CONSTRUCTION

PRODUCTS

INTERIORS

selfbuilder + homemaker

MAR/APR 2023

Getting the most from ground source

James Coe of Kensa on how to maximise ground source heat pump efficiency

Natural remedies

Tom Boddy interviews an architect who brought his expertise home to achieve a green upgrade of an Edwardian house

Is PVCu really cheaper?

Ben Brocklesby of Origin says that the price argument for PVCu over aluminium windows and doors is starting to change

Ecogenerations

Alison and Jonathan Berry embraced multi-generational living and sustainability in their tranquil new house, built right next to their son's family home in South Yorkshire



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FROM THE EDITOR...

You don't really need me to tell you that over recent decades sustainability has gone from a fringe interest of people who preferred bulgar wheat to burgers, to something firmly embedded into the mainstream of self-building.

It's nothing new in self-build however, and it's also possible that owner-commissioned, architect-designed homes have seen the most advances in truly green living across the UK in recent times. The problem is, this needs to be spread out to more mainstream, and affordable housing for all if we are to get close to our carbon reduction targets.

This issue really shows how the industry has moved over to putting low carbon impact at the core of business and building. Our Ask the Expert looks at the intricacies of getting ground source heat pump installation right, for example. Self-builders have a particular chance of maximising ground source's potential, as they normally have more land to play with than their counterparts.

We also look at natural materials in Home Styling, and a product feature from Marshalls on landscaping on page 74 which promotes planting. And our case study featuring architect Ben Ridley on page 24 shows how natural materials in finishes can be left 'raw' to great effect, while the Berrys' house (on page 66) is another sustainable success.

JAMES PARKER



DATES FOR YOUR DIARY...

CORNWALL HOME & GARDEN 29 - 30 APRIL, WADEBRIDGE

www.cornwallhomeshow.co.uk

GRAND DESIGNS LIVE 29 APRIL - 7 MAY, LONDON

www.granddesignslive.co.uk

SELFBUILD LIVE 5 - 7 MAY, BLANCHARDSTOWN live.selfbuild.ie

NATIONAL SELF BUILD & RENOVATION SHOW 12 - 13 MAY, SWINDON

www.nsbrc.co.uk

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Octogenarians Keith and Ann Lewis' self-build is not only a labour of love, but a real family affair as they engage the services of their son and daughter-in-law to create a new home that combines barn-inspired architecture and ecology-friendly technology

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In pursuit of peace

By having their own 'forever' house built on the grounds of the longstanding family home in the village of Dinnington, near Rotherham, South Yorkshire, Alison and Jonathan Berry have found peace, in all senses



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Paving

selfbuilder jouis

Leanne and partner Mark recently took on a renovation in Barnsley, while also tackling the running of their own business and raising three girls

hen we first moved into our current home, we never planned to stay there long-term. 12 years later, we were still there! We just hadn't found the home we were looking for. However in 2017, a knock at the door changed everything.

We live on a private road with four other properties, including two bungalows sitting side by side. The smaller one came up for sale and we put in an offer. We approached the neighbours and asked if they would consider selling us some of their land so we could extend the bungalow, which they were open to.

Unfortunately we weren't successful, but three weeks later, the neighbour's son offered us the chance to 'buy the lot.' My husband was away (on a stag do!) but I didn't hesitate, we agreed on a figure for the bungalow and land and a gentleman's handshake sealed the deal.

I immediately rang Mark to let him know I'd bought us a 'doer upper'. Four years later (not the quickest vendors or conveyancers, plus a pandemic) in July 2021 we got the keys. With the world still on a go slow, we all set to work, ripping out carpets and kitchen, knocking down walls and the conservatory.

To save time we applied for planning permission (granted in February 2021). We had planning permission and the keys, but we were missing a builder. We got a few quotes but they were either ridiculously priced or they couldn't fit us in for months and months.

Then out of the blue, a friend offered her partner's building services (I hope she asked him first!), and they have been amazing. Anyone who comes to our site comments on the quality of their workmanship, and we honestly cannot fault them.

Having worked in construction previously came in handy and definitely



We opted to project manage and have our own trades

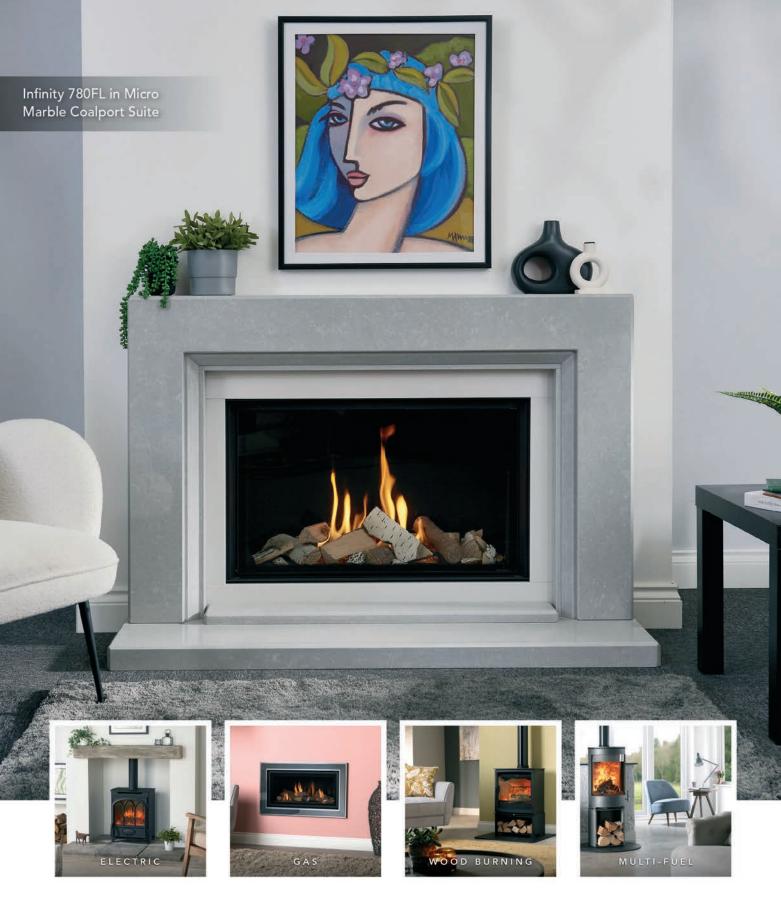
helped when sourcing materials, especially when the costs went through the roof during Covid. One unexpected cost however, was the steel frame. At the time we didn't realise that we needed a frame that big (top tip – get the structural engineer involved before planning to check what's needed). But we couldn't change the design, apart from maybe the odd adjustment.

The build process itself has been slow at points and then quick at others. We opted to project manage and have our own trades rather than a company taking on the entire project. The reason being that we are calling in lots of favours from family and friends to keep costs down where possible. So far all the trades have got on great, and are all looking forward to the moving-in party if there's any budget left!

We went to a specialist lender dealing in self-build projects. The mortgage being released in stages meant that certain things had to be put on hold until additional funds are released. We are roughly 60% into the build and are now wind and water-tight – which is amazing.

We do sometimes have to pinch ourselves at what we have created. We didn't realise the enormity of the build until we got a bird's eye view. It looked a lot smaller on the architect's drawings!

We are ready to make a start on the internals and create something special for us as a family to enjoy. The girls have already designed their bedrooms in their heads and now that some of the internal walls have taken shape, the reality is getting ever closer. Follow our build on Instagram @bungalow_714



Charlton & Jenrick



HOME STYLING

DEDICATED FOLLOWERS OF FASHION

When styling your interiors, the year's emerging trends can be a great source of inspiration, and will help you incorporate fun, flair and individuality into your design. Paul Garland of Andrew Henry Interiors explains how

ocusing on concepts which are timeless and easily adaptable, we have put our own twist on the upcoming trends to create two distinct interior schemes. Both are versatile, spirited and can be as thrifty or as upmarket as you desire, but integrate sustainability, positivity and pleasure to make the home a visually fun place to enjoy.

SUN-INSPIRED COLOURS

The arrival of spring and summer time and all its glory encourages vibrant colourways, inspired by the illuminating oranges of a setting or rising sun. In this trend, product design is inspired by blazing sunshine and bold sunsets, brightening the home with enlivening prints and materials. For an effective and streamlined look, pair vibrant hues with slick lines. Also, elaborating on traditional sun shapes, design plays with arcs and curves to bring new life to this beloved motif. From ceramic tiles to room dividers, exploratory angles create the joyful perception of sunshine entering the home from all directions.

To incorporate this trend into the home, window placement, shape, and dressings are crucial to create the popular indoor-outdoor look. In social areas of the home, integrate large windows opposite one another to allow light to flow effortlessly from one side of the room to the other. Choose abstract shaped window frames such as triangles and curves to draw the eyes to these focal points. For window dressings, full length curtains that can be fully pulled back either side of the window will help maximise the light in the room. Alternatively, Roman blinds in bronzes, oranges and deep reds will tie the room together, creating a decorative piece in the day, and a soothing sunset perception when drawn.

For lighting, warm white light is preferential to give a cosy feel, while in kitchens and bathrooms, downlights work well to lift the room. Pendant fixtures can add another source of subtle light and the warm, yellow-amber light of incandescent light bulbs make the reds, oranges, and yellows of a space more vivid, while muting blues and greens.

ECO INSPIRATION

Eco-consciousness and recycling/ upcycling are ongoing trends set to stay. For self-builders, sustainability is a priority in material choices, longevity and economic well-being, supporting both the homeowner but also the environment. We're all invested more in recycling, mending, and repairing. People are willing to pay extra for sustainably reprocessed yarns and salvaged materials, happily accepting little irregularities in exchange for the environmental benefits they offer.

Starting with flooring, there are many options for eco-friendly materials, varying in cost, origins and appearance. One choice, relatively new to the flooring industry, is cork which is sourced from harvesting bark as opposed to the tree itself being cut down. Cork can be



finished in a variety of paints and stains to suit any colour scheme or design style and it can also be woven into carpets, as can coir, jute, sisal and wool. Bamboo gives a different, glossier look and is usually very light, working with a variety of décor schemes due to the varied choice of grains. Glass tiles, solid wood and concrete are alternative hard floor options.

For furniture following an 'eco theme,' a textile called Rolefin, produced using a zero water consumption process, is a great option, especially for sofas and armchairs. The material can be recycled up to seven times, contains no harmful chemicals and has an incredibly low carbon-footprint. Another option for hard furniture is formed from Mango tree wood, which is collected once the plant



For lighting, warm white light is preferential to give a cosy feel, while in kitchens and bathrooms, downlights work well to lift the room

has stopped producing fruit. Additionally, jute is made from the jute vegetable plant and is completely biodegradable.

For wallpaper and paints, sustainable paint alternatives can be purchased from suppliers such as Little Greene Company, used by Andrew Henry Interiors in previous projects. Little Greene's wallpaper comes from FSC or PEFC certified sustainable forests whereby for every tree that is used, a further four are planted. The pigments within the paper are non-toxic, the wallpaper paste contains no solvent and the water-based paint has the industry's lowest ecorating, contributing no solvent to the atmosphere (or homeowners' respiratory systems!). For their oil-based paints, Little Greene has reformulated the elements to use vegetable oil, a sustainable alternative which does not compromise on the longevity or quality of the paint. These trends see colours, textures and materials promote emotions of joy, hope and optimism with a direct focus on the environment and all its wonders. Trend-inspired interior design can be simple, cost-effective and versatile, perfect for all types of homes, personalities and styles.

Paul Garland is creative manager at Andrew Henry Interiors



INTERIOR INSPIRATION: LIVING ROOMS

Natural materials, which might even be reclaimed, combined with a focus on luxury for key pieces. These are the trends that are driving design of our living rooms at the moment, and here we offer some great ideas to inspire your space



1. Pepper Sq's **Felix Corduroy Corner Sofa** features a contemporary design with a low-rise back with higher-rising backrest cushions. Upholstered in soft to the touch, spiced saffron yellow corduroy with metal legs, the sofa is both chic and comfortable. It is priced at £4169.

www.peppersq.com

2. The Somno Rocking Armchair by Sazy puts comfort first. Its hand-crafted hardwood frame feels incredibly sturdy, while its full seat is roomy enough to support different body shapes. Whether you're a new mum or a grandparent, every member of the family can enjoy its generous wider seat and cosy warmth. Price: £660.

www.sazy.com

3. This stylish and timeless **Soho Coffee Table** by **Modish Living** is crafted in 100% reclaimed wood and is a classic example of how rustic furniture can blend seamlessly in contemporary homes. It features clean lines and distressed dark-painted wooden legs which contrast with the textured repurposed wood. Price: £439.

www.modishliving.co.uk

4. The Middleton Chaise Sofa by Darlings of Chelsea is a classic take on your traditional square arm, but with narrow arms to give you more seating space for you and family. Available in a range of luxurious fabrics in both neutral and jewel tones as well as leather, you can choose a look that will suit any interior style. Price: £3830. www.darlingsofchelsea.co.uk

5. Build the perfect space to unwind using the Manhattan Bookshelf Cabinet with Two Door Storage Unit in Black by Desser & Co. A handmade sustainable solid wood bookcase with two natural rattan front panel cupboards and gold handle detailing. Perfect for in the hallway or living room. Price: £749. www.desser.co.uk

6. Needing a versatile storage solution for your bedroom, living room, or hallway? The Oslo Sideboard by Cult Furniture can keep your belongings out of reach, and your space tidy. The two large cupboards and three drawers give you ample room for a whole variety of bits and bobs – including cables and wires. Priced at £399. www.cultfurniture.com







6

ASK THE EXPERT

Tips on going to ground



When investing in a ground source heat pump system you'll want to make sure it runs as efficiently as possible. James Coe at Kensa Heat Pumps shares how to get the most out of your low-carbon heating installation

WHAT FACTORS MAKE A GROUND SOURCE HEAT PUMP INSTALLATION EFFICIENT?

