

Victorian Family Home: Getting Off Gas

Meet your hosts: Hannah & James

James says:

I work in public health with a special interest in climate change and health, so I am very keen for us to stop using fossil fuels wherever possible. This is why we decided to no longer use gas in our home and to prepare for hotter summers. With two children sharing a bedroom at the time, we also wanted to add more usable living space. We like living close to the city centre as it allows us to travel mostly by foot/bike/public transport.

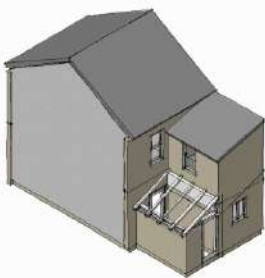
The Renovation Process

Early on in the project, we started working with local architect, [Margaret Reynolds](#), who has expertise in eco-retrofit. Five years and many discussions later, our house has now been extended and retrofitted to create a renewable-powered low energy home which remains cool in summer.

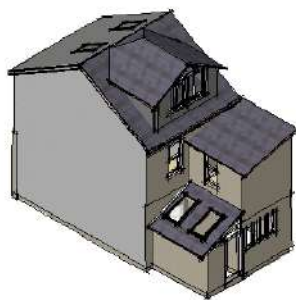
Our renovation began with two main priorities: adding a third bedroom and eliminating gas usage. Extensive time and research were required to achieve these goals. Getting planning permission in a conservation area for the loft bedroom needed significant dialogue with the local planning team.

Since the retrofit was a necessarily disruptive process, we decided to combine the works with significant renovations to the house. These include an attic extension, kitchen extension, new ground floor toilet and garden redesign with pergola. We did not calculate the payback period for any part of the work as our priority was getting our home as we would like it, and we intend to stay living here for many years to come.

PROPOSED DESIGNS: Loft dormer following principles and local precedents



Study model



Sketch study model

Information & Advice

We relied heavily on the expertise of our project architect and builder, both of whom were excellent! When trying to choose a heat pump, we spoke to a lot of different suppliers. Most were heating installation companies who worked predominantly with gas boilers. Eventually, we went with [Ecoinstaller](#) as they seem to be the most specialized and expert in this area.

www.openecohomes.org

Victorian Family Home: Getting Off Gas, Cambridge – 2020

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Performance

Although it's only been a few months since completion, we really love our renovated home. With new ceiling fans on the ground floor, it was very cool on the hot days we had this summer (2020) and I am really pleased that we are no longer using gas. Our son loves his new bedroom!

We haven't tested the heating system properly as the weather hasn't been cold enough yet to need it. Winter will also test the ventilation system as one of the motivations for getting this done was to eliminate damp.

Surprises

At the start of the project, I was unaware of the extent of the fees required before we even had planning permission e.g. for the structural engineers. These were mostly related to the addition of the attic extension, rather than the eco-retrofit.

Future plans

Apart from finishing off our homemade external blinds, we have no further retrofit plans.

Our top tip:

If you want to get off gas, consider getting an air source heat pump!



Key Specifications:

Property age: Late Victorian

Type: Terraced House

Wall type: Solid wall

Floor area: 71.8m² increased to 90.4m²

Cost of Retrofit: £290k (excludes rent for alternative accommodation)

Project dates: Planning 2015; Building: Sept 2019 - June 2020

Occupants: 2 adults, 2 children

Insulation & Airtightness

- Internal (front) & external (back) insulation
- Improved air tightness (with pre & post testing)
- PassivHaus windows (sash & roof lights) & external doors

Ventilation

- Mechanical ventilation: Aereco demand controlled, no heat recovery
- Ceiling fans, external blinds, patio pergola

Improved Spaces & Safety Upgrades

- New attic bedroom with increased headroom in conservation zone
- Sprinkler system & retrofitted fire-safe doors

Heating & Energy

- Air source heat pump by NIBE

Key Contacts, Products & Advice - all recommended:

Architect: [Margaret Reynolds, RIBA](#) , <mrriba2018@gmail.com>

Builder: [Greenhat Construction](#)

Heat Pump Supply & Installation: [Ecoinstaller](#)

NIBE F2040 Air Source Heat Pump £10,500 including water tank & installation but not radiators/underfloor heating.

Ventilation system: [Aereco](#)

Windows & Doors: [Green Building Store](#)

All materials apart from heat pump system purchased & installed by Greenhat.

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