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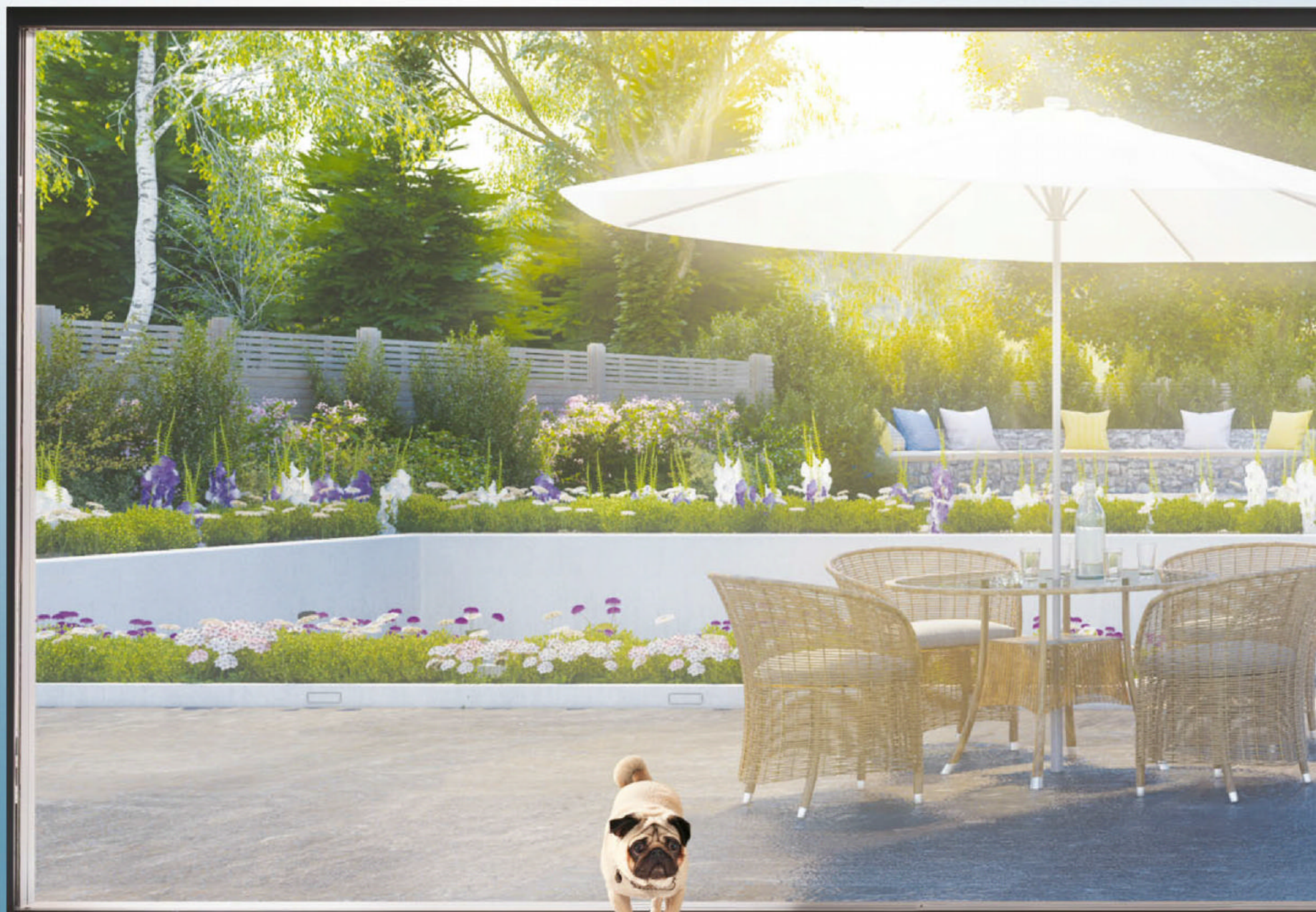
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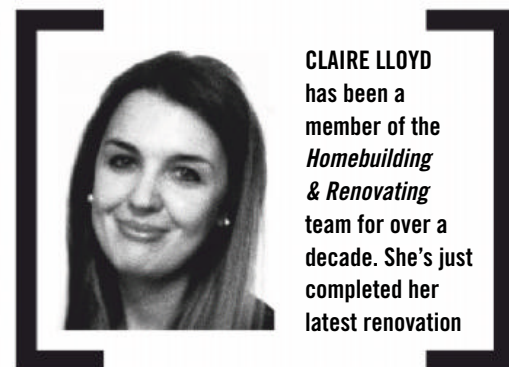
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EDITOR'S LETTER

Perhaps it's too early to make a judgement just seven months into the year, but if 2019 is to be known for any two things, then Brexit and our increasing focus on the environment will, undoubtedly, be at the forefront. (Fortunately, I won't be giving my two pennies' worth on the former here.)

Whether we're reporting on the latest green innovations and building techniques or explaining what you need to know about renewable technology, we've always tried to push the eco agenda in the pages of this magazine. And, more importantly, self-builders have always been a pioneering bunch; many companies have you, as early adopters, to thank for helping to develop fledgling industries and for bringing their products into the mainstream.

This month, we continue this long tradition with a special focus on creating a low-energy home: Architect Neil Turner lends his expertise on designing an energy-efficient home (page 70); Nick Robbins



CLAIRE LLOYD has been a member of the *Homebuilding & Renovating* team for over a decade. She's just completed her latest renovation

reveals 15 ways to build a more sustainable house (page 133); David Hilton discusses how to use concrete more efficiently (page 31); and eco expert Tim Pullen offers his opinion on building plastics (page 43) and advises on low-energy lighting (page 164).

On this theme, our cover house (below) has a remarkable energy-efficiency rating of 99 out of 100 and an environmental impact rating of 100. (Read more about Roderick James and Amanda Markham's self-build on page 10.)

Elsewhere in this issue, self-build expert Mark Stevenson explains the legal issues to look out for – and avoid – when plot-hunting (page 157), and Natasha Brinsmead reveals how to renovate a semi-detached home (page 138). **H**



As early adopters of 'green' technology and building products, self-builders have always been a pioneering bunch



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MARKETING

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Eve Mulvaney 01527 834445
Group Marketing Manager
Anjuman Tariq 01527 834493
Marketing Manager
Hema Dhingra 01527 834483
Senior Marketing Executive
Alicia Maragh 01527 834402
Senior Digital Marketing Executive
Vicki Wilson-Lees 01527 834409
Marketing Executive
Kerry Waite 01527 834445

ADVERTISING AND EXHIBITIONS SALES TEAMS

Group Media Director
Mark Wright mark.wright@futurenet.com
Strategic Partnership Director
Jackie Sanders 01527 834426
jackie.sanders@futurenet.com
Print and Digital Sales Manager
Kelly James 01527 834471
kelly.james@futurenet.com
Print and Digital Sales Manager
Rebecca Vincze 01527 834415
rebecca.vincze@futurenet.com
For all media sales enquiries please contact
sophie.gill@futurenet.com or call 01527 834411

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PRINTED BY

William Gibbons & Sons

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Marketforce, 5 Churchill Place, Canary
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On the hunt for your next project? Plotfinder is a great way to discover plots and conversion and renovation projects up for sale.

Contemporary self-build

WORDS Natasha Brinsmead PHOTOGRAPHY Mark Nicholson & Nigel Rigden



The eagle has **LANDED**

Blessed with a stunning clifftop plot in rural Scotland on which to build a new home, architect Roderick James and his wife Amanda Markham needed to come up with an equally breathtaking design — and the end result doesn't disappoint





Any house lucky enough to be positioned in as beautiful a spot as the cliffs overlooking the Sound of Mull in Argyll needed to do the site justice — and there is no question that the location's new occupant, Eagle Rock, does just that. Designed and owned by architect Roderick James and his wife, interior designer Amanda Markham, Eagle Rock is as striking in its design as the location it occupies.

"We had already built two houses in this area," begins Roderick, whose family hails from Scotland. "Back in 2000 we bought a plot for just £15,000 and built a house there — so many friends wanted to come and stay with us that we ended up building another house just behind it!"

In 2012 Roderick's practice was approached by the Ardtornish Estate, the main landowners in the area, asking them to get planning permission for a new township to be built on the land.

"We were worried about how many people might want to live all the way out here," explains Roderick. "So Amanda and I decided to kickstart things by buying the first plot. We always thought that we would rent it out as a holiday home but we actually liked the house so much that we ended up making it our home and now rent out our old house."

The design Roderick and Amanda, along with architect Mike Hope, came up with for the plot was a symmetrical, elliptical-shaped house.

"We began with a round building," explains Roderick. "But I have found that people tend to find elliptical-shaped homes easier to live in — not only does the furniture fit in better, but it means rooms don't overlook one another. All four bedrooms in this house look out in different directions."

The planners were initially dubious about the non-traditional design of the house, with its three different roof types, all at varying levels, and generous proportions (the house is 400m²). However, Roderick, who started his practice in 1974, was able to persuade them that its low-lying form and planted sedum roof actually made it far less visible than some of the more conventional dormer-style homes on the site. The house is further bedded into the site due to the way in which its walls have been constructed to slope inwards from the bottom up, a technique often used by Roderick.

The final design fully embraces its exposed position and has been designed not only to make the most of its spectacular setting, but also to be as energy efficient as possible.

The house has been constructed using a primary frame of Douglas fir glulam beams, chosen for their stability and crisp, contemporary appearance.

"The exterior walls are constructed from 50mm thick Celenit woodwool panels, filled with 450mm of Warmcell recycled newspaper insulation (as is the roof)," explains Roderick. "Woodwool is made using wooden fibres encased in cement." A final exterior finish of self-coloured lime render gives the house its interesting, textural finish.

The northerly façade, to which the house is approached, has been kept deliberately austere, with small windows designed to minimise heat loss and retain a sense of privacy.



PROJECT NOTES

HOMEOWNERS Roderick James and Amanda Markham

PROJECT Timber framed self-build
SIZE 400m²

BUILD TIME April 2013 – July 2015

BUILD COST £2,000/m²

VALUE Unknown

BEDDED INTO THE SITE

The design for the house was originally round, but was changed to elliptical as Roderick (above, with Amanda) felt it would give better views and mean that none of the bedrooms would overlook one

another. The varied roof coverings include sedum, lead and glass. The south elevation of the house looks out over the Sound of Mull (bottom left) — huge triple-glazed argon-filled windows ensure maximum solar gain without overheating.

OPEN LIVING SPACES

The living room is located centrally and projects out from the south of the building, with views over the water beyond. The Scan stove was purchased from the Stirling Stove Centre.





Any sense of reclusiveness is dispersed on entering the property, however, as the double entrance doors open into a ‘compressed’ hallway and then straight into the soaring glazed entry courtyard.

“This main living area is open up to the sky thanks to the glazed ceiling,” says Roderick. “It is an extraordinary space and is light all day long. We never realised we’d spend so much time in here.”

This internal courtyard sits at the very heart of the house, separating the guest bedrooms from the main bedrooms. The amazing space is overlooked by a first floor gallery, accessed by sweeping staircases to either side. Here, a cinema, music room and games area, along with a library, sit beneath a sloping softwood tongue-and-groove ceiling.

The house has been cleverly designed to keep the ‘service’ areas of the house, such as the utility, laundry, cloakroom and larder, separate from the living spaces by locating them in the outer walls. “The wall that separates them from the rest of the house is solid concrete,” explains Roderick. “The larder, which is located on the north side of the house, always remains cold.”

To the rear, south side of the house sits the living room — a stunning space with 270° views of the Sound of Mull. This room flows into the open-plan kitchen and dining area, with French doors opening out to a deck beyond.

“The most important thing to me when designing this house was to avoid passages and corridors,” says Roderick. “I wanted every space to open up to one another so you never feel constrained. This means that your eyes can roam everywhere and take in the points of interest and texture that we have designed in.” And visual interest is everywhere, from the concrete arches tucked under the stairs to the rough finish of the Carlite undercoat plaster on the internal walls, which has a softness that Roderick and Amanda like for its homely appeal.

Appearances aside, the house is also incredibly energy efficient. “The house has an energy efficiency rating of 99 out of 100 and an environmental impact rating of 100 out of a 100,” reveals Roderick. “These ratings are driven by the inclusion of the 450mm thick Warmcell insulation in the walls and roof and the fact that all windows and doors have triple-glazed, argon-filled K Glass.”

All the electricity for the house is generated by 15kW of ground-mounted PV (photovoltaic) solar panels. Surplus heat is stored in the thick concrete beneath the timber floors, while heating is provided via wet underfloor heating, powered by an air source heat pump.

“Our monitoring to date suggests that we have no net electricity costs per year,” says Roderick.

“For us, this is the perfect house,” he continues. “We’re not moving from this one. We use every single bit of it even though it is a big house. We have lots of people up to come and stay but find that everyone has their own space.

“As an architectural practice, we have designed between 1,500 to 2,000 houses, and Amanda and I have designed 10 for ourselves — this one embodies everything we have learned during that time.” **H**





“

The most important thing to me in this house was to avoid passages and corridors

FRAMING THE VISTA

The house's primary structure is constructed from a Douglas Fir glulam frame, chosen for its stability and modern appearance. The beams, softwood tongue-and-groove ceilings and timber floors have all been washed with a diluted white undercoat, giving a soft, light finish and preventing the timber from turning orange over time.

INNER AND OUTER SPACES

The kitchen lies towards the centre of the elliptical plan and is open to the dining room and living spaces beyond. The house has been designed to incorporate 'compressed' areas along with soaring spaces to ensure there is visual interest everywhere. Texture is important too — the walls have been finished with a soft undercoat using Carlite bonding.









DRAMATIC ENTRANCE

The entry courtyard is topped with a huge elliptical glazed roof – from Roofglaze – allowing light to pour into the centre of this new house. Architectural interest is everywhere, from the concrete arches beneath the

stairs (the smallest one is for the dog), to the combination of glass and timber balustrading and spindles — even the woodburner flue has been turned into a feature, passing up and out of the glass ceiling. The woodburner is from Clearview Stoves.

FIRST FLOOR SPACES

The first floor gallery, overlooking the entrance courtyard, houses a cinema, music and games area, library and work spaces. There is also the provision for further occasional sleeping accommodation.



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SLEEPING SPACES

The four en suite bedrooms have been located to either side of the main living spaces, keeping guest rooms separate from the main bedrooms.

OUTDOOR ROOMS

Outdoor seating (left), located on a projecting timber deck, is sheltered by the overhanging roof — also featuring timber cladding.

SUPPLIERS

HOUSE AND INTERIOR DESIGN

Roderick James & Amanda Markham with Mike Hope:
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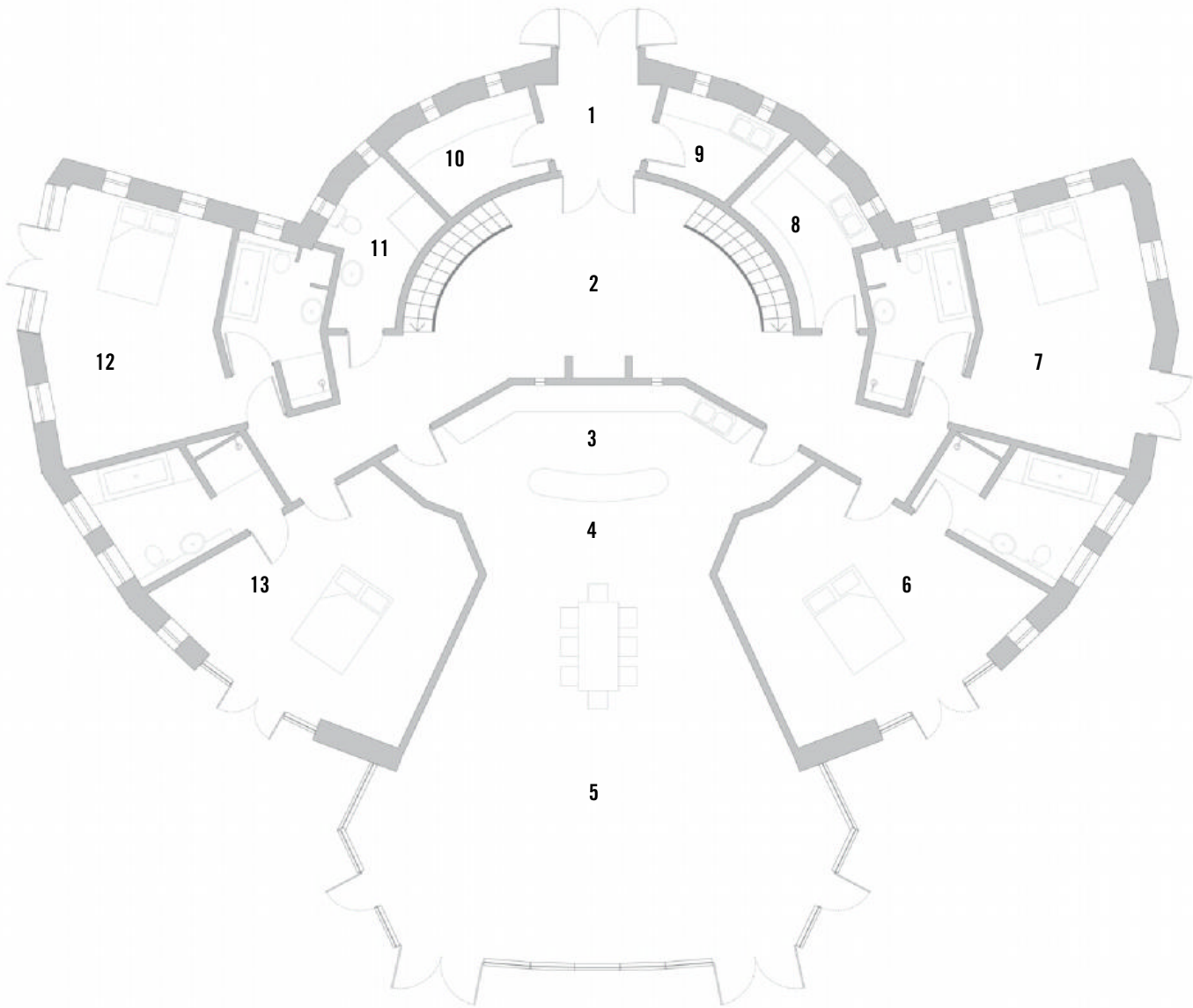
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THE FLOORPLAN

The outer walls of the house contain the service areas. Symmetrically located to either side of the main living spaces are four en suite bedrooms. The staircases in the entry courtyard lead to a first floor gallery (not shown) where a cinema, music and games rooms, study space and occasional sleeping space are all located.

- 1 Entry
- 2 Entry courtyard
- 3 Kitchen
- 4 Dining
- 5 Living room
- 6 Bedroom 1
- 7 Bedroom 3
- 8 Larder
- 9 Laundry
- 10 Cloakroom
- 11 Shower
- 12 Bedroom 2
- 13 Bedroom 4



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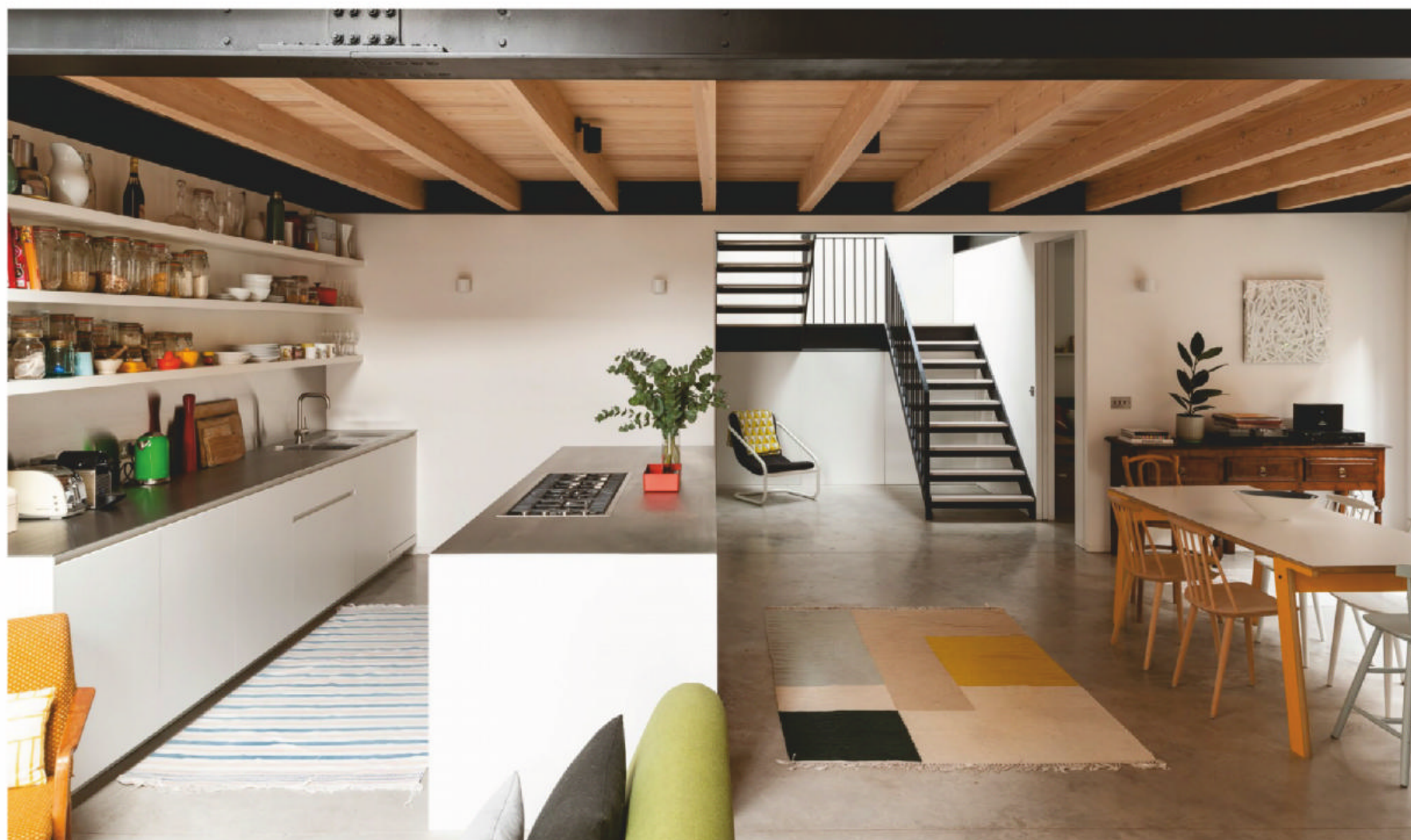
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OPEN HOUSE

London homes open their doors for world's biggest architectural festival

Over 800 buildings across the capital will be open to the public on 21-22 September as the world's biggest architectural festival, Open House London, is back for its 26th year. This year's programme includes free neighbourhood walks and architect-led tours, as well as the opportunity to be inspired by some of London's best designed private homes — including Whitechapel by Open Practice Architecture (above) and Step House by Bureau de Change Architects (left). For more information visit www.openhouselondon.org.uk.



