GET SMART

A new eco home, partly built into a hill in Oxfordshire, has been designed to embrace the latest smart home technology.

Exterior

The single-storey home is built into the side of a hill and overlooks a stream. The exterior is clad in sweet chestnut, with Cotswold stone facing.

[In brief]

Project New home built into a hill
Location South Oxfordshire
Paid Plot forms part of family home.
Spent £450,000
Worth NA

"I wanted to move to the countryside to escape the hustle and bustle of city life and bring up our children in the same peaceful surroundings where I grew up," says James Barratt. "As the director of a company which specialises in home building, I have a keen interest in the self-build industry and I was excited by the opportunity to create a unique smart home for my own family."

The area where James grew up is in south Oxfordshire, and his parents own the neighbouring Grade II listed property where they have lived for 30 years. "Without their help, we couldn't have built here, as our house is in fact an annexe," explains James.

The Barratts' new home is built into a hillside, half submerged in the landscape beneath a turf roof, and overlooking a stream. The unconventional structure has a decidedly contemporary look, with extensive glazing at the front allowing plenty of natural light into the subterranean interiors which for the most part are just one room deep. The combination of Cotswold stone facing and chestnut cladding on the external facade reinforces the impression that this house has been designed to blend in with its unique location.

"We wanted to create a home that provided the perfect living experience for my family with a wow factor that really set it apart from conventional new builds."

"We wanted to create a home that provided the perfect living experience, with a 'wow' factor that really set it apart from traditional new builds," continues James. "Design was the primary focus but I also wanted to incorporate home automation throughout, where smart technology complements all the design aspects."

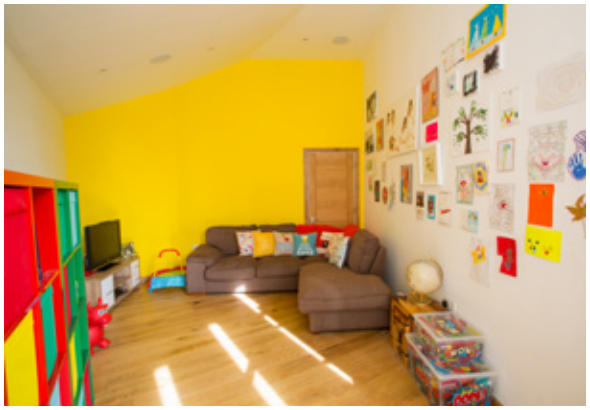
James and his wife Corina turned to local architect Richard Potter from RPA Architects based in Didcott to come up with the original design which was then tweaked over time.

The planning process took three years, from the initial approach to the local planners to the final approved drawings which were supported by the local architects panel.

The site's close proximity to a stream raised some concerns from the Environment Agency, and the design and construction team liaised with it throughout the build to minimise the effects on the local waterways.

Most of the construction work was undertaken by James's own company, Ashbrook Homes, including the excavations, foundations, plumbing, electrics and finishing. Additional work was completed by the company's regular sub-contractors, with James himself taking a more hands-on approach than he would

Living area
The light, oopen-plan kitchen and living area is well suited to family living, opening out onto a terrac e overlooking the stream.



Bedrooms

The bedrooms run off a glazed corridor at the lower end of the house. Each has its own en suite and wardrobe built into the rear wall. Stairs off the living area lead up to a children's playroom.

normally have done with other projects, acting as project manager.

Work started on site in September 2014, with the family moving into a one-bedroom bungalow nearby throughout the build. "It was a bit of a squeeze considering there were five of us," says James who has three children – Neve 8, Eben 5 and Oscar 2.

The cramped conditions, combined with the long hours trying to fit the project around the day-to-day commitment of running a business as an NHBC housebuilder, made for a stressful 15 months for James who would return to the office in the evenings to arrange deliveries from suppliers.

Excavating close to a waterway proved to be tricky as the water table was just half a metre below ground. With the foundation trenches 40m long and up to three metres deep in places, a two-tonne pump was required to constantly clear the excess water. To add to the problem, the work was carried out in heavy snow.

Polarwall retaining walls with a steel frame and precast concrete planks were used to build into the hill, with beam and block flooring.

Master bedroom

The master bedroom has sliding glazed doors opening onto a terrace. Automatic blinds control the room temperature.

