

Eltisley Avenue - CB3 9JG

Edwardian terrace renovation with many interesting DIY features and well-thought out approach to low-carbon living

Meet your hosts, Tom and Anne:

Tom is a retired electronics engineer and Cambridge Carbon Footprint's Chair of Trustees. Anne also has an engineering background and is the Director of The Creativity Partnership.

'We bought the house in 2001 and have a longstanding interest in sustainability and innovation. The house shows the dramatic impact of a steady succession of improvements over a 15 year period. Many of these were DIY, some were done by professionals. We like trying out new ideas, so have various "inventions" to share.'

Insulation

We've progressively installed underfloor insulation on most of the ground floor, using several different DIY methods. The 2015 loft extension is much better insulated than the original, with better-than-building regs Celotex and double batted tri-iso insulation in the walls and ceiling, and triple glazed Velux windows. In other areas of the attic, we've used Rockwool + Celotex to maximise insulation performance without reducing storage space.

Draughtproofing

We've made extensive air tightness improvements which have made a big difference to a previously draughty Victorian terrace. We've explored various ways of finding leaks, from a simple homemade indicator wand to a survey using thermal imaging camera and blower-door. We were a pain to the builders of our loft extension, insisting on better than building regs air tightness.

Heating/energy

We now get half our heating from a woodstove burning scavenged and hand-cut wood. Because of particulate pollution from wood fuel we have stopped burning wood on days when there is a bad pollution forecast. Wood is stored in a sedum roof wood store which also forms the front fence (see picture). We created a DIY fan assisted radiator to get more heat from the energy used and run the radiator at a lower temperature.

Lighting and electrics

We're upgrading from CFLs to LEDs, trying out a variety of types in different places. We have a range of electrical energy savers including a Quinetic switch for wireless control. Our green electricity tariff is Tide from Green Energy, a smart time-of-day tariff.

Cooling

To keep cool in summer we use our own design of easily demountable home-made awnings to shade south facing windows. Passive stack ventilation draws cool air from the underfloor void up to a small Velux window in the attic.



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Future Plans

We're planning to replace our poorly insulated back doors and to install solid wall insulation.

Performance

Home-energy carbon emissions have been cut by 72% since 2001, with further improvements expected as a result of the 2015 loft extension. Much of this is due to the technical changes, but it also been very worthwhile steadily getting comfortable at lower temperatures. Our thermostat is usually set at 15C.

We now wish that we'd installed internal solid wall insulation when doing the kitchen in 2003.

Property age & type: 1902, mid-terrace

Wall type: Solid brick

Floor area: 138 m²

Cost of retrofit: Approx £7,000

Occupants: 2 adults

	Energy kWh/m ² /yr		Carbon kgCO ₂ /yr	
	Elec	Gas	/m ²	/person
Before	23	97	27.9	1799
After	9	18	7.6	522

Key features

Insulation, glazing and shading

- Better than building regs 2015 loft extension
- DIY under-floor insulation
- Passive cooling
- Extensive improvements to air tightness
- All triple, double or DIY secondary glazing
- [Home made awning](#)

Heating, lighting and electrics

- [Woodburning stove](#), scavenged wood
- Low energy lighting, with a variety of LEDs
- [DIY fanned radiator](#)

Materials

- Reclaimed pine flooring in loft extension.
- Marmoleum (eco-lino) in Kitchen

Key contacts

Loft Insulation: [Celotex](#), or Celotex + double battened [Tri-iso](#) multifoil; Storage area DIY insulated with 90mm rockwool plus 60mm Celotex.

DIY under-floor insulation: Living room: 200mm Rockwool. Hall: 100mm celotex and recycled PET "[homeeco](#)". [See Article](#)

Glazing: High performance Jeld-wen sash, (U 1.4)) and triple glazed velux (GPL 3066). DIY secondary glazing with 2mm acrylic from [Engineering & Design Plastics](#), with adhesive Velcro from [MDP hook & loop](#). Secondary glazing (in sitting room) from [Go-Glass](#)

Woodstove: [Morso 04](#) wood-stove, installed by Peter Wakely, 01954 211049

Lighting and electrics: Robus Acorn from [Lighting Direct](#) on kitchen ceiling. 3W under cupboard lights from [Simple Lighting](#). LED Strips from [Ultra LEDs](#). Green Energy supply [Tide tariff](#). [Quinetic wireless switch](#)

Toilet: [Ifö Cera](#) 4/2 litre flush loo from [Green Building Store](#)

Materials: Reclaimed pine flooring from [Solopark](#) £47/m² in loft. Reused carpet in storage areas. [Marmoleum](#).

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