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GOOD NEIGHBOURS

Residents in Cardiff have the nicest neighbours according to a study by Duetto, which found they scored the people next door 8.1 out of 10 — while people in London voted their neighbours just 4.1. The research found neighbours in the Welsh capital helped out by watching each others' homes or assisting with small chores such as watering the garden while on holiday, but Londoners were deemed the least considerate.

57%

of homes in the country
now have smart
technology to control
various chores around
the house, such as
turning lights on or off
and vacuuming.*

BUILD EVENTS IN AUGUST & SEPTEMBER

10 AUGUST

INTRODUCTION TO SELF BUILD & FINDING LAND

National Self Build & Renovation Centre, Swindon

Get to grips with the building blocks of self-build with this seminar organised by design and construction company Potton. Covering everything from how to search for the perfect plot, home design, obtaining planning permission and choosing timber frame construction, the seminar is ideal for the aspirational self-builder hoping to get the process started.

17-18 AUGUST

INTRO TO SOLAR PV & OFF-GRID SOLAR PV Centre for Alternative Technology, Powys, Wales

Explore the theoretical and practical benefits of living an off-grid life by utilising solar electricity. Find out how the technology works and get hands-on practice in designing a functional system.

12 SEPTEMBER

APPROACHING BUILDING REPAIR PROJECTS: INVESTIGATION AND RESEARCH The Society for the Protection of Ancient Buildings, London

This one-day event details everything from how to appraise a building and understand its history and caring for an old building in the best way — perfect for those with an interest in starting a restoration project.



AIMING TO SELF-BUILD

One in three people under 35 are seriously considering designing and building their own home in the next three years as a result of frustration with high property prices. Research carried out by

Graven Hill, the self and custom build development recently brought into the public eye by the Channel 4 series *The Street*, has also revealed that almost half (47%) said they would prefer to build their own home than spend money on getting married, a car or a luxury holiday.

PAUL DAVIS: AN APOLOGY

Homebuilding & Renovating would like to apologise unreservedly to Paul Davis, our greatly valued reader and successful self-builder, for accidentally breaching his privacy in an article featured in a recent issue of the magazine. *Homebuilding & Renovating* takes data security very seriously and we have tightened our editorial policies as a result of this unfortunate error on our part.



FUTURE PROOFING

Home predictions of the past revealed

Seven ‘houses of the future’ have been illustrated by US home interest service Angie’s List (www.angieslist.com), based on predictions from the past 100 years of what homes of the 21st-century would look like. The predictions, extracted from various pieces of literature, both fiction and non-fiction, of the early 20th century, range from the farcical to the eerily prescient.

Themes of a nomadic life are strong throughout with designs like the rolling house described by *Everyday Science and Mechanics* magazine in 1934 (shown middle right) as soon to be ‘highly fashionable’. A lightweight house that could be transported by ‘a dozen strong men’ when the mood struck them (based on a 1942 novel) might (now) be a little far-fetched, but a house that can simply be driven away through the countryside (illustrated on various cigarette cards from the 19th century) is, let’s face it, not far off the recent popularity of permanent caravan living, van conversions and portable tiny houses as alternatives to the costs



associated with buying a traditional house.

What’s more, some of the concerns that are very much in the current zeitgeist are touched upon by quite a few predictions, albeit with a few practical differences. Although designs to create a healthy home by seeking an energy-efficient power source through the sun’s ‘health rays’ (UV) using a failed product from the 1920s called ‘Vitaglass’ (right) and designing a revolving house to follow the sun (*Mechanix Illustrated* 1957, top) aren’t mainstream — concepts such as the Passivhaus standard and the push to incorporate PV panels and solar thermal energy indicate that the predictions weren’t totally works of science fiction.





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USING CONCRETE MORE EFFICIENTLY

A staple of many building projects, David Hilton explains how to limit concrete wastage



David Hilton is an expert in sustainable building and energy efficiency, and is a director of Heat and Energy Ltd

Love it or hate it, concrete gets used on many building projects and is also an intrinsic part of some modern methods of construction such as insulated concrete formwork (ICF). If used appropriately it can be a very durable and flexible product that will inevitably deliver a long life expectancy for the building. But how can we ensure we're being more efficient and greener when it comes to our use of concrete when building?

Concrete can potentially be produced to include some recycled materials in its manufacture, such as reject concrete materials, blast slag (GGBS), glass, or even plastic. It is, however, difficult to accurately calculate the strength of the concrete when recycled materials are used and the materials themselves are also not always available where, and when, you want them.

A further option is limiting concrete wastage during a building project. Having worked on a number of projects that have used concrete in the footings and slab, as well as ICF projects (where the concrete is poured into the wall formwork), some of the biggest challenges for the on site trades are calculating the right amount of product and ensuring

the right 'slump' consistency. Traditionally, pre-mixed concrete is mixed at the depot and brought to site on a truck with a large rotating drum. Once mixed, the product starts 'curing' and as such if there are any delays either getting to site or onto the site itself, then the concrete could in fact set too much and not be fit for purpose, especially where a good consistency is required to allow it to 'flow' in formwork or for a floor slab or screed.

If too little concrete is ordered then the work may not be able to be completed and more concrete will need to be ordered and poured at a later stage which could result in delays on site as well as potential weakness around the join between the two pours. Order too much concrete and you will either need to pay the supplier to take away the surplus or have it dumped on site and then taken away in a skip or grab load at a later stage, all at extra cost.

A solution to this is to use what is referred to as a volumetric concrete supplier. The volumetric concrete truck effectively carries the 'ingredients' in dry form and the mix is created on site to the right strength and consistency.

The concrete is then fresh, appropriate to the task and you only make, and pay for, the amount you need. This results in much less waste and also allows the pour of two separate areas that may need different mix ratios, therefore minimising the risk of calculation error and saving you not only time but also delivery miles, waste materials, and of course, money.



GREENER PASTURES

West Lothian, Cheshire West and Chester, and Bridgend have been revealed as Britain's most sustainable areas by Smart Energy GB (www.smartenergygb.org), as they have the highest rates of recycling and percentage of homes with a smart meter.

The most common 'green' items installed by homeowners surveyed include energy-saving bulbs, double glazing and an ultra-efficient shower head, while 44% of people who don't already have a smart meter plan to upgrade in the next few months.



TWO-THIRDS

of 25-30 year-olds match their home design to their fashion choices, according to research by Argos, and 71% of first-time buyers feel like they have to make their homes 'instagrammable'.

A FEAST FOR THE EYES

Find design inspiration with the new trend lookbook for 2019, *Form Follows Food* by Caesarstone. The majority of our domestic lives revolve around interactions in the kitchen – the heart of the home – and Caesarstone has tapped into how this has informed the inspiration of different styles including raw concrete (above), classic marble and a dark, dramatic kitchen.

WARM INTERIOR

Brighten up your home with this stunning new collection of hybrid radiators from The Radiator Company. The Livingstone range is designed to create comfortable temperatures all year round with no energy wastage and a 'night mode' that adjusts the amount of heat needed in the room and helps reduce consumption if rooms are not in use. The Class (pictured below) is available in both a water-based version, which includes a manual or thermostatic 'hidden valve' system for a sleek look, and electric, which features a discreet smart thermostat. From £1,347.60. (www.theradiatorcompany.co.uk)





A MATCH MADE IN HEAVEN

Add a little luxury to your home by incorporating these newly released marble-effect tiles. Stone and Ceramic Warehouse's creamy porcelain tiles work to create a calm sanctuary in this bedroom (above) while Cullifords' vibrant green stone slabs are perfectly book-matched (mirrored) so the 'open-book' effect provides wow factor in this living room (right).



LEFT: Jurassic tile, £71 (60x60mm)
RIGHT: Verde Laponia, £775/m² (www.stoneandceramicwarehouse.co.uk)

ALPACA WOOL MIX CARPET

The first-of-its-kind super-soft carpet, Axminster's Alaya (below) is a blend of sheep and alpaca wool, creating a luxurious and cosy flooring innovation.

Designed and woven in Britain, the carpet is available from John Lewis & Partners and select independent shops for £98/m².



A ROOM WITH A VIEW

Create uninterrupted views with the slimmest thermally broken aluminium set of bifold doors to date. Sieger has launched the Sieger Lux collection, available exclusively through IQ Glass. The frames are as thin as 30mm, creating seamless transitions between your home and the great outdoors. (www.iqglassuk.com)



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FOUR PLOTS FROM WWW.PLOTFINDER.NET



Crediton, Devon, £69,950

This plot has excellent views and full planning permission attached for a two-bed, upside-down house with parking and a garden. The elevated position means the garden will be south-facing over allotments with views of the town.



Northwich, Cheshire, £425,000

A conversion opportunity of a Grade-II listed red brick barn with planning permission for a four-bed family house. The plans include a galleried entrance hall, open-plan living spaces and two en suite bedrooms.



Bingley, West Yorkshire, £325,000

A good-sized plot with consent for a three-storey home with permission for up to five en suite bedrooms, an orangery and an upper ground floor triple-aspect kitchen/living room running the width of the property.



Inverneill, Argyll and Bute, £95,000

A plot with outline planning permission for a detached dwelling is available with unspoiled views across Loch Fyne to the Cowal peninsula beyond. The plot has full access across the foreshore and adjacent services.



BIG NEWS FOR EXTENDERS

Permitted Development relaxation made permanent

Part one of the General Permitted Development Order has been amended to make permanent the increased size limits for single-storey rear extensions. As such, subject to criteria, single-storey extensions of up to 8 metres can be added to detached homes, and up to 6 meters on attached homes, without planning permission — although homeowners will need to go down the prior approval process. (It is important to note the Permitted Development rights do not apply to all homes — flats and maisonettes, for instance.) The rights were relaxed in 2016 to encourage development and relieve pressure on over-worked planning departments, but were due to expire on 30 May 2019. Read next month's issue for full details on these changes.

DECREASE IN HOME IMPROVEMENTS

Fewer people are making major improvements to their homes, according to Barbour ABI's *Home Improvers of Great Britain 2019* report, which found that figures across the UK decreased throughout 2018 compared with the applications submitted in 2017.

60%
Of self-builders are
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permission within
a year*

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**RECLAIMING MATERIALS**

Manufacturers and designers are becoming increasingly eco-conscious and sustainable, if their latest collections are anything to go by. In an effort to do their bit reusing discarded materials and to keep on top of current trends, The Main Company, for instance, now offer kiln-dried engineered reclaimed wood flooring. The repurposed timber can also be found in their new kitchen (shown here, right) and bathroom collections.

**THE 'FLEXIBLE' KITCHEN TRIANGLE**

A staple of kitchen design for decades, the 'triangle' layout is now redundant, according to appliance supplier Fisher & Paykel, with the increasing demand for flexibility required for modern lifestyles.

As the kitchen has become less isolated and more of a social, informal space, Fisher & Paykel's Mark Elmore argues that there is no one-size-fits-all layout when it comes to design, and the idea of a fixed shape for optimum efficiency between sink, oven and fridge is no longer relevant.

New built-in products also allow you to get creative with your kitchen design including the BORA's Pure induction hob with integrated extractor (£2,028, bottom right), Fisher & Paykel's dishwasher that maximises storage space, the Double Dish Drawer (from £749.00, top left), and Neff's compact coffee machine that self-cleans and remembers your coffee preferences (£1,300, top right).





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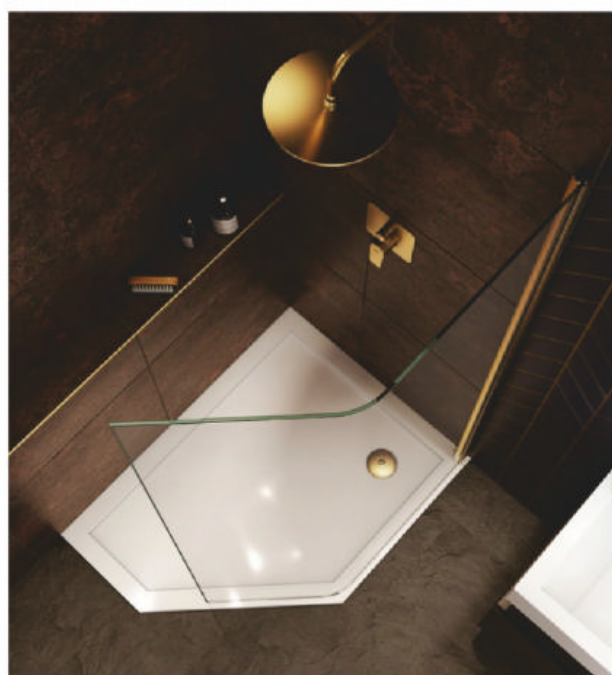
A NEAT SOLUTION
Vitrus by Vitra is a new glass casing-control panel that means that wall hung or back-to-wall WCs can be retrofitted in a bathroom without the need for a false wall. The elegant solution is available for £611.

83%
of homeowners want mood-lighting in their bath tub, according to a survey by www.showerstoyou.co.uk

FINISHING TOUCHES: Shower enclosures



Series 8 walk-in shower with swivel panel, available from £1,428.36. (www.merlynshowering.com)



DS506 curved shower screen, from £1,434. (www.aqata.co.uk)



Design+ matt black hinged door with inline, from £595. (www.crosswater.co.uk)

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oakappledecor Good morning ☺️
I'd love to know your thoughts on kitchen design today! We went for classic shaker units that hopefully won't date and can be repainted/new hardware for an update over time. However, I do adore a more trend led kitchen. I'm loving a flat fronted cabinet and metallic finishes at the moment. I think it's becoming easier to change and update kitchens, for example just changing the doors so if you go for a more on trend look it can easily/relatively cheaply be changed. If cost/longevity weren't a consideration would you go classic or trendy? .
📷 @jeremyphillips7171 .

We always wanted a project; we wanted somewhere we could put our own stamp on," says Marisa who is currently renovating a barn in East Yorkshire with her partner Chris. The couple renovated their previous houses and Chris runs a construction company that specialises in property development, conversion and extension so they were no strangers to the trials and tribulations of a homebuilding project.

The couple admit the renovation work has been slow going, having bought the barn back in 2015, due to the fact that they have taken on the project in their spare time. "We have done all the work ourselves and it is mostly done at weekends and the odd week off. I quite like to think of it as giving us plenty of time to save money and to decide exactly what we want," explains Marisa.

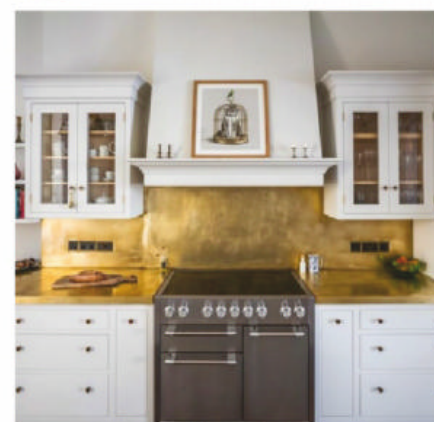
The pair have taken to Instagram (their kitchen is shown above) and Pinterest to document their journey as they add the finishing touches to their house. They are around two thirds of the way through the project, with three bathrooms and a bedroom left to complete. The couple left the original stone and brickwork exposed in much of the house and the timber beams, which they fell in love with when they bought the building, are given pride of place throughout. "Social media is great for sharing ideas with like-minded people and there's so much inspiration, it's definitely given me some ideas I wouldn't have otherwise had!"

SOCIAL ROUNDUP

A pick of your top posts and our favourite accounts from the world of social media



Eco-friendly kitchen design @sustainablekitchens



sustainablekitchens The balanced formation of our birch and oak cabinetry in this grand Georgian kitchen feels elegant and composed.

@farrowandball paint in Strong White, juxtaposed with the soft glow from a client-sourced brass worktop creates a space that exudes order, calm and formality.



Climate change in architecture
@GranthamIC and @ArchitectsJrnl



The work we do as architects today will endure for the next half-century & beyond... we must reset the objectives" UK #architecture practices issue unprecedented rallying cry to take action on #climatechange & #biodiversity loss
www.architectsjournal.co.uk/news



Housing in urban cities @Building Brum



In May @bdp_com hosted #BuildingBrum with a special debate on housing. The evening focused on the theme of quality or quantity and how to successfully achieve quality homes
www.vimeo.com/339007736

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CAN BUILDING PLASTICS EVER BE SUSTAINABLE?

Asks Tim Pullen, an expert in sustainable building methods

I was in a café enjoying an iced coffee the other day and as I neared the end of my drink I noticed that I was sipping it through a paper straw. I am old enough to remember when paper straws were the only option. I did not notice when plastic straws took over and now I barely noticed paper making a come-back. And neither change had an impact on the enjoyment of my beverage.

I am also old enough to remember when most of what PVCu is now used for in housebuilding was once built with wood and metal. The only exception that comes to mind is PVC insulation on electric cables. Plastics, and specifically PVC and PVCu (the u in PVCu or uPVC stands for un-plasticised, i.e. rigid), are now ubiquitous. And it is difficult to know why. Practical experience indicates that PVC products are no easier to work with, last no longer and, ultimately, are no cheaper. They are also more fragile and degrade in sunlight. The World Wildlife Fund did some work a few years ago that concluded that PVCu windows were up to 25% more expensive than timber windows across the whole life of the building, including disposal cost. The idea that PVCu is completely maintenance free has never been true, except in the sense that they are so difficult to repair that damaged windows are generally thrown away and new ones installed. It is possible to leave PVCu windows unmaintained but it is probably not a good idea. In practice we don't maintain, we replace.

This would be fine if what we threw away was recycled. Some years ago I wrote a piece for this magazine in which I suggested that PVCu was not recyclable. I was taken to task over this – by a recycler – and proved to be wrong. Around 2% of PVCu windows were being recycled in the (then) two recycling plants in the UK.

There are two problems with recycling: colour and toxicity. Colours other than white contaminate



the recycled material and there are many shades of white. All those variations need sorting out to allow the plastic to be used again and that requires big, complicated, expensive machinery. The recycling process can also release chlorine, dioxin and heavy metals, none of which are good for your health. According to Greenpeace, the figure for recycled PVC has now risen to a heady 5%.

If recycling windows to make more windows is a tricky option, it's important to note that is not the only option. There are companies (often abroad) turning PVC products into building materials. One of these turns waste plastic into big (very big) Lego-like bricks and plastic beams. These products enable the company to build a two-bed house in five days (probably, plus second fix and decoration). Others use PVC to make 'timber'-frame panels, filled with plastic insulation. And other uses? PVC has been recycled to make external hard surfaces, kitchen worktops and roof tiles, for example.

PVC exists and cannot be un-invented. The marketing machinery that surrounds the material is there to keep it at the forefront of our minds. And there are merits to plastics, including PVC, used in the right way. Recycling is obviously good, and the innovative uses for recycled PVC (un-plasticised or not) is inspiring. But is it actually better than wood or metal and would we really notice the difference if we didn't have it? Maybe questioning its use in the first place has merit. Maybe if we did that then, like plastic drinking straws, the problem would be gone and we wouldn't even notice. **H**

“

Is PVC actually better than wood or metal and would we really notice the difference if we didn't have it?

“I renovated a hamlet”



Serial renovator Phil Bradby is no stranger to a challenging build project, but a small hamlet of 14 cottages and barns in Cornwall was to be his biggest yet







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THE LAST PIECE OF THE PUZZLE
Morveren House (above), with the adjoining Cara Cottage (the entrance of which can be seen in the left of the image) was the last house in Trowan that Phil renovated as it was not included in the original sale. Cara's Cottage has a galley-style kitchen (left) with a half wall dividing this from the sitting area (below) to maintain the open-plan style of the two-bedroom property.

For many, a renovation project is a once-in-a-lifetime achievement: a box to tick but probably never to be repeated. For others it's a rolling programme of self-improvement, or perhaps a form of financial investment that's worth the stress and hassle. For a dedicated few, however, it's something altogether different — an altruistic determination to restore and redefine some of Britain's grand old buildings which would otherwise be lost to the ravages of time.

One such serial renovator is Phil Bradby. Over the years Phil has restored historic buildings all over the UK (some have appeared in this magazine), from Georgian vicarages to decaying Yorkshire mills, and almost everything in between. But in 2003 he shook hands on an extraordinary deal which put him into a league of his own.

He bought a derelict 700-year-old hamlet called Trowan, set in 45 acres of cliff-top land in Cornwall, just a mile from St Ives.





