

People Exploring Low Energy Homes

Rampton Drift, Longstanton, CB24 3EH

Community Technical Manager for SCDC,
John King - John says:

Rampton Drift is an ex-ministry of defence housing estate in the parish of Longstanton, made up of privately owned detached, semi-detached and terraced houses built between the 1950s to 1970s.

South Cambridgeshire District Council (SCDC) is proud to have led a pioneering project, installing energy efficiency and low carbon measures to 12 homes on the estate, funded by central government.



Overview

Age, Type: 1950s to 1970s, 12 homes - detached semi-detached and terraced

Wall type, Floor area: Cavity wall, various sizes

Project timescale: 15 mths

Cost of whole project inc. measures: £250,000

Energy usage

Figures not yet available

Key features

- + principle: maximise insulation and air-tightness
- + assessment: thermal imaging, air permeability tests
- + dynamic external wall insulation with integrated heat recovery trialled
- + exterior walls: cavities filled, externally insulated
- + wall cavities insulated, preceded by removal of existing substandard insulation where necessary
- + lofts insulated using rigid storage boards and insulated loft hatches
- + walls insulated internally behind meter cupboards insulated externally behind tile hanging
- + air-sealed entrance lobbies created
- + windows and external doors air-sealed
- + combination boilers: high efficiency, heat recovery
- + thermostatic radiator valves
- + mechanical ventilation
- + heat recovery fans, redundant air vents air-sealed
- + solar thermal hot water system, thermal stores
- + monitoring: web based real time displays

Low Energy Measures

The aim of the project was to **identify and monitor the costs, effects and benefits of installing a range of technologies** on a variety of homes. We offered all householders on the estate the option of having measures installed for free, in exchange for agreeing to **monitor their energy usage** over two years, and allowing some access to their homes. Householders from 12 of the 90 homes took part.

We did very thorough assessments of every home, using **thermal imaging and air permeability tests** as well as a detailed individual house survey and interviews with residents. We needed to find solutions which would achieve **significant energy savings**, whose implementation would be acceptable to the owner, and which were **achievable within our budget**.

A 'fabric first' approach made sense, **maximise insulation, sealing gaps and renovating windows and doors to reduce heating losses**.

However insulating walls properly proved difficult and expensive. Existing cavity wall insulation carried out in the 1980's using potentially carcinogenic Urea Formaldehyde, proved to be inadequate. In order for this to be replaced, the existing insulation had to be physically removed and then vacuumed out.

Heat pumps and other high tech solutions were ruled out because the cost of running them was too high relative to **gas fired boilers** (all homes are on the gas main). And because the measures are grant funded, payment from the renewable heat incentive funds were not available.

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On five homes with hanging tiles on exterior walls, **insulation was inserted underneath the tiles**. To do this, the tiles were removed, repairs made where necessary to **improve the air tightness**, **mineral wool insulation** installed and then the tiles reinstated.

On two adjacent semi-detached homes, a **new approach to wall insulation was trialled**. Two companies, Jablite and Energyflo, worked together to install a **dynamic external insulation system with heat recovery**. This combines a **mechanical ventilation system** installed in the loft spaces with the external insulation of the external walls. This is the first time such a system has been retrofitted in the UK.

Loft insulation was improved in all but one of the homes (one had sufficient already). Where items were stored in the loft, these were removed, rigid loft insulation boards installed and the loft contents reinstated. **Insulated loft hatches** were also fitted.

Other measures include:

- replacing boilers with **high efficiency combination boilers** with flue gas **heat recovery**;
- installing **heat recovery extractor fans** in bathrooms and kitchens;
- **creating air-sealed entrance lobbies** by enclosing existing bin stores and on one home;
- installing a **solar thermal hot water system**.

All homes have **web based monitoring of gas and electricity usage**, temperature, humidity and CO₂ levels (for air quality). Each home has a **real time display** of these.

Professional Contacts

Consultant: PRP Architects
www.prparchitects.co.uk

Main contractor: Willmott Dixon, advised by their 'Re Thinking Team' www.willmottdixongroup.co.uk

Monitoring Consultant: ACCE Solutions

Products

Insulation

Exterior walls: Jablite Dynamic External Energyflo insulation system insulation www.jablite.co.uk and www.energyflo.co.uk

Lofts: Xtratherm Loft Walk-R Loft storage boards
www.xtratherm.com

PD25 loft hatch

Energy

Conservation: Vent Axia Low Carbon Tempra fan
www.vent-axia.com

Monitoring: Smart meters for gas and electricity, Orsis UK www.orsis.co.uk

Renewables: Viridian solar thermal system
www.viridiansolar.co.uk

Boiler: high efficiency with flue gas heat recovery, Alpha CDC Combination boilers with Gas Saver topboxes www.alpha-innovation.co.uk