Heat is better contained inside an insulated building because the heat loss to the outside is lessened, reducing energy demand. Any heating system will operate better in an insulated home, however, ground source heat pumps (GSHP) will also operate in properties with lower insulation levels. It is important that the pipework is insulated, so the heat isn't lost before it gets to radiators or underfloor heating.

Another factor is ensuring you use a well-designed system – and that you install it properly. The focus should be on the design and commissioning of the ground arrays and collectors. Ground source heat pumps operate most effectively with low-temperature heating distribution systems.

The heat source used also determines

its efficiency. Shallow (ground array) trenches are usually an ideal source for properties in rural areas or any building with a decent amount of surrounding land. Vertical boreholes are particularly good for properties like tower blocks, flats, businesses, or homes with limited useable garden space. Water can be one of the most efficient sources of heat transfer and is suitable for any property close to a water source, including lakes, ponds, rivers, the sea, and even aquifers.

The heating distribution system and its size is another factor. Ground source heat pumps deliver heat through a variety of heating systems. Underfloor heating is a very effective way to heat a property and works especially well with a ground source heat pump; systems have a large surface area and therefore can operate at lower flow temperatures. Radiators can also operate with ground source heat pumps, however they do need to be correctly sized to operate at the lower flow temperatures which the heat pump requires (45°C -50°C).

HOW EFFICIENT IS A GROUND SOURCE HEAT PUMP COMPARED WITH OTHER HEATING SYSTEMS?

As an eco-friendly alternative to fossil fuels, a ground source heat pump delivers the ideal low-carbon heating. Air source and ground source heat pumps





ions apply see machinemart.co.uk/finance for more deta at time of going to press. We reserve the ers subject to availability

ASK THE EXPERT



differ in efficiency, running costs, carbon savings and durability.

The inherent efficiency of ground source heat pumps means they can deliver the lowest running costs of any type of heating system. As the ground temperature remains constant all year, between 8°C and 12°C, there are no unexpected spikes in electricity use as there would be with an air source heat pump on a cold day. The initial upfront cost savings of an air source heat pump could be quickly negated by higher maintenance and running costs due to lower efficiencies and shorter lifespan.

Modern condensing boilers can be over 90% efficient, however, ground source heat pumps can achieve efficiencies of 400%. The difference in efficiency is significant because, unlike boilers, heat pumps deliver more energy than they consume – specifically from electricity.

HOW CAN AN EFFICIENT GROUND SOURCE HEAT PUMP SAVE ME MONEY?

Systems that deliver much more heat energy than they consume will provide households with the lowest running costs. Government funding can also be used to offset the additional cost of installing a heat pump in domestic projects. Ground source heat pumps can also save money by utilising timeof-use tariffs and specific control systems by consuming power when electricity is The inherent efficiency of ground source heat pumps means they can deliver the lowest running costs of any type of heating system

cheapest, due to their unique ability to 'load shift.'

HOW CAN AN EFFICIENT GSHP SAVE CARBON?

Efficient ground source heat pumps can deliver over 4 kW of renewable energy for every 1 kW of electrical energy they use. If you can use electricity from renewable sources, you have the ability to cut carbon emissions completely.

Ground source heat pumps emit no point-of-use carbon emissions or

air pollution, and their load-shifting capabilities mean that they can move their consumption to not only the cheapest time but also the lowest carbon.

WHAT ARE THE TOP TIPS FOR AN EFFICIENT GSHP INSTALLATION?

For most system installations, improving efficiency starts with insulation. The more insulation a property has, the better it will be at retaining heat. Modern homes already have insulation, which helps save on energy bills.

Underfloor heating and radiators can have an impact on the efficiency of a heat pump. Underfloor heating works efficiently with a heat pump because larger surface areas are compatible with low flow temperatures. And the lower the temperature required of the heat pump, the less work it has to do to get there.

When well designed, heat pump systems will provide an efficient, costeffective heating solution for all your heating and hot water needs – however their design is key, so do engage with your heat pump specialists and other renewable system manufacturers (if required) at an early stage to ensure all details are discussed and addressed early on.

James Coe is sales manager at Kensa Heat Pumps





Adding real value to your home...



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origin-global.com/find-local-installer

NNER

To find your local installer, visit

Architizer



Origin products offer the perfect finishing to this stunning new build development

iC











AWARD-WINNING



Industry-leading guarantees



Colours to suit every property and style



Superior weather rating and thermal efficiency



Environmentally responsible



Manufactured in the UK

To find your local installer, visit



origin-global.com

Origin Bi-fold Doors, French Doors and Windows were used throughout the entirety of this development in Stratford-upon-Avon. Striking the perfect balance between stunning aesthetics, effortless operation and an optimised performance, the high quality products were manufactured bespoke and tailored to every need.



Whether you're looking to sell or stay in your home, Origin are the manufacturer to choose that can help maximise its value. With a suite of products that boast optimised thermal efficiency, ultra-secure locking systems and timeless aesthetics that bring an effortless elegance to any property, the Origin Home Collection will be able to protect your family, as well as being able to boost your home's value should you be looking to move.

Enhancing your home and lifestyle today, tomorrow and for the future.





Making a big splash: Products that make a house feel like home...

The Origin Home Range has helped homeowners achieve their dream properties since the company's founding in 2002. Created by cousins, Neil Ginger and Victoria Brocklesby, Origin was founded with a mission to produce the UK's best quality doors. It started with the original Origin Bi-fold Door (OB-72) and throughout the years, has expanded to include products for the whole home. No matter the size of your project, there is an Origin product that will help you make a statement.



The Origin Bi-fold Door

A SEAMLESS LINK, YOUR WAY

The Origin Bi-fold Door is available in two sightline options – the original 72mm (OB-72) and the slimline 49mm (OB-49). The design features a unique free-glide running system, offers two threshold options, can achieve U-values as low as 1.1, and boasts a collection of unique security features such as an ultra-secure 8-point locking system.



Bi-fold doors can be concertinaed and folded away to the side. This leaves the aperture completely open for uninterrupted views. Aluminium is highly durable but lightweight, which allows for incredibly slim frames and makes them easy to operate.

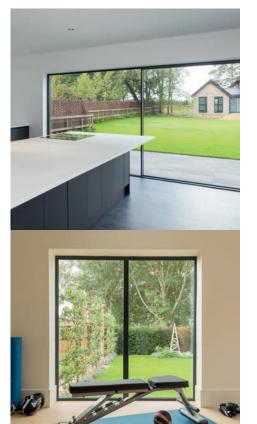
The Origin Sliding Door

UNINTERRUPTED VIEWS

There has always been a big debate about which is best to go for bi-fold doors or sliding doors. To ensure that Origin is able to cater for every taste, it created its stellar line-up of sliding doors - the Artisan Slider and the Patio Slider. Across these two systems, there are four different sightline options available. The Artisan Slider (OS-20) has the slimmest sightlines of just 20mm, and offers complete panoramic views. The Patio Slider offers a modern, architecturally striking variation on the traditional patio door system and is available in three sightline options; 77mm (OS-77), 44mm (OS-44), and 29mm (OS-29).

Sliding doors are usually made up of two or more large panes of glass. As the doors open on one track, the doors slide behind each other when open. This means that at least one door pane is always visible when the doors are open, but does ensure they take up less space and makes for incredibly easy operating.







The Origin Residential Door

STRONG KERB APPEAL

Keen to offer a whole-house solution, Origin designed its Residential Door in 2016 using high-grade aluminium. Like all Origin products, the door is made completely bespoke. There are 10-panel choices available and can be specified in over 150 colours. The Residential Door has been created with heightened security, strong kerb appeal, and thermal efficiency in mind. It is available as a single door, French door, or can even be used as a garage door.





DOORS AND WINDOWS

Complete creative freedom





INTRODUCING THE SLIDING DOOR COLLECTION

With four different sightline options available – ranging from 20mm through to 77mm – the Origin Sliding Door Collection is sure to offer an aesthetic to suit your home's style and character. Made bespoke to your requirements, you can tailor your door exactly as you wish – from the size and colour through to the configuration and handle choices, you're in control.







View the rest of the range at **origin-global.com**

To find your local installer, visit origin-global.com/find-local-installer



The Origin Window

STUNNING FLUSH CASEMENT DESIGN

In 2014, 12 years after launching its first Bi-fold Door, Origin launched its first window. Thermally efficient and with ultra-high levels of security, the OW-80 (the Premium Window) is the first of its kind to feature an internal and external flush casement. The bespoke window can be specified in fixed or sashed casement configurations, bays, gables, or French windows. Plus, it can be manufactured to fit almost any size and configuration. The Slimline Window – the OW-70 – is now also available and meets the growing trend for even slimmer sightlines and bigger expanses of glazing.



With the cost of energy remaining high, Origin has designed its products to meet and exceed thermal efficiency standards, which helps keep bills to a minimum. Its windows can even make use of space-age technology. The OW-80 is the first window to be able to include Aerogel as an optional upgrade; a superinsulating material originally developed for use in space shuttles and astronauts' space suits.

Using it significantly boosts thermal performance. The OW-80 Premium Window with Aerogel has a certified U-value of just 0.8.



The Internal Door

SLEEK AND STUNNING SOLUTION

Origin's latest innovation is its internal door and wall system – the OI-30. Made bespoke from premium-grade aluminium, the OI-30 is completely customisable, with the option to add as many horizontal or vertical bars as desired. Opting for more bars creates a traditional look, whilst using less will offer a minimalist, industrial and more modern style. For large apertures, additional fixed screens can be added alongside or above a door to maximise the amount of glass.

It's available as either a single door, a French door, or a fixed screen. It can even be used to create entirely new rooms by coupling a combination of doors and screens with a corner post.



Origin is so confident in the quality of its products that it offers an industryleading guarantee of up to 20 years on all manufactured parts. The reason for such confidence? Origin is a British manufacturer, so the company has complete control over its operations, from sourcing materials, through to design, manufacture, and delivery.









INTRODUCING THE INTERNAL DOOR COLLECTION

Whatever the space, divide it with style. The Origin Internal Door provides a sleek and stunning solution for creating functional footprints within your home. Now available in over 150 colours, this steel-look internal door and wall system allows you to give your interior décor a new lease of life.





Oyster White - 1013M



View the rest of the range at origin-global.com

COMMENT: THE WINDOW VIEW

Isn't PVCu cheaper?



When it comes to windows, PVCu has been the most popular material for decades. This is largely due to price, as PVCu windows have traditionally been the lowest cost option. But Ben Brocklesby of Origin says this is beginning to change

The pandemic caused a whole host of supply issues with various materials. This included mass shortages of plastics, of which was caused by shutdowns in plastic manufacturing as well as transportation difficulties. Plastics that were available were used up by the automotive industry, which uses plastics to produce components.

This scarcity of plastic is ongoing and is expected to continue beyond 2023, and this is causing PVCu costs to skyrocket. As a result, PVCu is no longer the 'cheap' option for windows, with the National Federation of Builders finding that the cost of plastic has gone up by around 13%. This means that, in some instances, aluminium systems, which are typically the mid-range option, with timber being the most expensive, are now cheaper than PVCu.

BENEFITS OF ALUMINIUM

Aluminium is rapidly becoming the most popular material for windows and doors, for several reasons. Beyond cost, aluminium is innately strong yet lightweight, and this allows for incredibly slim frames to be achieved which maximises natural light. The sleek aesthetic of aluminium allows it to seamlessly blend into homes of all types, from the ultra-modern to traditional.

In addition, aluminium has a longer lifespan than PVCu and does not require copious amounts of maintenance. It can tolerate harsher weather conditions, is resilient to warping, corrosion and flexing, and can last over a decade longer than PVCu – making aluminium windows a worthwhile



long-term investment for self-builders and renovators.

