:architects

Photo credits

Tim Crocker