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INSIDE MORVEREN
The spacious kitchen and dining area in Morveren House have been sympathetically restored after the previous attempts at restoration had stalled with the roof off and the house gutted. In the hall (middle), the stone walls were repointed and a solid oak staircase installed with turns and treads designed to accentuate the large window. While in the sitting room (bottom), original panelling and reclaimed oak floors reflect the grandeur and history of the house.

The granite cottages and farm buildings would have become just another cluster of roofless ruins consigned to the history books had Phil not stumbled across them while on holiday.

“I was driving past the top of the site just as its owner was hammering in a home-made ‘Farm for Sale’ sign. I asked if I could take a look and discovered this collection of granite buildings with amazing views of the sea.”

One hour and a firm handshake later, the deal was done and Phil was to become the proud new owner of his very own hamlet. But the story of Trowan’s rebirth was only just beginning.

A HISTORY

In the 19th century this tiny coastal community was a thriving hamlet, housing close to 100 workers and their families whose income came from a nearby tin mine. When the mine closed, the families moved away. Tenanted dairy farmers moved in but, by the 1950s, most of the cottages were deserted and Trowan fell off the modern map.

But Phil could see the potential in the attractive stone buildings and was intrigued by their history. He set himself a mission — to restore the 14 houses and breathe new life into the community. “I wanted to restore Trowan as a whole and restore the cottages and barns in one go,” says Phil. “It seemed such a shame to let the hamlet go to rack and ruin.”

First he had to get his proposals through planning — and had not expected Penwith District Council’s





A GRAND HOME
Morveren was partially renovated by the previous owner, so Phil completed the job – maintaining the original layout but modernising the rooms.

extraordinary condition of consent: namely that the majority of the properties had to be used as holiday accommodation and not as permanent homes. This was in response to government guidelines requiring barn conversions to be used ‘to provide employment or inject money into’ the local economy.

And there was something else. The gem at the heart of the village, Morveren House, was not included in the sale and for Phil this would become the final piece in the jigsaw, the ultimate ‘prize’. The Arts and Crafts manor house had been built by local MP and six-times mayor of St Ives, Sir Edward Hain, who was also a prominent businessman and whose family owned the Hain Steamship Company, later incorporated into P&O.

Eventually the house was repossessed and, in 2016, Phil was finally able to complete his ambitious project by purchasing the house, with the adjoining property, Cara Cottage, for £300,000 at auction.

Phil and his small team of builders systematically worked through the hamlet, restoring crumbling walls, repairing or replacing the attractive Delabole slate roofs, replacing rotten windows and doors and paying characteristic attention to detail.

“Big developers would not take on a project like this because it can’t be standardised; everything has to be bespoke,” says Phil. “It’s the longest project I’ve ever done – close to 15 years from start to finish – but it’s been completely worth it.”

So much so that Phil owns and looks after the farmland and has even kept a cottage for his own use. “It’s such an amazing place that I can’t walk away from it now,” says Phil. “I shall always be involved with Trowan.” **H**

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PROJECT NOTES

HOMEOWNERS Melvin Starling and Sandy Garfield

PROJECT Contemporary self-build

LOCATION Surrey

CONSTRUCTION Timber frame

SIZE 300m²

BUILD TIME January to October 2016

LAND/HOUSE COST £845,000

BUILD COST £600,000

VALUE Estimated £1.8million

Relationships can strain under the weight of a self-build, but for Sandy Garfield and Melvin Starling, building their new home together had been part of the plan from the beginning. After a trial period renting together, the pair sold their individual London flats and set about searching for suitable properties to demolish and rebuild.

Sandy's career as a freelance set designer meant that she needed to retain access to London, but Melvin, recently retired from his career as an architect, was keen to move out of the city. The compromise, vital in any relationship, was to buy a tired 1930s house in a Surrey village — close enough for Sandy, and far enough away for Melvin. The property, which the pair knew they would knock down, sat on a half-acre plot that was level, faced south-west and had a rear garden that wasn't overlooked — everything they were both looking for.

Unfortunately, the purchase was far from stress-free. And even on the day the pair were due to move in, the incumbents had not moved out, the front garden was buried under four feet worth of rubbish and the house hadn't been emptied. This took another week to resolve, meaning that though their offer had been accepted in October 2014, it wasn't until April 2015 that they were able to move in.

The design process

"We lived in the old property for about nine months while we drew up the designs, obtained planning permission, appointed consultants and negotiated the contract with a local builder specialising in one-off houses," says Melvin.

The couple employed a planning consultant to deal with policy issues and submit and manage the application. The plot is in the greenbelt and the local authority set an arbitrary limit on the size of the new building — this was based on the volume of the house pre-1968 plus 5 per cent. Melvin, who designed the house, focused on maximising the built volume while staying on budget.

The house was also designed to be energy efficient. Melvin's design orientated the utility spaces to the north-east elevation, which faces the road, and features small windows to minimise heat loss and maximize privacy. All of the main habitable spaces face the garden, enjoy views to





LIVING SPACES

The house was designed with the couple's collection of classic modern furniture in mind (top). The kitchen (above) was fitted by local company N&P Joinery. The main kitchen/living/dining area (left) features an expanse of glazing that provides views into the garden.





the south-west and benefit from double-glazed windows or sliding doors.

Thanks to this sympathetic and efficient design, the planning process turned out to be a smooth experience, taking six months to reach approval status.

The pair wanted a main contractor to run the demolition and build, and Sandy found their man, David Jacques, in the bar of Dorking Rugby Club. A budget was set and a two-stage tender process established with David, with the costs for the demolition, groundworks and services, timber frame and external envelope agreed for the first stage.

Melvin and Sandy moved out into rented accommodation as work on the first stage began in January 2016, with the second stage of the contract negotiated during the first stage works, to include all the internal works, such as the joinery, electrics, plumbing and decoration. This approach works well if a realistic budget is established, a good working relationship maintained, if the architect is confident of designing to a budget and changes are kept to a minimum — all of which occurred on this build.

A low-maintenance, efficient home

The build was completed well within the year thanks to its timber frame construction, with the couple moving into Koya (the house is named after a Japanese word for shed) by the end of October 2016. Externally the building has a clean and uncluttered appearance. The walls are clad with untreated cedar boards, providing an open-jointed rainscreen cladding system. This allows the stainless steel rainwater goods and the extract grilles to be

terminated in the ventilated cavity, keeping the elevations clear of visual distractions. The gutters are also concealed and there are no overhanging eaves.

The choices also adhere to Melvin's desire for a low-maintenance home: with the untreated cedar boards, aluminium doors and windows, and zinc roof providing a combination of long lifespans and low to no upkeep.

Koya's energy-efficient credentials are evident too. There is 200mm of insulation in the walls and 250mm of insulation to the zinc roof, and the house has been designed to have minimal air leakage rates. The home's 'A' EPC rating is both rare (fewer than 1% of UK homes achieve this) and testament to Melvin's design and David's construction skills and attention to detail on site.

Inside, an underfloor heating system heats the downstairs, while hot water-fed recessed skirting radiators provide warmth to the first floor.

Last, but not least, Melvin and Sandy worked hard to ensure their garden does justice to the new home. Since moving in they have re-landscaped the rear garden including digging out a reinforced concrete path and a mature flower bed, moving 30 tonnes of topsoil by wheelbarrow from the front to the back garden, laying a new section of lawn and putting in a garden pond, seven planted beds, all edged with railway sleepers, and planting 11 specimen trees.

The couple couldn't be happier with the final product, and have received effusive praise from those who worked on the project. "The house works very well for all of us, including Ralph the dog," concludes Sandy. "It's perfect." **H**

PITCH SHIFT

The house has been designed to exacerbate the change in mood between the more formal downstairs spaces and the more relaxed areas upstairs. This is noticeable in the move from the ceramic tiled floors (from CTD Tiles) to the carpets, as well as the lower ceiling heights compared to the upstairs rooms — which are pitched (above).



“

The house
works very
well for all
of us —
including
Ralph
the dog



BEDROOM CONFIGURATION
Melvin and Sandy decided on matching en suite bedrooms on the top floor, both making the most of the enviable views (above), that bookend the large studio space in the centre of the first floor plan (far left). A third bedroom is also included in the design.

THE FLOORPLAN

Sandy and Melvin wanted to each have their own space and now have identical en suite bedrooms, while the rest of the house comprises a large open-plan kitchen/dining/living area, a guest bedroom and shower room, and a flexible studio space that could be easily converted into two further double bedrooms if they ever decide to sell.

FIRST FLOOR

- 1 Bedroom

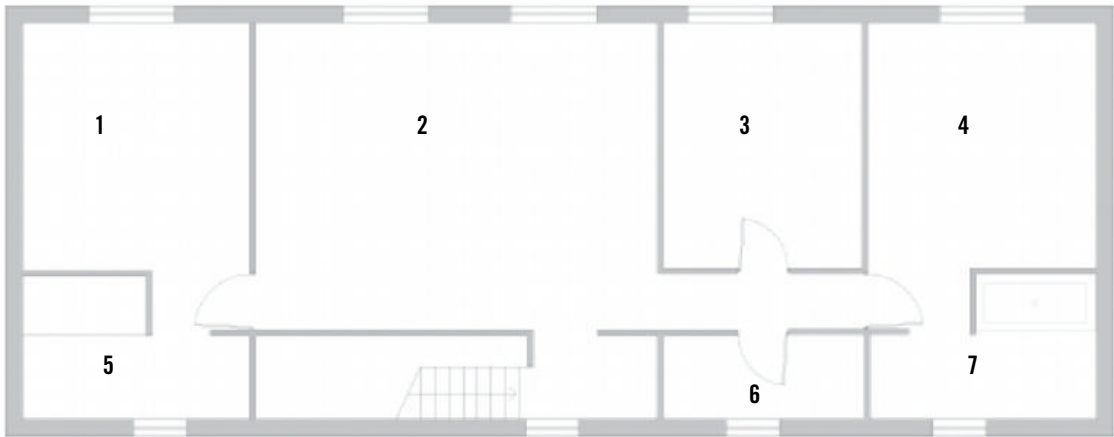
2 Studio

3 Guest bedroom
- 4 Bedroom

5 En suite

6 Shower

7 En suite



GROUND FLOOR

- 1 Kitchen

2 Dining space

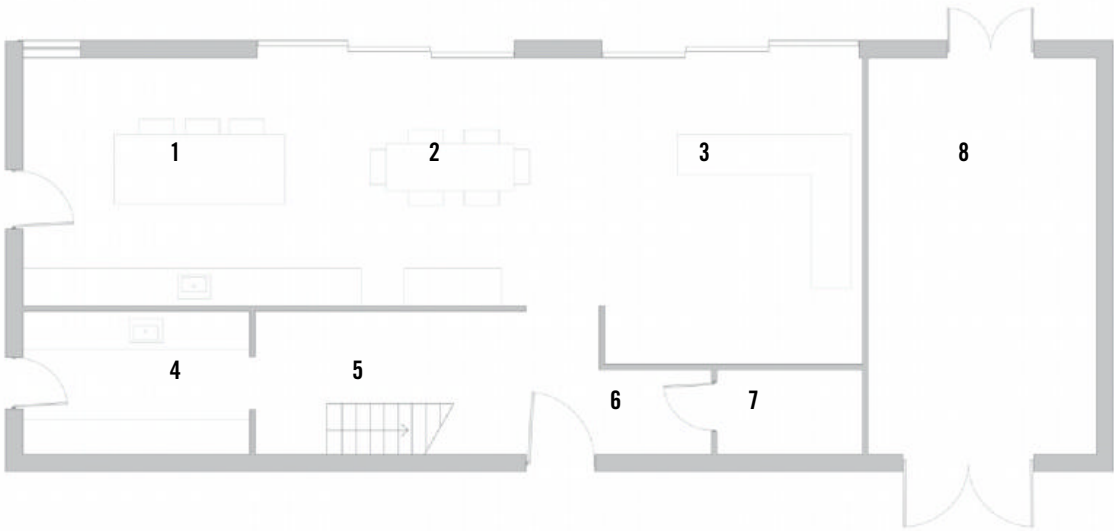
3 Sitting area

4 Utility
- 5 Hallway

6 Lobby

7 Cloakroom

8 Garage



SELECTED COSTS

SITE CLEARANCE AND DEMOLITION	£17,000
GROUNDWORKS (RAFT, DRAINAGE, UTILITIES)	£53,000
TIMBER FRAME	£35,000
EXTERNAL AND INTERNAL WALLS AND FLOOR	£72,000
EXTERNAL DOORS AND WINDOWS	£38,000
ROOF, GUTTERS AND RWPS	£48,000
INTERNAL JOINERY AND IRONMONGERY	£21,000
ELECTRICS	£30,000
PLUMBING AND SANITARY WARE	£34,000
FINISHES (WALLS, FLOORS, CEILINGS)	£30,000
KITCHEN AND UTILITY ROOM FITTINGS	£17,000
HARD LANDSCAPING	£27,000
FEES	£16,000
OTHER	£162,000

SUPPLIERS

ARCHITECT Melvin Starling:
melvinstarling@me.com
PLANNING CONSULTANT
Chris Wojtulewski, Parker Dann:
www.parkerdann.co.uk
STRUCTURAL ENGINEER Roger Bunny,
EAR Sheppard Consulting Civil
& Structural Engineers:
www.earsheppard.co.uk
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A UK FIRST
Oakwrights provided the oak frame and encapsulation system for the UK's first oak frame Passivhaus, shown above.

Having built the first oak frame Passivhaus in the UK, Oakwrights recognises that there are a growing number of self-builders seeking to improve the performance of their build. As the fastest growing energy performance standard in the world, Passivhaus is an approach which delivers exceptional standards of insulation and airtightness. The construction methods used achieve much lower U values in comparison to a house that meets standard Building Regulations. The doors and windows are also specified with a limiting U value to balance both heat loss and useful solar gain, and are carefully installed without gaps and draughts that reduce performance.

There are many benefits to designing and building a Passivhaus; primarily, the house can use up to 90% less energy compared with one that meets standard Building Regulations, significantly

cutting your energy bills. Houses that meet the standards also have a constant supply of filtered, fresh air to maintain a stable temperature all year round. Although realistically in the UK, some sort of heating source will be advisable, very little heat that is generated will escape through the walls, floors and roofs due to the quality of the construction, meaning that the heating input required will be minimal.

When designing to the Passivhaus standard, the building's form factor needs to be considered. The more corners you have in a property, the higher the ratio of internal volume to external wall becomes. The standard is therefore easier to achieve with simpler house shapes, but you shouldn't let that stop you. If you would like a more complex design, it is achievable but you have to consider compensating in areas such as installing better performing windows and increased levels of insulation.

The cost of building a Passivhaus is likely to be slightly more than your average self-build, however, in the long-term you will save money through reduced energy bills. When starting the process of designing a Passivhaus, Oakwrights' in-house architectural team can advise and help you evolve your ideas to suit your requirements. The team can also work with external architects and third party construction experts to develop your house with the added beauty of an oak frame. Their encapsulation (wall insulation) systems surpass the Passivhaus standard in terms of performance. They can also adapt the encapsulation to meet your individual requirements and ensure your property meets the Passivhaus criteria while still achieving your design brief.

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A buyer's
guide to
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NEIL TURNER
Neil Turner
is director at
Howarth Litchfield
Partnership and
specialises in
residential design

Designing an energy-efficient home

Architect Neil Turner busts through the jargon and new technologies to deliver nine top tips that will lead you to designing an energy-efficient self-build

The design of new houses continues to evolve and be influenced by the environment around us. One way this evolution is manifest is a focus on energy efficiency. However, if I cast my mind back a few years, only a small number of my clients ever mentioned energy use or insulation in meetings — other than asking about what sort of boiler would be good to use.

Now, though, more people than ever are looking at their energy strategy and considering their options during the design stages of their self-build and renovation projects. Regardless of people's motivations, this is a positive development as the most efficient way to build an energy-efficient home is to plan for it early — with major decisions made during the design phase, rather than having to be retrofitted. But the choices and options available, not to mention costs, can seem bewildering, so here's my nine top tips to design an energy-efficient home.

1 Orientation is key

You should ideally design your home so that it faces the sun to maximise light and free energy. This was an essential part

of the design strategy of my own house, which faces due south. The house has a rectangular design, with the long side featuring lots of glass. In winter, the sun heats the house on its own. It's warm, bright and free energy — perfect. (Although, overheating needs to be a consideration too in the most efficient homes.) This might not always be possible depending on the plot, but try to make the most of the natural conditions whenever you can.

2 Incorporate thermal mass

Heat walls can be an ingenious solution to trap heat in a solid mass at the centre of a house, which is then released slowly through the evening. Or you could add a glazed room on the southern aspect to act as a thermal buffer to the main house — though these can be difficult to control. But don't rule either out, and get your designer to consider them.

A smaller solution may be to surround your wood stove with a heavy concrete or masonry so the heat is absorbed, rather than wasted. In Scandinavia, a mass concrete/masonry/tile stove with a series of pipes, is common.

3 Invest in the fabric

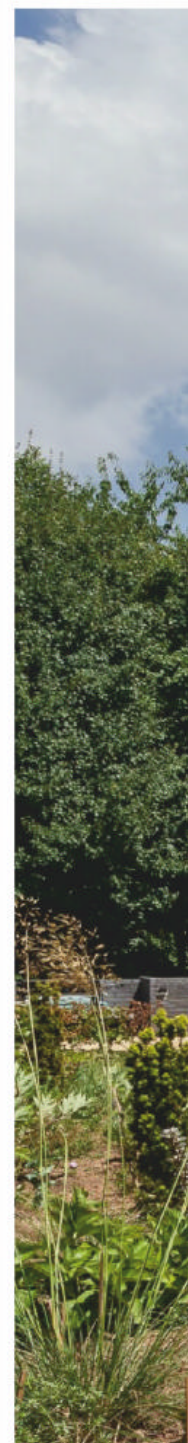
Specify the right amount and type of insulation. Your goal is to create a house that requires the least amount of energy to heat it (and to maintain at that temperature). This is the simplest and least 'sexy' of the tips, but no less important just because it's so obvious. Simply put, the less energy you need, the less money you pay annually. However, this may require some extra up-front spending on your windows, walls and external doors to achieve U values much lower than those set out in the Building Regulations.

4 Calculate your energy usage

Something you should do at the earliest opportunity is to calculate the energy required to power and heat your new house. This will tell you how much you need to generate — vital when it comes to designing renewable energy systems. Most people in this country do not know how much gas and electricity they use per year. Rough estimates put annual gas and



THERMAL MASS
Masonry stoves, such as those from Cornish Masonry Stoves (www.cornishmasonrystoves.co.uk), can offer higher combustion efficiency than other stove types, but also provide greater thermal mass that radiates heat throughout the day.





THE PATIENT BUILD

Architect James Risebero and his wife Kate Rudman's self-build benefitted from the fact that James poured hours of his time into the initial design – nearly two years' worth – in order to perfect it. James placed efficiency at the home's heart, with its daily electricity bill coming to around £1.50 to power its air source heat pump and mechanical ventilation with heat recovery. The cross laminated timber is left exposed, showcasing the material that defines this house's energy-efficient credentials.

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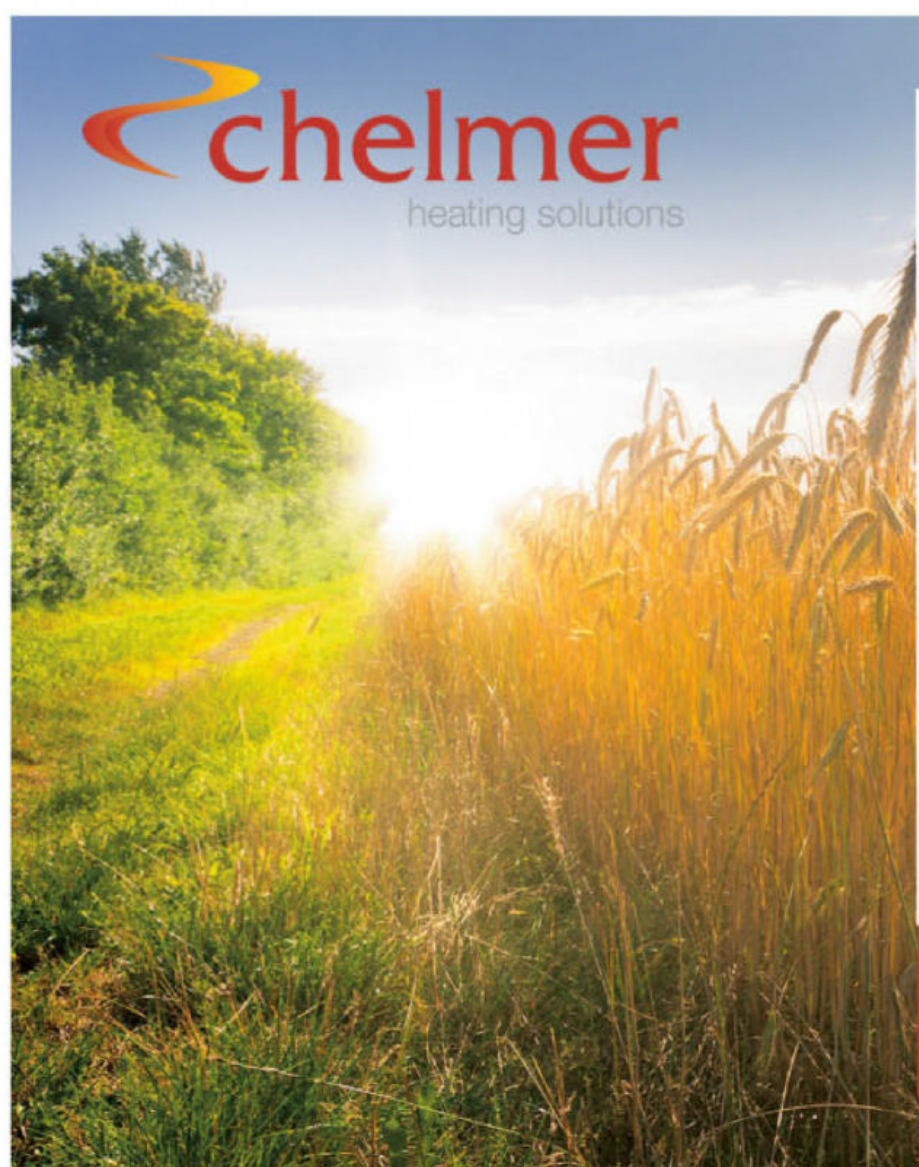
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THE ECO BOX

Phil and Jane Brimble approached their architect Catherine Flemming with a brief for an eco box 'with bits cut out'. Though they completed much of the work on their self-build on a DIY basis, they ceded responsibility to many of the eco elements to specialists. These included an air source heat pump (to power underfloor heating throughout), mechanical ventilation with heat recovery, PV panels that supply electricity and a rainwater harvesting system to provide water for the toilets and washing machine. All aspects of this design were set out at the design stage, allowing all this technology to be seamlessly incorporated into the house, with the 'guts' of the systems tucked neatly away in the floorplan.



