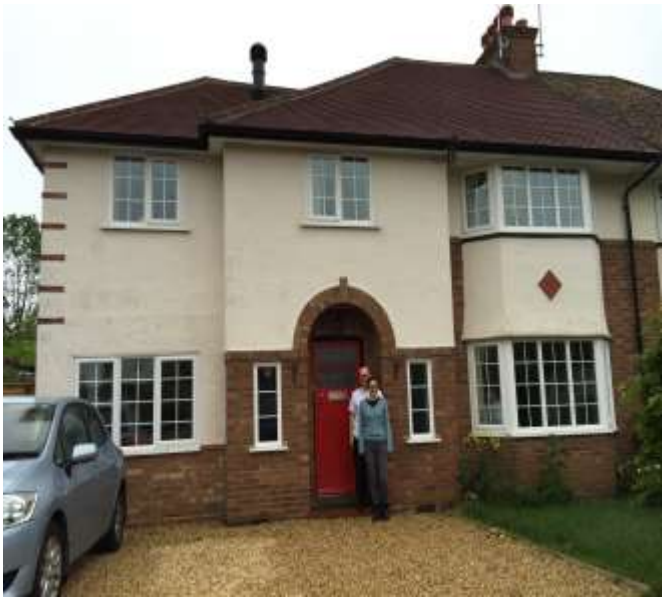
St Margaret's Rd - CB3 0LT

1930's renovation and extension for comfort and energy efficiency

Meet your hosts, Jenny and Stephen

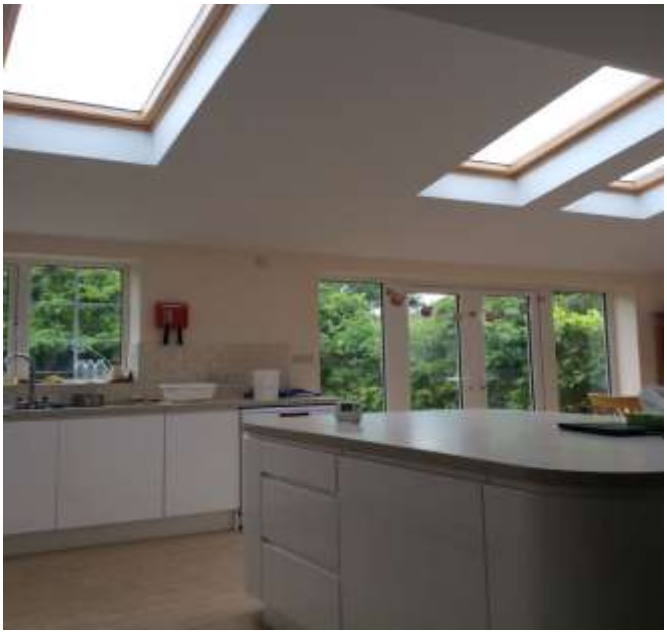


Jenny and Stephen's modernising renovation of St Margaret's Road included the installation of a Ventive passive ventilation and heat recovery system, much more unusual than the more common mechanical ventilation systems. Passive because it has no moving parts, and relies on the natural movement of air.

Jenny continues…

'This renovation was not primarily an eco project. We renovated our house to give us the living spaces we desired for a comfortable family home. However, we were aware of the very low energy efficiency of our 1930s home and wanted the renovations to improve its efficiency, bringing it closer to the energy efficiency of a new build home.'

The work was carried out in two phases. In 2014 we extended the existing kitchen, fitted underfloor heating, and added a second story bathroom. We replaced the old oil fired boiler with gas. In 2015 we replaced and insulated the roof, added internal solid wall and floor insulation to some parts of the existing house and installed the Ventive system.'

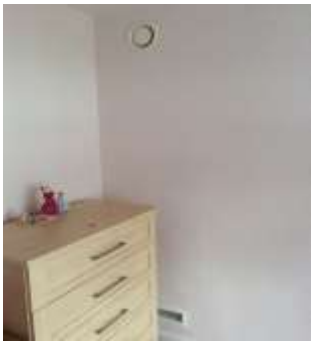


Ventive passive ventilation with heat recovery

'We installed the Ventive system (bottom pictures left and right) to improve air circulation in the rooms. Some of the rooms already suffered a little from damp and we were concerned that the insulation of the roof and walls would exacerbate this problem.

The Ventive system provides passive air circulation driven by the stack effect (warm air rising) and the wind. At the top of the house the cold air coming in from outside passes through a heat exchanger where it is warmed by the warm air leaving the building.

Ventive claims that this passive heat recovery system (Ventive S+) is 95% efficient (other Ventive systems are less efficient). This means it reclaims 95% of the heat that would have been lost leaving the property to warm the cold air coming in. The vents can either be installed in an existing chimney stack or as a separate unit.



The Ventive system took about a week to install. The pipe work (flexible pipe diameter about 15cm) was pulled through the existing disused chimney (see photo below). Extra holes in the walls were required to guide the pipes. We had the system installed at the same time as the work of our roof so it was easy to install the pots on the roof.

St Margaret's Rd - CB3 0LT

1930's renovation and extension for comfort and energy efficiency

Performance

We haven't measured the thermal performance of the Ventive system or the change in energy usage since the loft, floor and wall insulation was installed.

The Ventive heat recovery system works to some extent as the air coming in through the vents does not feel very cold, even in winter. The air circulation is partly driven by the wind and the system whistles (like a chimney) on windy days. The property does not suffer from damp.

Future plans

Finish internal wall and floor insulation. Monitor energy usage to quantify effects of the changes and to identify further lifestyle changes with potential energy savings.

What would you have done differently?

Insulated ALL of the solid walls and underneath the floors when we did the renovation work. Measured the 'leakiness' of our house before the renovations to quantify the effect of the changes we implemented.

What is your top tip for householders aiming to be more energy-efficient at home?

Turn down the thermostat

Advice

www.withouthotair.com

Products and Costs

Home renovation:
£150k excluding VAT for two story extension and renovation work. This included about £10k for eco renovations:

£5k for installation and parts for the Ventive system.
www.ventive.co.uk

£2k loft insulation

£1.5k wall and floor insulation to existing rooms

Property age: Built 1930s
Type: Semi-detached
Project Timescale: 2014-2015
Wall type: Partly solid, partly cavity.
Floor area: 160m^2

Cost of retrofit: £150,000 excluding VAT

Occupants: 2 adults 2 Children

	Energy kWh/m^2/yr		**Carbon** kgCO$_2$/yr	
	Elec	**Gas**	**/m^2**	**/person**
Before	n/a	n/a	n/a	n/a
After	20.65	unknown	n/a	n/a

Key features
Insulation and Glazing

- Cavity wall insulation of extensions
- Floor insulation on ground floor
- Roof insulation of loft
- External wall insulation for half of house
- All windows double-glazed

Heating/energy

- Passive ventilation with heat recovery
- Under floor heating with zoned controls
- LED
- Thermostatic radiator valves
- Passive thermal gain and daylighting from extension
- Efficient boiler

Key contacts

Surveyor: Mike Elsome, Roger Driver Partnership
www.driver-surveyors.co.uk

Builder: Peter Catt, Burwell Building Company
www.burwellbuildingcompany.wordpress.com

Ventive installer:
www.firecreststoves.co.uk