People Exploring Low Energy Homes

RNC, Histon Road, CB4 3EY

CandCD for CHS, Alison Turnbull – Alison says:

Richard Newcombe Court (RNC) extra care housing was built by Cambridge and County Developments (CandCD) for Cambridge Housing Society (CHS), based on the ethical principles of CHS.

As a socially responsible organisation, and out of a duty of care, CHS wishes to **promote sustainability** in all of its activities. CHS actively pursues actions that reduce negative impacts on the environment and maximise positive impacts.

The home environment significantly impacts on people's health and wellbeing. Having a decent home that is also cheaper to run means **happier, better off customers**, who are **more likely to embrace 'green' living** when they see the benefit of lower bills.

Overview

Age, Type: **2011, 40 extra care flats**

Wall type: **Timber frame**

Floor area, each flat: **1 bed 55 sq m, 2 beds 65 sq m**

Project timescale: **Planning 1 yr, Build 1.5 yrs**

Energy usage

Notional building: **26.4 kg CO_2** per sq m pa
Target emission rate: **20.2 kg CO_2** per sq m pa
Building emission rate : **12.8 kg CO_2** per sq m pa

Key features

+ Code level 5, EPC rating A (97)
+ integrated design: solar gain, passive heat
+ light well: natural light, centre of building
+ super insulated: walls, floors, ceilings, surfaces,
+ windows & doors: double glazed, high spec
+ passive ventilation: regular air flow
+ mechanical ventilation heat recovery
+ biomass boiler: all heat, condensing boiler backup
+ smart metering: monitoring, control, independence
+ grey water recycling: shower water for toilets
+ water conservation: dual flush toilets, aerating taps
+ photovoltaic (PV) cells: daytime energy generation
+ lighting: low energy, motion sensors
+ sedum roof: biodiversity, reduced water run-off

Low Energy Measures

The building attained **Code Level 5** for Sustainable Homes, and achieves an **EPC rating of A (97).**

The building has an integrated design using **solar gain to heat internal spaces,** with balconies to create outside space for each flat and to give shading to prevent overheating in the height of summer.

A light well through the centre of the building brings **daylight into otherwise dark areas**.

The whole building is super insulated to all surfaces, floors, walls, ceilings and the basement, to maintain an even temperature during outside temperature fluctuations.

Windows and doors: double glazed giving a U value of 1.6 W/m^2K

Ventilation system: Passive throughout the building to give a **regular flow of fresh air**.

Mechanical ventilation heat recovery (MVHR): flats on the Histon Road elevation have MVHR to allow them to be cooled in summer without opening the windows to reduce noise and pollution.

Biomass boiler: uses **locally sourced pellets** and provides **all space and water heating**, while a **condensing gas boiler** serves as backup.

Smart metering: allows each room to be set at a different temperature if required.

Grey water recycling: Each flat has a self-contained micro grey water recycling system that takes **water from the shower**, and **uses it to flush the toilet**. The system automatically empties if not used, or tops up with fresh water if the toilet is used more than the shower. Dual flush toilet and aerated taps also **reduce water use**.





Photovoltaic (PV) panels: 124 panels, generating kwh electricity and saving CO_2 to date.

Lighting: Low energy lighting throughout.

Motion sensors in communal areas allow the lighting to come on as required, and **switch off** when the communal spaces are empty

Sedum roof: on the pavilion (best viewed from the windows in the first and second floor corridors). The sedum provides a **natural habitat for a range of insects**, improving the **ecological value** of the site, supporting biodiversity.

The sedum also **reduces the surface water run-off** from the roof.

Green materials: All timber used on site is FSC monitored.

Future Plans

CandCD continue to develop a programme of affordable housing **for rent and shared ownership**, and currently have scheme on site in Comberton, Offord D'arcy, Cherry Hinton, and Cambridge.

These are built to high standards, and using a range of energy saving features including **solar thermal, PV and air source heat pumps**.

Professional Contacts

Developer: CandCD www.candcd.co.uk on behalf of Cambridge Housing Group www.chsgroup.org.uk

Architect: Paul Dunthorne, The Design Partnership www.thedesignpartnership.org

Builder: Hill Partnerships www.hillpartnerships.co.uk

Products

U-Values

Exterior Walls: 0.23 W/m2K
Ground Floor: 0.15 W/m2K
Roof: 0.24 W/m2K
Personnel doors: 2.19 W/m2K
Glazing: 1.6 W/m2K

Light and Heat

Biomass boiler: supplied by Econergy ltd. www.econergy.ltd.uk

PV panels: 124 panels supplied by Chesfield Solar www.chelsfieldsolar.co.uk

Energy monitoring system: Switch2 www.energ.co.uk/**switch2**

Water

Grey Water recycling units: supplied by Ecoplay www.ecoplay-systems.com