The most efficient way to build an energy-efficient home is to plan for it early

electricity consumption between 15,000kWh and 23,000kWh* depending on the size of the house and number of occupants.

Using the size of your designed house and by detailing your usage habits (see point five), a member of your design team (usually the mechanical and electric engineer) will be able to work this out in the early design stage.

5 Understand how you use energy

It is important to establish how much energy you will need from the outset — and when in the day you need it. You can do this by looking at the size of your household, examining old bills and understanding what you use the energy for.

It is likely that by going through your energy consumption habits in detail you will discover ways

to minimise your usage, too. This is crucial information when it comes to deciding what sort of generation system you will choose and whether you will need to consider energy storage.

We should all be aiming to reduce our energy use, particularly that which comes from non-renewable sources, but doing this can seem at odds with our desire to own the latest gadgets, larger TVs and ever more complex lighting systems. For example, if you have an electric or hybrid car (or are planning to own one), it will need a charge each night — boosting your electricity demand significantly (though not necessarily your bills if you choose a suitable tariff and opt for solar PV — more on which below). Solving this part of your energy strategy is important.

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IN THE TREES

Jon Martin and Noreen Jaafar built the Treehouse, designed by Millar + Howard Workshop, in a small copse in a bustling town centre. The pair decided to build to Passivhaus standards and placed energy efficiency at the heart of the build. Crucial to the success of the project (and achieving certification), they employed the services of a specialist consultant to advise on matters of energy efficiency. The airtight structure benefits from Icynene insulation that was blown into the walls to provide high levels of insulation.

6 Plan for energy generation and storage

Most people are aware of some of the available technologies used in energy generation, such as photovoltaic (PV) panels and wind turbines. The trouble is that we can't control when that electricity arrives — the wind will blow in the winter and less so in the summer, while for PV it's most efficient during summer days when we are often out.

The storage of energy is the next logical step of your strategy. This will then manage the time difference between when you generate the energy and when you need it. The options are large and can be confusing. I would recommend you talk to your renewables installer and architect and decide what is best and what you can afford.

I predict that the future in this field is battery storage. All the car manufacturers are increasing their research in electric cars and batteries are at the heart of this.

At the moment the cost of the batteries might not make sense financially — though you may be willing to commit for environmental reasons. For example, a 6kWh battery will store just £1 of electricity. If the system costs £5,000 it will take over 14 years to pay back, and that's ignoring any repairs and decrease in efficiency over the life of the battery.

However as sizes continue to increase and prices continue to fall (a pattern we have already seen with PV panels), I predict that in a decade's time almost every new home will have banks of lithium batteries fitted inside to store the spare electricity from their PV panels, and to run their electric cars.

7 Decide on your heat storage

Heat storage is not a new concept: a cylinder in a standard boiler system is heat storage. Many of the newer systems work on the same principle, except they are often called buffers or accumulators. A heat store can use just one source or multiple sources (i.e. renewable energy such as biomass, solar thermal and heat pump systems) and can be a means of storing excess heat produced.

There are newer developments, however, such as heat batteries, which are based on latent heat storage. Sunamp, a Scottish company specialising in thermal storage, offers heat batteries that can produce energy for heating and hot water from a variety of



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THE GOOD LIFE

Jane Fleet-Jones was keen that her new self-build allowed her and her family to live ‘the good life’, and key to this was keeping it as economical to run as possible. This went a long way to influencing the major decisions on the home’s specifications. PV panels power the air source heat pump in the summer, which supplies the hot water to the sanitaryware and the underfloor heating throughout the year — this led to first year electricity costs of just £236. Jane also grows food for the family in the home’s garden.

renewable energy sources. Again, keep an eye on the cost of these new technologies and speak to your designers and installer to work out whether it’s the right time for you to invest.

8 Plan for heat recovery

Heat recovery is a process of continuously preheating incoming cool supply air by warming it with the outgoing exhaust air. Instead of exhausting the warm air outside, heat exchangers transfer a larger percentage of heat energy to incoming supply air.

The system can be expensive and payback periods are again long, but it can be efficient on your bills, and combined with mechanical ventilation, can improve the air quality too.

However, these systems require

ducting and a plant room, so designing it early allows you to build your house around these, rather than the challenge of retrofitting them to a fixed design.

9 Futureproofing

All the different options for energy generation and storage make the home more complex and create challenges to the designer. None more so than trying to predict what might come in the future. New ideas seem to emerge on a monthly basis, so try to allow space in your plant rooms for future changes. If you are unwilling or unable to invest in some of the newer technologies now, but feel you may later on, plan for this in your design — your wallet and the installers will thank you when the time comes. **H**

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MARK BRINKLEY is the author of the *Housebuilder's Bible* and an experienced builder. He's just finished his latest (triple glazed) self-build project

Double VS triple glazing

When you're choosing final finishes, picking the right glazing is a high priority and a big investment so, before you opt for double or triple glazed windows, read all you need to know

The homeowner of this London self-build wanted an energy efficient home with low energy bills so RDA Architects helped

design a Passivhaus-certified home, which is characterised by finishes like triple glazing (quadruple in the skylights).



Should you upgrade to triple glazing? It's a tricky question that faces self-builders when they come to specify the finishes for their new home. It costs more than double glazing, around 20% more, so why choose it?

Double glazing has been mandatory in the UK since 1995 and it has grown increasingly efficient over the years. But, in some parts of the world, notably Scandinavia and Germany, triple glazing now predominates and in cold mountain climates like Switzerland people even opt for quadruple glazing. But in the UK, where the winters are generally milder, triple glazing remains a relatively niche product and tends to be found mostly on eco homes or Passivhaus developments.

When you do the sums, the energy improvement between the very best double glazing and top-of-the-range triple glazing is pretty minimal, and the cost payback is consequentially underwhelming. But advocates point out that it's more about quality and comfort than energy performance, and self-builders should consider triple glazing for the same reasons they install underfloor heating: it's just better.

The science

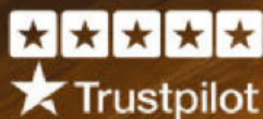
Of all the elements that go into building a house, glazing is, arguably, by far the most complicated to comprehend. It's also an area where advancing technology has altered the landscape a great deal, and indeed continues to bring about change. Glass manufacturers have mastered the art of coating and tinting glass with all manner of finishes which can keep the

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heat in, reflect unwanted sunlight away, reduce glare and even self-clean, too.

The net result of all this glass engineering is that the U values – the standard metric for measuring heat loss – has been reduced from around 5.0W/m²k (the score of a single-glazed window) to around 1.4W/m²k (double glazing: Velfac have 1.36W/m²k) and even down to around 0.8W/m²k (triple glazing). And as technology improves, these U values continue to improve, albeit in tiny increments these days.

So, what do these figures mean in practice? The energy savings from switching from single glazing to double glazing are considerable. But the difference between a U value of say 1.4W/m²k (double glazing) and around 0.8W/m²k (triple glazing) is much less and would account for perhaps a 5% improvement in the overall energy performance of a new house — the windows conventionally account for around 20% of the overall heat loss of a house. Translate this saving into pounds sterling and you might expect the switch to triple glazing to save you between £20 and £40 a year on heating bills, depending on the size of your house.

It doesn't add up in terms of conventional payback calculations; this is not a scenario in which you'll see the additional cost of triple glazing 'paid back' in 10 to 15 years, for instance, against the savings made on your energy bills. The added cost of triple glazing is going to run into many thousands when specifying for the whole house, and you would expect to have to replace

the glazing long before you have clawed back the additional cost of the switch.

But triple glazing advocates don't tend to do such crude calculations. The big plus side to triple glazing is that it adds an intangible comfort factor to life indoors in the cold months. If you sit close by a double-glazed window, you can actually feel colder as the heat radiates away from your body: this factor is all but eliminated by triple glazing.

Indeed, triple glazing usually forms part of an overall low-

How does double and triple glazing work?

Insulated glazing, whether double or triple, works mainly by trapping air or gas between two panes of glass. The glass itself does not insulate well; it's that static air between the panes that stops heat transfer. Triple glazing adds a third pane of glass, located halfway between the inner and outer panes, and so creates two air locks which improves the energy performance of regular double glazing by around 50%.

There are other factors that determine the performance of windows. Efficiency is increased by using various inert gasses in the space between the panes. Warm edge spacer bars around the perimeter reduce thermal bridging. And various coatings on the glass can reduce energy loss from inside (low-e) or manage the amount of solar radiation coming in from outside (low-g). The frames themselves also have a large bearing on overall performance (as well as the installation). Look for insulated frames that have a good airtightness rating.



energy design strategy which typically involves replacing window trickle vents with whole house ventilation and radiators with underfloor heating. All these options add indoor comfort which, once experienced, is

something that most self-builders are willing to pay more for. And self-builders building an energy-efficient house wouldn't only think about the walls and floor, and then have draughty windows that counteract their energy-efficiency efforts elsewhere.

And when it comes to acoustics and reduction in noise level, although a complex area to unpick, self-building in an urban area or in an area exposed to the elements could reap the benefit of triple glazing with its noise reduction credentials.

Window ratings

So why isn't triple glazing mainstream, like underfloor heating now is? There are numerous factors apart from energy efficiency to consider when buying windows, and sometimes the efficiency factor is simply overlooked. It's not helped by having an energy rating scheme for windows which sets out to make purchasing decisions simple but somehow manages to make almost all window options look great. As with so many other energy rating systems, what was an A score when the rating scheme opened for business back in 2004 is now equivalent to a C today, but instead of moving the goalposts they have simply added an A+ and an A++ rating. Generally speaking, triple glazing is found in the A++ category, but it's not abundantly clear. Most people would happily settle for an A+ window and save themselves a couple of grand. But if you want that level of passive comfort that a well-designed, well-built house can deliver, it does make sense to invest a little more to get the fabric as efficient as possible. **H**

Double glazing VS triple glazing



"WHY WE CHOSE DOUBLE GLAZING..."

This once semi-derelict barn, has been converted and extended to create additional living space (the scheme was designed by Jeff Kahane + Associates). "The decision to have double glazing was made partly because the comparative quote for triple glazing was a fair bit higher, but also because we were choosing really good quality bespoke aluminium-clad timber windows and external doors with excellent draught seals," explain the homeowners. "We were also using high performance insulation on all the new and existing external walls so the overall thermal performance of the building was comfortably better than Building Regulations requirements. Our extended barn is also partly dug into the landscape on a site that is well sheltered from the weather by the surrounding hills."



"WHY WE CHOSE TRIPLE GLAZING..."

This Passivhaus build in Wales, designed by architect Adrian Cook, features triple-glazed windows supplied by Green Building Store, which contributed to the house's Passivhaus credentials. The PROGRESSION triple-glazed windows, which have a U value as low as 0.68W/m²k, are Passivhaus-certified windows. Adrian Cook explains why the windows were chosen: "We liked the minimalist, simple lines which worked really well with the design. Their frameless appearance is well suited to the timber cladding on the rear of the house, and we made a feature of them on the front elevation with smooth render surrounds in a different colour. The PROGRESSION windows are very well made, and have gone down well with the client."

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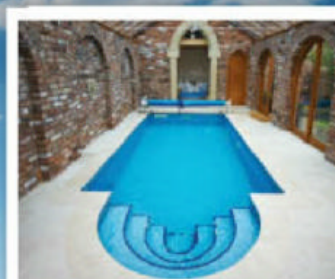
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Stunning sunroom ideas

Don't be left out in the cold; create a warm and inviting room suitable for all seasons with these wonderful examples of sunrooms done well

Think about the roof

Below: Unlike conservatories – with their glazed walls and roofs – which can be cold in winter and unbearably hot in the height of summer, a sunroom with a tiled or slated roof (as in this example by Arboreta) is designed to be used whatever the weather. An overhang also provides shade from the high summer sun.

Year-round use

Right: As a sunroom should be suitable for use year-round; taking heating and cooling during both winter and summer months into consideration is essential. Make sure to consider things like underfloor heating, high levels of insulation and perhaps a woodburning stove, as in this Prime Oak addition.



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Layout considerations

Below: Arboreta's director Alex Cole advises: "The rule of thumb for sunrooms is that you will need to tackle more Building Regulations with an open-plan layout than you would with a closed-off layout. As an open-plan layout requires you to knock through a standing wall, there are more complications structurally to consider before building can begin. Overcoming these regulations is a minor inconvenience when you weigh it up against the benefits of having an open-plan extension that links seamlessly with your home."



Creating shade

Above: Cooling spaces that feature large expanses of glazing is a tough job without sacrificing all the lovely clean lines and views most of us hope to create. The roman blinds used in this sunroom designed by David Salisbury protect the space from high temperatures without spoiling the aesthetic benefits.

Continuation spaces

Below: This sunroom by IQ Glass features a glass link that connects it to the main house creating one continuous space between the two rooms.

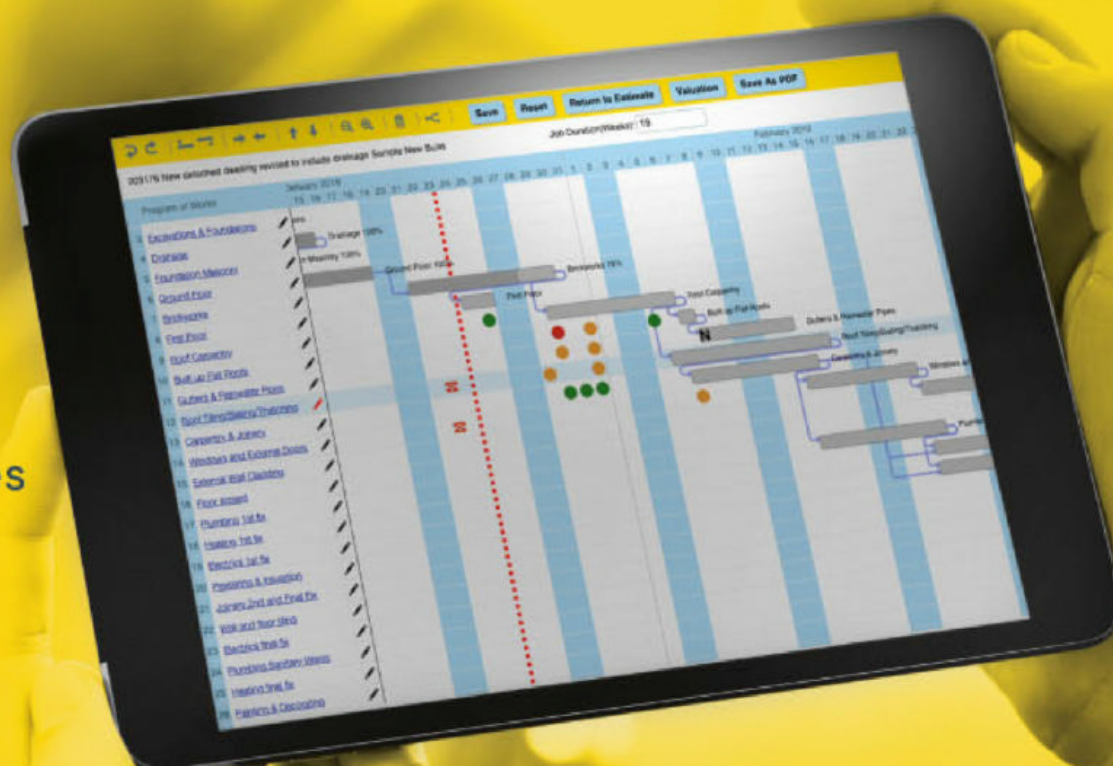




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Practical flooring

Right: A stone or tiled floor (as seen in this space by GreenRooms by Oakwrights) is not only a robust addition but is also easy to clean — essential in a room which opens up to the garden. It can also provide thermal benefit as it pairs well with underfloor heating, keeping the chill off the room in winter, but is also good at keeping the room cool in the summer months.

Light it up

Below: A good lighting scheme is paramount. Here, in this contemporary-style sunroom by Westbury Garden Rooms, a characterful collection of pendant lights hang from the central points of the roof structure, with downlights illuminating the perimeter of the room.



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Make the most of the sun

Above: Locating a sunroom on a southern elevation allows for the space to make the most of the light, as in this David Salisbury sunroom. Although be sure to consider overheating in glazed spaces facing south. Tan Yasin of IQ Glass advises: “A solar control coating can reduce solar gain while creating a comfortable internal environment.”

Raise the roof

Left: Who says sunrooms need to be single storey? This double-height space luxuriates in natural light and offers a beautiful in-between zone before venturing out into the garden. Large swathes of glazing feature in this aluminium sunroom by Apropos.

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A sympathetic design

Above: Older and listed houses lend themselves well to more sympathetic approaches in design. This timber frame sunroom by Prime Oak incorporates similar materials to the cottage it adjoins — from the wood stain used on the external joinery to the stone roof tiles and stone plinth.

Light from above

Left: Letting in light from above can be achieved in several ways, most commonly with rooflights and lanterns but also clerestory windows. Another discreet solution which can bring light deep into the floorplan is a flush rooflight — such as this example by IQ Glass.



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Open up

Right: Incorporating patio or sliding doors into a sunroom completes the sense of connection with the outside space. As sunrooms function as a place between the home and the great outdoors, using characterful patio doors, as here by Vale Garden Rooms, helps draw the eye out towards the garden.



Matters of material

Below: Aluminium-framed sunrooms can complement period properties and modern homes alike. This Solarlux structure completes the contemporary design of this home.





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Glazed gables

The glazed gable of this Prime Oak sunroom enhances the feeling of space and a connection to the garden. Sunrooms mostly introduce glazing through individual banks, rather than one continuous expanse of glass and this example utilises the oak frame for this purpose. Note too how the pitch of the roof takes its cue from that of the main house. **H**



PAUL HERVEY-BROOKES is an award-winning landscape designer. He won a gold medal at 2019's Chelsea Flower Show

How to design a front garden

Designing a successful front garden requires a balance of practicality and beauty — landscape designer Paul Hervey-Brookes explains how to achieve this for your home

Kerb appeal is one of the most sought-after aspects of any property. Regardless of whether you're renovating, extending or building your dream home, those first impressions set the tone for the house for visitors, friends and family alike. Front gardens are multifunctional spaces too, and when it comes to their design, you need to focus on practical considerations, such as parking and access for services, as well as designing a welcoming and engaging sanctuary space which makes your house a home.

One question you're going to have to answer early on is whether you are including parking in the design. If your house is on a wide, leafy street with enough on-street parking then, for the sake of the environment (and if the planners allow), leave the cars on the road and keep the garden for plants.

Unfortunately many of us don't live on such roads, and provision for parking may also be a requirement when applying for planning permission for a new home — as such you may require a different approach.

If you have inherited any mature trees your first port of call will be to see if any tree preservation orders (TPOs) exist before any canopy thinning or root work can be undertaken. Some ancient trees will take precedence over any plans you have, and planning may dictate the materials and to what extent you are able to change the layout you have inherited.

If cars are to be parked on the garden then it's not game over for living plants. If possible, don't be tempted to block pave over the entire front garden — plenty of plants will live with parking, so modern drives can combine parking and green functions.

Front gardens also have another function: coping with rainwater after heavy downpours or water running from your roof to over-stretched mains drains (known as watershed). This effect is multiplied in densely populated streets and increasing variations of sustainable drainage systems (SuDS) are being incorporated into modern housing schemes to deal with this water.

Smart garden design can be used to take some of the strain off our mains drains. Rainwater can be channelled and slowed down through the garden in a series of collecting pools and planting beds before reaching the mains drain system. Incorporating this type of system will not only provide habitats for various types of wildlife, but will help keep the front of your house green and welcoming. If you are building a new home on a more sizeable plot then a beautiful large pond or lake can be incorporated which can deal with watershed. Other systems can be used to harvest water to recycle in the garden rather than drawing water through your meter.

Choosing planting

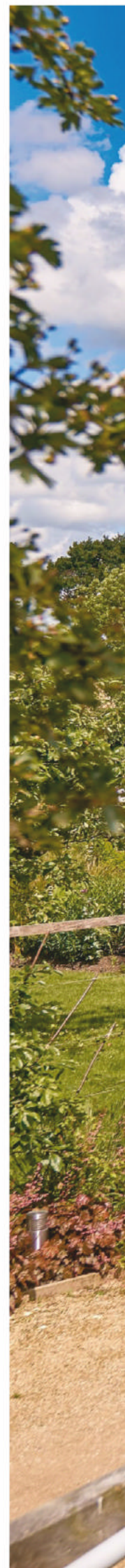
An equally important aspect of front garden design is creating privacy — screening is an important part of keeping your house sheltered and obscuring the view into your home. Evergreen trees or shrubs are often a go-to, but these can seriously reduce light levels, so be selective and use only in a situation where the loss of light is worth the evergreen nature of the plant.