Aluminium is a naturally occurring metal and is infinitely recyclable, making it the most sustainable material currently being utilised for window and door systems, which is an important consideration for those looking to minimise the impact of their project on the environment.

While aluminium isn't naturally a thermally efficient material, systems with tight weather seals and sophisticated thermal breaks can offer lower U-values. This means it offers good performance in preventing heat escaping in colder months and entering the home during the warmer months. With energy bills on the rise, thermal efficiency is more important than ever when choosing fenestration products for your project, whether you plan on staying in the property long-term, or selling on.

THE BIGGER PICTURE

A lot has changed since the pandemic, and this has inevitably had an impact on costs and priorities when it comes to self-build projects. While choosing fenestration products, or any part of a self-build, it shouldn't ever be based purely on up-front cost. The changes in the price of certain materials do offer an opportunity to consider and prioritise all elements of a material, like sustainability and thermal efficiency, in ways that you might not have before.

Ben Brocklesby is director of Origin

Aluminium is a naturally occurring metal and is infinitely recyclable, making it the most sustainable material currently being utilised for window and door systems

CASE STUDY

NATURAL REMEDIES

Architect Ben Ridley used all of his expertise to upgrade an ageing London dwelling to create a low energy home for his family, whose minimalist interiors bring a focus on the natural materials used

TEXT TOM BODDY IMAGES LORENZO ZANDRI & CHRISTIAN BRAILEY



n the leafy London suburb of Muswell Hill, an outmoded Edwardian terraced house has been brought back to life and transformed into a low energy family home. With an experienced architect at the helm of the build, energy usage has been dramatically reduced, including via Passivhaus-level design in some areas. While the original facade has been retained, the interior offers a clutter-free, contemporary design, filled with natural textures and simple layouts.

While many self-builders may be novices, Ben Ridley, architect and founder of Architecture for London, has a variety of experience under his belt in the design and build of homes. He has always been passionate about sustainable design. During his studies at University College London, he picked up the Sir Andrew Taylor Environmental Design award, fuelling this enthusiasm further.

Since establishing his own practice in 2009, Ben has been a part of several award winning projects and ensures that low energy design is prioritised in all of their projects.

But although he has extensive experience in conceptualising and delivering ideas for clients, designing a space for himself and his family was something he'd not previously experienced. Their idea was to find an "unloved home" and turn it into a contemporary space that worked well for him, his wife and their daughter.

At the same time, Ben's ambition was to create an "exemplary demonstration" of how a traditional terraced building can be successfully adapted to reduce energy use. "I wanted it to be designed so that it could be built within a reasonably tight budget, this was key to show that low energy retrofit could be scaled to the city, and even nationwide," asserts Ben.

The house he found in Muswell Hill, originally built in 1907 and not refurbished since the 1970s, was the "perfect fit," says Ben. There are woodlands and parks nearby, and it's an easy commute by bike to his office in Farringdon.

The house was in poor condition however, and in need of a full refurbishment. As well as suffering from considerable dampness and condensation issues, there were large amounts of mould. According to Ben, this was the result of non-breathable cement-based renders and plasters which had trapped moisture.

The interior was dark; as the garden was north facing, the rooms at the back of the house

HIGH POINT

"Moving into the home!"

The internal material palette is limited to oak, lime plaster and natural limestone

195



severely lacked natural light. "The house was also very cold, with no insulation and single glazed windows."

Despite these issues, its layout and shape was just right for Ben and family. The project also represented the "perfect opportunity" to showcase how a typical London terrace could be updated into a sustainable refurbishment, on a budget.

BRIEF & PLANNING

Ben saw it as crucial to consider both embodied energy and energy in use from the outset. In terms of the interior, the brief was to create a family-orientated, relaxing space featuring natural colours and rich material textures. "I wanted it to feel like coming home to a calming sanctuary," he says.

As the rear extension and loft conversion could be completed under permitted development rights, the process of achieving planning was "fairly straightforward." The construction phase was where things got a little bumpy.

With work commencing during the various lockdowns, most of the neighbours were working from home while the "noisy" building works took place which "inevitably led to tensions." Ben explains how "some neighbours even took to filming the workers and posting footage on Twitter and tagging the police, in a misguided attempt to find wrongdoing." Dealing with neighbours' complaints was a widespread problem for self-builders during the pandemic, despite "construction work being allowed to continue during the lockdown," Ben remarks.

Also, due to "lockdown supply issues," several of the products he specified, such as the roof slates, couldn't be sourced. "We originally wanted to use diamond-shaped roof slates for the loft conversion, however only the regular rectangular slates were available." On top of this, the family were living in a one-bedroom flat during this phase, "which was challenging at times!" says Ben.

LIGHT & HEAT

The project added a four metre extension to the rear of the house, creating space for a bright dining room with a large triple-glazed circular rooflight.

To combat the lack of natural light on the ground floor, some of the partition walls were completely removed, enabling light to flow through the rooms and resulting in "a brighter, open plan space."

Full height glazing at the back provides a connection to the outside while offering views out to the somewhat jungle-like garden. The extension is contemporary in its design, but its exterior harmonises with the existing structure; the grey render is the same as that used over much of the rest of the home's exterior. Built using a 'super insulated' SIPs panel system including 172 mm of high performance insulation, the extension makes a large contribution to the project's sustainability credentials.

Upstairs, a full-width rear dormer, replacing the original roof timbers, creates space for a TV

LOW POINT

"Realising how much work still needed to be completed after moving in day!"



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An important goal of Ben's minimalist approach was to "focus on the beauty of the textures in the natural materials"

room and the combined shower and utility room. Ben explains that a further new timber structure created an "additional dormer over the rear outrigger roof" to provide a small loft bedroom.

These alterations have created highly functional spaces, while making carbon savings from avoiding steel in favour of timber. The home's layout now includes a large open plan kitchen/ living/dining space filled with natural light on the ground floor, plus five bedrooms and two bathrooms on first and second floors.

INTERIOR

The interior boasts a strikingly minimalist design. With uncomplicated, streamlined forms and simple finishes such as greys and whites, the home achieves a 'less is more' aesthetic. "I enjoy clean and minimal spaces because they help calm the mind after a busy day," says Ben. He adds that an important goal of the minimalist approach was to "focus on the beauty of the textures in the natural materials."

The key material palette is limited to oak, lime plaster and natural limestone, creating a calming environment within the living spaces. Ben explains how these materials were carefully selected to minimise the number of deliveries to site, helping to reduce the project's embodied carbon. Parts of the home have been stripped back to reveal the original structures. The ceilings throughout the ground floor have been removed to reveal the timber joists. Moving through the interiors, further timber elements are introduced which add warmth to the minimalist design. In the master bedroom Ben used Douglas fir floorboards and joinery details. The kitchen and all the wardrobes are based on IKEA carcasses, with bespoke fronts in oak-faced plywood.

The interior lighting, supplied by Orluna, has been designed to "provide pools of light" with a warm colour and "very good colour rendering," explains Ben. Complementing the minimal feel, the light fittings are kept simple – on the ground floor they are part concealed within the exposed joists. LED strip lights form accent lighting in the kitchen, bathrooms and master bedroom. Viabizzuno pendants in the living areas and master bedroom provide "candle-like" spots of light which highlight the spaces' natural textures and materials.

ECO MEASURES

The home is filled with high-insulating materials and triple glazing; this alone has improved airtightness as well as "dramatically" reducing the property's energy demand, says Ben. As a further means to reduce embodied energy,

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a timber structure was used "wherever it was possible," including the suspended floor in the extension as well as the loft conversion. To avoid "energy intensive" steel box frames, masonry nib walls were retained on the ground floor.

A single combi boiler powers the underfloor heating (UFH) which runs throughout the home. "In practice, however," says Ben, "only the ground floor UFH is required; this is generally enough to heat the entire home." While he admits an air source heat pump would have been a preferred option, the £15k investment that it would have required was unfortunately slightly out of his budget.

The project has been externally as well as internally insulated, which was achieved under permitted development. The external insulation was installed to 170 mm overall – one layer at 140 mm and the other at 30 mm. Ben explains the reasoning: "This meant we could stagger the boards to remove gaps and therefore reduce the possibility of cold bridges." He adds: "This required extra time to install, but it wasn't difficult." The thick insulation has achieved Passivhaus-level U-values of around 0.15. The front of the home was insulated internally, so the Edwardian facade could be retained.

With it being a highly insulated, air-tight build, Ben installed a Mechanical Ventilation with Heat Recovery (MVHR) system. As these systems can take up a large amount of space, the supply and extract pipe runs had of course to be considered at an early stage of the design process. To accommodate the ducting, ceilings have been dropped in the hallways at upper floors. In addition, a riser was concealed behind a new partition wall next to the staircase, containing ducts running between floors.

COMPLETION

The finished result offers a simple, clean and contemporary set of spaces, providing Ben and his family with a calm and minimal home that works for them. The combination



Ben's ambition was to create an "exemplary demonstration" of how a traditional terraced building can be adapted to reduce energy use

of its eco features results in the home only producing annual CO_2 emissions of 4600 kg CO_2 e, and achieves what Ben set out to do, of turning a standard London home into a sustainable building.

In terms of functionality as a family, Ben says he is "really happy" with the open plan spaces on the ground floor. He adds, "it works well for family life and also when friends come over. Often in London homes, living spaces and kitchens are split over different floors or different parts of the house, so it's great to have all the living areas together in one space."

He is delighted with the natural materials: "The natural limestone is a pleasure to see every day. The way that sunlight catches it and reveals the ancient fossils is fantastic!" One interior design feature that he's particularly happy with is the continuous curtain in the main bedroom that "works really well to create a cosy space." Overally, the house is "warm and comfortable throughout the year, and is a real joy," he enthuses.

Ben has one final learning to share from designing this highly energy-efficient house. Namely, the importance of "airtight tapes and membranes being installed carefully. Architects need to ensure it's carried out properly, and that the site workers understand the products and principles of airtightness."



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or a limited time only, Grand Designs Live are offering free tickets to their upcoming event this spring at London's ExCeL. This bi-annual event also takes place in Birmingham's NEC in October, and will be packed with inspiration for those looking to find information. By visiting you can learn everything you need to embark on your very own self-build project.

Be influenced by over 400 exhibitors, spanning across four different sectors: build, kitchens and bathrooms, gardens, and interiors. Discover architects, building suppliers, and kitchen designers, as well as unique bespoke furnishings and designs alongside original pieces of artwork and much more.

Alongside this, there will be an expert advice zone where specialists are available all day for a sit-down one-toone session, ensuring you'll have all the solutions to your building and renovation problems. These consultations are available on a first come, first served basis throughout the show, and visitors are encouraged to bring along their plans, drawings, budgets, and questions to make the most out of their session.

Further to all this, live talks will be taking place where you'll be able to listen to an array of industry experts at the



Interior Stage, Grand Magazine Theatre and Sustainable Future Theatre. *Grand Designs* presenter Kevin McCloud, and the grand designers from the show, will also be giving their impressions. Talk topics will include ' unlocking the secrets of futureproofing,' energy saving ideas to make your house eco-friendly, 'self-build simplified' and many more.

Also at ExCeL this year, Mini Grand Designers will feature Year 7 children from Prendergast Ladywell School in south London, designing and making their own miniature model of a house they would love to live in, and including recycled materials such as cereal boxes and milk bottles. The panel of judges will announce the winner at the Grand Designs Magazine Theatre.



This year Grand Designs Live will also host a series of workshops that are practical and hands-on, teaching visitors new skills and techniques, across a variety of subject areas. After a busy morning of exploration and inspiration, visitors can enjoy a glass of bubbly, relax, and plan their afternoon at the Champagne Bar.

Your Grand Designs Live ticket will allow you free access to Green Living Live, which runs alongside the show. This is another inspiring and educational event, dedicated to showcasing eco-friendly products and services from companies that put sustainability at the heart of their business.

Article supplied by Grand Designs Live

WHEN & WHERE

To book your FREE tickets vist **gdllondon.seetickets.com** and enter the code: NTMMGD T&C's - This offer is available for standard tickets only to Grand Designs Live London 29 April – 7 May 2023. Tickets need to be claimed before 07/05/2023.



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StoneShow 2023

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f you are building your own home, you probably want to include natural stone. Whether it is limestone for your floors, granite for your worktops, marble in the bathroom, sandstone on the patio or slate on the roof, the chances are there will be natural stone somewhere.

You have probably chosen it because there is nothing that compares to natural stone when it comes to aesthetics. The fact that it is resilient and many consider that it even improves with age as it develops a natural patina is also probably part of its attraction.

But did you know it can also help reduce the carbon footprint of your home? And that is becoming increasingly important, with the Future Homes Standard (FHS) now only two years away.

