

An aerial photograph of a modern, eco-friendly house. The house features a stone masonry base, a dark corrugated metal roof, and a large, multi-paned skylight. The surrounding area includes a lawn, garden beds with green plants, and a gravel patio area with a red and white striped chair and a yellow bucket. The house is situated on a slight incline, and a wooden deck is visible on the left side.

Positive energy

Rob Elkins incorporated a suite of eco technology and sustainable principles when designing and building his family home



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ere were firmly in love with life in Bristol,” says Rob Elkins, “but I was unhappy with my carbon footprint, from doing a lot of driving every day. Plus I wanted to cut out the commute and spend more time with my children.”

Now, Rob and his wife Hannah live just a few steps from Rob’s work as creative director at architectural practice Artel31 in Chippenham, Wiltshire. Their new home is a contemporary sustainable design close to the town centre, but which has the feel of a rural retreat.

The site is located on a quiet through road close to a park and had planning permission for multiple homes when the owner, a national housebuilder, agreed to sell it on to Rob, his parents and his business partner. Reducing the number of houses on the site to just three, each built their family home, with Rob taking the middle plot. A five-bedroom home that appears modest and compact to the front, it is actually over 300m² and full of bold ideas and innovations around sustainability in both design and materials. Although each family designed their own home, they all agreed on overarching themes for the site.

OWNERS Rob and Hannah Elkins

LOCATION Wiltshire

HOUSE TYPE Contemporary detached

SIZE 300m²

BUILD COST £390,000

SITE COST £200,000

WORDS Alexandra Pratt
PHOTOGRAPHY Pete Helme

TIMELINE

Build commenced

OCTOBER 2018

Moved in

FEBRUARY 2020

House completed

AUGUST 2022

A TOUCH OF SOUL

“We talked about elements such as materials,” says Rob. “All three homes are different, but they contain the natural elements of stone and wood.”

When he designed their home, Rob was led by the fact the south-facing garden is the least private part of the home and this is now enclosed by a significant rammed stone wall. Practicalities aside, Rob wanted to satisfy what he sees as the need for ‘soul’ in a new build. “It’s a positive manifestation of my life,” he explains. “The courtyard, for example, reminds me of times spent in Australia. Every day has a sense of history, of my life and my friends.”

Rob’s family also love the outdoors, “so, there’s lots of light and vistas; the opaque glazed gables bring in the eastern light in the mornings, but it’s dappled, like walking underneath a tree.”

AN OUTSIDE VIEW

In design terms, Rob’s inspiration comes from both the minimalist Japanese tradition and the more familiar rustic feel of a West Country smallholding. As a result, the house appears as “three barns clustered on a hillside,” says Rob, with each being connected by green-roofed links or open courtyards and offers views across the park. Structurally, the house contains a combination of masonry, steel and timber frames, clad with stone, oak strips or agricultural tin.

While the structural steel of the house is left exposed inside, the garage is a rare example of a structure that is exposed on the exterior. “The expressed structure has an external honesty,” says Rob. “It is difficult to achieve watertightness and some people love it, while some hate it.”

GREEN MATERIALS

Materials were central to this project and Rob’s priority was to ensure everything was reclaimed, low-carbon and locally sourced, such as the oak cladding, which came from a nearby sawmill. Much of the stone, which is used for external cladding,





paths and even as an internal wall finish, is reclaimed or even designated 'waste'. The roofs are either planted sedum or tin, with photovoltaic (PV) panels on the southwest pitch. Rob also used this black-coloured tin to clad the pantry, which projects out from the kitchen and is a part of his rustic inspiration. "Tin has an agricultural aesthetic — there's no historic prestige, so it's read as unimportant," says Rob.

LIGHTENING UP

Although the house has substantial triple-glazed windows in composite timber and aluminium frames, the church-like eastern gable uses two layers of clear polycarbonate sheeting. Naturally opaque, it creates a very soft illumination and doesn't degrade in UV light. It also offers surprisingly low U values and at a cost of just £2,000, saved Rob almost £40,000 against the price of a reeded glass window.

