UK PASSIVHAUS AWARDS 2012

Oakmeadow Primary School

Architype Ltd

EXTERNAL PLAY AREA FRONT SOUTH FACING FACADE

Oakmeadow Primary School, is one of the first schools in the UK to receive Passivhaus certification in February 2012. Designed and built to the rigorous Passivhaus standard the two-form entry primary school (420 children) also includes facilities for a local 'Mast Agency Support Team'. The building, orientated on a complete East-West axis has been modelled to meet the technical demands associated with Passivhaus, which has influenced every decision about form, design and detailing, whilst ensuring focus has remained on simplifying and optimising the design. The school has been constructed from a simple and robust palette of materials including; timber cladding, zinc roofing, timber windows and doors externally, timber screens, natural linoleum, organic paints and stains internally. Architype are providing a series of 'soft landings', easing the occupiers into the building operations and guiding them to achieve optimal use of the building.

NATURALLY LIT BREAKOUT SPACE

BRISE-SOLEIL SHADING TO THE SOUTH FACING OPENINGS

NATURALLY LIT 5TH YEAR CLASSROOM

MULTI-PURPOSE SCHOOL HALL

Project Overview
Name: Oakmeadow Primary School
Location: Wolverhampton
Building Type: Primary School
Construction type: Timber frame
Completed in: October 2011
Occupancy status: Occupied since October 2011
Construction Cost: £1754/sqm

Sustainability features
Total primary energy: 175kWh/(m^2a) (winter season extrapolated for 12 months). Based on assumptions for summer occupancy, reduced lighting requirements, client optimisation of building, resolution to sprinkler system energy consumption etc, the final actual Primary Energy for 12 months is anticipated to be less than 120 kWh/(m^2a).

Heating and Cooling Demand: 13 KWh/(m^2a)

Ventilation strategy: Summer - Natural Ventilation
Winter - MVHR

Heating strategy: Summer - Natural solar gain
Winter - Low Surface Temp Radiators with Domestic Combi Gas Boiler

Shading strategy: Brise - Soleil

U values: Exterior wall - 0.13 , Roof - 0.1, Floor - 0.064, Windows - 0.9, Doors - 1.0

Other features: Automated windows and manual night vent. In winter mode, air is supplied to all rooms and extracted through main hub space by internal ventilation louvres.

Measured Performance
Oakmeadow energy figures based on winter monitoring only and extrapolated for full year are:

Thermal energy: 13kWh/(m^2a) (gas)
Hot water: 12kWh/(m^2a) (gas)
Lighting: 17kWh/(m^2a) (electric)
Combined power and plant: 16kWh/(m^2a) (electric)
Kitchen: 7kWh/(m^2a) (electric)
Sprinklers: 15kWh/(m^2a) (electric)

Lessons Learned:
Approximately 35 KWh/(m^2a) of primary energy is being used to maintain the sprinkler water temperature at 10°C as housing structure is not insulated.

Air pressure result: 0.48 ach @50Pa

Occupant Feedback:
"The children absolutely love it and the teachers absolutely love it...Everyone is so enthusiastic with the whole building!"
- Mrs S Morris, Headteacher

TEAM CREDITS

Client: Wolverhampton CC
Architect: Architype
Consultants: Nick Grant
Contractor: Thomas Vale
Certifier: Peter Warm
Other: Ion Acoustics
E3 Consulting
Price & Myers LLP
Smith Thomas

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