The FHS will require all new homes to be built without gas central heating and to deliver a 75-80% reduction in carbon emissions compared with the current standards.

The idea is to build homes that will contribute less to global warming, both from the build itself and from the building's energy consumption in use. Stone can help with both.

Natural Stone is simply dug out of the ground as a product ready to be sawn, shaped and polished. There is none of the high energy heating required for the production of materials such as steel and cement, where the heat is still usually produced by burning fuels that put a lot of CO_2 into the atmosphere.

It is true the machines for cutting and



shaping stone use electricity, but the electricity is increasingly likely to be renewable, much of it already being produced by photovoltaic cells on the roofs of the stone industry's factories. And although stone does come to the UK from all over the world, it is transported in huge container ships, so the CO_2 per tonne of freight delivered is low.

In use, the thermal mass of stone makes an ideal accompaniment to underfloor (or behind tiling) heating to make the most of energy from heat pumps. Underfloor heating radiates heat into a room in the same way the sun does, so a comfortable temperature can be achieved with half the heating temperature of wall mounted radiators (which, in spite of their name, do not actually radiate much heat but rather heat a room primarily via convection).

With global warming, as much of a problem in the future will be cooling a

building, and here again, the thermal mass of stone has its benefits by helping to keep spaces cool.

Not all stones are the same, though, and choosing the right stone for any particular use is as important as choosing the right product for any other part of your build. To get a handle on stone, there is no quicker or easier way than by visiting the Natural Stone Show at ExCeL.

There you will be able to talk to producers and suppliers of natural stone, and if you want to dig a bit deeper, the associated seminar programme will offer more in-depth discussions.

You can plan your visit to the show (to see which seminar sessions might be of interest to you) by visiting the website, www.stoneshow.co.uk. The exhibitors are listed there, as well as the seminar programme.

If you prefer man-made quartz, sintered stone or porcelains, you can visit the Hard Surfaces exhibition which is also at co-located at ExCeL in conjunction with the Stone Show.

Stone producers are also working towards net zero by reducing their carbon footprints, such as by using renewable electricity and incorporating recycled materials in their surfaces. The show even includes some incredible new surfaces in its Material District – unlikely materials, some still in experimental stages, in a feature that visitors will find fascinating to explore.

Article supplied by Natural Stone Show

WHEN & WHERE

The Natural Stone Show will run from **6** - **8** June at ExCeL, London. Book your tickets now by visiting www.stoneshow.co.uk







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Marmox Slicedstone Veneer Sheets on display at show

Marmox will be displaying its range of NEW Slicedstone Veneers at the Natural Stone Show, held at the ExCeL, London on the 6th - 8th June on stand G48. For architects and interior designers looking for reliability coupled with visual appeal, the Marmox Slicedstone Veneers range is the perfect solution in areas that need dependable and durable performance. Ideal for bathrooms, wetrooms and any other room in the building or as an external cladding. Slicedstone Veneers are also ideal for coating doors & furniture, including garden furniture. The Sales and Marketing team will be on hand throughout the three days at ExCeL, showcasing all 13 flavours that are currently in the range. Displaying the beautiful colour variations of natural Indian stone, the new Slicedstone Large Format Veneer Sheets are available in three sizes – 1,220 x 610 mm, 2,100 x 1,050 mm & 2,400 x 1,050 mm.

The Marketing Manager for Marmox, Grant Terry, commented: "We at Marmox are very excited by the interest customers have shown in this new product, as well as its many design possibilities. It offers the beauty of natural Indian stone, in a practical, easy to install solution. Weighing just 2.5 - 3.0kg per square metre, they are flexible, easy to cut and they fit well into Marmox UK's growing range of products!"



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A GREEN GIFT FOR MUM & DAD

Octogenarians Keith and Ann Lewis' new home was not just a labour of love, but a real family affair, with the couple engaging the services of their son and daughter-in-law to create a self-build that combines barn-inspired architecture with ecology-friendly technology

TEXT JESS UNWIN IMAGES CHRISTOPHER TERRY PHOTOGRAPHY



ark and Jess Lewis have succeeded in providing a place for Mark's elderly parents to live at the bottom of their garden – but to call it a granny annexe would be a million miles from the truth, and do no justice at all to the remarkable eco-friendly home they've helped to create.

That new home caters perfectly to the needs of Keith and Ann Lewis, who are both in their eighties, yet also features a spectacular doubleheight central space, plus heating and power solutions with impeccable 'green' credentials.

What's more, this building is not quite what it seems, with walls erected using structural insulated panels (SIPs) – still not quite a mainstream construction method in the UK – and clad entirely in brick slips.

The house is not really at the bottom of Mark and Jess's garden either. Instead, it's in one corner of three acres of land in the Nottinghamshire village of Normanton on Trent. Three acres that include the couple's own Grade Two-listed 18th century home.

The new 21st-century self-build addition comprises a central block with an open-plan ground floor, where the kitchen/dining space flows into the double-height main living area. Here, the north-facing wall is almost entirely glazed, with two sets of French doors and windows above.

Striking open-tread oak stairs take you to the mezzanine-style first floor, which sits above the

HIGH POINTS

"We sit here sometimes and think how lucky we are – the new house has made such a difference to us. For all of us, finally getting the stairs to the first floor was special. And the first time you're up on the mezzanine you get a proper sense of what an amazing space has been created here."





The home features a spectacular entrance space and a mezzanine level, but also includes heating and power solutions with impeccable green credentials

kitchen/dining space, and is currently part office, part home gym. With the double-height space stretching to the apex of the roof, it's abundantly clear the architecture deliberately echoes agricultural barn design.

Off the main living area are two ground floor wings. The west wing contains a small plant room, family bathroom and two bedrooms, one of which is currently being used as a snug. The main (ensuite) bedroom for Keith and Ann is in the smaller east wing, across the hallway from the south-facing main entrance.

It was in 2017 that a plan was first hatched to build a new home for Mark's parents, who at the time were living in a bungalow in Llanhilleth, a village about 15 miles north of Newport in south Wales.

The key design goals were clear. Ann says: "Besides the space and light we didn't have at the bungalow, the initial idea was a house with two bedrooms and open-plan living areas all on one level, in case of any future mobility issues we might have."

Almost all of Ann and Keith's completed new home, which they moved into in April 2022, is indeed on the ground floor, but how has it come to include the double-height space and mezzanine first floor?

Mark explains: "None of us knows what the future holds. We were building it for my parents, but Jess and I were also wondering if it might be something we might live in at some point.

"We've lived in barn conversions before and loved the open space of the double height. Our architect really bought into that idea early on so that design feature is myself, Jess and the architect, while the rest of it is down to my parents. Overall, it's an amalgamation of all of us really.'

Ann says: "It's bigger than we originally expected but that's a bonus and I love it as it is." She adds: "It's good to know that when our days are done Mark and Jess have something that will be a sellable asset or that they can live in themselves."

Everyone's happy with the end result of this self-build project but getting to the finishing line - finally crossed with Building Regulations sign-off in January this year - was not always straightforward.

The plot the house now sits on was previously partly occupied by two old cottages, which the local planning authority originally wanted Mark and Jess to renovate instead of building something new.

Uninhabited for decades and structurally unsound, the cottages weren't viable for renovation. The planning authority agreed they could be demolished, but also decided that the SIPs structure of the proposed new build would have to be clad in brick slips.

"That was a major issue for us," says Mark.

LOW POINTS

"Evidence of bats in the old cottages delayed their demolition and resulted in costs of up to £5,000 for various bat surveys. Another headache was the decorating that we did ourselves to save money. The double-height central area was a particular challenge, it's more than 5 metres high and took us a week using a borrowed builder's scaffolding tower!" Mark Lewis



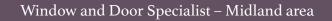
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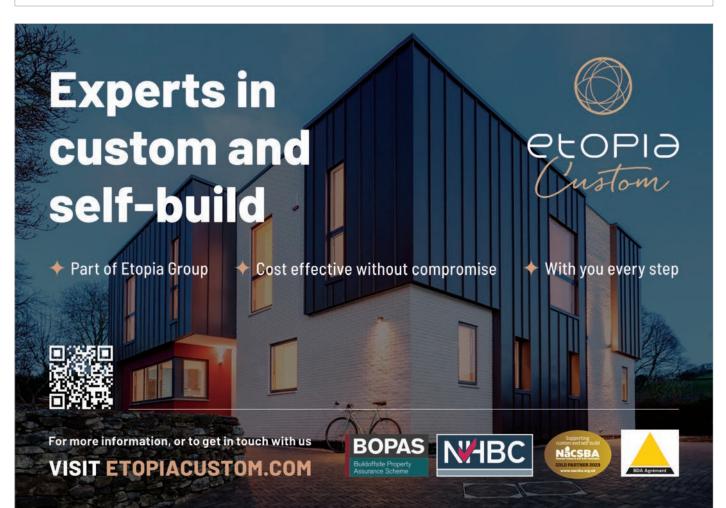
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The initial idea was a house with open-plan living areas all on one level, for any future mobility issues

"Not only did it increase the costs by £15,000 but we wanted to go with a timber clad because the design was barn-inspired. Timber would have been a third of the price and a lot quicker to put up."

The slips, effectively tiles glued to the SIPs, still needed mortar pointing like real bricks – an exercise that turned out to be an "absolute nightmare" and took close to a month, reveals Mark. The final brick-like render is now both convincing and attractive but cost £30,000 for the slips and labour.

However, everyone agrees the biggest challenge within this project was not the cladding, but the earlier, costly, problems with foundations. After demolition of the old cottages and general site clearance in spring 2021, it became clear that strip foundations for the new building were not appropriate and pile foundations would be necessary.

"It was quite depressing," says Mark. "It took us six months to find someone to do the piling, which in the end cost close to £20,000 more than the strip foundation quotation we'd had. It knocks your confidence, something like that so early in the project – you wonder if the rest of it is going to be similar."

Construction proper began in October 2021. Happily, the SIPs used to form the core structure of this self-build provided a welcome fillip, by moving the project on at a rapid pace. Mark says: "From flat foundations to the full house in position with just open roof and rafters took just more than 10 days – so the speed of using SIPs was quite exciting." Why SIPs? Mark explains: "One underlying principle of this self-build was to keep energy bills low. My dad was already thinking about some kind of prefab approach and SIPs are both an efficient way to build and provide good insulation. At the time I was also working with a company specialising in this kind of construction, so it seemed the obvious way forward."

The panels, which simply slot together, are in this case a sandwich consisting of magnesium oxide board on the outside, with a thin layer of galvanised steel on each edge, and insulating polyurethane foam on the inside. This gives the panels a high insulating strength. The design of the interplay between the SIPs and elements like doors and windows also helps to cut heat loss – as does the insulated roof.

Besides the insulation, it's the ecologicalfriendly heating that helps to keep energy bills low with an underfloor system fed by a Daikin 6 kW air source heat pump. While an unobtrusive outdoor unit sucks in air, the ingenious exchange of heat between air and water happens in an integrated tank, which is tucked away in the plant room.

The pump is powered by electricity, and solar panels installed on the south-facing roof of the west wing which can produce 3.4 kW of electricity. This means that, at times, the house generates more electricity than it uses, and Keith and Ann are paid for any excess electricity they export to the National Grid.