Creating privacy doesn't preclude other planting advantages either. Many twiggy trees and shrubs not only have wonderful flowers but also pleasant seasonal autumn foliage, fruits and or interesting winter bark. One of the best small trees with many variations to choose from is the Malus.

Some trees are also good at purifying the air in busy urban environments with lots of vehicle traffic — look at Alders or Platanus (commonly known as the London Plane) in these



Don't be tempted to block pave over the entire front garden



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CALMING COLOUR
This period cottage uses a colour palette of greens and whites in its planting scheme that encourages visitors to 'read the landscape' as they approach.





situations. Shelter belts of mixed planting (small trees, large shrubs and herbaceous plants) can, when planted as a deep border, reduce sound levels and buffer some passing noise, too.

With all planting I often recommend some consideration be given to the style and age of house you live in. This is particularly true if you have self-built a traditional timber structure or been particularly mindful of a vernacular style. Giving the same consideration to your planting and how it will complement the external appearance of your new home will make the garden sit more comfortably with the house and add kerb appeal.

Georgian properties are often accompanied by Hornbeam (*Carpinus*) hedging and trees, while traditional timber frame houses commonly sit alongside Yew (*Taxus baccata*) or Holly (*Ilex*). There are no hard and fast rules, and the easiest way to get this right is to spend time walking around your local area and looking at what similar houses have as mature plants.

Leading the way

I generally try not to use variegated plants in front gardens as they are distracting and highly

decorative. Often from a design perspective we want visitors to know the route to the front door and not to feel like they can wander at will. Thinking about the width of paths and access routes, as well as the size of containers, can direct visitors where you want them to go and avoid a surprise guest wandering in through gates in the garden.

From a colour perspective, green and white as a combination are 'slow colours' meaning guests will take time to subconsciously read the landscape but also understand where you want them. Dark foliage plants, reds, purples and silvers are all colours which stimulate the brain and make people uncomfortable, so unless you want your guests turning up feeling uneasy, think twice before including these in your design.

Whether you've inherited a front garden space or are planning one from scratch, take time to consider each layer of the design process: from parking and watershed, to screening and the use of colour. And don't forget about kerb appeal! Bring all that together and you will be the envy of your neighbours. **H**

**NEXT MONTH:
DESIGNING A GARDEN FOR LIFE**

5 TOP TIPS FOR SUCCESS

1. Consider the route that your guests will take to your front door and clearly sign this with paths, borders and welcoming planting. Lights are useful too.



2. Match the garden to the vernacular, but don't be afraid to try something different if you have a contemporary home or want to stand out.



3. Use trees with air purifying qualities if you live in an urban environment or close to busy roads. The London Plane is known to trap pollution particles on its bark and leaves.



4. Privacy can be a primary concern when designing a front garden, but try to think beyond evergreen shrubs and trees if you are concerned about restricting light.



5. If you can, keep cars on the street. This allows your front garden to benefit local wildlife, promote biodiversity and create kerb appeal — and not function solely as a car park!





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Available in a variety of contemporary finishes, the DesignLine Concepto range from Hörmann can be customised to suit. Shown here, the composite door has a dark, 'Linen' finish, and costs from £515. It features a rebated frame that means a groove cut into the door frame allows for a snugger fit, helping rooms retain their warmth. (www.hormann.co.uk)



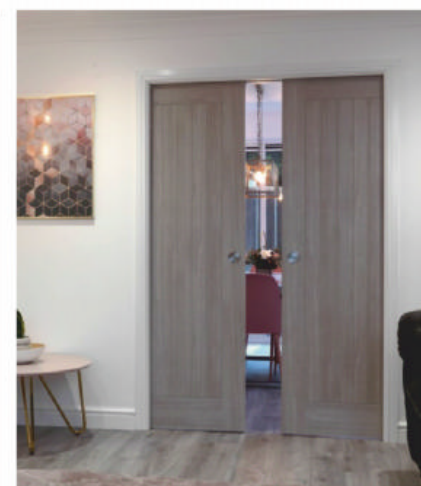
Premdor's Vertical Five-Panel Moulded Wood Veneer interior door replicates the appearance of a traditional timber door. The subtle design could suit a variety of contemporary schemes or, as above, bring a more modern feel to a country-style interior or period home. The door costs £116. (www.premdor.co.uk)



The Root internal door by Urban Front can be finished in to any RAL finish or in a variety of five wood effects. The dark grey finish shown here complements the geometric etched design POA. (www.urbanfront.com)



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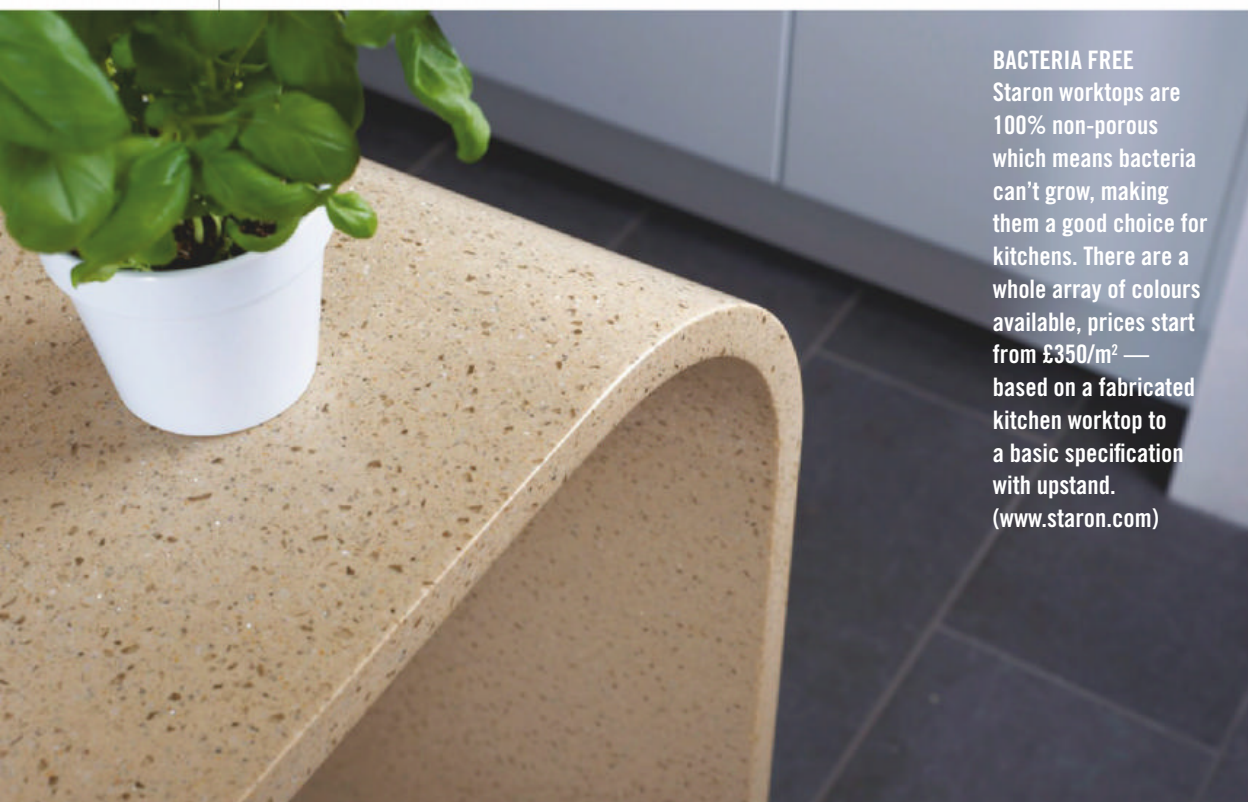
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Your guide to kitchen worktops

Slicing, dicing, chopping and kneading — kitchen worktops have a good deal to cope with. Pick the right one for your kitchen with our guide

Designing a kitchen is an excuse to get creative. From cabinets to cookers, tiling to flooring, there are a lot of elements that need to complement each other, which means there's a lot to get right at the design stage. The cabinets you choose, the paint you pick and the flooring style you go for all need to come together to create a beautifully cohesive and multifunctional space you

can use and enjoy. And when it comes to the design process, kitchen worktops should be a top priority, too. A worktop has a big role to play — it's got to be practical, serve its purpose and look good, too. It's often one of the larger outlays and should be a focal point, especially if you have an island or breakfast bar to cover as well, so you want to pick something you don't mind looking at every day.



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MICHELLE GUY is Assistant Editor of *HB&R*. She is an experienced homes journalist and is currently planning a kitchen renovation

What to consider

From a practical point of view, kitchen worktops will get used every day so will need to withstand a lot of prep, spills and cleaning. Which means asking yourself a few simple questions about how you use your kitchen. Do you prepare meals from scratch? Are you a keen baker? Do you entertain a lot? Do you have children?

And aesthetically, do you want warm, natural materials or do you want bold materials that make a statement? Your answers will help inform the type of material or materials you'll choose for a worktop or island unit. So as well as picking something that you like the look of, it's important to choose a material that will last and suit your needs.

So, what's out there?

Natural stone, timber, laminate and composite (a man-made mix) are popular choices but all carry their pros and cons so it's good to do some research and visit showrooms to see examples in situ.

Timber worktops do need a lot more looking after (particularly after installation), for example, so make maintenance a key consideration.

And, if you prefer to pop your hot pans straight onto your worktop rather than the hob or a trivet then you might opt for a heat resistant, natural material like granite (although care should still be taken to avoid thermal shock).

High gloss materials will highlight grubby marks so if you've little hands making their mark around the house be aware that you might be wiping the surface down a fair bit.

“

A kitchen worktop has a big role to play — it's got to be practical, serve its purpose and look good, too

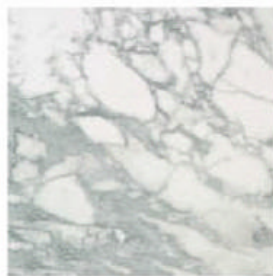


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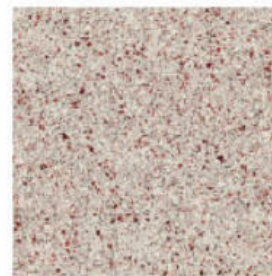
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LOOK FOR ALTERNATIVES

Companies like Granite Transformations provide 10mm worktops made from engineered stone, tougher than granite or quartz, that fit directly on top of the existing worktop and can be done in as little as a day.

THE OPTIONS...

Natural stone

As well as the ever-popular granite, there are a range of other natural stone options to choose from, including limestone, slate and marble. These options are pricey: you can be looking at a starting price of £350/m² for granite. And natural stone is heavy, too, so you have to make sure the cabinets you choose can take the weight, but there are a number of benefits that come with a real stone surface.

A high density and non-porous surface, like Lundhs' Larvikite worktops are durable and distinctive, for example. "Remaining in its complete natural state from quarry to kitchen, the material boasts high heat, water, scratch and UV and stain resistance, as well as being incredibly easy to maintain," says Hege Lundh, marketing director from Lundhs. "Natural stone is the perfect choice for those wanting to make a statement without completely overpowering a space," adds Hege. "But, one of the considerations to take into account when choosing a real stone surface for your kitchen is that each piece is unique and therefore can vary in its appearance.

"While this is part of the beauty of opting for a 100% real stone surface, it's important to ensure you're happy with the exact piece of stone your worktops will be made out of."

Granite

"The beauty of granites as a natural stone is the colours and variance you get from them,"

says Oliver Webb, director at Cullifords. "Each block will bring a touch of individuality and unique style to your kitchen."

Arguably one of the most popular choices for worktops, a granite surface is both durable and functional. It's got anti-bacterial properties and is scratch and water resistant — although you should clear up acidic spills like wine quickly so as not to spoil the stone. In fact, sealing of softer granites is recommended. "Harder granites will not need sealing while most other softer granites will perform best if sealed," advises Oliver Webb. "Good sealant will stop the ingress of water, oils and other liquids on all natural stone and day-to-day cleaning can be done with a light soapy solution."

Granite is hardwearing and heat resistant but, as Oliver Webb explains: "Although the majority of granites should be able to withstand hot things being placed on the surface, there is always a slight chance of thermal shock, so it is best to use a trivet or chopping board."

ROYAL BLUE

If you want to break up a neutral scheme, Lundhs Royal Blue natural stone worktop's shades of soft blue will add subtle character. Priced from £680/m² from Lundhs Real Stone. (www.lundhsrealstone.com)

RIGHT: ANTIQUE APPEAL
Brown tones with hints of purple and blue crystals make this Lundhs Antique real stone worktop a classic choice that pairs well with duck egg blue and tawny shades. Priced from £970/m², Lundhs Real Stone.

BELOW: INSPIRED BY NATURE
The beauty of natural stone is captured in this ceramic marble-effect surface from the Statuario range from Ceralsio. It can be book-matched too. (www.ceralsio.co.uk)



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Marble

Marble is another natural stone that says luxury. It's heat resistant and can be cost-effective, depending on the type you choose. But, it can scratch fairly easily and is susceptible to staining, so it might not be the best choice for a busy family kitchen. But, its cool-to-the-touch properties do make it a good choice for keen bakers as the cold surface is ideal for rolling out pastry.

"Marble worktops can add true elegance to a home and, as with other natural stones, it gives you a real sense of naturalness," says Oliver Webb. "Marble comes in a wide variety of colours and patterns. There are beautiful hard green European marbles as well as stunning Indian and Portuguese stones.

"Due to current trends, it is mainly the Carrara marbles such as Statuary, Calacatta and Arabescato that are used for kitchen work surfaces."

Marble worktops can be book-matched, which means the marble is cut from the same slab so the veins running through mirror on each piece. This is great if you want a seemingly seamless worktop that runs from horizontal to vertical.

"As with all the work surface material groups, there are some harder types and some softer ones. When it comes to durability, marbles in general will, over time, develop a patina from small scratches and possible staining if the sealant does not work well. The benefit of having a marble work surface is that any stains that do appear can be removed with a poultice and it can be re-polished in situ if needed," Oliver concludes.

SQUARE-EDGED DESIGN

A chunky solid wood worktop like this 40mm grey solid oak block from Howdens with its squared edged profile, provides a feeling of quality and stability. (www.howdens.com)



BLENDING STYLES

Combining contemporary design with classic materials like solid oak can be achieved with thinner profiles and lighter coloured woods, like this example from HUSK (www.madebyhusk.com), featured here in the Grace kitchen.

Timber worktops

Timber worktops can add real warmth to a kitchen and are favourable if you're looking for a neutral material to work in a contemporary or traditional kitchen. It works well combined with other materials like Corian or quartz.

Prices per square metre start from around £100-£120 so it can be one of the more purse-friendly materials to choose.

There are a variety of woods available that make suitable kitchen worktops. A hardwood, such as teak has a high oil content so is water resistant, which makes it a good option for in and around a sink. Popular timbers like oak, beech and walnut are beautiful but you'll need to maintain them regularly (and particularly from the outset) to keep the worktop looking its best. Mop up spills straight away and don't put hot pans directly onto a timber work surface (built in trivets are a good idea). If you do burn or scratch the surface you can (typically) sand it out using a fine-grade sandpaper but remember to reseal.

Borek. The ultimate garden furniture



Borek outdoor furniture pushes the boundaries of design and innovation in order to create high-quality, craftsman-built products which provide the ultimate in seating comfort. The collection shown here is the Borek Aluminium Murcia Lounge in Anthracite, featuring coffee and side tables plus island table with tray. This stunningly beautiful furniture is crisply styled and offers the ultimate in durability. There's also a full range of outdoor living accessories to complete the look of your outdoor space. Come and see the full range of outdoor furniture at our showrooms in Belper.

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Engineered stone

An engineered worktop, also known as a composite, is made from more than one material — often a combination of resins and quartz. It's a really practical choice for a kitchen as it's a hardwearing material that's easy to clean and has anti-bacterial properties. It has the look of natural stone but with the low-maintenance characteristics of a man-made material.

"For an affordable alternative to granite, quartz is perfect for kitchen work surfaces," says Doyeon Kim, marketing associate at Radianz. "It's hard-wearing, stain-resistant and resistant to cutting marks."

As quartz is engineered, it's available in a range of colours and patterns so the choice is varied, which means you're more likely to find something that will suit your overall scheme, whether it's contemporary or traditional.

"For an on trend, modern style in your kitchen, opt for a waterfall effect over a kitchen island or breakfast bar to create seamless balance and flow," suggests Doyeon Kim. "You'll need a pliable material that can be manipulated easily like Staron's marble-effect solid surfaces that offer outstanding practical benefits and are perfect for creating this look."

Quartz does have a couple of downsides and cost is one of them. You can expect to pay around £350/m². It's one of the heavier materials, too, so cutting to size can be an intricate job. Another thing to note: "Engineered worktops are not impervious to UV, so over the years will fade a little and lose their lustre," says Oliver Webb. "But, they are a fantastic option for a kitchen worktop." **H**



MAKING A STATEMENT
Worktops can be used as a striking focal point in a kitchen like this stunning island design using Statuario Maximus, a marble-effect quartz available from Caesarstone. (www.caesarstone.co.uk)



CREATING CURVES
If you want to add different lines to your kitchen, Krion® Porcelanosa worktops can be thermoformed to create curves and angles like this piece created in Snow White 1100. (www.porcelanosa.com)

Trend to watch for in 2019... ceramics

"Slowly growing in popularity, ceramic worktops are extremely durable to heat and staining. Crafted from ceramic clays and mineral colourings, worktops like SapienStone are available in a range of colours and finishes and can cater to a variety of tastes from the ultra-contemporary to a more traditional style. The material is UV resistant and can therefore be used outside and as the pattern is made from a photograph, the colours can vary with market demand easily. At just 12mm, they're ideal for creating a very sleek looking finish to a kitchen worktop," explains Oliver Webb, director, Cullifords.

Traditional self-build

WORDS Alison Wall PHOTOGRAPHY Simon Maxwell

Next GENERATION

The traditional exterior of Adrian and Sandra Girling's self-build barely hints at the home's more contemporary interiors — in fact, it's a house brimming with design innovation



“

We never thought of using anyone else — it was brilliant to have our son on board



Wanting to downsize is a classic trigger for starting a self-build, as is finding yourself with more free time after a busy career and bringing up four children — exactly the position Adrian and Sandra Girling, from a pretty village in north Essex, were in. What is unusual, however, is that their eldest son Matthew was happy to put his architecture degree on hold for a year to design their home. “We never thought about using anyone else — it was brilliant to have him on board,” says Sandra.

Ten years earlier, the couple had bought a double plot in the same village. On plot one they self-built a six-bedroomed family home. Now it was time to turn their attention to plot two.

“We knew we wanted something a lot smaller, lighter and more open plan, but with a private space downstairs,” explains Sandra. “We also needed lots of storage.” The couple were also after a low-maintenance house and garden that would leave time for activities such as golf and stargazing.

“Apart from that, we really left Matthew to it,” says Sandra. He in turn presented his parents with choices on everything from light switches to door handles and the colour of the mortar for the bricks. “He was very calm and we never fell out,” she adds.

Even so, there were potential stumbling blocks. The plot was small and irregular, in a conservation area, and just two metres from the next-door neighbours, requiring a Party Wall Agreement before work could start on the foundations.

Undaunted, Matthew drew up plans for a traditional-style exterior with a more contemporary, Scandi-influenced interior. Thankfully, the proposals sailed through planning first time, on the condition that potential overlooking issues with the neighbours were addressed.

Keen to build with timber, the Girlings opted for a traditional stick-built route, rather than prefabricated structural insulated panels (SIPs). “I wanted my parents to have the option to change things on site, which you can’t do with SIPs,” explains Matthew. The complex design and irregular shape (the house is slightly wider at the front than the back) also pointed to an on-site build.

Clever design

At just 80m², the footprint of this three-storey house isn’t large, but it feels neither cramped nor dark, thanks to several clever design features that become apparent once you step inside. A central atrium allows anyone seated in the sunken living area to gaze up to the first floor, while a galleried landing provides views downstairs, as well as allowing natural light to flow through the house.

“That definitely makes the house feel bigger and more spacious,” says Sandra, who was initially unsure about sacrificing the bedroom space needed for the feature.

The extensive use of pale timber cladding and white painted walls also helps to make this a light-filled house — the timber has the added benefit of



PROJECT NOTES

HOMEOWNERS

Adrian and Sandra Girling

PROJECT Self-build

LOCATION Essex

CONSTRUCTION Timber frame,
constructed on site

BUILD TIME Feb 2017 - Feb 2018

PLOT COST £170,000 (in 2010)

BUDGET £260,000

VALUE Unknown

THE EXTERIOR

In keeping with its conservation area site, the exterior of the house has many traditional features, such as a jetty, a steeply pitched tiled roof and red brick and render cladding. To avoid overlooking, Matthew added a semi-circular brick wall to the rear and timber slats around the large curved patio (the master bedroom was also cantilevered over to provide shelter).





making the space feel warm and inviting. With the loft housing a third bedroom and shower room, Matthew hid the home's main storage space underneath the perimeter of the sunken living room and along the side of the loft bedroom within the eaves.

In keeping with its relaxed feel, the home features a private balcony that can be reached from the landing on the first floor, and an outdoor covered seating area at the rear. Here, Matthew added a curved brick wall and timber slatting to meet the planners' concerns about overlooking (next door's windows face directly onto the back of the property and garden).

Externally, the stand-out feature at the front is undoubtedly the Arts and Crafts-inspired curved tiled roof that sits over the living area and porch. "There were some concerns about its buildability," says Matthew. It was a tricky task, for sure, that required digital software and computerised machinery to cut the plywood rafters with total precision.