Rob says the question of building sustainably is not just about the materials used, but also the ongoing energy needs

of the completed home. The PV panels generate more than enough electricity for the family's needs during the summer months, although the family become net importers from the National Grid in winter.

GREATER EFFICIENCY

PV is just one part of a suite of 'eco-technology' built into the home. Rob also opted for a vertical ground source heat pump for the domestic water and the underfloor heating. Once significantly more expensive than the horizontal type (which takes up far more land) the cost premium of the vertical type is now greatly reduced. A mechanical heat ventilation system ensures the air is always fresh, despite the exceptional levels of airtightness and insulation. These systems work by extracting the warmth from stale air that is expelled and then transferring it to the fresh intake.

"We've had no problems with any of the systems," says Rob. "The only slight issue has been timing the underfloor heating



A striking element of the home's exterior is the widely spaced oak strip cladding, which runs diagonally. Rob likes the aesthetic, but it also uses less material and creates interesting shadows



pump to ensure hot water for the kids' bath. That was the only adjustment we've had to make."

INSIDE JOBS

When it comes to internal finishes, Rob's sustainable values mesh easily with his restrained and honest approach to decor. Not only are the structural elements of the building left exposed, but so, too, is the fabric — here, plywood and the soft tones of raw gypsum plaster dominate. There's no paint or trim, just pared-back interior joinery creating shadow gaps in place of the architrave or skirting boards.

Rob's clever and patient sourcing means most of the finishes and features are reclaimed or 'waste'. The timber floor in the main living area came out of a sports hall in Poland, while the floor in the master bedroom is chipboard from the site, which when sealed, creates a warm and tactile finish underfoot. The kitchen worktop has character and practicality, with offcuts of granite set into a semi-polished concrete worktop made by Rob.

SPOTLIGHT ON LANDSCAPING FOR BIODIVERSITY

Rob's sustainable approach to the family's new home extended to the landscaping. The family have a fairly large plot backing onto a park, which has a river running through it. This blurs the boundary with a 'borrowed landscape' and creates a soft perimeter accessible by wildlife. Within this, Rob has established a rich tapestry of habitats, including a pond, wetland (using rain run-off from the roof) and wilderness areas.

Rob used materials from the build, most of which are already reclaimed or 'waste', in the garden. The rammed walls are soft enough for solitary bees to make small holes by burrowing and waste wood is stacked to offer space to reptiles, while built-in alcoves and nooks offer nesting sites for birds. Any deadwood is left to create a bat habitat, while large, flat stones encourage sunning by grass snakes. The planting is also wildlife friendly — goldfinches make annual pilgrimages to the thistles, while badgers, deer and hedgehogs are year-round visitors. Rob also planted rare varieties of more common species, such as the Black Poplar.

