5 Dyke Road Avenue, Hove, BN3 6QA

Overview

Age/period of house:	1950s
Type:	Detached
No of bedrooms:	3/4
No of other rooms:	10
No of floors:	3
Floor area:	277 m^2
Cost	£250,000 refurbishment
Wall:	5 different types

Key words

+ sweet chestnut cladding
+ underfloor heating
+ live/work unit
+ recycled newspaper insulation
+ organic paints
+ clay plaster
+ solar thermal

Introduction and approach

Donna Gray (a previous owner) saw this project as an opportunity to design the complete contemporary family home with deep green ideals that married landscape and architecture with interior and furniture design.

The original house required the radical remodelling and the extension of the 1950's villa to include a design studio. The house is an exemplar of specification in terms of environmentally benign materials including jute and recycled newspaper insulation, clay plasters, organic paints and locally produced sweet chestnut cladding. Underfloor heating is used with exposed screed floors and solar thermal panels. The landscaping is considered to connect internal spaces with those outside, as well as provide segregation between the house and design studio.

Features

Energy efficiency measures

This project was especially interesting because it started with an existing 1950's dwelling and radically extended it forwards (new studio), upwards (extra floor) and backwards (living room and large balcony). Obviously it is more sustainable to work with an existing structure than it is to completely demolish and start again. However the detailed design process was quite intense and prolonged, not only because of the complete vision that architect and client developed, but because there were so many different details required to ensure a unified look as the existing wall types varied so much.

Another major challenge was that the design team (which included the client) were committed to delivering a building utilising sustainable technologies and materials. The question was 'is it possible to deliver a high level of specification for the building fabric, as well as its interior and furniture design?' The design team believe that the project has achieved just that. For example by using locally grown sweet chestnut as cladding and joinery it is promoting the use of small-section coppiced timber normally used for charcoal or fence posts. Even the bath is constructed out of sweet chestnut, proving that this durable beautiful timber is extremely versatile. The thermal conductivity or 'U'

values for the different elements are: roof – 0.20W/m²K, walls – 0.26W/m²K and floors – 0.20W/m²K.

Materials

Internally the walls and ceilings are finished in clay plasters. This material absorbs air-borne toxins and helps to allow the walls to breath, along with the use of vapour control layers instead of vapour barriers. Externally the render and timber rain-screen finishes are fully ventilated allowing any build-up of moisture within the wall system to be taken away. All materials are left self-finished to ensure natural weathering, durability and economy. The internal clay plaster for example is self-coloured so there is no need to decorate.

'Homotherm' recycled cellulose and jute insulation was used for roof and wall. Building papers and vapour checks used in the construction of walls and roofs are made from recycled paper and plastic.

Renewable energy

The ground floor has 100mm thick timber pulp insulation under it, with under-floor heating fuelled by a flat plate solar thermal panel to the main roof. The ground floor's screed finish acts as a heat sink regulating the internal temperature, while also housing the under floor heating pipes that are fuelled by an efficient condensing gas combination boiler. During spring, autumn and much of winter the solar panel provides the warm water required for under floor heating.

Professional contacts

Architect: BBM Sustainable Design Ltd www.bbm-architects.co.uk

Interior Design: Donna Gray at Milk www.milk-designs.co.uk

Consultant Engineer: BEP Consulting Engineer www.bepengineers.com

Main Contractor: Chalmers www.chalmersandco.co.uk

Materials

Sweet chestnut cladding, screens, supplied by Inwood Development www.in-wood.co.uk

Aluminium sliding, folding doors by Solarlux www.solarlux.uk.com

Bathroom fittings by Colourwash www.colourwash.co.uk/

Aluminium and timber windows by The Window Factory www.windowfactorywindows.com

Concrete worktops for kitchen by Lowinfo www.lowinfo.com

Gas Combination Boiler, Solar Panel and Solar Store by Atmos http://www.atmos.uk.com