Working to budget

Constructing all this on a tight budget was no easy task for the family. Matthew explains: "It was really tough — I had to do lots of research to find the cheapest options. I got the cheapest bricks I could find, at 55 pence a brick, but managed to keep some more expensive items such as the roofing at the back of the house."



THE KITCHEN
Having an open-plan kitchen (from LifeStyle Interiors) was one of the Girlings' main requirements. Changes in the ceiling height

in the kitchen, from single to double, as well as the rooflight above, brings extra interest and valuable natural light to the interiors.





SUNKEN LIVING

The sunken living area provides a subtle sense of zoning in the open-plan ground floor. The same engineered oak flooring, along with underfloor heating, is used throughout, as well as a mixture of white painted plasterboard and knotted pine ceilings, stained white. Baltic birch plywood, meanwhile, has been used to clad the steel spine columns and in-built furniture.

His detailed drawings and 3D models meant that almost nothing was changed on site during construction — alterations here can mean many thousands wasted. Adrian and Sandra, who were living next door during works, also pitched in. Sandra caulked the skirting boards, while Adrian spent evenings and weekends oiling and staining the interior timbers, first with two fire protection layers, then with Osmo oil.

Some potentially expensive features were scrapped, including curved high-level glazing at the front. Solar panels were also value engineered out, although generous amounts of insulation (a honeycombed reflective foil system from Actis) and high levels of airtightness means that this house comfortably meets the latest Building Regulations for energy efficiency.

With so many interesting design features, which part of the house do the couple enjoy most? They both agree: the central atrium on the first floor and the masses of easy connection to outdoor spaces. “If we want privacy, we can use the little balcony upstairs — Adrian keeps his telescope here and uses the space for stargazing,” says Sandra. “I feel that we have always lived here. I can’t imagine living anywhere else!” **H**



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DOUBLE-HEIGHT VOID
The Girlings' previous house had small windows and dark rooms and this influenced their desire for a spacious and light living experience. The atrium above the sitting area transforms the downstairs space with natural light from the first-floor windows. An enclosed balcony provides a further spot to sit (right).



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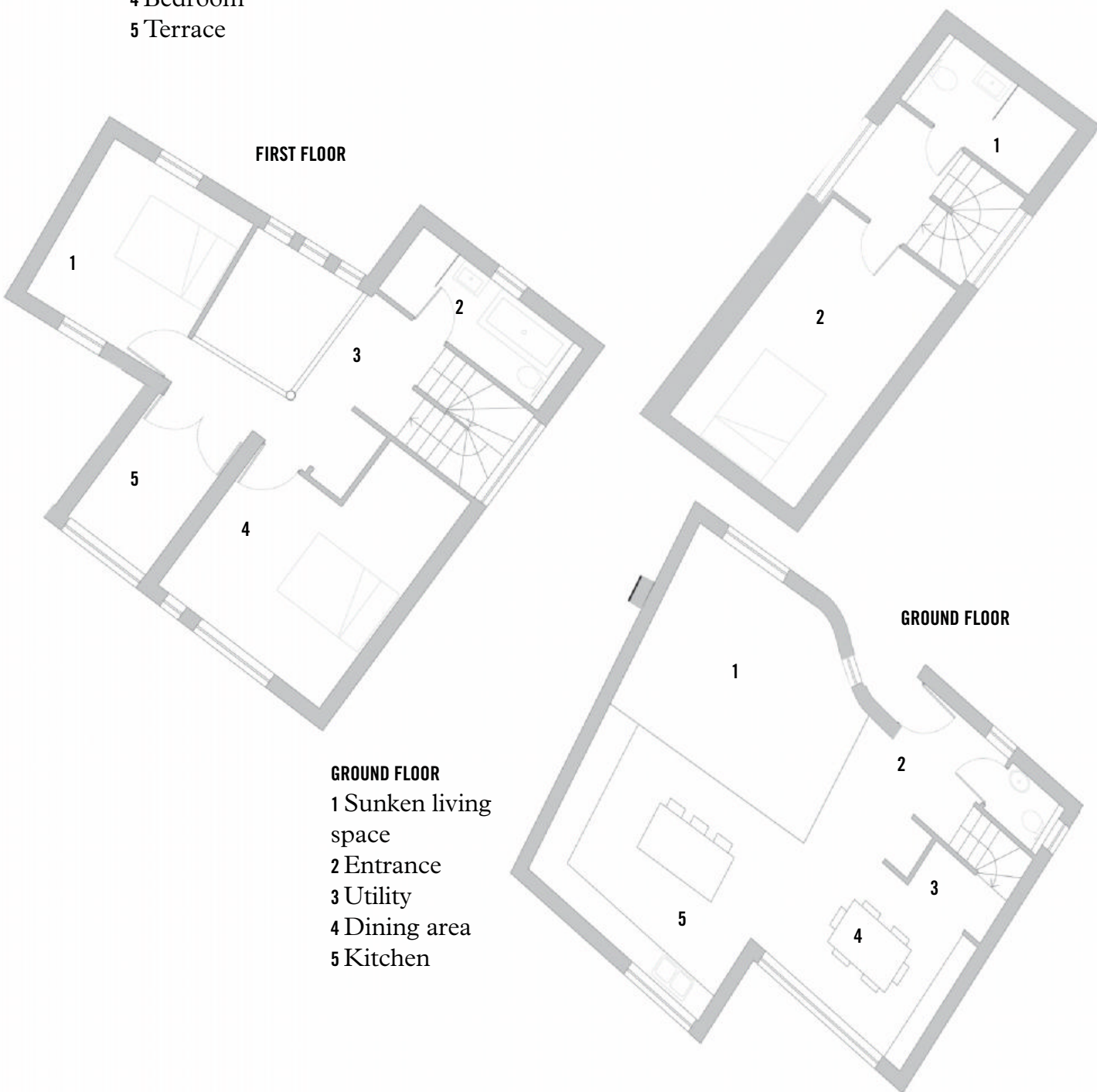
FIRST FLOOR

- 1 Bedroom
- 2 Bathroom
- 3 Gallery
- 4 Bedroom
- 5 Terrace

SECOND FLOOR

- 1 Shower room
- 2 Bedroom

SECOND FLOOR



FIRST FLOOR

GROUND FLOOR

- 1 Sunken living space
- 2 Entrance
- 3 Utility
- 4 Dining area
- 5 Kitchen

BUILD TEAM

ARCHITECTURAL DESIGNER

Matthew Girling:
www.matthew-girling.com

CARPENTER AND CONSTRUCTION MANAGER

JAB Carpentry: 07496 439218

STRUCTURAL ENGINEER Essex Oak Frame:

www.essexoakframe.com

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KITCHEN	£12,000
SANITARYWARE	£2,400

THE FLOORPLAN

The house is slightly wider at the front than at the back, to make the most of the tight site. A recessed curved wall leads to the front entrance, which is adjacent to the main line of the building. Internally, the sunken living space sits at the heart of the floorplan, surrounded by the open-plan kitchen and dining areas to the south that in turn lead to a covered patio via sliding doors. The mainly open-plan ground floor gives way to the more private second and third storeys, with the central atrium and first floor gallery offering glimpses between floor levels.



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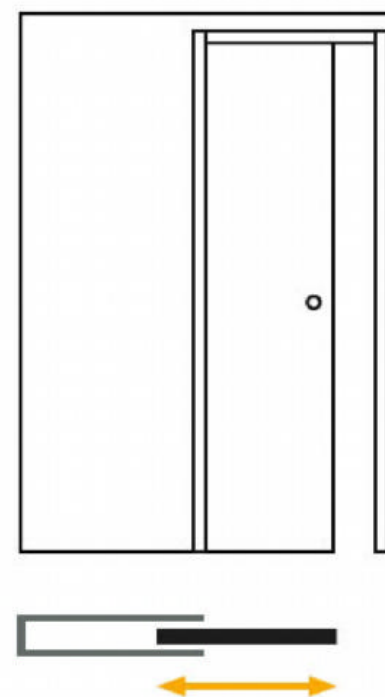
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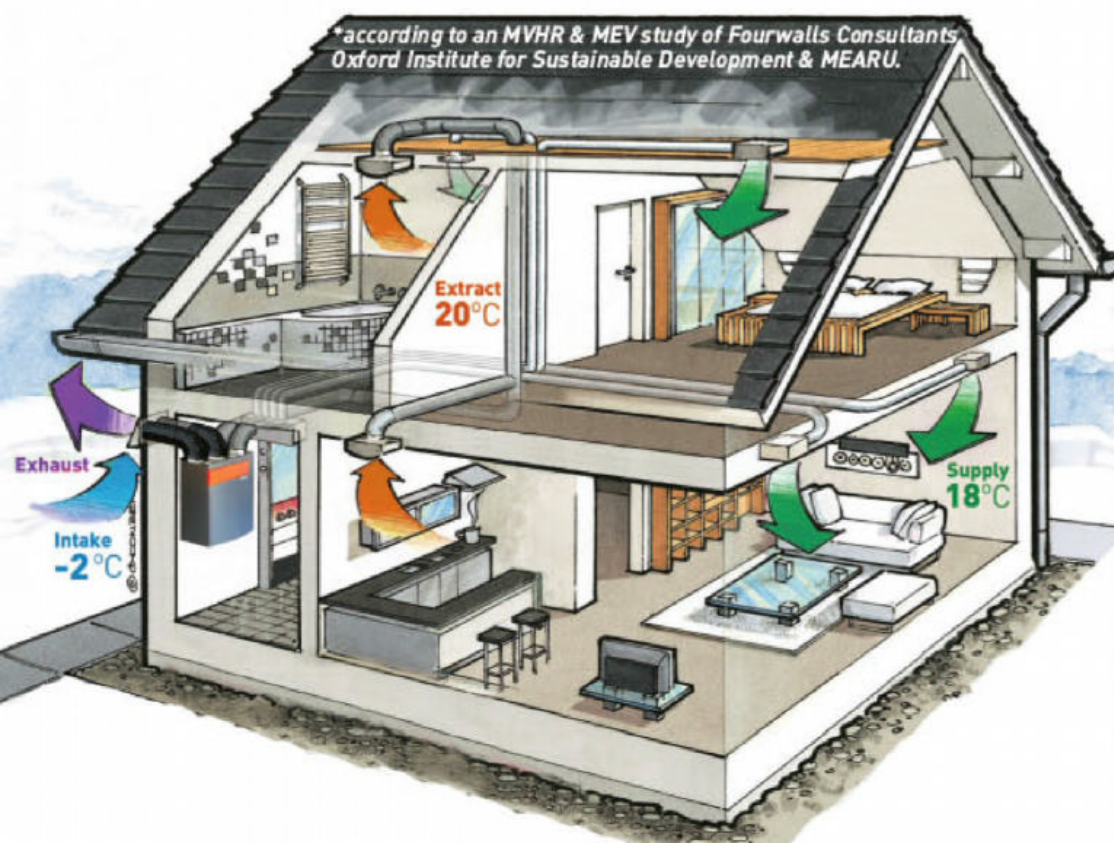
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15 ways to achieve a sustainable self-build

There has never been a more pressing need to build sustainable homes — Nick Robbins provides top tips to ensure your project gets the green light

For a time, building a green home was seen as a somewhat unnecessary expense or perhaps the reserve of the minority; the eco warriors among us. Indeed, we remain firmly rooted in debates about cost-effectiveness and length of repayment when it comes to including elements such as green technology or natural building materials in self-builds and less inclined to think about the long-term implications of failing to include them.

Commercial housebuilders do little to readdress this balance, either: happy to typically mass produce houses that meet, but rarely exceed, Building Regs' standards that have mostly failed to reflect the ever-changing (and worsening) state of the environment.

Humans' impact on climate change is, despite the noises of powerful men across the Atlantic, undeniable. Sustainability is the new watchword. Fortunately, most self-builders are not only pioneers (indeed as early adopters of renewable technology, for instance, self-builders have helped to push this tech into the mainstream), but the vanguard of change.

While we often use terms like 'eco-friendly' and 'green' interchangeably and variously, there should be renewed focus on the six Rs of sustainability: rethink, refuse, reduce, reuse, recycle, replace.

Here we use these as the foundation for 15 tips to ensure your homebuilding project can proudly display its sustainable credentials.

1 CONSIDER EXACTLY HOW MUCH SPACE YOU NEED

Bigger is not always better when it comes to building or extending a home. Consider that for every extra square metre you include in your home design you will require more raw materials to build it, more energy to heat it and more items to finish and decorate it. Think closely what you want to spend your money on if your budget is tight: size or sustainability? Should you build a smaller, more efficient home made from sustainable materials, or a larger but lower specced house? If you are claiming a green build, the former is the more obvious choice.

2 SOURCE LOCAL MATERIALS

Much like the food we eat, building materials and products from around the world are available to us whenever we demand them. Historically, however, homes were built using materials that were available in the local area. There are good reasons for going back to this way of thinking. Rarely does the cost of a product truly reflect its environmental cost. The most efficient building materials can become less sustainable if they are flown across the world to reach you, so prioritise sourcing local products where possible.



3 REUSE MATERIALS

If building on a replacement plot, this might take the form of reusing bricks or roof tiles or recycling building materials (where clean) to create hardcore following the demolition of the previous house, or repurposing architectural elements from the old house within the new design — such as wooden flooring, beams, tiles and doors. Be aware that reclaimed materials have higher wastage rates. There's further practical advice too: plan ahead and either retain an old garage on site or make your site hut a future shed or summer house, for example.

4 USE LOCAL CRAFTSPEOPLE AND TRADES

This somewhat follows on from the previous point, but consider using local tradespeople. The reasons are twofold. Firstly, these people are more likely to know where to source local materials and do so at good rates — and, they may also be able to recommend complementary and/or follow-on trades and craftspeople. But secondly, you are putting money back into the local economy and supporting local labour. Thinking about the distance your trades have to travel probably won't be the thing that makes or breaks whether you hire them, but it's all worth thinking about. Plus there are practical reasons too: it's easier for them to attend site at short notice, and for you to hire them for further work in the future.

5 SIMPLE SOLUTIONS NEED NOT COST THE EARTH

In older homes, draughtproofing remains the cheapest and easiest means of improving thermal efficiency in your home — and many of the costs involved can be recovered in the first year. From draughtproofing strips for windows and doors to insulating below floorboards, many of these materials are readily available and relatively simple to install on a DIY basis.

6 CONVERT OR RENOVATE

Renovating or converting a property is simply 'upcycling' on a larger scale. Unfortunately there are financial penalties for favouring renovation over a self-build (mainly you cannot reclaim VAT on a renovation, for instance), but preserving the life of a building, either by updating it for modern life or converting it from a non-residential use, is the perfect example of rethinking and reusing.



7 BUY SECONDHAND

This applies to more elements than you may realise: from security fencing (which can be resold again afterwards) to visiting architectural salvage yards for items such as interior doors and sanitaryware. Buying secondhand is a way of extending the lifespan of existing products — a necessity in our somewhat disposable culture. Online sources, from ebay to Gumtree to Freecycle, are fabulous ways of picking up what you need without drawing upon further resource for the manufacture of new products. There's plenty available out there — Jon Martin, winner of the *Daily Telegraph Homebuilding & Renovating* 2017 award for 'Best Green House', sourced the floor for his decking for free when a nearby factory closed down, and used an old school gym floor throughout the interiors. Imagination and patience are key.

8 CONSIDER A FABRIC FIRST APPROACH

If you want to follow a fabric first approach, you will need to concentrate on the design and materials of your new home rather than the equipment you kit it out with. The focus here is on insulation and airtightness; making the envelope as efficient as possible. As architectural designer Charlie Luxton advises: "This is what we should be focusing on with sustainable design: designing right and then building right. By embedding all the clever thinking in the house fabric, it should never go wrong."

9 REDUCE WATER USAGE

There is no legal requirement to use drinking quality water to flush a toilet. Rainwater can be used for toilets, washing machines and outside use — providing a decrease in demand for an increasingly stressed mains supply. Rainwater harvesting is relatively simple to implement in a project: water off the roof is collected via standard guttering and downpipes, filtered and typically stored in an underground tank (although above ground tanks are available). It is then pumped back into the home to be used for non-potable applications. “Planning applications require consideration of restricting the amount of water that is used in the home and also a drainage strategy. Rainwater harvesting supports both criteria and helps conserve our drinking quality mains supply,” adds Jae Lester of Rainwater Harvesting.



10 PLAN FOR SUSTAINABILITY

Building a sustainable home is one thing, but living in one is entirely another. This can range from attempting to meet your energy demand from renewable sources to going full *The Good Life* and living off the land. There are certainly ways to reduce your impact on the landscape during the build process, including replanting trees, designing in a pond (better still is to leave those already on the site undisturbed) or planning your soft landscaping to include space for the growing of vegetables and fruit. It also pays to think about the surrounding flora and fauna. “Get rid of hard surfaces such as tarmac, brick

drives and concrete,” urges eco expert Tim Pullen. “Grass is of little interest to insects, and adds nothing to the ecology. A mixed species, grassed area (with plantain, daisy, chamomile, yellow rattle, maybe some wild flowers) is more interesting to look at and useful to the fauna in the area.”

What’s more, if you’re looking to include a horizontal array ground source heat pump – which requires significant ground excavation – you will require a sizeable plot, so plan this into your landscaping design. Finally, while they need to be carefully designed and installed, green roofs can help replace some of the ecology lost when building an extension or new home.

11 THINK LONG TERM

One (slightly macabre) way of revolutionising the way we view housing is to consider a ‘cradle to grave’ approach. This not only means considering the lifecycles of the materials used in your home (as touched upon previously), but can also relate to designing in adaptability to ensure your new home is fit for purpose throughout your life. It might not be the most cheerful of thoughts, but a sustainable home becomes less sustainable if you have to move in 10 or 20 years’ time as your circumstances change. Truly living a sustainable life will require us to consume less, and this includes moving fewer times so building more sustainable homes will help reduce the number we have to build in the long run.



Benefits Of Rainwater Harvesting:

- Reduce mains water usage.
- Increase chances of planning permission by satisfying water usage and drainage strategy requirements.
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12 DITCH THE PLASTIC

From wooden window frames and doors to metal rainwater goods — alternatives to plastics are available. The world is becoming wiser to the environmental impacts of plastics: from the damage caused to wildlife if incorrectly disposed of to the time it takes for them to degrade, and it's likely that the world of self-build will wise up, too. However, the key issue is the impact of plastic's manufacture and the large carbon footprint associated with it. Substituting plastic out for more sustainable products will reduce the demand for plastic products, and, long term, reduce its supply, too. (Read more on page 43.)

13 CONSIDER YOUR CARBON FOOTPRINT

Every product you use in your project will have an embodied carbon cost. Embodied carbon is the carbon dioxide produced in the manufacture and transportation of a building material or materials and has a strong bearing on how green a home is. You might assume that triple glazing is necessary for any sustainable home — but the decision might not be as clear cut: “Triple glazing is more costly to produce, produces much heavier sections and has a greater embodied energy cost than double glazing,” says self-building expert Mark Brinkley. So think carefully about these decisions and do your research. (Read Mark's double VS triple glazing piece on page 79.)



14 USE NATURAL MATERIALS

There are natural materials that can be specified throughout the build to increase any project's sustainability. This could include using FSC-certified timber for joinery or carpentry, to sheep's wool, woodfibre and cork — all options for insulation. *Homebuilding & Renovating's* environmental expert Tim Pullen says: “These are good options for people looking for good levels of breathability and those interested in the eco-credentials of a product. Natural materials do not ‘gas-off’ (release toxins) either.”

15 MAKE A POSITIVE CHANGE

Typically we have viewed green elements of self-build as a shopping list rather than a to-do list — choosing the bits we can afford and taking one or two items off the list to implement in a project. There is nothing wrong with this approach — some change is always better than no change at all. But don't let your curiosity end once your project is complete. Continue to seek out how to make your home as sustainable as it can be.

Remember that nothing might be as influential as showing other people that sustainable self-building is viable and affordable. So read, research and be inspired by the stories of other self-builders and renovators — and don't forget your own part in the story. If you have built a sustainable new home (or conversion), get in touch at homebuilding@futurenet.com or through our social media channels and we can continue to spread the message.



NATASHA BRINSMEAD is *Homebuilding & Renovating's* Associate Editor. She's just renovated an Edwardian cottage



How to transform a semi-detached house

Just what are the issues that come with renovating semi-detached houses and how can they be overcome? We share advice on how to make the most of yours

The first semi-detached houses appeared in Britain in the 17th century, built by wealthy landowners on their estates for workers. Since then there has been a huge rise in their popularity and they now provide homes for the largest proportion of homeowners in the UK — 32% in 2017 according to Barratt Homes.

They have their pros and their cons, like any house type. While they offer a greater degree of privacy and, usually, personal space than terraced homes or flats, they can still suffer from noise transference and issues surrounding shared spaces and walls.

We take a look at the common issues renovators of semi-detached properties may face and how to solve them.

1 Noisy neighbours?

One of the main issues for owners of semi-detached properties is sound transference from the adjoining house. “Most adjoining walls of existing semis are solid brick (in Victorian or 1930s properties). There is a number of technical solutions to help with soundproofing in these instances,” begins James Munro of Granit Architects. “Ideally you would create a new cavity wall, but if this is not feasible, you can usually stud out a new internal wall with sound insulation, paying particular attention to junctions at floor and ceiling level.

“We have just used a membrane system [Danosa Acoustic Membrane 2] at one of our projects to control music leaking from the building. It is applied to all the internal walls,” continues James Munro. This is a high density bitumen modified membrane specifically designed to behave as an anti-resonant material.

