

People Exploring Low Energy Homes

Coton Village Hall, High St, Coton, CB23 7PL

Director and Trustee, Mel Mason - Mel says:

The building is the main community hall in Coton, used in excess of 300 times per year. Until 2010 it was owned by the Women's Institute, who gifted it to the community of Coton when they realised they could no longer afford the upkeep. The original building was typical of its period – simple feather edge external boarded walls internally lined with matchboard, and a corrugated tin roof.

Initiatively we planned to demolish it and start again, but various problems, including cost, came up, and since the timber frame and foundations were sound, we opted to keep these and strip out and replace the walls and roof.

We began work in June 2010, first the new kitchen and store, then new toilets and entrance hall, entrance courtyard oversite, new main hall floor, new roof cover, insulation and cladding and then the hall extension.

We are proud that for all except eight weeks, we have been able to keep the hall open and in use.



Low Energy Measures

The new **insulated walls** consist of a layer of TLX multifoil then two layers of breathable **Steico wood fibre insulation board**, finished on the outside with a **lime render**, and **faced** on the inside with Fermocell board.

The new roof also has **Steico wood fibre insulation** faced on the inside with plasterboard and covered with a standing seam zinc cover. Six large **solar power-operated Velux roof windows** allow **natural light** to flood the hall and kitchen which also **provides passive ventilation**.

All other windows and doors are made by a local carpenter with oak frames and **high performance double glazing**.

The existing floor boards have been retained. **Rigid EcoTherm block insulation boards** were attached from below. Chipboard followed by solid oak boards were laid on top to provide a new surface.

The entrance to the hall has been moved from the front to the back, and visitors now enter through a **draughtproof lobby room**. As well as allowing sloped access suitable for disabled visitors, this also helps keep the **main hall warm**.

LED and energy efficient fluorescent lighting is used throughout.

Renewable Energy and Future Plans

See next page.

Overview

Age, Type: **1934, Village Hall, Community Centre**

Wall type, Floor area: **Timber framed, wood fibre insulation board with lime render, 210 sq m**

Project timescale: **Build 2 yrs, Hall closed 8 wks**

Cost of project inc. measures: **£190,000**

Energy usage – 270 events pa

19.5 kWh per sq m pa electricity

Key features

+ insulation: exterior walls and roof, woodfibre

+ insulation: underfloor polystyrene

+ windows, doors: high-performance double-glazed

+ roof windows: natural light, passive ventilation

+ airtight entrance lobby room

+ air source heat pump air conditioning

+ underfloor heating

+ water: aerating taps, low flush toilets

+ energy efficient appliances

+ lighting: LEDs, low energy fluorescents

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Renewable Energy

Heating of the main hall is by warm air through **underfloor ducts**, heated by a 12.5kW *Daikin* air source heat pump situated behind the building. The **air source heat pump** operates a bit like a fridge in reverse, cooling the air outside and depositing the heat inside the building.

Although the system (air pump + air handler) consumes only 5kW of electricity, it produces up to **20kW of heat energy**. The system has provision for programme control but currently is controlled manually, normally being switched on around 1 to 2 hours before the hall is needed depending on the outside temperature.

The circulating air is maintained by the air handler at a temperature set by the user.

Future Plans

An additional small group meeting room will be built to the rear of the Hall when sufficient funds have been raised.

Professional Contacts

Architect: Ian McGonigal Architecture IMG
01954 212409

Builder: Tim Ely of Linton

Products and Costs

Insulation

External walls: Steico insulation and lime render system www.steico.com £15,000

Light and Ventilation

Roof lights: Velux, solar-powered

Windows and doors: Bespoke high performance double glazed, oak framed

Lighting: LEDs and low energy flourescents

Heating

Air source heat pump: Daikin www.daikin.co.uk
£12,600

Water

Toilets: Dual low flush