Eco-hub

A new straw bale building designed to Passivhaus standards
at Lordship Recreation Ground Walpole Road Haringey London N17

For more info contact
Anne Thorne Architects
info@annethornearchitects.co.uk
020 7749 6931/ 32

The new Eco-hub by ATA is designed to exemplary sustainable standards. It is the centrepiece of the transformation of the historic Lordship Recreation Ground.

The Eco-hub provides space for: Environmental education, Park volunteers, community organisations, mother and toddler group, a public café and WCs.

Funded by: Heritage Lottery Fund Parks for People programme, Big Lottery and the Greater London Authority.

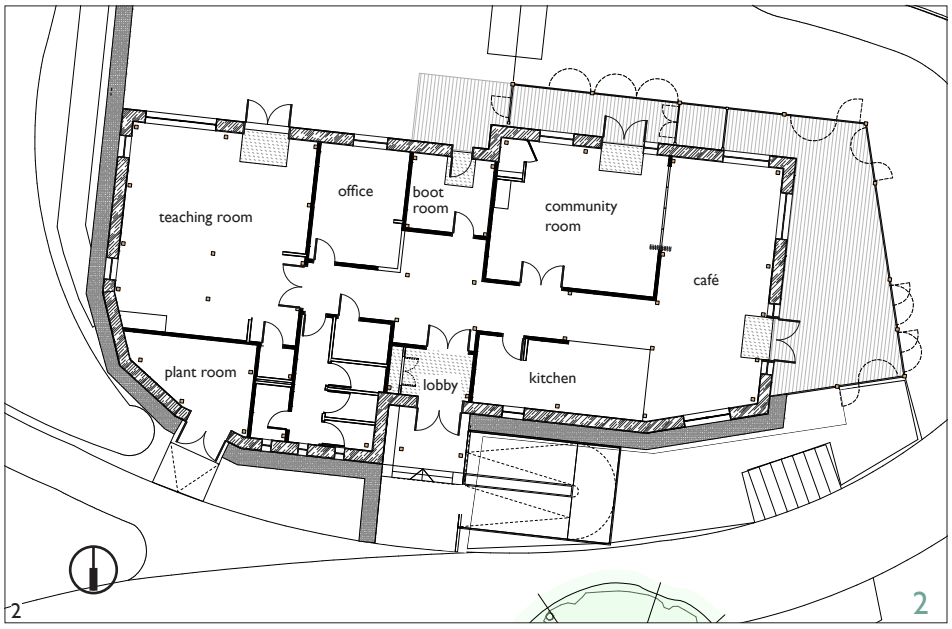
Short listed for Sustainable Project of the Year by the Builder and Engineer Awards 2012.

1

1..The strawbale Eco-Hub is a focal point, next to the lake. with a café overlooking the play area & paddling pool
2 A window into the wall shows the straw

2

1



2

3

1 Wheat & Barley provide the straw
2 Floor plan 3 Gabions wall, lime render and pergola

Defining the brief

Starting with detailed consultation with Friends of Lordship Rec, local user groups, environmental education teachers and LB Haringey officers, helped develop a building brief and the core aims of community involvement and sustainable building design.

Local people joined the construction team to learn about and construct the straw bale building

Siting and orientation

The public spaces in the building connect to the lake and playground, whilst the teaching space is more privately located to the east of the historic hedgerow.

Orientation maximises passive solar gain, with a glazed south facade with in built solar shading and natural ventilation to prevent summer overheating.

Level access to the playground and cafe, and a timber ramp to the main entrance, ensures access for all.

Massing

The building is single storey, balanced on the axis of the historic hedge. A green roof reflects the sloping hill of the site- a lifted section of roof allows light to flood into the building and takes warm air out in the summer. This slope of the roof continues the line of the hedgerow used by bats to navigate the lake at dusk.

No green-wash!

ATA have designed a building that uses a palette of renewable materials, from low-impact timber foundations and primary frame, to unfired clay block partitions, natural insulation materials, non-toxic finishes such as clay plasters, rubber flooring and natural paints.

Low energy

The Eco-Hub has been designed to Passivhaus standards to minimise its energy use and heating, dramatically reducing running costs and minimising its CO2 emissions. This is achieved with excellent insulation, airtightness and triple glazing.

Heat recovery ventilation (MVHR) stops heat being lost form the building.

One of the best airtightness results for strawbale building has been achieved; 1.2m3/hm2@50Pa (air change 1.06 h-1), the building easily wins the AECB silver energy standard.

Strawbale wall construction

Straw is an agricultural waste product, it is highly insulating, and locks in CO2 absorbed during its growth. The gabion wall made of stones in a steel cage protects it.

In the summer, the timber pergola and climbing plants provide shading over the windows. In the winter, this super-insulated and air-tight building provides a bright and draught-free meeting place, with minimal heating required.