Other ways to overcome the problem is to look at furniture positioning and the general layout of the house — keep rooms that benefit from quiet, such as bedrooms, away from the party wall.

“Place joinery or kitchen cupboards against party walls,” advises James Munro. “In one of our projects the clients suffered from hearing their neighbours late at night



in their bedroom, so we placed full-height storage along the party wall, along with a new en suite, creating an acoustic buffer.”

2 Adding an extension

Whether you require more space than your house is currently offering, or want to create a stronger connection between the house and the garden (a great way to pull extra natural light into otherwise dark interiors incidentally), an extension is the way to go.

Extending to the rear also allows a greater freedom to put your individual mark on the house, unlike exterior changes to the façade of the house which tend to be more limited by a requirement to fit in with the adjoining house.

Most semi-detached houses lend themselves well to rear and side extensions, as well as loft conversions, meaning there are plenty of ways to gain extra space. However, be aware that:

- If creating a side extension, drainage may run down the side — this will need to be re-routed.
- Side access can be tight — consider how materials, skips, diggers etc. will reach the extension works.
- Large amounts of glazing to side elevations of a new rear extension could raise concerns related to overlooking



ABOVE: TIGHT PLOT
To make the most of the limited space available, Design Squared Architects (www.designsquaredltd.co.uk) came up with a ground floor extension with plenty of glazing for this London house — a loft conversion was also carried out as part of the work.

LEFT: FAMILY FRIENDLY
This 1930s semi has been transformed by a contemporary rendered rear extension, designed by architect/homeowner Samantha Worrall, and a small side extension. The rear extension houses an open-plan kitchen, dining and seating space.

**TWO-STOREY EXTENSION**

As part of this renovation of a dilapidated semi by Granit Architects (www.granit.co.uk), a two-storey extension was added, along with two ground floor side

extensions. Extensive glazing now brings in lots of natural light, while rendering the entire rear of the house has unified the old and new. A loft conversion has also been included.

— consider other ways of drawing in extra light (see number 8).

3 Update the exterior

Being attached to another house can make exterior changes tricky, particularly when it comes to changing or updating the cladding material. Even giving brickwork or existing render a fresh coat of paint can leave what were a fairly well-matched pair of houses looking mismatched side-by-side. “Ideally you want to persuade your neighbour to match what you are doing and explain the benefits of doing so jointly, but this is not always feasible,” says architect James Munro.

If it is just a case of repainting the exterior, you need to ensure that the line between the two houses is crisp and true, but if you are opting for an entirely different cladding material, there will be a few issues to consider.

“Complications come where the new cladding sits proud of existing walls,” explains James. “You will need to weatherproof the edge of the new cladding. Ideally you want to hide the joint behind a rainwater pipe.”

Like it or not, you need to at least mull over how your changes are going to impact on the adjoining building — not only for the sake of your neighbours, but also because external changes that look completely out of place are going to negatively affect the final value of your own home too — in short, what might look great on a detached house will not necessarily look any good on a semi-detached property.

“The most important factor is to take stock of the existing architectural merit of the house,” advises architectural technologist Michael Healey of Design Squared. “Either produce a proposed design that embraces the existing architecture or propose an ultra-modern design instead.”

A similar approach can be taken if new roofing materials are required. If your neighbours do not want to join you in

replacing the roof covering, aim to opt for materials that match the original and ensure your roofer is well-versed in re-roofing attached properties.

Cladding aside, there are plenty of other changes you can make to the outside of the house to improve its appearance, such as new windows, doors, porches and rainwater goods.

4 Consider the ceiling price

When renovating, updating or extending a semi-detached house, always bear in mind that whatever you do, it will still be a semi-detached house — and this will be reflected in its end value. Unlike detached houses, there tends to be a ceiling price — that is, a maximum amount — that potential buyers will be prepared to pay for a house that is attached to another one.

While you may well add plenty of value to your house by making improvements and adding space, do beware of spending more than the house will ever eventually be worth if you one day intend to sell.

5 Be aware of Party Wall rules

Owners of semi-detached houses (and terraced houses) need to be aware of the Party Wall Act, a set of rulings brought in to regulate all building work that could affect the structural integrity of all shared walls and neighbouring properties. You will need to take it into consideration if you plan on:

- Converting the loft or cellar.
- Extending up to the boundary between adjoining properties.
- Digging new foundations or creating a basement.

A surveyor can produce a Party Wall award, stating what works are being carried out and how they will be conducted. They will also survey the neighbouring house and produce a report of its condition — noting existing defects. This means you won't be accused of damage you didn't cause. (Visit www.homebuilding.co.uk/the-party-wall-act.)



6 Dealing with shared driveways

Some semi-detached homes were built with shared driveways and, if your renovation project is one of them, you will need to check out how this is going to work with regards to parking. Of course, a building project will also mean skips and deliveries, often left on driveways, too.

It might be that your neighbours are happy to simply divide the driveway in two, either by a large physical barrier, such as a wall or fence, or simply with a pathway or imaginary line.

However, if there is any kind of dispute over who owns what you will need to refer to the property deeds. It might be that the driveway is owned by your house but that you neighbour has a right of way over it — or vice versa.

NEW LIVING SPACES

The owners of this property were keen to incorporate a large open-plan kitchen, dining and living space. Design Squared Architects (www.designsquaredltd.co.uk) came up with a rear and side extension, which, along with the glazed flat roof, ensure the once dark house is now full of natural light.



BRINGING IN LIGHT
Not only was the floor plan reconfigured in this semi-detached house, but a ground floor side and rear extension, with roof lantern, was added to create a bright open-plan living space too. (www.designsquaredltd.co.uk)

Less commonly the ownership is actually split right down the centre line, with both properties having rights over the other half.

This is definitely something to check prior to purchase to avoid future disputes.

7 Ensure you have a firewall in the loft

If you discover that there is no partition between your loft space and that of your neighbour, you will need to address this as it poses a fire risk.

“Fire-break walls are simply party walls in attics,” explains chartered building surveyor Ian Rock. “When surveyors check in roof spaces one issue we look for is missing fire-break walls, which are occasionally encountered in older terraces and semis. Normally this is due to the original builders trying to save money, leaving the loft between dwellings open.

“Less commonly it can be linked to structural work, where party wall stacks have been removed (which should have been done with Building Regs’ consent). This is a serious concern because of possible fire spread but it also raises concerns related to security and a possible lack of structural support to roofs. This often causes problems when homeowners come to re-mortgage or sell since mortgage

lenders will normally make a retention to pay for remedial works,” continues Ian.

“Issues with missing fire-break walls can normally be resolved by building a new wall in lightweight concrete blocks or even stud partitions lined with fire-rated plasterboard with a skim plaster finish to provide minimum 30 minutes fire resistance. Any gaps in existing walls must also be filled, with thick mineral wool insulation and mortar, for example.”

8 How to introduce natural light

Due to the nature of their construction, semi-detached houses only have windows to one side, meaning natural light can often be lacking from the more central spaces.

There are several ways to ensure light is able to reach the entire layout. The most obvious is to add an extension featuring plenty of glazing, such as sliding or bifold doors and/or rooflights before removing internal walls that might prevent this new light from flowing through the space.

However, if an extension is not on your agenda, simply replacing old windows or doors with new ones featuring a larger amount of glazing will help, as will inserting rooflights and lanterns.

Shifting the layout of the rooms and the way in which they relate to one another can also have a huge impact on light levels. Open up smaller rooms to one another, either by removing walls entirely (being sure to consult a structural engineer first) or just partially (for instance, by introducing high-level glazing between rooms, or open doorways).

Finally, consider celebrating some areas of the house as darker, more intimate spaces and re-purpose them as rooms that benefit from a little less light. “We often embrace certain parts of the house as the darker rooms for a specific purpose, for example a TV room or snug,” says James Munro of Granit. “The whole house doesn’t need to be flooded with light, it’s more interesting to have contrast that accentuates the rear part of the house.” **H**



GOING UP
Robert Wilson of Granit Architects (www.granit.co.uk) replaced an old kitchen and lean-to on his semi-detached property, with a two-storey glazed extension and added a third storey to the original building.



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5 cost-saving tips for renovating your bathroom

A new bathroom can transform a home, here's what to consider before starting work — plus, a few budget-savvy top tips



1 Work with what you've got

It can be tempting to change the layout of an existing bathroom when renovating. However, changing the location of the toilet – and more specifically, the soil pipe – can be an expensive, labour-intensive job. As such, unless taking on a remodel or extension project, it can pay to leave the toilet where it is and plan around it. Using graph paper, mark down its location and the positions of any windows and the door as a starting point for your new layout. From here, you can trial out different layouts and assess where to position other key items of sanitaryware.

3 From the floorboards up

Ensuring the existing subfloor (the floor structure which lies beneath your floor covering) is sound is a key task when renovating a bathroom. In an older house, the subfloor may need some work; a self-levelling compound may be required to provide a flat, level surface over an existing concrete floor, for instance, while timber floors might need bracing to support the weight of new sanitaryware. Installing an uncoupling membrane will also help prevent bathroom floor tiles from cracking in homes with timber subfloors.



4 Don't forget about 'hidden' costs

In addition to new bathroom fittings and the cost of any new plumbing and electrical work, there are some less than obvious potential tasks associated with a bathroom renovation project. For instance, studwork may need to be built (to house a new bath or wall-hung sanitaryware) and the existing walls may require skimming or replastering once old tiles have been removed. It pays to consider these jobs from the outset to ensure you stay on budget.

2 Consider heating

A towel radiator is a cost-effective solution to creating a comfortable temperature in your bathroom. Dual-fuel towel radiators are a good option for bathrooms as they can be used when the central heating is turned off and some newer models are fully programmable for lower running costs. While electric underfloor heating mats are cheaper to buy and install, it's worth weighing up the long-term running costs (wet underfloor heating is often cheaper to run). Installing wet underfloor heating (UFH) can be a little bit trickier because of the depth required for the pipes and screed, but low-profile systems can be a solution here.

5 Consider the small details

A bathroom is a functional space but should also be a place that allows relaxation and sanctuary. As such, it's worth planning a lighting scheme that offers a solution for both early mornings (downlights are great for general background lighting) as well as relaxing in the bath on a Friday night.

Again, adequate storage is also a must and a worthwhile investment from the outset. Built-in alcoves and shelves are a good idea, as are freestanding units, which can also create a sense of space (as shown above — the Dawn freestanding bath and basin from Waters Baths of Ashbourne) without losing sight of bathroom practicalities. **H**

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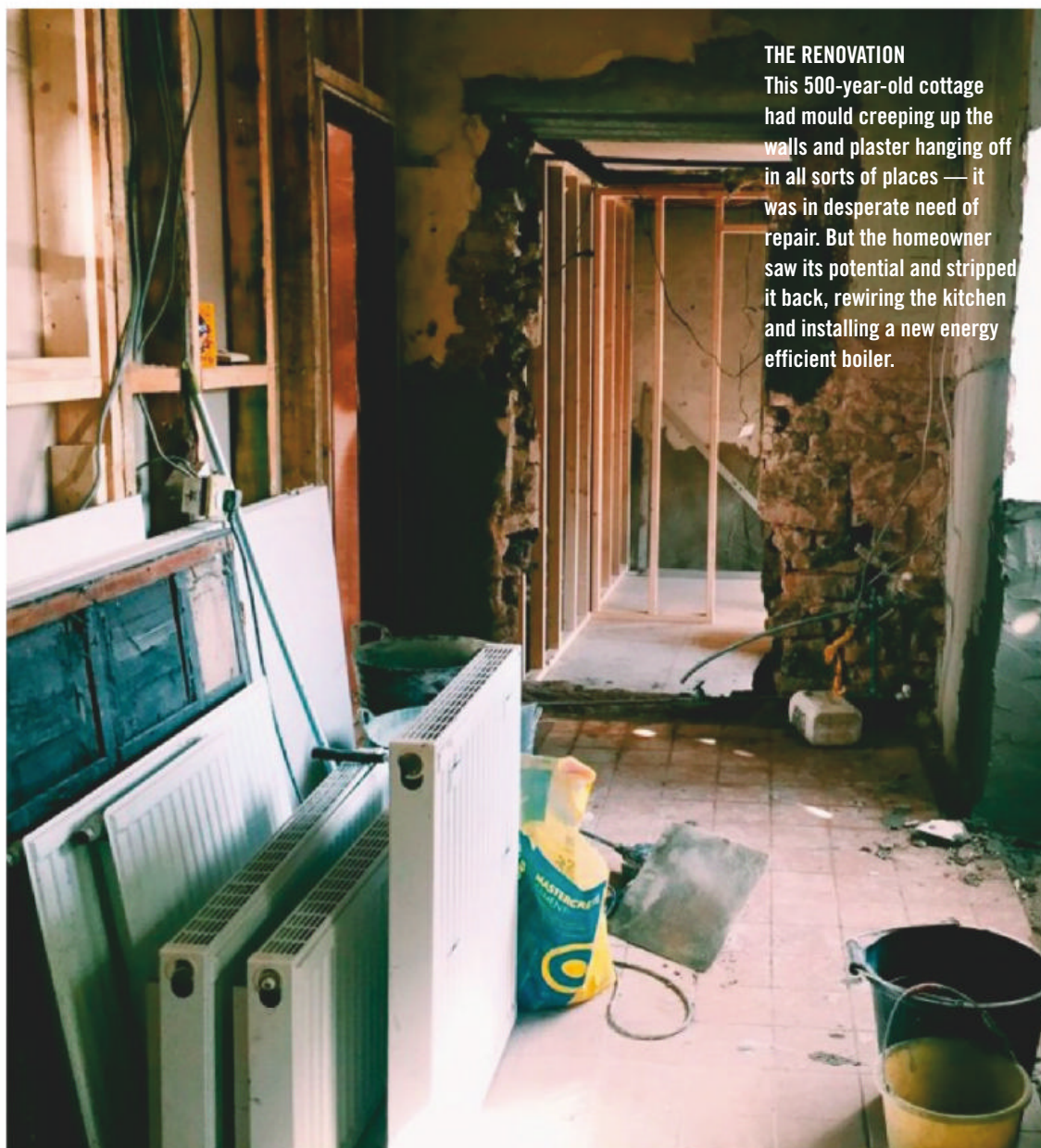




IAN ROCK
is a chartered
surveyor,
director of
www.rightsurvey.co.uk and the
author of eight
popular Haynes
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EXTENSIONS: Your essential services health check

It pays to check if your current boiler, electrics and water supply can cope with heating and lighting additional space to avoid nasty budget-busting surprises. Ian Rock explains all



THE RENOVATION
This 500-year-old cottage had mould creeping up the walls and plaster hanging off in all sorts of places — it was in desperate need of repair. But the homeowner saw its potential and stripped it back, rewiring the kitchen and installing a new energy efficient boiler.

Keeping a construction project within budget is rarely an easy task. And when it comes to building extensions there are additional layers of complexity that can play havoc with your finances.

One area that's notoriously prone to cost overruns is supplying the heating, lighting and power to the new accommodation. It's fairly common to underestimate how many lights, sockets and taps will ultimately be needed in new extensions, and this can often trigger unbudgeted charges for 'extras'. But the main reason for savage price hikes can be traced back to the design stage, where there's a natural tendency to focus exclusively on the new space you're creating. Often very little thought is given to assessing whether the existing power and heating systems will be up to the job of coping with the additional load. And placing extra demands on your existing services can be a bit like piling tonnes of extra baggage into an old car and wondering why it's going so slow. So before extending your existing services it's worth giving them a quick health check.

Extending the electrics

One of the first things contractors need to consider when quoting for wiring a new extension is the age and condition of the existing electrical system. Wiring regulations are updated with astonishing frequency so even a fairly modern system is unlikely to fully comply with current standards. For example, new consumer units (aka 'fuse boxes' or 'distribution boards') installed from 2016 onwards need to be non-combustible, either with casings of metal or enclosed in a non-combustible cabinet. However, this doesn't automatically mean you can't run a new supply from an older existing electrical installation to your extension. There are plenty of consumer units dating back 15 years or more that are perfectly adequate since each circuit is protected with MCBs (miniature circuit breakers) with additional protection from RCDs (residual current devices). These innovations have massively



Placing extra demands on your existing services can be a bit like piling tonnes of extra baggage into an old car and wondering why it's going so slow

reduced the risk of fire and electric shocks and the latest units combine both functions using residual current breaker with over-current (RCBOs). Systems with antiquated re-wireable fuses however are regarded as a safety hazard and will need to be replaced.

Many properties where the electrical system dates back 35 years or more will now be overdue for complete rewiring. In most cases, however, where the electricians are neither decrepit nor brand spanking new, you'll be reliant on the judgement of individual electricians who may have an incentive to drum up business, hence the importance of getting several quotes.

The circuits supplying power to socket outlets on the walls are arranged in a 'ring main' loop. One circuit can normally serve a floor area up to 100m² (about twice the size of a floor in an average terraced house) and any number of standard power points can be provided within this. So for smaller extensions it's often possible to extend existing circuits, unless the wiring is very dated. Where the accommodation you're building is more sizeable, new independent circuits can normally be run from the existing consumer unit, assuming it has sufficient spare capacity.

Kitchens are high demand areas and need their own dedicated circuits. However, where an extension is designed simply to enlarge an existing kitchen it may be feasible to extend the circuit that's already there. Electric cookers, showers and immersion heaters also require separate fused circuits, and cables supplying anything outdoors should have their own subsidiary consumer unit.

Lighting systems are also typically arranged with one circuit supplying each floor, although new lighting circuits may need to incorporate smoke alarms and shaver points.

All new electrical work must comply with Part P of the Building Regulations, which restricts most DIY electrical work. However, you are still allowed to perform some limited tasks yourself, such as extending existing circuits or installing

new light fittings. This may be all that's required for a small extension, although a test report should still be obtained on completion. Electricians normally self-certify that their installations comply with Building Regulations and should be registered with a body that gives them the necessary 'registered installer' status. Upon completion, it is a legal requirement for the electrician to test the new system and hand over a signed BS 7671 electrical safety certificate.

Water supply

Most extensions need a water supply to serve any new kitchen, bathroom, cloakroom or utility. Connecting from the existing house is usually fairly straightforward although it helps if there's a cold supply pipe within reasonable proximity.

The first job is to locate the point where the incoming underground pipe surfaces within the house, often under the kitchen sink or in a ground floor cloakroom where there should also be a stopcock to cut off the supply. Older systems will have cold water tanks in lofts which supply all the taps, mixers and showers etc in the house except for the mains-supplied kitchen, so you need to tee off the incoming pipe before the 'rising main' disappears up to the storage tank. These days water pressure is normally more than sufficient so accommodating extra taps and appliances shouldn't result in any loss of pressure elsewhere in the house.

Interestingly, designing a new extension also presents an opportunity for rainwater harvesting. Specialist firms like www.freeflush.co.uk and www.rainwaterharvesting.co.uk can supply systems that channel relatively clean surface water from roofs into internal or underground storage tanks, which can then be used for flushing toilets with consequent savings on water bills.

Heating and hot water

Heating engineers are not generally shy when it comes to sharing their observations



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Andy Stevens

FIRST FIX ELECTRICS: LIGHTING AND SOCKETS — HOW IT'S DONE

1. Cables are tacked to ceiling rafters with clips.
2. Alternatively, your electrician will score small holes with a spade bit in the rafters and run the cable through them.
3. The coils of cable will be left to grab through holes in the plasterboard later on.
4. Your electricians plan will

- pinpoint where the spotlights will be so your electrician will know where to make a hole in the newly plasterboarded ceiling.
5. Your electrician can now pull the electric cable through and fit the spotlights.
6. Next, sockets. The size of the back box will depend on the finish.
- 7 & 8. Wet plaster was chosen for this project. The back boxes were chased into the wall by roughly 5 or 6mm.

with customers, and one view that's sometimes expressed is that "modern boilers don't last" (or words to that effect). While today's boilers are super eco-efficient in terms of energy use and miserly emissions, the fact that their useful life may extend to little more than 15 years stands in contrast to older appliances which commonly last twice as long.

Since 2007 it's been a legal requirement for new boilers to be of a more efficient 'condensing' design, so anything pre-dating this will shortly be due for replacement anyway. So the age of your appliance will be a key factor in deciding whether it makes economic sense to retain your existing boiler to supply the extension.

Even if it passes the age test there's no guarantee that it will be able to cope with the additional load. So the next question to ask is whether it's a conventional boiler or a 'combi' that provides combined heating and hot water without the need for a separate hot water cylinder. In many cases combination boilers will struggle to supply much additional hot water, so replacement with a more powerful appliance may be necessary for some extensions.

The final question to assess whether it's up to the job of supplying your newly extended home is how big the new space is going to be. Calculating the optimum boiler size for the enlarged property is



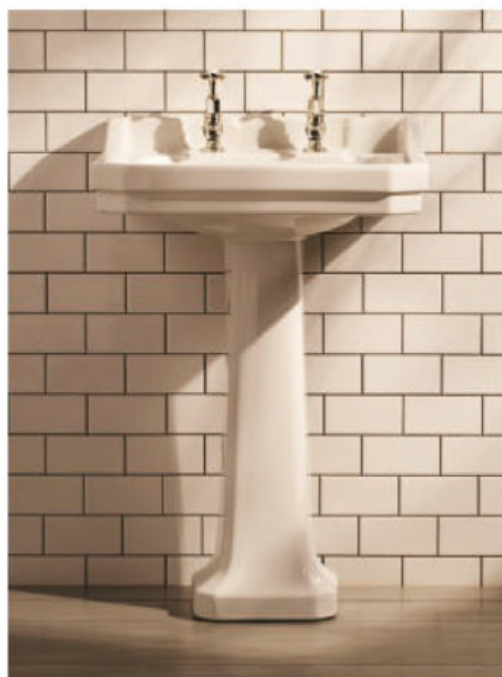
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done by totalling the output of all the radiators or underfloor heating (UFH). A plumber can do this for you. To get a figure for the total heat required you then add the hot water requirements (typically about 2kW). It's standard practice to design heating systems that are capable of heating the whole house to a constant 21°C and the optimum size for each radiator to provide sufficient heat will depend on factors such as room size and the thermal efficiency of the house. Boilers are rated by the power they produce in either BTUs (British Thermal Units) or kilowatts (1kW = 3,410 BTU). As a rough guide, a 50,000 BTU (15kW) boiler should be capable of heating a typical three-bed house with 10 radiators plus a hot water cylinder.