Not surprisingly, being a director at Airway Group, which provides air conditioning, electrical and mechanical services, Mark has done the

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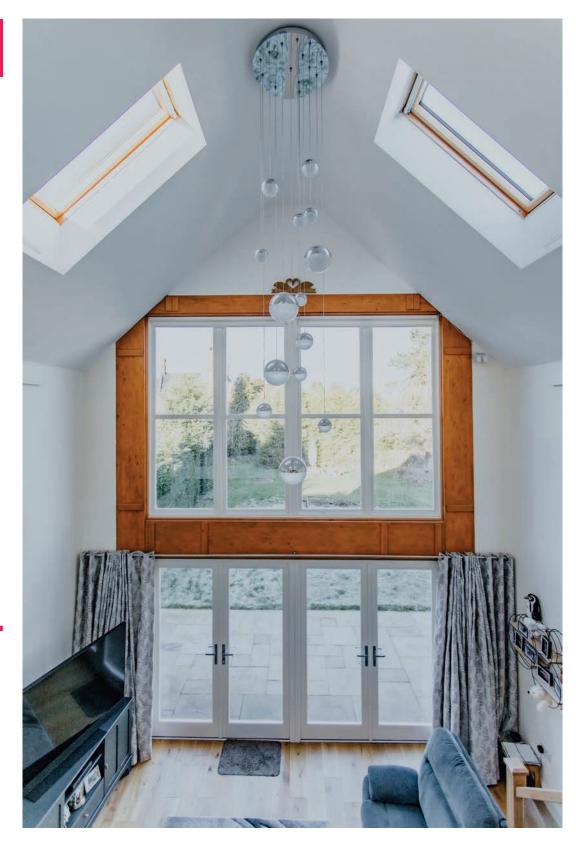
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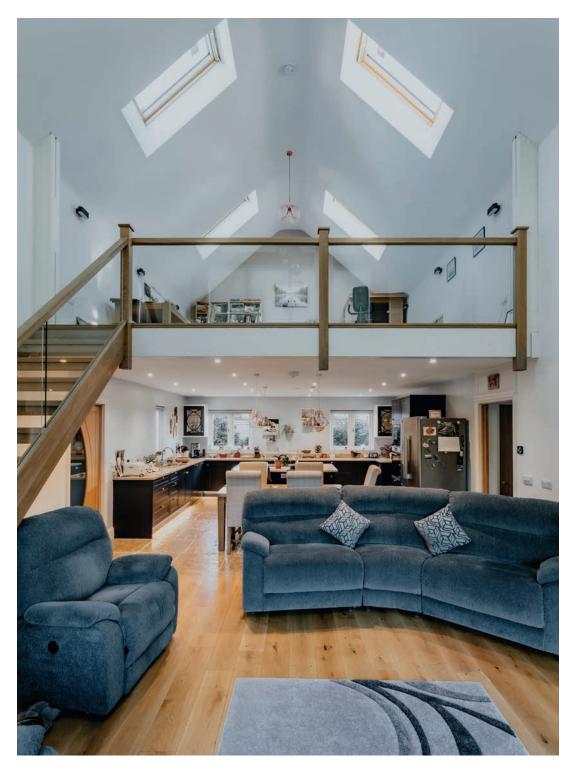


maths on the house's heating system. The heat pump has an impressive coefficient operating performance (a ratio of useful heating to energy required) of well over 4.0. The annual electricity costs of Mark's parents' new home are about a third of those at a similar size of the house using the current capped tariff of 31p/kWh.

Underlining this house's environmental credentials, there's high-spec double glazing

– plus it also boasts a mechanical (natural) ventilation with heat recovery (recycling) system. Not only does this control oxygen and CO_2 levels, it means the air going out heats the air coming in. There's no air conditioning for warmer weather, but skylight windows in the double height roof of the main block should help to get rid of excess heat.

Mark and Jess had a "notional" budget of



MARK'S TOP TIPS FOR SELF-BUILDERS

• "Your relationship with your builder is so important. We know and trust our builder, which made the project a joy. Aside from the SIPs shell, the heating and some of the other mechanical stuff, his company did everything else, and we were totally in their hands."

• "It's tricky to envisage drawings in the real physical world: something can turn out to be bigger, or smaller, than you imagined on paper. So, work through every detail with your architect and try to visualise it, ask questions about the plans and keep revisiting them. Maybe think about 3D modelling – that might have helped us!"

• "This house is for my parents, so the fact they were in temporary accommodation nearby during construction was invaluable. My dad was involved in all the inside finishings and would visit the site every day, but if questions came up outside those visits, the builders could get answers from my parents very easily."

– Mark Lewis

between £300,000 and £350,000 for this selfbuild project. In the end, the total build cost was £419,000. Mark says: "Unanticipated costs didn't help but we also experienced the biggest rise in building costs this country's probably ever seen. Without that hike I don't think we'd have been far off our original figure." There's no mortgage on the self-build with the sale of Keith and Ann's bungalow providing £200,000 and the rest funded by Mark and Jess.

Mark says: "I'm very pleased with how the new house has ended up. It still feels slightly unreal – did we actually do this? But really, my parents were so involved in the building that it feels like Jess and I just enabled it rather than being the ones who completely drove it."

Jess adds: "For me, it's such a precious thing to have family around and it's lovely that we've been able to give Keith and Ann this sense of security with a new house that's really been a labour of love."

The final word should of course go to the couple enjoying the benefits of this wonderful new home. Ann says: "Keith and I are so grateful to Mark and Jess – it wouldn't have happened but for them."



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Triton waterproofing range looking good for basements

A Leicester based company which specialises in waterproofing and the construction of high specification basements, as well as the upgrade of existing sub-structures, has made extensive use of products from the range of **Triton Systems** in creating a complex new extension to an old farmhouse in Northamptonshire for a private client. Careful consideration of the water-proofing and damp-proofing detailing is always essential when constructing a basement, but in the case of the Northamptonshire project the situation was made even more challenging due to a very high water table and persistent bad weather during the work. As an approved installer of the Triton Systems, Beautiful Basements employed half a dozen of the well-proven products to create a large-scale, fully waterproof sub-structure that offers a ten year guarantee along with insurance backed guarantee. The products include TT admix incorporated into all of the waterproof concrete mix at the batching plant, Tri- Cream for the injected DPCs, three variants of the Platon drainage membranes, a pair of sump pumps and one of Triton's high level alarms. The Operations Manager for Beautiful Basements, Mike Connelly, comments: "Importantly for us, the products are very reliable and feature innovative technologies as well as being easy to use, while Triton Services provide very good customer service."



01322 318830 www.tritonsystems.co.uk

New Aluminium & Heritage Rainwater Systems brochures

Yeoman Rainguard, renowned throughout the industry for the manufacturer, supply, and installation of quality rainwater products, has launched two new product brochures. The aluminium brochure showcases the highly commended XL and SL range of Aluminium gutters and downpipes and introduces, new to the market, Yeoman Rainguard Aluminium Flush Fit Downpipes and Aluminium Security Downpipes. Another new addition is the Squareline range of Aluminium Fascia Soffits, Copings, and Cills, already proving popular in the commercial market.

Yeoman Rainguard's Heritage brochure contains a wide choice of systems and materials that perfectly suit heritage and listed building renovation projects and those that prefer the more traditional feel. A printed version of the new brochures are available on request or can be downloaded from the website, www.rainguard.co.uk.

As always Yeoman Rainguard takes great pride in the expertise gained over 40 years in the market and customer services provided, such as free site surveys and samples, help clients make the right choice of rainwater systems for their construction projects.



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As right as rain

You don't need to compromise on aesthetics or function when choosing a rainwater system for your home – Yeoman Rainguard explains why

Ding your calculations is key when it comes to installing the right rainwater system. To ensure that gutters and downpipes carry rainwater efficiently away from the roof and safely down to the drains, it's best if a calculation of the water runoff from the roof is done – to ascertain the right pipe or gutter size required to avoid overspill and water ingress to the building.

A good rainwater supplier will, as one of their services, offer these calculations and suggest adequate sizes and profiles.

The number of gutters, downpipes, and accessories should also be quantified for an accurate quotation to be raised, resulting in, when an order is delivered, all elements arriving on site to ensure a complete first-time fitting negating timewasting and re-ordering.

If you are confident, you can do the measurements for gutter, angles and pipe drops yourself, though suppliers can establish these quantities from architectural drawings if available. Some will offer a free site survey giving that extra security of the right quantity of products and fitting components for the project.

FUNCTION WITH AESTHETICS

With such a wide choice of products and materials now available, it is easier than ever to pair optimum performance with style. Select a profile that goes with the character of the house. For gutters, usual profiles are MOG, COG, half round, or box, with a choice of round or square downpipes.

A contemporary look can be enhanced with simple shapes and a smooth finish adding to clean lines. For a heritage feel or to dovetail into classic design, or indeed to adhere to planning regulations, the more traditional profiles coupled with a textured surface are ideal.

A wide range of BS, RAL, or other ranges are now available to choose from, from a traditional black to a shade to match gutters and downpipes to fenestration, for example, such as an on-trend grey. Also, bold and contrasting shades are available.

Gutters and downpipes can be



manufactured from a variety of materials. Which one you choose should be addressed on the basis of quality, durability and economics, with a thought also to be given to eco-friendly options.

Aluminium is a popular choice, being a very available and resilient material. Opt for an extruded product manufactured from 2 mm (or thicker) aluminium as it will be more robust and less prone to damage. Usually finished in a polyester powder coating to guard against the elements, aluminium systems will offer 30+ years of service, depending on environmental factors.

Aluminium is also a well-regarded 'green' material used by the housebuilding industry, being 100% recyclable. This eco-friendly credential along with its long-life cycle helps to reduce the carbon footprint of your building project.

Cast iron is the most traditional product for rainwater systems and is accepted for listed buildings and conservation areas. With a protective paint coating again, they can offer long service but require a re-paint every ten years or so to keep their condition. Before buying cast iron it may be wise to investigate if aluminium gutters would be an acceptable cost-effective alternative that is lightweight and easier to handle while still retaining that traditional feel.

Copper and zinc systems can offer a unique finish to a house facade. They are ultimately long-lasting and very eco-



friendly. However, be prepared for the change in patina with these materials, the shiny surface will not last, as natural oxidisation takes over to change the hue.

MAKE INSTALLATION EASY

Whether you chose an installer or go DIY to fix your rainwater system make sure all fitting information is easily available from the supplier. Most instructions are now in quick 'how to' video formats and followed correctly will make installing quicker, easier, and fault-free, minimising the risk of malfunction later.

Seek out a good, recommended plumber or roofer who is competent in fitting your choice of system. If you are taking on the installation have the correct tools to hand, i.e., chop saw, cordless drills, screwdrivers, and a silicone gun. Remember safety must come first so scaffolding is highly recommended if you are carrying out the work as a homeowner. Suppliers can also provide an installation service that offers peace of mind for a safe and accurate fitting process.

Taking time to research products, colours, and suppliers will go a long way to providing the finest working – and looking – rainwater system for your home building project. Take advantage of the technical knowledge and experience a renowned provider has, as well as the services they offer such as free site surveys and samples will help to ensure a successful result.

Build a low carbon dream home with VELFAC Composite Glazing

t won't be long before windows in new build homes have to meet minimum U-values of only 0.8W/m2K – all part of the Government's drive to achieve net zero emissions by 2025. U-values this low are difficult to achieve with double glazed windows and doors and so selfbuilders are turning more and more to triple glazed window solutions for their homes.

'Scandinavian style' triple glazed windows are increasingly cited as role models for future window design. VELFAC – founded in Denmark over 50 years ago – is the archetypal 'Scandiwindow' manufacturer. With a slim frame to maximise the daylight, VELFAC windows and doors combine durable aluminium on the outside and natural wood on the inside, and come with a number of benefits:

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- Cost effective solutions triple glazing are only marginally higher than double glazing thanks large scale manufacture in our European factories
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STOUR HOUSE, SUFFOLK

This beautiful, contemporary family home features generous swathes of VELFAC triple glazing on every floor, providing far reaching views over the River Stour while also flooding every room with plentiful natural light. Stour House was purpose-built by award-winning UK design and build company Facit Homes, with a brief to replace an existing cottage with 'an exemplary piece of contemporary architecture that was sensitive and responsive to its location'.

The result is an innovative, modernist home with a striking facade. On the upper floor, large VELFAC triple glazed windows are deep set into splayed reveals which add external drama to





the western red cedar facade. External aluminium VELFAC frames are finished in pale grey, complementing the red cedar as it fades to silver while also fitting seamlessly into the aluminium panels that create the dramatic reveals. In contrast with the more structural upper floor, expansive full height triple glazing – fixed and opening – brings transparency to the ground floor and maximum daylight into the interior.

A Scandinavian aesthetic inspires an interior design of white walls and grey cement floors, with cedar-clad ceilings and balustrades add warmth and texture to living spaces. Internal timber VELFAC frames are painted white and then 'plastered in', creating the illusion of frameless windows which simply capture the view beyond. The triple glazing also plays an important role in the sustainability of Stour House by helping maintain a consistently even temperature in every room, even across the open plan ground floor.

VELFAC COMMITMENT TO THE ENVIRONMENT

VELFAC strives to become an even more responsible window and door manufacturer by continuously adapting



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- The VELFAC slim frame profile allows up to 15% more light to enter every room, boosting solar gain and reducing the need for artificial light
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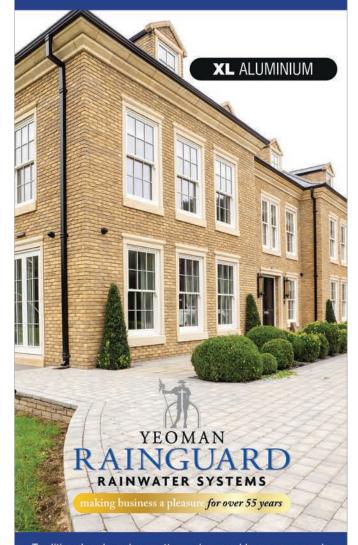
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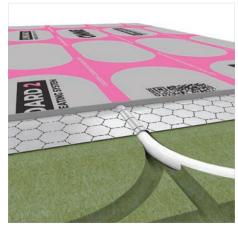
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New LowBoard 2 underfloor heating overlay

OMNIE, the award-winning UK underfloor heating specialist, has launched a new, low profile, overlay panel, LowBoard 2, the latest upgrade to its industry-leading LowBoard panel which transformed the overlay market when it was launched in 2012. LowBoard 2 consists of routed lower and upper panels with a combined profile of just 18 mm, making it the thinnest overlay system on the market. Its predecessor, LowBoard, had a lower panel profile of 15 mm but, like other overlays, LowBoard 2 is quick and easy to install and offers outstanding heat performance thanks to its innovative design. It has a 15% higher heat output than its predecessor and a 40% higher heat output than other unfoiled low build-up systems or alternative overlay solutions. Its lower and 'over' panels have pipe channel sthat tightly sandwich and encapsulate the warm water pipe. The routing follows OMNIE's patented multi-also ensuring the warm water pipe can be easily laid around any planned room layouts. The channels are spaced 150 mm apart for optimal heat output and transfer. "We're very excited by how LowBoard 2 could help transform home heating and the requirement for low-carbon energy systems in the future," says Brendan Hourican, managing director at OMNIE.



