

Exploring Carbon Reduction in our 1990's Home, Chesterton

Wednesday 24 September / 7:30 pm



Mole



www.mccarthyarchitecturaldesign.co.uk

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Agenda

7:30 pm	Introduction
7:40 pm	Presentation, first section
7:55 pm	Q&A
8:05 pm	Presentation, final section
8:15 pm	Q&A
8:30 pm	Thanks and feedback



A photograph of a small, flowing stream in a dense forest. The water is white and frothy as it cascades over several large, moss-covered rocks. The surrounding vegetation is thick and green, with many ferns and other leafy plants visible. The lighting is soft and natural, creating a serene and peaceful atmosphere.

Decarbonising a 1990s house

A 14-year journey

2010

- Bought this house in Chesterton
- Built in 1991 to a high standard
- 5-bedroom with integral garage, 2856 ft² / 265 m²
- First steps, upgraded heating and plumbing
 - Condensing gas boiler
 - Mains pressure DHW
 - Large DHW tank, MEGAflow 210 l
- This freed space in loft and removed need for 'power showers'



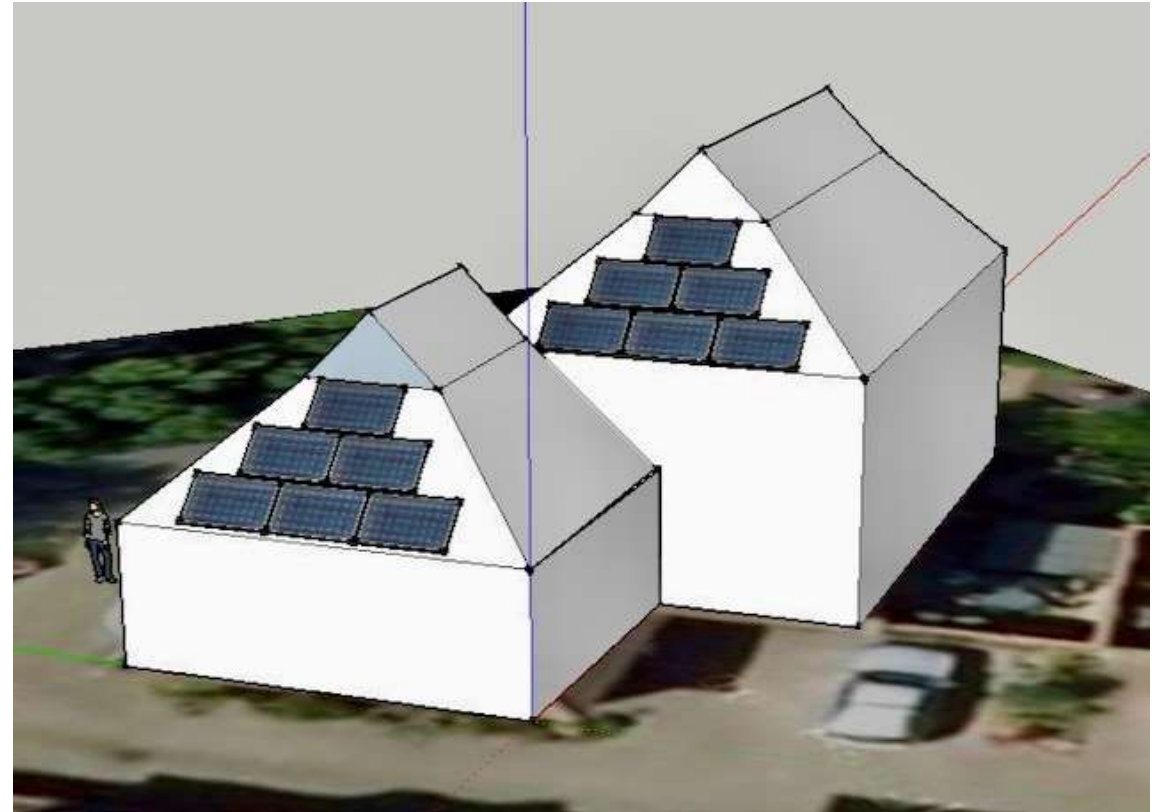
2012

- Changed to better radiators
 - Aesthetic as well as higher emission
- Low energy lighting
 - CF then LED
- Wood burning stove replaced gas fireplaces
- Re-modelling with environmentally friendly products
 - Bamboo flooring throughout ground floor



2013

- Solar PV Panels
 - Cambridge Solar Ltd
 - 12 panels, 3.48 kWp
 - Inverter Solar Edge 3500
 - SolarCache device, directs excess solar electricity to immersion heater
 - total cost with fitting ~£8,500
 - repaid through FIT and energy savings by 2022



2013/4

- Simple draught proofing around doors
- Fitted additional insulation
 - 50mm Celotex board fitted over existing wall insulation in roof spaces, 1st & 2nd floors
 - Draught paths eliminated
 - Additional fibreglass in all ceiling spaces
 - Garage door lined with 50mm Celotex board



2015

- Upgraded double glazing
 - 20-year-old units failing
 - 45 double glazing units replaced (just glass, not windows)
 - B rated units
 - total cost £3,000





Questions so far

Please put your questions into the chat



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2018

- Developing a wild-life friendly approach to gardening
 - reduced mowing
 - laurel & euonymus hedges and small trees added
 - ponds and water capture



2021/22

- Changed to an electric car
 - Telsa model 3
 - fitted home charging point
- Replaced gas hob with electric induction hob
 - more control
 - cleaner, less condensation



2024

- Conga Ltd. fitted ASHP
 - Valliant 7kW aroTherm
- Two radiators replaced by fan driven emitters
 - heating AND cooling
- Most TRVs removed
 - except bedrooms
- NO other changes to heating or DHW
 - using existing radiators and DHW coil



Now

- House now purely electric
 - current supplier (Scottish Power) claim all electricity from renewables
 - house much more comfortable
 - less indoor pollution due to change of cooking hob; also, less cleaning
 - ASHP produces cooling in summer
 - generally, energy use down – this winter will see how ASHP performs

Lessons learned

- If possible,
 - know your own house and where improvements can be made
 - draft proofing & insulation first
 - do your own heat loss calculations and compare them with your energy usage
 - get plenty of advice before choosing expensive systems i.e. ASHP, SolarPV etc.
 - choose a consultant/installer with a proven track record
- Useful resources
 - Open Eco Homes & Cambridge Carbon Footprint case studies & videos
 - Open University OpenLearn course “[Energy in buildings](#)”
 - Heat Geek website (www.heatgeek.com) – has many helpful articles & videos

Happy to answer further questions, contact me at iain@iainjsmith.co.uk

Your next steps

- Find out how you can get started with your retrofit
- Book another tour or talk
- Research our past case studies
- Book a training session and borrow a thermal imaging camera
- Use Transition Cambridge's personalised home energy advice tool
- Please complete the event feedback at the end of this talk



Can you help us?

Make a donation to help us run more Open Eco Homes tours:

cambridgecarbonfootprint.org/donate

Share your experiences on social media: **#OEH2024**

Thank you for your support!