[Contacts]

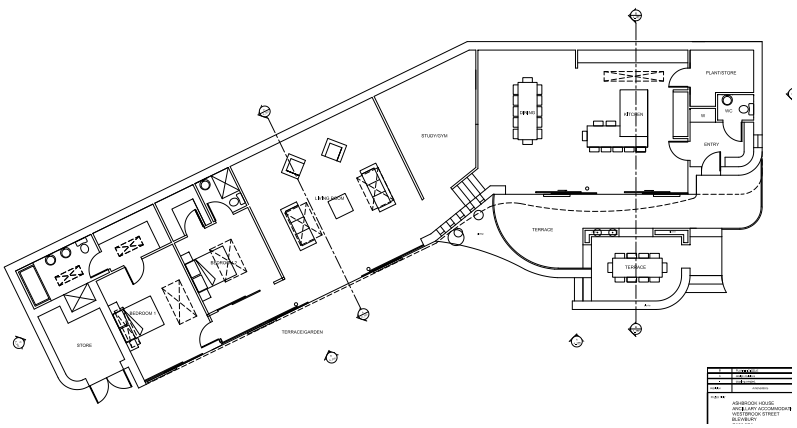
PROJECT
Main contractor Ashbrook Homes: ashbrookhomes.co.uk
Architect Richard Potter: rpaarchitects.co.uk
Structural engineer OMK Design: omk-design.co.uk

STRUCTURE
Polarwall ICF retaining walls Polarwall: polarwall.co.uk
Windows, sliding doors IQ Glass: iqglassuk.com
Flat walk on roof lights LAG: lag.glass
Photovoltaics Sims Solar: simssolar.co.uk
Zoned underfloor heating system NuHeat: nu-heat.co.uk
Sweet chestnut cladding Vastern Timber: vastern.co.uk
Stone cladding Cotswold Natural Stone: cotswoldnaturalstone.co.uk
Boiler install Heelas Heating: heelasheating.co.uk

FIXTURES AND FITTINGS
Home automation : Loxone: loxone.com
Blinds Grand Design Blinds: granddesignblinds.com
Kitchen Powells Design Oxford: powellsdesignoxford.co.uk
Flooring, tiles, bathrooms Porcelanosa: porcelanosa.com
Wood-burner Stovax: stovax.com
Kitchen worktops Oxford Stone & Marble: oxfordstoneandmarble.co.uk
Copper furniture/shelving CopperBoard Furniture: copperboardfurniture@gmail.com
External decking Millboard: millboard.co.uk

FLOORPLAN

The single-storey dwelling is mostly just one room deep, with the accommodation divided into two main areas: an open-plan kitchen and lounge, with adjoining play room, and the bedrooms, which all run off a glazed corridor. There is also an office.



Garden

The turfed roof above the bedrooms has bespoke walk-on roof lights.

Lighting

Despite being built into a hill, the interior is light and airy. In the evenings, mood lighting can be created for each room.

The inverted roof is covered with turf with custom walk-on roof lights providing natural light into the rooms below.

The discreet integration of technology throughout the home was an essential part of the design to make the house comfortable to live in and James sought the advice of Loxone to design and implement smart solutions to potential problems associated with a subterranean build like overheating and high humidity.

Self-cooling was required to compensate for the expansive sections of south-facing glazing. This is achieved with automatically operated blinds which adjust to control internal room temperatures, while a smart extraction system kicks in to remove excess moisture when humidity levels are high.

The main living area is open plan, with a small staircase leading off it to a children's snug and playroom. A glazed corridor runs along the front of the property, with three bedrooms each having their own en suites and walk-in wardrobes nestled neatly up against the retaining rear wall built into the bank.

The master bedroom has a larger walk-in wardrobe and en suite, complete with bath and separate shower, and sliding glazed doors open out onto a deck overlooking the stream. The garden is essentially the lawned roof above the bedrooms.

The Barratt family finally abandoned their cramped bungalow to move into their new home in time for Christmas 2015, and are now enjoying the relaxed lifestyle their new home offers.

"We love the views from the large glass windows and doors," says Corina. "The fact that half of the house is underground and that we have a garden on our roof is always a big talking point when people visit."

"Having a smart home also gives us an added wow factor," adds James. "Guests are surprised when lights, music, heating, blinds and so forth automatically work in the background without us touching any controls or apps. It's the ultimate in autopilot living," says James, whose company now fits the Loxone smart system.

SMART HOME FEATURES

Automated shading A long line of smart blinds react to indoor temperatures and the orientation of the sun to prevent overheating due to the largely glazed south-facing wall.

Smart lighting Colour, warmth and brightness can be altered for different moods, depending on the room and time of day.

Multi-room audio Music and radio can be played in different rooms thoughout the house, depending on personal tastes.

Full security system Tied in with the audio system, loud music and flashing lights can be triggered to deter burglars.

Underground and zoned heating The temperature of every room can be controlled automatically without the need for radiator valves, heating controls or smartphone apps.