01392 363605 www.omnie.co.uk

Stelrad compact 900mm high radiators



As part of its programme of providing radiators to operate well with renewable heating systems – powered by air source and ground source heat pumps – **Stelrad** has announced that it will be launching a range of 900 mm high radiators in a variety of widths in quarter 2 2023. Head of Marketing Chris Harvey said: "There is a clear need for larger size radiators to cope with the lower circulating system temperatures generated by renewable heating systems and we are making sure our installer and specifier

customers have access to the full range of options they will need in the months ahead... We're making sure that installers and specifiers realise fully that radiators are 'fit for the future'."

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a free ventilation design service, National Ventilation is a great option. For further information on National Ventilation's sustainability goals, please visit their website.

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Dik Geurts stoves for chimney or freestanding installation.



stablished in the Netherlands in 1981, Dik Geurts stoves and fires are now produced by DRU, one of Europe's leading fireplace companies.

Soaring energy prices have provided a welcome boost to wood stove sales. Consumers are looking for cheaper and greener sources of home heating that can be supplied and installed rapidly to alleviate punitive home heating bills.

INCREASED PRODUCTION AND DISTRIBUTION

This market uplift has led to DRU increasing production and distribution of its Dik Geurts Ivar selection of classic and contemporary stoves, which align with British and European emissions



and efficiency standards. They are a popular choice to replace older, inefficient stoves or open fires.

The Dik Geurts Ivar series also includes the Aste, Soren and Modivar models. These stoves are based on classic designs, making them ideal for traditional or modern homes. They are easily installed into Class 1 chimneys, with their dark anthracite colour finishes blending perfectly with any style of décor.

A+ ENERGY LABELS AND HIGH EFFICIENCY

Each model in the range has an A+ energy label, with an efficiency rating of over 80%. And for added air quality, there are external air and room-sealed



options available.

All stoves in the range are Ecodesign ready, so they comply with European standards for low emissions and clean burning. In addition, they have HETAS, DEFRA and clearSkies approvals.

FREESTANDING AND WATER HEATING OPTIONS

For homes with no chimney, customers can choose from a range of freestanding models, which are available in a selection of sizes and capacities with built-in wood storage.

In addition, The Ivar 10 H2O Store model is an Ecodesign 'boiler stove' with a substantial 4.7 kW room heating output and 5.5 kW of water heating power. It provides supplementary water heating for radiators, showers and general domestic hot water.

Commenting on the success of the Dik Geurts range, DRU UK general manager Niall Deiraniya said:

"The Dik Geurts Ivar series and its associated models are among the best performing and best value wood stoves in Europe. That is why we are committed to increasing their production and distribution throughout the UK.

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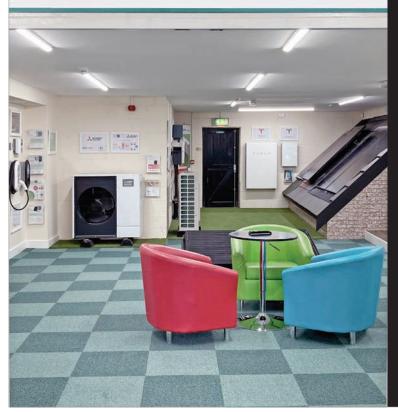
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CASE STUDY

CLASSICAL CONCERT

Imagination and creative space planning saw an Edinburgh apartment refurb bring all the elements together to give the owners the ideal composition **TEXT** NIK HUNTER **IMAGES** ZAC+ZAC



When grandparents Alan Patrick and Cynthia Croatti spotted this West End apartment in Edinburgh in January 2020, they snapped it up without even viewing it in person. Their son, daughter-in-law and two grandchildren were living on the ground floor and basement of the building, and they knew it would make the perfect base for them when visiting. However, while their son's home benefitted from beautiful period features, their first-floor apartment was going to need rather more creative input to become the stylish city pad they were hoping to enjoy when they were staying in Scotland.

With their main residence in America, Alan

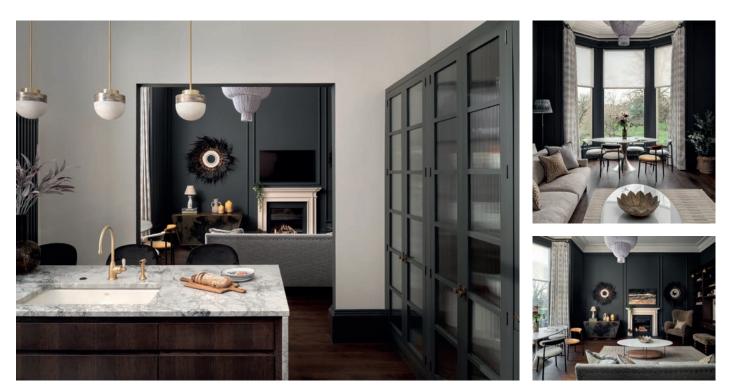
and Cynthia were looking for a home from home when they came to Edinburgh. Through their son and daughter-in-law, they were already knowledgeable about the building and the area in which it sat, but while the city centre location was spot on, the condition of the property inside was lacking aesthetic appeal. "The exterior architecture was lovely," Alan recalls. "Internally, it was very basic, and had been untouched for many years. It required a complete renovation in all aspects both decoratively and functionally."

Having come across Jeffreys Interiors online, the couple approached the company even before the sale had gone through. "This was brilliant from our point of view," says Carley

HIGH POINT

"It's hard to come up with a single high point. It's really a combination of all the elements coming together, the scope and scale that creates the impact which we love" - Alan





"From a designer's point of view, it's good to have clients who aren't afraid to say what they don't like"

Kyle, one of Jeffreys' lead designers. "The property had never been modernised; it didn't even have central heating! It was a complete rip out, back to the bones."

Alan and Cynthia's brief was for a cosy, stylish, and comfortable Scottish home. "I asked them to send me images of things they liked from an interiors and style point of view," Carley explains. "They also referred us to a previous project of Jeffreys' that they had seen and loved from the website. They were good at giving me ideas right from the start as to their likes or dislikes. From a designer's point of view, it's good to have clients who aren't afraid to say what they don't like; this is just as helpful to your design team than telling them what you do like!"

SOME STRUCTURAL CHANGES

Aside from the visual brief, there were also some structural changes on the wish list such as adding an ensuite for the principal bedroom, a utility room, a small WC, and relocating one of the bedrooms and kitchen. Carley's first point of call was therefore to Edinburgh-based architects, GLM. "We had to do a lot of space planning and produce different layout options for the property. We don't have in-house trades teams, but we do work alongside some excellent contractors that we've established good relationships with over the years, and we love getting involved with projects like this." Carley and GLM put their plans to Alan and Cynthia through a series of Zoom meetings and eventually they were whittled down to a final floor plan.

The original layout which consisted of a kitchen, bedroom and bathroom at the rear of

the property, and a sitting room and second bedroom at the front, is now a distant memory. The kitchen has been relocated to the front and the wall between the bedroom and sitting room has been removed to create an open plan kitchen/dining/living space. A new dividing wall was then erected in the kitchen to incorporate the utility and WC. "In the middle of the property there was a room which wasn't large enough to be called a boxroom, but it was bigger than a normal cupboard," Carley recalls. "We borrowed from that to create an ensuite for the principal bedroom."

This 'borrowing' still left a cupboard in the generously proportioned hallway which was crying out for a bit of creative impact. "The door to the cupboard faces you as you enter the apartment, and we didn't want to simply have a door." Carley worked with cabinet makers Peden & Pringle to construct a bookcase and secret door, and while the space is essentially still just a store cupboard, aesthetically it's much more interesting. "It was just one of the type of fun details that the owners were up for."

Another of these fun details is the delightfully inventive 'doggy' space in the utility room. As Alan and Cynthia's dog travels with them, the couple asked for a designated space for the dog bed. Peden & Pringle made all the cabinetry in the property along with the secret door/ bookcase, and it was they who suggested the little pull-out drawer for the dog bowls. "It's a lovely detail, and as a dog owner myself it made me so happy as I'm forever tripping over the water bowl!"

Peden & Pringle also worked their magic

LOW POINT

"To be honest I don't think there was a low point. The teams we worked with were all fantastic and everything ran very smoothly – which I don't get to say too often!" – Carley



"There was a bit of back and forth with planning because of the new layout"

with the bespoke cabinetry in the bedrooms where Carley was keen to maximise the limited storage opportunities. "Many of the Edinburgh properties we work on have beautiful high ceilings which are impressive but look ridiculous with average-sized wardrobes. They look like furniture from a doll's house and it's a shame to waste all that space especially when many of these properties don't have an attic or under stair storage." By going bespoke, Carley was able to build the wardrobes right up to the ceilings and adding a ladder system which hooks on and off when required is a practical and stylish solution.

Surprisingly, although the proportions of this period property are what one expects in this part of Edinburgh, the other details were something that this home was sadly lacking. Bizarrely, the ornate features one would expect were nowhere to be seen. All the cornicing, ceiling roses and the beading detailing in the living room and hallway were added by the contractors. "This is unusual for a property of this age and style in Edinburgh. It hadn't been modernised, yet it had no architectural features of note in it, and we have no idea why." Carley adds: "We've also been inside many of the properties nearby and of course we've seen the client's son's home which is in the same building, and it has the most beautiful period features."

Bringing back these features did however stand Jeffreys' Interiors in good stead with the planning department. "There was a bit of back and forth with planning because of the new layout but demonstrating that we were going to upgrade the cornicing and create an apartment that was more in keeping with the rest of the apartments and how this would improve the overall building certainly helped our case."

There was one original feature that Carley was keen to save but sadly, although the original wooden flooring was also untouched, during the renovations the decision was made to renew it. Carley's plan had been to retain it, but with the installation of new plumbing and electrics and the relocation of the kitchen it proved impossible. "With all the work that had been carried out, it was beginning to look like a patchwork quilt, and as everything else was brand new we made the decision to replace all the flooring, so it didn't look out of place."

Once the structural changes were complete, Carley and her team set to work on the decor – opting for a muted, dark colour scheme to create the cosy but stylish Scottish vibe that the clients had asked for. While this scheme is certainly on trend, it was also chosen to create the appearance of space, as Carley explains: "Keeping the same tones and colour palette throughout helps the rooms flow into each other – nothing jars."

Other 'designer's tricks' were also applied to help this flow such as staining the doors on the kitchen cabinetry to match the sitting room colour scheme and fitting satin brass handles throughout to provide continuity and link the rooms together. The same concept was applied in the principal bedroom and ensuite, where the taps are either satin or brushed brass, and were selected to complement the light fittings and sockets in the bedroom.

"I think one should always spend the same



CONTACTS/ SUPPLIERS

PROJECT MANAGER/ INTERIOR DESIGNER

Jeffreys Interiors jeffreys-interiors.co.uk

ARCHITECTS

GLM weareglm.com

MAIN CONTRACTOR BANN banngroup.co.uk

KITCHEN/CABINETRY

Peden & Pringle pedennadpringle.com

BATHROOM PANELLING Orac Décor

oracdecor.com

BATHROOM FIXTURES

Albion Bath Co. albionbathco.com

Cast Iron Bath Company castironbath.co.uk

London Basin Company londonbasincompany.com

LIGHTING

Visual Comfort & Co. Visualcomfortco.com

Heathfield & Co. heathfield.co.uk

Porta Romana portaromana.com

amount of time designing a bathroom as any other room in a property; bathrooms shouldn't be utilitarian, they should feel just as welcoming as a bedroom or living area, and never cold or clinical."

To achieve this welcoming ambience, Carley suggested the use of Orac and Wall Deco panels. Made of duropolymer, Orac looks like wood but is incredibly lightweight, versatile and easy to paint. These panels were fitted in the ensuite above the bath and disguise the door to the storage cupboard where the every day bathroom paraphernalia is hidden. On the other wall, Wall Deco bathroom panels were fitted. These panels look more like wallpaper but are actually made from a thick hessian material which is treated so that it is suitable for use in bathrooms and showers.

