

The House Built in 3 Days



Award-winning new-build emphasising personal & planetary health: known as the Treehouse, built by Baufritz

Meet your hosts, Judy and Adrian:

We took a risk and bought the site without planning permission from a Cambridge College in 2014, having written to them every year for seven years. It had previously been lock-up garages. We knew about it because we lived in the area.

Baufritz UK are a German system-build firm with their UK HQ in Girton. We loved their eco approach, materials and finish quality. We worked with architects Nilsson Pflugfelder on the design, with input from Baufritz, who delivered the whole house to a fixed budget and completion date. As well as the house, they provided every tap, tile, toilet, door handle, floor, bath, shower, pipe and socket.

The design process concluded with four days of detailed choices made on a visit to Germany to choose built-in items, and interior design details. Baufritz created a walk-in mock-up of our bathroom, with walls, loo, bath, and basin. The kitchen was the only fixed item we sourced locally.

Construction

It was a year from receiving planning permission to the family moving in, with the house assembly taking three days. The highly insulated 37cm thick wall panels are made in a factory, with doors and windows fitted. All were lifted into place, over a yew tree, with two cranes. Internal walls came ready to paint, saving time on finishing. The tolerance over the whole 18x8-metre house was 5mm. Astonishing.

Material choice

With all material choice there's a consciously strong emphasis on personal and planetary health. There's no MDF, no PVC, no polystyrene in the house and no VOCs, or toxins in the paints and glues. We were persuaded to avoid all fitted carpets, and so pleased we did. There is protection from electro-smog, shielded wiring, and insulated water pipes throughout. One thing that might raise a vegan eye-brow is the use of whey (a by-product of the dairy industry) in the HOLZ wood fibre wall insulation. Dairy also has a high carbon footprint, although it is used here as a waste product. That being said, the house is recyclable if demolished, or it can be dismantled, moved and re-erected. Because the frame and most of the walls are made of timber, including the larch cladding, the house is carbon positive, locking up carbon absorbed during tree growth for 75 years.

www.openecohomes.org

The House Built in 3 Days, Cambridge – 2020

Open Eco Homes is a [Cambridge Carbon Footprint](#) project. Charity number 1127376





Energy use

Energy use is minimised with the help of mechanical ventilation and heat recovery (MVHR) and a Solar Cache PV system that uses surplus electricity to heat water. There is a small gas boiler. Though it is little used, the boiler is connected to an underfloor heating system, which can easily be changed to an air-source heat pump if there's a need to reduce gas use further. The house is so well insulated, however, that most of the heating zones have never been turned on – even with minus 7°C nights.

Passive solar gain and natural daylighting

Unlike many modern eco-buildings there are no large grandstanding windows in the Treehouse. This was a conscious choice after a bad experience with a previous 'glass box' extension. Instead there are carefully placed but not excessively large triple glazed windows with internally controlled electric blinds and a fixed *brise soleil* on the south side for further regulation. The house is very light inside, complimented by specially designed 7 watt LED bulbs with a true colour spectrum.

Wood burner

The Germans said 'you won't need a wood burner,' and they were right. However, we love it and so largely ignore the heating system.

A modern house with soul

Most of all we wanted a modern, efficient, kind house in our neighbourhood, into which we could welcome everyone and anyone. We think we have that, and are very thankful.

Our top tips:

1. Over communicate with affected neighbours - bring them into the picture.
2. Give yourself time to zoom out from the current build & imagine how you'll use the house 10 years hence & what might irritate if you don't do it while you can. E.g. running extra conduit for pipes or cables that might be needed in future.

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Key Specifications:

Property age: 2015

Type: New-build detached

Project timescale: 2014-2015

Wall type: Manufactured wooden panel with infill wood fibre insulation, soda & whey

Floor area: 249m²

Cost of Build: £600k

Occupants: Four adults

Key Features:

Heating & Energy

- Mechanical Ventilation & Heat Recovery
- Underfloor heating
- Solar PV
- Solar Cache PV Hot water heating
- Underfloor Insulation
- 5kW Wood stove
- Hot water circulation pump

	Energy kWh/m ² /year		Carbon KgCO ₂ /year	
	Electricity	Gas	/m ²	/person
Current Usage	7.6	3.1	2.5	157

Insulation & Glazing

- Triple glazing with electric & fixed shading
- Wood fibre wall insulation
- Roof & floor insulation

Materials

- Wood frame & larch cladding
- Wooden floor
- Electro-smog barrier
- No PVC, MDF, paint toxins

Key Contacts, Products & Advice:

Builder: [Baufritz \(UK\) Ltd](#)

The Workplace, Camboro Business Park, Oakington Rd,
Girton, Cambridge CB3 0QH
01223 235 632

Architect: [Nillson Pflugfelder](#)

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