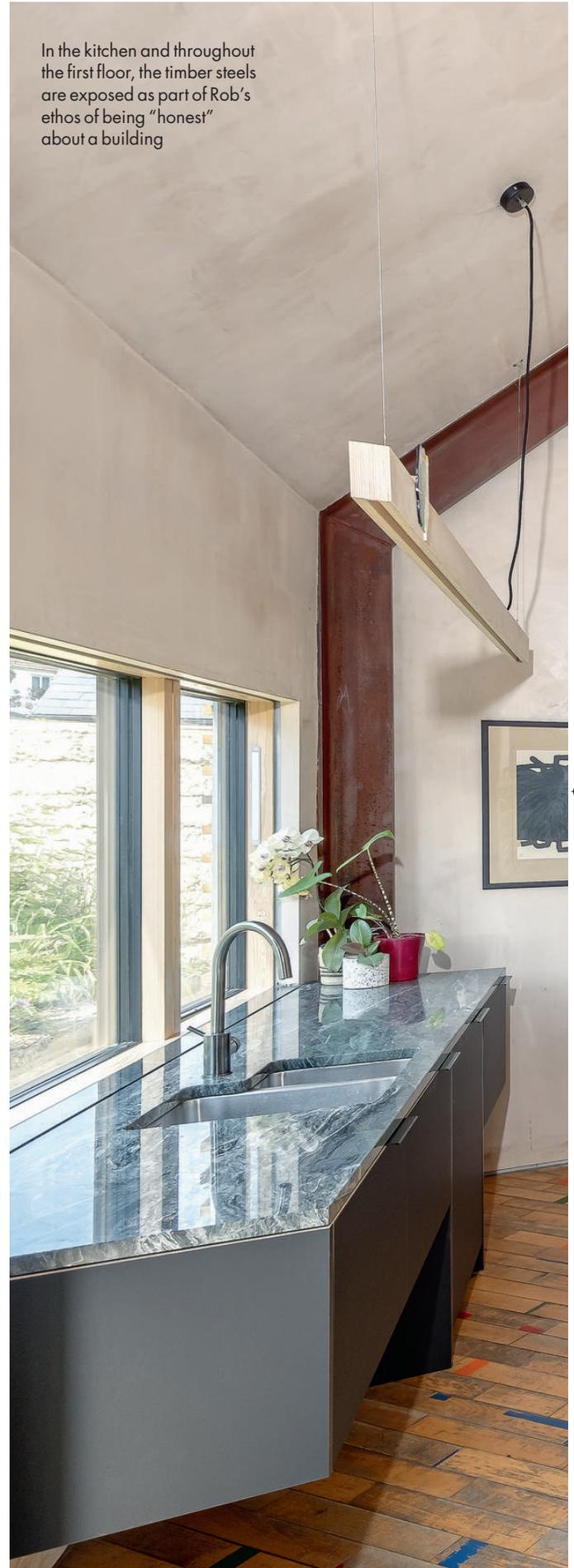
“There’s a sense
of privilege about
living in this space
and it makes us
all so happy”

The soft eastern light filters through the unique polycarbonate gable window, making this a perfect area for breakfast. In the living room (bottom right), natural light is aided with the help of triple glazing that includes a long narrow low-level window



Artel31's construction team, led by Elliot Noyes, carried out most of the work on site, with Rob project managing. The build went smoothly, and the only real challenge was the existence of a small patch of knotweed, of which Rob was aware from the start. Rather than poison it or have it taken away, Rob dug out every root to a depth of 7m, left it exposed for a growing season, then encased it in a root barrier and buried it. "Knotweed can stay dormant for up to 20 years," he points out. "But after that, it would be safe if you were to dig there."

Now the family are moved in, and the final landscaping works are completed, Rob appreciates just how much self-building their home has changed all their lives for the better. "I love waking up here in the mornings," he says. "There is a sense of privilege about living in this space. It's changed our lives through our connection to nature and, as a result, it makes us all so happy." ^H



In the kitchen and throughout the first floor, the timber steels are exposed as part of Rob's ethos of being "honest" about a building