[The final word]

What was the high point of the project?
It was great to move in just before Christmas – the kids were very excited.

and the low point?
Excavating the foundations when it was snowing and under water.

Your best buy?
The Loxone home automation system was our best buy as it has made things such as energy saving and light management completely stress free.

Your biggest extravagance?
Probably our glazing, supplied by IQ Glass, but it was well worth it.

What did you enjoy most about the experience?
It has been a pleasure designing and building our own family home that is both unique and practical.

Anything you would have done differently?
I would have reinforced the narrow access road as it was very boggy and one or two HGVs got stuck on the way in.

6 tips for creating a SMART HOME

by Philipp Schuster

1: Plan ahead

Make smart features part of the specifications of your new build or renovation right from the start. This way, you can build your home around an intuitive system that will be an integrated part of your home right from the start to enhance the way you live. If you are considering a wired smart home system, remember to leave additional space in your distribution board for future expansion.

2: Combine style with technology

Making your home smart shouldn't be about adding multiple boxes, wires and devices to every room. With full smart home integration, design can take centre stage, with technology blended into the background, quietly managing everyday tasks for an effortless, autopilot living experience in every room. Through the installation of a small number of stylish sensors or switches, you can enjoy lighting, heating, security control and much more.

3: Use technology to create features

While the tech behind your smart home should remain invisible, it can be used to create a multitude of design-led features to enhance your interiors. For example, rather than using radiators, consider modern and minimalistic infrared panels. These can even have images printed on them to look like a canvas rather than a way of heating the room. You can also change the coloured lights on your breakfast bar to suit the time of day or incorporate low level lighting for night-time trips to the bathroom.

4: Don't forget about the exterior

Creating a smart home isn't just about the interior. Extend its capabilities to outside spaces, such as lighting to show the pathway to the door or ambient music in areas for garden parties. External security can also be easy to manage. Outbuildings and gates can be locked and alarms and cameras switched on throughout the grounds at the touch of a button. I recommend that you either install a cable conduit or even make an allowance for a separate sub distribution board.

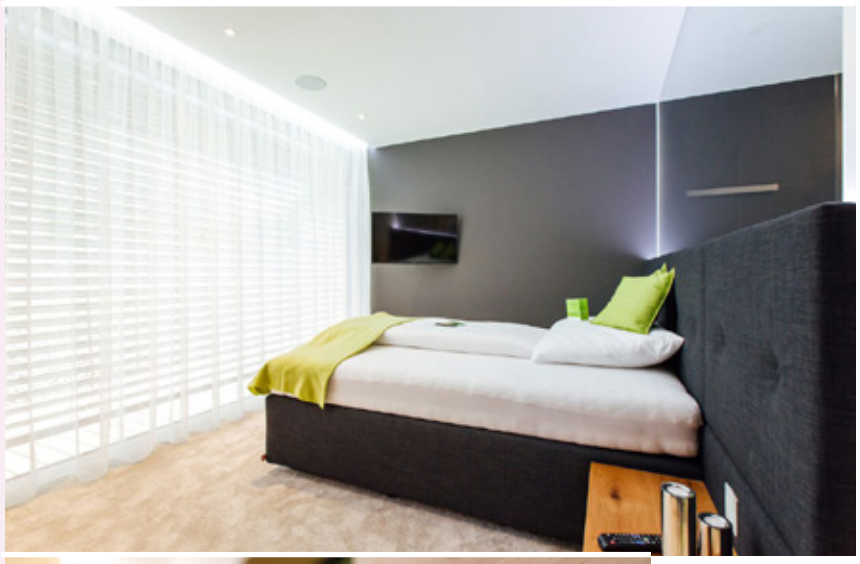
5 Avoid separate 'solutions'

Buying separate gadgets to control different parts of the home might sound like a good way to build a smart home to your own specification, but it's a false economy. You'll end up buying multiple devices and downloading multiple apps that will simply put you in the centre of managing your smart home. The novelty of controlling everything from an app will soon wear off. Make sure your smart home isn't one that you need to manage on a day-to-day basis. A true smart home will take care of everyday day tasks on its own, like an autopilot.

6 Create 'wow' moments

A truly smart home will work effortlessly in the background, controlling all aspects of your home. Imagine your guests' reactions when lighting changes to a warm glow when they arrive for your dinner party or your blinds automatically move to adapt the ambient temperature in the room when the sun comes out. Smart lighting can be used to 'zone' areas of an open-plan home or highlight certain features or pieces of furniture within the home.

Philipp Schuster is MD of Loxone



Lighting, heating, humidity, music and even security can all be controlled automatically without resorting to an app or remote control.