Facts and Figures:

Energy specification

Main flat roof: U-Value=0.06 W/(m2K) 325-550mm Cellulose fibre insulation between I-joists / firrings +18mm OSB deck + vapour control layer + 160mm PIR insulation board + waterproof membrane + sedum blanket

High level pitched roof
U-Value=0.12 W/(m2K)
50mm Woodfibre board + 300mm Cellulose fibre insulation between I-joists + 18mm OSB board + metal sheet roofing

Main Walls: U-Value=0.11 W/(m2K) Inside 30mm clay plaster + 450mm strawbale + Outer 30mm lime render

Atrium walls: U-Value=0.11 W/(m2K) 3-5mm Skim clay plaster + 25mm clay plaster board + 245mm Cellulose fibre insulation between timber studs +9mm OSB board +80mm PIR insulation board + Oak timber cladding

Raised Floor: U-Value=0.10 W/(m2K) 15mm Wood fibre bitumen impregnated insulation board + 360mm Cellulose fibre insulation between I-joists + 18mm OSB board + 50mm Woodfibre insulation + Solid Oak flooring

Heat recovery ventilation: Drexel und Weiss Aerobusiness
Top-Up heating: Gas boiler Worcester Si30 Greenstar to radiators

Photo Voltaic panels: Kalzip Uni-solar Power Bond PVL-136 13 sqm 0.816 kWp

Annual space heating demand:28kWh/(m2a)

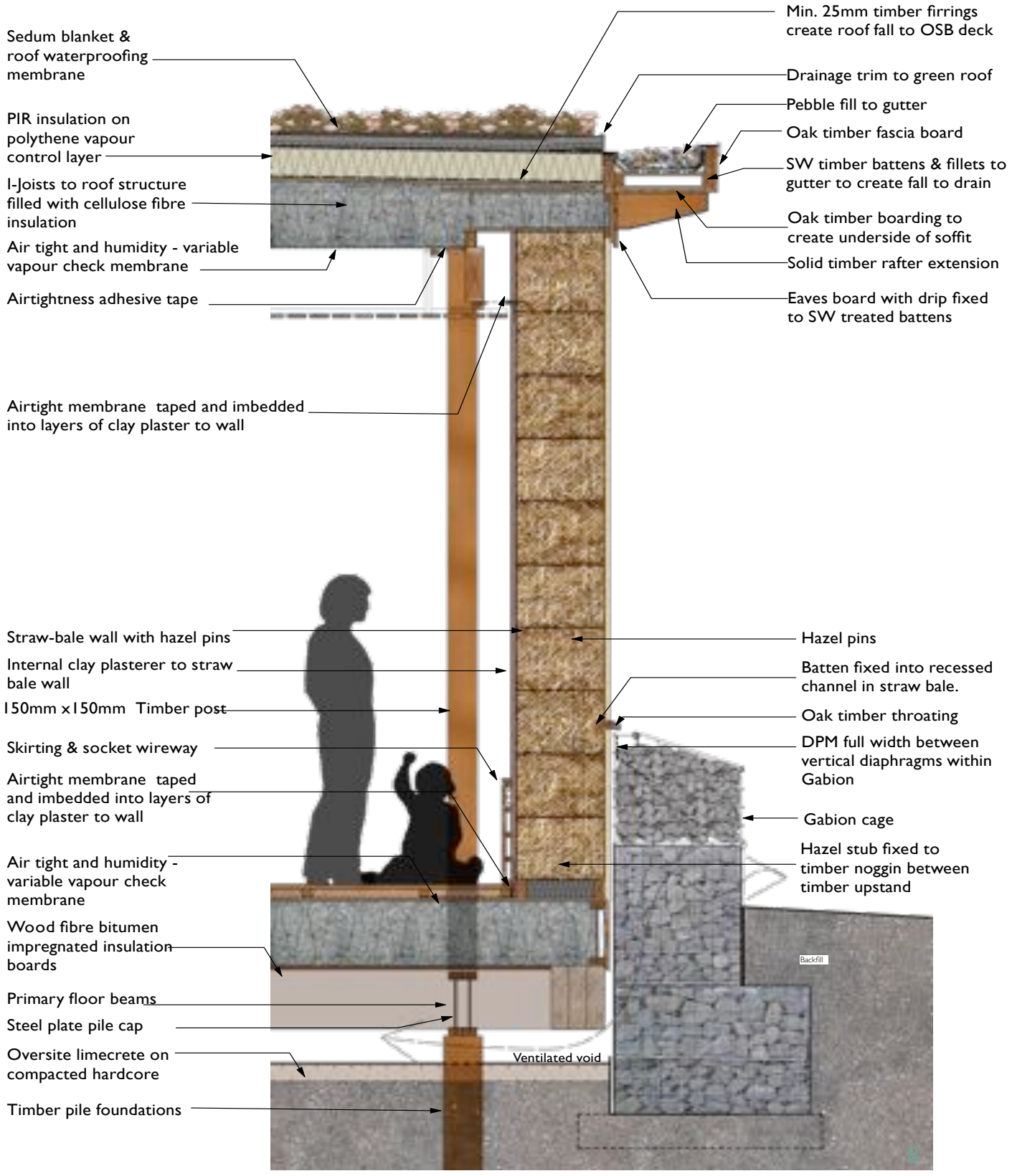
Pressure test result, n50: 1.06 h-1

4 Inside the cafe **5** Local volunteers being trained in straw bale construction **6** Straw bale walls being pegged with hazel sticks **7** View from the children's playgroung towards the café and deck area; security shutters protect the building at night **next page 8** Typical cross section **All photographs copyright of Anne Thorne Architects**

Eco-hub

A new straw bale building designed to Passivhaus standards how its made

ANNE THORNE ARCHITECTS LLP



Client L B Haringey **Architect** Anne Thorne Architects LLP **Landscape** Chris Blandford Associates
Project Manager NPS South East Ltd, **QS, Structural & Services Engineers** NPS London Ltd
Main Contract Vinci Construction UK Ltd **Straw Bale Subcontracors** Straw Works