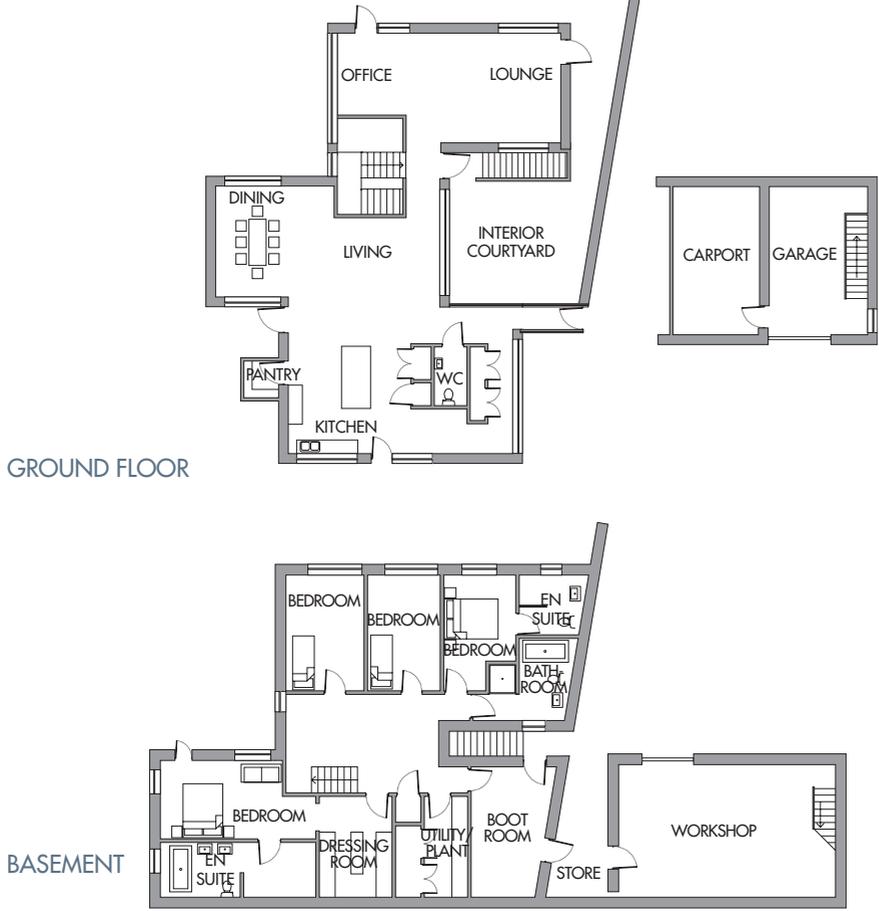


Right Rob chose to keep the original colours from the reclaimed sports hall flooring, as a playful touch

Below In the bedrooms, as elsewhere, the raw gypsum plasterwork on the walls has a softening effect and reflects Rob's desire for a natural look



THE PLANS



SUPPLIERS

- DESIGN AND BUILD Artel31: www.artel31.co.uk
- KITCHEN BASE UNITS Cathy Morris at Kitchen Flair: www.kitchenflairuk.com
- KITCHEN DOOR/DRAWER FRONTS Husk: www.madebyhusk.com
- WINDOWS Velfac: www.velfac.co.uk; Varico: www.varicoltd.com
- TIMBER CLADDING Robin Parfitt at Vasterns Timber: www.vastern.co.uk
- RECLAIMED MATERIALS eBay: www.ebay.co.uk
- WASTE CONCRETE STAIRS Leroc: www.leroproducts.co.uk
- WASTE STONE FLOOR Kayleigh Murphy at Boniti: www.boniti.com
- WASTE QUARRY STONE DUST Veizeys Quarry, Tetbury: 01666 504689
- LANDSCAPE DESIGN Hither Garden Designs: www.hithergardendesigns.co.uk
- ROOFING Tata Steel: www.tatasteel.com
- FLASHINGS Kytun: www.kytun.com
- STEEL FRAME AND GUTTERS Ashmore and Allen/Ellis Steel Group: 0117 982 8131
- ELECTRICAL AND SMART SYSTEMS RPE Contractors: www.rpecontractors.com
- PLUMBING AND HEATING Meadows Plumbing & Heating: www.meadowsplumbingandheating.co.uk
- RENEWABLES (GSHP, MVHR, PV) Andy Perkins at Energy Zone: www.energyzone.co.uk

THE BUILD



GROUNDWORKS The groundworks for all three plots were undertaken at the same time to minimise cost and disruption to neighbours.



STEELWORK Steel portals were used as the principal structure then infilled with lightweight panels which can be easily replaced over time.



BEST BUILD DECISION

“Our best build decision was definitely the decision to start,” says Rob. “After that first jump, there’s no going back. Obviously there are risks, but they are easily manageable. Self-build is more accessible than people think. It’s such a wonderful, liberating experience and you’ll always get a better-quality home than you will get by simply buying a house.”