"Carley's ideas, colour palette, decoration and decor all fitted our wish list," says Alan. "Her bold use of colour and texture really resonated with us and while we hadn't thought about the use of large, bold patterned wallpaper and dark colouring beforehand it all works wonderfully well for a city pied-à-terre."

"It helped that Alan and Cynthia were very trusting," says Carley. "They have done several renovations in the States, and they knew the









importance of enlisting an expert team, building a good relationship with them and then letting them run with what they all do best."

In Carley's case, it was the strong colour scheme that she wanted to run with. "Large scale designs and dark colours on walls are bold but as long as you bring in good lighting and accessories that can stand up to them, it's an effect that works really well even in smaller properties. This wasn't a huge property, but the clients really pushed the whole team to get everything into it," Carley remembers.

"For a small footprint, this property works incredibly hard. When the clients came over mid-renovation, it really was a building site and then the next time they saw it was when they arrived a couple of days before Christmas to move in. That's when we made it a full turn key experience. The tree was up, the wreath was on the door, and everything needed was in the kitchen from glasses to cutlery. I think it was a lot to take in, but they were delighted."

Cynthia summarises her feelings about the flat: "It is absolutely gorgeous. I love the colours, textures and the light fittings in particular, and the hidden closet was a fabulous idea. I also adore the Julian Chichester chest in the sitting room; Jeffreys have redesigned the interior to create a bar space, it's a wonderful feature." Alan concludes: "The collaboration between the architects, builders and designer proved to be a winning combination. It's been a pleasure."

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ACKOBOARD® from JACKON by BEWI offers many benefits for self-builders who are installing wetrooms or bathrooms. JACKOBOARD® is a waterproof, weight-loading and thermally insulating construction board for use in all types of tiling jobs.

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The NHBC Standard states that "backing surfaces may require protection from a suitable tanking system".

"This guidance is completely

correct," says Martin Harragan from JACKON by BEWI, "but it should not be interpreted to mean that if you are using an XPS backerboard, such as JACKOBOARD[®], you have to tank the entire substrate of your wetroom. The closed structure of an XPS board means that it is totally impossible for water to pass through it, in the way that it would through a fibre cement board for instance."

This is useful information for self-builders and the various trades who get involved in the installation of wetroom systems, from the shower tray upwards. Although there are wetroom specialists, this job is often down to plumbers, M&E contractors, tilers, dryliners and flooring contractors. So, as wetrooms continue to increase in popularity, there are different trades who need to be aware of the benefits of XPS backerboards.



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Welcoming family zone with SterlingOSB



When architect Daniele Sini bought Ravensbourne House with his partner, he was unimpressed with the poorly constructed rear extension. The challenge for the family was that they had very little left in the budget for remodelling the kitchen. Daniele used **West Fraser's** SterlingOSB Zero to provide a durable finish that would also add natural colour to the kitchen walls. "I liked the texture of OSB and its warm colour variation; this is emphasised by the morning sun to give the space a warm

glow," says Daniele. "I also liked that SterlingOSB Zero is robust, but primarily I liked it because we were looking for something that was cheap because our budget was so tight." he laughs.

uk.westfraser.com/resources/architect-support

Covering practicalities

From increasingly popular large formats, to the importance of meeting British Standards, The Tile Association looks at technical tiling issues in bathrooms

Tiles are among the most durable and stylish finishes that can be chosen for any bathroom or wetroom. Driven by consumer fashion and product innovation from manufacturers, tiling offers beautiful and practical solutions for wall and floor finishes in the bathroom.

Often self-builders may wish to replicate the look that they have seen overseas or when leafing through home decor magazines. They also recognise the many benefits of tiling in the home – providing a long-lasting finish that is hygienic and easy to maintain.

Product trends are helping to drive our enthusiasm for tiles, with an increasingly wide range of size, shape and texture options available. This means more choices and inspiration are available to the self-builders.

The latest trend in tile sizes is towards the larger format versions. Gone are the days when 4 in x 4 in wall tiles were the only option. Currently the trend is towards increasingly large tiles and panels of up to 1600 mm x 3200 mm. The use of these types of tiles reduces grout lines and maximises the impact of the tile design, helping to create a really strong statement for any bathroom.

While the design opportunities in tiling are greater than ever, it is important that the technical issues associated with installing a tiled surface are fully understood, and that all work is carried out to British Standards. Following the release of the latest British Standard BS5835-1: 2018 Wall & Floor Tiling, there are particular requirements regarding the need for mechanical fixing of large format tiles in certain installations.

Other changes in the current standard include the removal of plywood as a suitable background for tiling – installers should use a suitable bespoke tile backer board instead.

Ensuring that moisture is not able to penetrate the substrate behind the tiles



is hugely important. The British Standard says that for wet areas, such as showers, tanking of the substrate may be required, using either a membrane or paint-on system. According to the manufacturers of bespoke XPS (extruded polystyrene) backer board systems, only the joints between their boards need to be taped, since XPS is itself 100% waterproof.

Bathrooms increasingly feature underfloor heating systems (UFH) nowadays, as knowledge of the benefits and ease with which UFH can be installed has developed. Industry estimates indicate that the market has been virtually doubling annually in recent years. It is not difficult to appreciate why this is the case, since UFH provides a cost-effective, comfortable and unobtrusive heating solution.

Its use enables building designers to meet modern energy efficiency regulations, reducing the carbon footprint of buildings and allowing for the implementation of contemporary design concepts. Self-builders may also look at underfloor heating as a point of difference and a good USP on the resale market. The use of UFH with tiling transforms what was traditionally viewed as a rigid and cold surface, into a warm and welcoming environment.

UFH installations can also be tied to renewable energy sources, because of



the lower running temperatures of the technology, and this concept appeals to consumers who aspire to a zero carbon house, as well as those who just want to reduce their fuel bills. It therefore seems certain that the UFH will continue to grow in importance.

Electric matting systems tend to be more prevalent in smaller installations of less than 20 m^2 , such as bathrooms, and they are less disruptive to install, but they are more expensive to run, maybe by 30 to 40%.

The installation of such systems, particularly wet systems, is not always problem-free, and care should be taken to ensure they are installed according to British Standards.

Another area of concern when installing a tiled surface is slip resistance. Slipping is the single most common cause of injury in the UK, comprising 40% of all injuries.

Ceramic tiles are not inherently slippery when clean and dry, but the slip resistance of any type of floor covering can significantly drop if it becomes contaminated by any form of lubricant, such as water or dust, depending upon the floor's surface texture and footwear used. Retailers should be able to advise on which floor tiles offer the best slip resistance, and which are most suitable for use in the bathroom.

Ensuring that moisture is not able to penetrate the substrate behind the tiles is hugely important

Snug fit

Individual style is in and creating a snug room is a great way to show it - says Crittall Windows. Planning a new look for your home? It seems anything goes these days - the trend is for individual style. With many of us spending more time at home, householders are increasingly design savvy in creating a personal style to reflect their lifestyles. "An impactful way is to be inspired, be adventurous - be you, " says Russell Ager, managing director of Crittall Windows, a pioneer of bespoke steel frame window manufacture for almost 180 years. Creating a cosy snug room is a great way to show individuality and very in vogue. As is sharing natural light throughout your home. While the nature of a snug is to make it comfy, clever use of glazing via internal steel screens, doors and windows made to order to your personal needs - ensure light is let in throughout the home and they look stylish, without compromising warmth and cosiness. For example, matching combinations of Crittall's minimal profile windows and Innervision internal glazed steel screens with sliding or hinged doors are bespoke and designed for modern living, providing a light and airy sense of space. Their elegance and clean lines, subtle detailing and excellent technical properties can transform your home's look. They make a snug room – although small by its nature – seem bigger, with the added benefit of keeping down your heating bills by using a smaller area.



01376 530800 www.crittall-windows.com

Electricity substation now a carbon neutral family home

Located on the moorland of Cornwall, a 12-metre tall stone building, originally an electricity substation, had been abandoned since the 1960s. Damp had taken its toll and the building had fallen into a state of disrepair. Cornish couple, Abi and Morveth, decided to take on the colossal renovation challenge.

Being surrounded by nature inspired many of their decisions on the renovation, including the choice of environmentally friendly and breathable Claypaint throughout the property. Inside, the walls are lime plastered so it was important to use a paint that wouldn't block the breathability. Earthborn Claypaint is a highly breathable emulsion that allows buildings to breathe, reducing damp and condensation.

The couple used Claypaint in light neutral hues Feather Pillow and Tom's Bakery, making the most of the natural light that pours into the building through large windows. In the kitchen, White Clay complements both the natural rustic aesthetic of the decor and exposed brickwork. The finished masterpiece is a carbon neutral 3-bedroom property. For further information, visit the Earthborn website.

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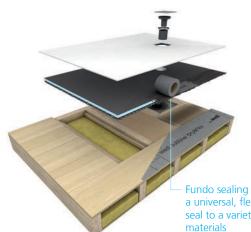
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CASE STUDY

IN PURSUIT OF PEACE

By having their own 'forever' house built on the grounds of the long-standing family home in the village of Dinnington, near Rotherham, South Yorkshire, Alison and Jonathan Berry have found peace, in all senses of the word **TEXT** JAYNE DOWLE **IMAGES** DUG WILDERS





A lison and Jonathan Berry have embraced multi-generational living, with their larch-clad contemporary one-bedroom bungalow just a short stroll up a neat sleeperedged gravel path from the large 1960s fourbedroom house where their son, George, 29, his wife, Ashleigh, 28, and their own children, seven-year-old twins Norah and Grace, and Harry, two, live. They have named their new home 'Mtendre House,' which means 'peace' in Chichewa, the language spoken in Malawi.

Alison (who's 56) explains: "Jonathan's late father used to go there a lot, and Jonathan thought that this would be a meaningful thing to do." The Berrys own a family business repairing gearboxes and transmission systems for lorries, which is also based on the six-acre plot.

They had an aim to build their own home which was designed to maximise every centimetre of its 50.4 m² internal space and to provide high-performance energy-saving standards. They also wanted to be on hand as the children grow up; Alison and Jonathan were already used to being in close proximity to the next generations.

"We lived in a motorhome on the grounds for about four years," Alison explains. "We bought it to go travelling around the UK, exploring Scotland and the rest of Yorkshire."

However, Jonathan's mother, Elaine, who originally owned the main house, had an accident and suffered a gradual deterioration of her health. So her son and daughter-in-law decided to set up a home in their motorhome in the garden so they could be on hand to help, but each party could retain their independence. When Elaine died a couple of years later, Jonathan and Elaine asked their son George if he would like to move into the main house with his young family. Having already sold their own family home in Worksop, Nottinghamshire, they eventually began to formulate a plan to build their own new permanent home, with the proceeds of the sale helping to fund the project.

But first they needed an architect, and found Paul Testa and his team at HEM Architects in Sheffield on Google. Alison says: "We were keen on finding someone who would be happy to go down the environmentally-friendly route, and being in Sheffield [15 miles away] he wasn't too far away from us either." Paul, whose awardwinning practice has a strong reputation for creating family-friendly low-energy houses and extensions and retrofitting existing houses, was up for the challenge. He took the approach of building the house as an annexe, designing a single-storey, "very low-impact building" as it would meet the criteria for permitted development rights.

Paul didn't do a specific thermal model, but followed HEM's standard best practice. He believes that this project is performing as well as most Passivhaus builds. His major regret is that if he was building it now, he would likely specify an air source heat pump, rather than the gas boiler.

"The annexe was constructed using a highperformance timber frame and an Eternit fibre cement roof," he explains. "We used breathable wood fibre insulation to make the construction as efficient as possible. The wood fibre is heavier than most other insulation, meaning the building stays cooler in periods of hot weather."

HIGH POINT

"Our first evening in the finished home, and the kids running up the path, shouting 'Grandma, Grandad!'"

— Alison

LOW POINT

"The mess of the groundworks, and the delays of materials arriving on site – which was due to either Brexit or Covid" – Alison



"The height and the variation of the angled roof has been designed to give distinction to the different areas within the open-plan living room" – Paul Testa

Paul combined this highly-insulated approach with high levels of air tightness, triple-glazed windows and an MVHR system. This means that the building is very energy-efficient, with what Paul calls "an incredibly low energy demand."

He says Alison and Jonathan told him that since moving into their finished house in the autumn of 2021, they have only switched on a radiator once; there are just two, one in the living room and a heated towel rail in the bathroom.

Is this really true? "Well, put it this way," laughs Alison. "Last night it was about minus five outside, we got up this morning and the living room was 17 degrees. We have a gas boiler, a gas hob and an electric oven. Our energy use is certainly very low. Our monthly bills are somewhere between £50 and £70."

Delays and supply chain hold-ups "caused by Brexit and Covid", according to Alison, meant that the build took around three months longer than the planned six months.

However, the biggest challenge was creating a liveable home within such tight constraints. "It's certainly the smallest one we've ever built and designed – kitchens are bigger than this!" says Paul. "Unlike some people, however, Alison and Jonathan didn't have unrealistic expectations of what could be achieved in a small space."

He believes that although turning 50.4 m² into a liveable home tested his design powers, the end result feels generous and spacious. It's laid out on a simple plan; the main open-plan living/dining/kitchen space measures 30.24 m². The shower room and bedroom stack up

neatly beside each other, with the bathroom and kitchen walls adjacent to make fitting the services simple and cost-effective.

BB Grade birch plywood (the general commercial grade) was used as internal cladding for the exposed-beam internal roof/ceilings – and to face the fitted kitchen and bedroom furniture the main contractors built. Paul says it "helps to pull the internal space; it tricks the eye into making the area seem larger." He adds: "I'm really glad that Alison and Jonathan like the idea of plywood," Paul says. "It's been around for a long time, but also it has that mid-century thing of being modern but not fashionable." The walls have been plastered and painted white to complement the plywood.

The house has an open-plan living room and kitchen, plus a bedroom and a bathroom. Not a centimetre of space has been wasted. The whitetiled bathroom (white being chosen to enhance the sense of space) has a step-free, walk-in shower. This is a way to maximise the tight proportions of the room, and is also designed as a future-proofing measure to help Alison and Jonathan with any future mobility needs.

Full-height cupboards and wardrobes in the bedroom store all the couple's immediatelyneeded clothes and footwear, but other items are kept elsewhere in the main house or in storage. There are a number of outbuildings in the garden, plus the motorhome for overspill, which means in-built storage in the new house could be kept to a practical minimum.

The kitchen cabinetry, also designed by the





contractor, mirrors the bedroom, creating a pleasing symmetry as Alison and Jonathan move through the different parts of their home. Kitchen appliances, such as the fridge and microwave, are mostly built in, as is the TV in the bedroom. This trick saves space as these items don't protrude out into the room.

Paul employed further clever design tricks to prevent the internal space from feeling too boxlike and focused on bringing in as much light as possible to elongate the sense of space out into the garden: "The height and the variation of the angled roof has been designed to give some distinction to the different areas within the openplan living room. And all the windows make it feel open."

To add a sense of grandeur, the ceiling is higher over the dining area, but drops lower to create a cosier and more intimate feel to the living area, which even incorporates a corner office space. A large glazed sliding door allows easy access to the veranda, and a separate main door is also glazed. Polished stone-effect floor tiles reflect available light too.

Jonathan did much research beforehand and there were many features he wanted to include. "The internal timber cladding was important to us," he says. "We have visited a place in Cyprus a number of times which inspired us, and we loved the open-plan living idea. It just seems simple and open. We had a good idea of what we wanted and it was brought together by Paul on our first meeting."

The couple were very clear that they wanted

their new home to be one storey, not just to meet permitted development rights but because they wished "to keep things simple and practical for older age".

Another idea that Jonathan and Alison really wanted was the veranda which runs along the front of the house. Held up by deceptively strong timber posts, it creates a covered external canopy over the full-length terrace, simply and effectively extending the living space, especially in warmer months. "It is also practical when the sun is strong, as it helps to shade the house, it's a lovely area to sit and chill, and it looks good," says Jonathan. "It was designed by Paul with a few tweaks from us."

Jonathan and Alison say that they both contributed equally to the initial planning and ideas for their new home, but they trusted the experience of project architect Claire Taylor at HEMS, to professionally manage the project. "Jonathan is a very hands-on person," says Claire, "But as he's running the business he didn't really get involved with anything practical. However, we did feel very invested in it. You're living on site and seeing everything happening in front of you. So you see it all from the very first day to the very end. It was a good experience, but also makes it a little stressful; you're very invested."

The build was undertaken by main contractors Jordan and Somerfield Joinery, a firm based in the nearby South Yorkshire town of Barnsley, which Paul had employed on his own home in

CONTACTS/ SUPPLIERS

MAIN CONTRACTORS

Jordan & Somerfield Joinery www.instagram.com/ jordanandsomerfieldjoinery

MVHR UNIT & WINDOWS

Green Building Store www.greenbuildingstore.co.uk

CLADDING

Russwood www.russwood.co.uk

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STRUCTURAL ENGINEERING

JAM Structures jamstructures.co.uk



Paul believes that this project is performing as well as most Passivhaus builds

Sheffield. "We have nothing but praise for these lads – Sean, Ryan and Jonathan," says Alison. "From the first moment we met them to the finished home they exceeded our expectations and left us as friends."

Paul makes an interesting point, in explaining that for a self-build project, the £162,000 total build cost was very reasonable. Despite this, the project's scale meant that the cost per m² of £3,240 is relatively expensive, especially considering the plain and simple finishing and overall style of the house. "You're paying a joiner to come, for instance, so there are always going to be initial costs connected to the set-up," he explains. "So there is that lack of economy of scale on one level. However, because the size [of the house] is compact, you can get to choose more superior materials."

Paul is very pleased that the finished house has the "moments of delight" he tries to include in every project: "You've got to be able to see beyond the home. So, for instance, at the front you can look in either direction and see out into the landscape." This is thanks to the verandah, but it's also a practical addition, giving Alison and Jonathan extra living space, particularly in the warmer months. And because it overhangs the windows, it shades the windows to counteract overheating in very hot weather.

While Paul thinks now that the clerestory window across the front of the house isn't quite as large as he would have liked it to be, it still helps to flood the living space with light. In fact, both Alison and Jonathan say that they love to gaze out of the windows; Alison to watch wildlife – which includes kestrels and pheasants – in the garden, and Jonathan to spend time looking at the Pennines, which loom in the distance to the west of their house.

And of course, the home helps them look out for their three grandchildren, and they've been a constant, naturally evolving part of the story. Alison says that even before she and Jonathan built their house, they would have them over to sleep in the motorhome. "George and Ashleigh and the children moving into the house has been a kind of gradual process." She adds that because the family business is also based on the same site, everyone is already used to getting along with each other on a daily basis.

Would they ever consider undertaking a selfbuild project again? Alison shakes her head: "This has felt like a once-in-a-lifetime experience and we wouldn't change anything. We really wouldn't like to do it again as this has been so special."

Converted to spirals

Installing and designing a spiral staircase for a conversion project is now simpler than ever, as Richard Harding of British Spirals & Castings explains



onversions offer a great opportunity to transform an unwanted building which is steeped with character, into a beautiful home. There are hundreds of such projects waiting to be discovered across the country, from disused barns and churches, to older homes which have fallen into disrepair. In many cases, to make the most of the space, homeowners are looking to add mezzanines, new floors, or new access routes to get from floor to floor. This means finding a staircase which works for the space.

However, getting a perfect fit is not only about picking the right style and design of staircase, but also being able to adjust for walls and floors which can be far from straight. The latest technologies are now making it much simpler and faster to get an accurate fit when fitting a bespoke staircase.

SCANNING YOUR SPACE

The tape measure is still the go-to way of measuring out for a staircase in most cases. However, when you're dealing with a large space with walls which can undulate in and out as they rise, we find the best solution is to turn to a LiDAR camera. This is a laser scanner which



works much like radar, firing out a signal and measuring the time it takes to return. By doing this repeatedly, it is able to plot where points are in space, creating an incredibly accurate 3D point cloud which can then be used in computer aided design (CAD) modelling software.

The latest models of camera are able to merge this 'point data' with photographs of the project. By positioning the camera at different points in the room or around the building (if it's an external staircase), it's then possible to create a recognisable digital recreation of the space, as you can see in the images above. This can all be completed with just a few hours work, first capturing the images, and then processing them in the CAD software.

Once the image is processed, it's easy to make subtle adjustments within the CAD model to aspects such as the design and orientation of treads and landing plates, the location of fixings and the dimensions of openings in the upper floor or balcony. It also makes it much easier to visualise how the staircase will actually look at the design stage. With a bespoke staircase, this means you can get a clearer sense of how different design choices such as the staircase materials, spindle or tread patterns, types of handrail and even finishes will look in your house.

The staircase can then be manufactured with a high degree of precision, regardless of how complex or 'out of square' or 'out of plumb' the space is. This helps to ensure a much easier installation process – avoiding any unnecessary delays or surprises. The LiDAR images and outputs can also be useful for your architect, allowing them to plan further features as part of their own design processes.

CHOOSING THE RIGHT DESIGN

In addition to dealing with the potential quirks of the building, it's also important to give some careful consideration to which staircase style can help you make best use of the space, and provide that all important accessibility.

The most suitable design will depend on a variety of factors. For example, in an open-plan church or barn conversion, a large straight staircase can provide a focal point for the room. Helical staircases, which curve but have no central pillar, can also offer a great statement piece in large open-plan spaces. Alternatively, if you're looking to maximise the useable floor space, then a spiral staircase can provide a much more compact alternative that is just as at home in the corner of a space as it is in the middle of a room.

In all cases, we strongly believe that for large conversion projects, it's best to opt for a bespoke staircase, rather than a kit staircase bought from an online store. While the upfront cost of these may be somewhat higher, what you end up with is a staircase which truly matches your taste and makes the most of the space. All aspects can be carefully tailored from the width of treads and the pitch angle of the staircase, to the choice of materials and even the patterns used for the spindles and treads. Manufactured pieces specifically for your home may mean lead times are longer, so it's important to consider this at an early stage.

Richard Harding is managing director at British Spirals & Castings



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Sustained efforts

Johanna Elvidge at Marshalls shares her advice for building sustainability into your home's outdoor space to bring life-long benefits

reating a sustainable home is now a top priority for self-builders, from locally sourced materials to energy efficiency measures. When it comes to your outdoor space, there's plenty you can adapt to your design and add in once your initial build is complete.

Begin by focusing on what you can source locally. Use a good mix of native and non-native plants to benefit pollinators, and consider flowering times to make sure there's something in flower all year. Ensure plant success by choosing the right plants for the soil type and position in the space; your local garden centre can advise if you're unsure.

When it comes to planting, you can use reclaimed building materials instead of topsoil, diverting them from landfills and reducing the need for extra materials. The low nutrient levels in rubble are perfect for growing wildflowers; leaving some spaces to grow a little more 'wild' is great for biodiversity.

Including habitats for wildlife within your garden design is another excellent way to support biodiversity. Creating piles of stones or logs within planting areas provides shelter for insects and invertebrates, and it's another opportunity to reuse building waste on your site.

Buildings and pavements absorb and retain more heat than natural land, affecting health, energy use, biodiversity, water consumption and air quality. Trees and plants can help offset this as they increase the amount of shade and sun protection while also cooling the surrounding areas.

Shaded surfaces under trees can be up to 11-25 °C cooler than unshaded surfaces, making them both useful and attractive. A building with a living wall or suitable climbing plant growing on it can impact both the outdoor and indoor temperatures, meaning less energy is required to cool inside in the summer or keep it warm in the winter.

When it comes to hard landscaping, you should consider permeability as well as selecting British-made or quarried materials. Whatever the material, it's often harder for water to soak into



the ground where it lands, leading to overwhelmed drains and flooding. You could consider permeable paving or grass paving flags to get around this.

Permeable paving looks like regular block paving, but has a defined joint width and material, ensuring water can seep through the joints and reach the ground rather than run off into a drain. Grass paving is similar, but this type of solution forms more of a grid system, where the grass is encouraged to grow through the openings in the block. This has the additional benefits of increasing biodiversity and potentially lowering the temperature around your house on very hot days.

WATER REUSE

Reusing rainwater is an excellent way to reduce water consumption to benefit the environment – and your bills. It's generally thought of as collecting the run-off from buildings via the guttering and storing it in tanks, but a simple water butt will do a great job if you're short of space. For a



stand-out sustainable design feature, you could create a rain box planter connected to a garden nature pond, with a tap and overflow onto a permeable surface.

Greywater is wastewater that comes from the home. Showers, baths and dishwashers are good sources; depending on use and 'after-treatment,' some are suitable for use elsewhere around the home. Water from washing machines and sinks is harder to reuse, and isn't recommended for your garden.

Greywater systems come in all shapes, sizes, and levels of complexity, but most have the standard features of storing the water, then a treatment process and a way to get the water to where it's needed. As greywater contains organic matter, it does need some treatment if you store it for more than a few hours to minimise potential health risks.

The most straightforward way to implement a greywater system at home is to collect it from your shower or bath, and then allow it to cool for a few hours, allowing any debris to settle. You can then use this directly on non-edible plants. Using untreated greywater on fruit or crops is not recommended, and you should never mark it as safe for human consumption. Where looking to store and use greywater for more than a few hours, you should install a more robust system, ideally with treatment.

Johanna Elvidge is head of design at Marshalls

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