● Consider the boiler flue

Another factor to consider is whether the location of the existing flue clashes with your new extension, as the boiler may need to be moved or the flue diverted. Alterations to heating systems and installing appliances must, by law, be carried out by suitably qualified heating engineers registered with Gas Safe for gas fired boilers or OFTEC for oil fired boilers. The same safety rules apply for gas hobs and cookers, and for extending any gas or oil supply pipes (which are normally run externally in copper pipework). However if your DIY skills are up to the task, there's nothing to stop you doing some of the hot and cold water pipework supplying taps and radiators yourself.

● Alternative heating and hot water options

If your existing boiler is working at full capacity but is a mere youth with plenty of life still in it, rather than prematurely ditching it, there are a number of possible options. Fitting the latest programmable controls and thermostatic radiator valves (TRVs) to your existing system can significantly reduce the level of demand. Together with upgraded insulation to improve the thermal efficiency of your



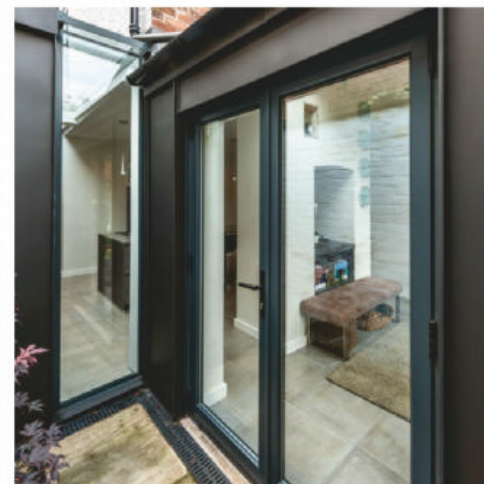
property, this could free up sufficient spare capacity for it to provide the necessary additional space heating. The demand placed on the boiler could be further reduced by replacing an old hot water cylinder with an efficient mains-fed pressurised system. This could be combined with a new renewable energy system, such as an air source heat pump or a solar thermal hot water system (including a new twin coil cylinder), with respective costs of around £8,000 and £5,000*.

To heat a well-insulated new extension might only require around 15 watts per cubic metre of living space, so the extra demand may not be particularly high.

Fixed electric storage heaters, although cheap to install, offer relatively little control and running costs are comparatively high. So in a well-insulated extension, a better option might be UFH. But which type?

Wet UFH systems utilise warm water pumped at low pressure through pipework concealed in the floor screed and are fairly simple to install in new floor construction. Although dearer to fit than a standard radiator system, UFH is more energy efficient since it works at relatively low temperatures (10 to 15°C).

The alternative electric ('dry') systems take the form of thin flexible mats containing heating elements that can be laid directly under floor coverings such as ceramic tiles, but they're relatively expensive to run and are usually best confined to smaller rooms such as cloakrooms and en suites. **H**



CASE STUDY

"Rewiring the whole property was one of the most costly elements"

Mike and Rebecca Fairhurst took on the task of converting and extending a beautiful Victorian terraced building from offices back into a fantastic family home. But it was a big ask, especially as they lived on site with their three children throughout the build. So, one of the main priorities was to replace the electrics. Rewiring the whole property was one of the most costly elements of the project.

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All of Kloeber's timber products are FSC® certified (FSC® C101873); a scheme which helps take care of the world's forests, so if you are looking for a sustainable option this could be the perfect choice for you. What's more, not only does timber offer a warm, soft aesthetic, it also achieves excellent U values — keeping the heat in and the cold out. It's a great energy-efficient option for all properties, especially eco extensions and new builds.

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system to ensure a flawless, low-maintenance finish. You can choose from over 200 RAL colours or a selection of wood stains. They also offer a dual colour option, which allows you to match the colour of your door, or window frames with the interior and exterior of your home.

A visit to one of Kloeber's four showrooms in Cambridgeshire, West London, Buckinghamshire or West Sussex is highly recommended. For more information or some impartial advice contact them on 01487 740044 or at www.kloeber.co.uk. 



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Jargon buster

Overwhelmed or confused by construction or architectural vocab? Don't fear — we're here to help decode the building jargon

KITCHEN CARCASS

The carcass is the part of a kitchen unit you don't see when the door is shut, comprising the sides, shelves, back and base panels and so on. Some companies sell entire units, fitted with doors or drawer fronts, while others sell the doors and carcasses separately. Carcasses are usually made from melamine-faced chipboard or similar, and doors will be faced or wrapped in vinyl, PVC, laminate or melamine.



MAKING GOOD

A construction term describing the process of repairing or restoring something to a previous or finished standard.

HIP ROOF

A pitched roof structure with slopes on all four sides which meet at the corners. It may or may not have a ridge.

PLANT ROOM

Sometimes known as a boiler room or mechanical room, a plant room functions as a dedicated space to contain the equipment that supply a home with services such as ventilation, electrical distribution, water and so on.

BRICK BONDS

A brick bond is the pattern bricks are laid in; the bond has an impact on the aesthetics of the house, as well as its structural integrity. Each horizontal row of bricks is called a course and a course is made up, most commonly, of headers, stretchers or both. A header is the smaller end or 'face' of a brick and a stretcher is the long, narrower 'face'. The most common brick bond is stretcher (which, as the name suggests, uses stretchers only) but other designs include traditional Flemish bond, English bond and contemporary stack bond.

COMMUNITY INFRASTRUCTURE LEVY

The Community Infrastructure Levy (CIL) is a planning obligation obtained from developers for new 'local infrastructure' (which includes schools, hospitals, local parks, etc). They can be a huge financial burden as they have to be paid before work commences and can range considerably in cost. Fortunately, most self-builders are exempt as long as they follow the right process. **H**

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MARK STEVENSON
has worked in
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managing
director

PLOTS: How to avoid common legal issues

*Mark Stevenson
navigates you through
the legal pitfalls that
could befall your self-
build and leave you
out of pocket before
work has even started*



Every self-build project will have to deal with legal issues at some point. The legal minefield extends from purchasing the plot right through to agreements to ensure services are connected, and most issues will need to be dealt with before a project can commence. This two-part guide will help you to avoid a dud plot (one which cannot be developed) and will potentially save you thousands by explaining how to deal with issues before they get a chance to derail your project.

In my opinion, land should only be purchased once planning consent is assured. By virtue of having to develop a design and ask for permission, anyone following this rule will become significantly invested in their project. Despite such commitment, it is vital that the legalities associated with land are fully considered before the plot is purchased. This will ensure the project isn't legally flawed and to make sure the next steps taken are in the right direction.

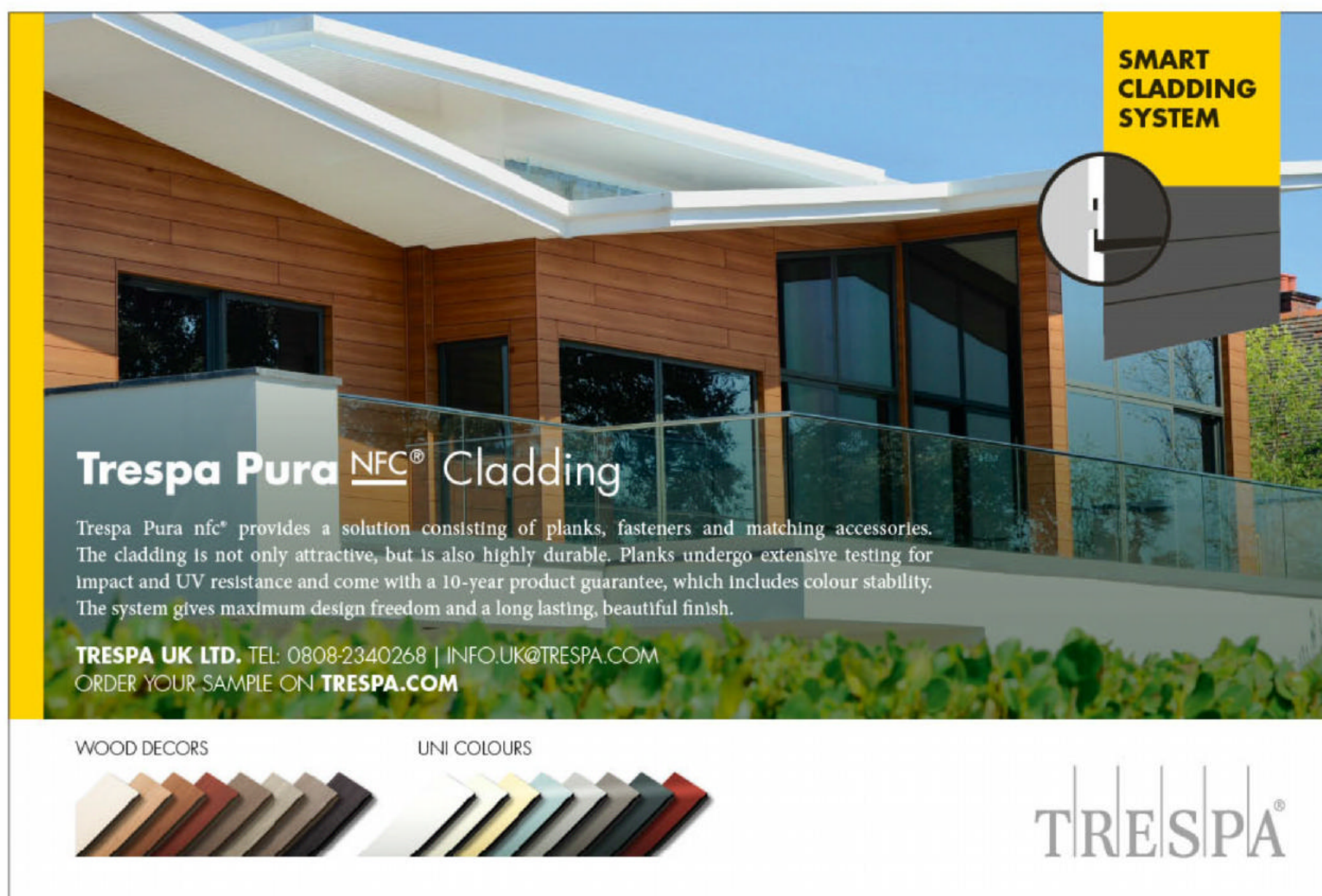
When it comes to legal issues, you only have to Google 'legal land disputes' to scare yourself silly — there's no end of

tangles people find themselves in. However, the reality is that most issues are avoidable provided you employ the right advisors from the outset and carry out the necessary due diligence before making an irreversible commitment to buy the plot.

When buying property, including land, the 'caveat emptor' rule applies, which makes the buyer responsible for identifying any potential problems. Whether you already own the land or not will influence how the legal issues are teased out. The good news is that when you're buying land the process requires a conveyancing solicitor (see overleaf for what they do) to represent your interests and therefore, provided they do their job properly, the conveyancing process will flesh out areas of concern and your solicitor will advise the best course of action.

Aside from the small matter of planning consent, from a legal point of view, there are three important aspects involved in a land purchase. These are:

- Title deeds
 - Access to the plot
 - Servicing of the land
- We'll address all three overleaf.



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DEALING WITH COVENANTS

Andrea and Duncan Pyle converted a series of Grade II-listed dilapidated barns that had once been owned by the Duchy of Cornwall. Their plans for the conversion were dictated by the covenants that existed: "There were a number of covenants on the barns which meant that the plot could not be developed into more than two dwellings," explains Andrea. "And if treasure was ever found under the barns, it would belong to the Duchy."

What is a conveyancing solicitor?

A conveyancer manages the process of buying the land and, in looking after your interests, will undertake specific searches to understand the legal status of the land being purchased. These include searches covering locality, drainage and highways etc.

The purpose of the searches is to identify areas of concern requiring further investigation prior to making a firm commitment to purchase. The conveyancer will advise how best to deal with potential problems — even if this means cancelling the purchase.

TITLE DEEDS

Make sure land ownership is clear

Ideally, title deeds to land should be 'absolute' to make sure ownership is clear and without question. Not all titles are registered as the requirement to do so only started in 1987. Land that hasn't been traded since then will be unregistered and therefore landowners and title deeds may be difficult to track down. Problems can occur with unregistered land when someone believes they own it but doesn't have a title to prove so. In such circumstances, the claimant submits a statutory declaration declaring they've always used the land and, if supported, are granted 'possessory' title. After 12 years, a 'possessory' title can be upgraded to an 'absolute' title, provided no one else has made a 'better' claim of ownership.

From a self-build point of view, caution should always be taken when considering building on title that's possessory as there aren't any guarantees that a competing claim of ownership won't be made. That said, don't be put off, just make sure the sensible checks are carried out and adequate insurance is put in place just in case someone knocks on your door.

Look out for covenants

Another commonly overlooked legal issue relates to covenants. A covenant is a 'promise' contained within the title deeds which affects or limits the use of the land concerned. Covenants restrict the use of the land or limit how it might be developed. For example, a covenant may restrict a plot to be developed for 'a' house. In this context 'a' means one, therefore if you're trying to purchase a garden plot, the restriction of one house effectively becomes a ransom which must be settled to

be able to build the second home.

There are two main types of covenants that self-builders need to be aware of:

restrictive and **overage**.

Restrictive covenants are used to restrict what might be built on a plot. For example, previous owners may require design proposals to be approved by them before anything can be built. Obviously, this can prove limiting and is typically used by people selling garden plots to control what's built.

Restrictive covenants might also prevent land being used for business purposes which might be a problem for self-builders intending to run a business from home.

An **overage** is an obligation placed on land by a previous owner to ensure they benefit from future development. An overage might require a percentage of the uplift in value of the land as a result of developing it. The overage is usually added to the title deed in the form of a covenant and may not be time bound.

Self-builders should be cautious when it comes to overages. Obviously, once the build is complete, a bill will be due but in the first instance (which shouldn't be a surprise) therefore it's vital that the cost of settling the overage is accounted for in the valuation of the plot. Ideally, a self-builder should settle the overage before starting the development. At this stage you're in a good negotiating position but if negotiations don't go well, there's always the option to change your plans or even stop the project if needs be.

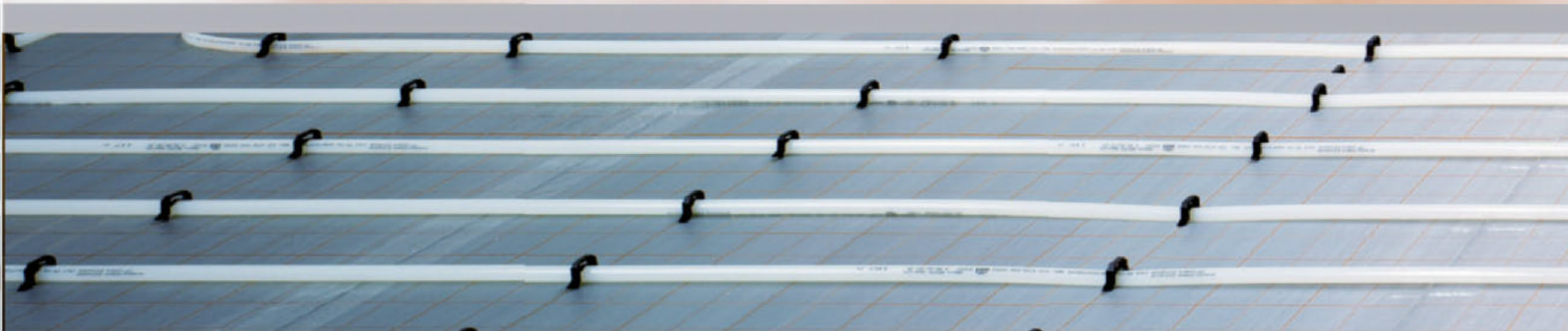
There are a lot of strange historical covenants and not all are enforceable as beneficiaries may no longer be around. The conveyancing solicitor may therefore advise that insurance should be taken out as a precautionary measure.

Check the land registry

The land registry plan is an integral part of the title, and shows the extent of the property by red edging. Make sure the land registry plan and boundary positions

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NAVIGATING ACCESS ISSUES

James Davies undertook a dramatic conversion of a storied schoolhouse in Hackney, London, but had a series of complicated access issues to resolve before work could begin. “As well as dealing with the freeholder of the site, I also had to approach the owner of the adjacent car park in order to arrange and purchase an easement to obtain right of way, not only for access but to also bring services to site — which required a huge 90m-long service trench to be built underneath the car park,” explains James.

are clear and match up to what you think you’re buying — often they don’t!

Because land registry plans are fairly small scale and as physical boundaries such as fences move over time, it’s fairly common to find they don’t match and therefore your expectations may be different to what’s legally being bought. It’s often hard to identify the exact location of boundaries and whether they are ‘out of place’. It’s therefore a good idea to arrange for a topographical survey to map the physical features and plot an exact plan of the existing site including the boundary positions. Having a topographical survey enables the title plan to be compared against what you think you’re buying to make sure everything matches up. Surveying the boundary positions potentially saves a significant amount of time and money further down the line if someone disputes the plot boundaries.

LEGAL RIGHT OF ACCESS

Make sure you have unobstructed access

Access arrangements to building plots should be clear and the land required to gain access should extend directly up to the adopted highway. If this isn’t possible, the land concerned should at the least have a legal right to cross third party land to access the plot in perpetuity.

Added to this, when it comes to applying for planning permission, you’ll need to demonstrate that there are adequate visibility splays in both directions, so that you can exit safely when leaving the driveway.

It’s not unusual to find that a plot with planning consent does not enjoy access

VISIBILITY SPLAYS

When developing a plot, you’ll typically need to demonstrate to Highways that there is visibility in either direction when exiting the plot, and this meets minimum criteria.

rights and therefore despite having the benefit of the permission to build, the lack of a legal right of access could prevent its development or prove costly in agreeing a settlement to cross what’s known as a ‘ransom strip’.

Plots served off private drives can prove particularly problematic. Private drives are usually owned by the owners of the houses they serve and therefore agreement will be needed from every co-owner of the private drive to be able to rely upon it for access. Even if a private drive looks like a ‘road’, if only one of the co-owners refuses to grant a legal right of access, a permanent right of access to the proposed plot is prevented and development won’t be possible.

Don’t just think of access as relating to being able to walk or drive onto your plot. The same access arrangements will also be required below ground in order to have a right to connect services to the mains in the adopted highway.

Easements and wayleaves

An easement is a right attached to land for the benefit of a third party. Easements cover lots of rights such as rights of ways, right to light and are often used by mains services providers to legally secure the right to install their services (gas, water, electric and telecoms). A wayleave is similar to an easement, but differs in how they are put in place and are considered more temporary (i.e. can be removed).

Beware of rights of way

Access and rights of way can prove to be a double-edged sword. It goes without saying a self-builder will need a legal right of access to build and live in the newly built home, but what if someone else has a right to access or cross your land? Clearly, this would prove inconvenient, but if the right of way crossed where you intend to build the problem becomes tenfold.

Anyone finding such a problem should hope to be able to identify a beneficiary with whom they can negotiate to remove the right of way in the same way as dealing



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Self-build mortgages

Any financial institution lending money to fund the build will want to make sure the investment is sound and there's no risk they won't get their money back.

The self-build lender will require a 'legal charge' on the land which will be noted on the title deeds. In doing so, the lender will require a conveyancing solicitor to carry out the necessary searches and due diligence to identify any risks such as covenants and easements etc. Depending on the findings, the lender may require you to take out insurance to protect them and you in the event of an unexpected legal claim relating to the title.

Next month...

We will set out the essential legal checklist and explain everything you need to know about project-related legal matters, including planning obligations, licences and party wall agreements.



PAYING A RANSOM

Adam and Billi Street spearheaded this astonishing custom build project in London, which saw them unite their six neighbours in a 1950s ex-council building to join them on a demolish and rebuild project. The end result saw all participants double the size of their homes in an architecturally significant new build. However, a ransom strip, discovered during the project, threatened its completion and required Adam to find a swift solution to minimise any disruption to the project.

with a ransom strip. If there's no clear beneficiary and the right of way extends to a public right of way, you've got major trouble. While there are legal processes to have public rights of way 'made up' or diverted, the process is protracted and may be opposed by any number of people who don't share your vision of self-building.

Make sure services can be connected

The legalities regarding mains services work two ways, too — they can be beneficial or may prove a frustration. If you need to make a connection into a service such as a drain on land not owned by you then an easement will be required. Provided your neighbour agrees to allow the connection and is prepared to sign the easement, this could save thousands in not having to pay the utility companies lots of money to bring the service down the adopted highway.

However, the flip side of this could prove expensive as easements effectively become an exclusion zone to future development — make sure an easement hasn't been granted on your land allowing a service to cross. Hopefully, if there is such an

easement it will not be in a place where it could be a problem, but if it's under where you want to build your new home, again you may find the service provider objecting during the planning consultation process and a large bill falling on the doormat to cover the cost of diverting it.

What if you already own the land?

If you're one of the lucky few that already own their plot (you're building on your large garden, for instance) and plan to build a home, do ensure you do not overlook the legal status of the land and the implications of building on it. Unless you intend to apply for a self-build mortgage, there is no requirement to employ a conveyancing solicitor and therefore the searches and checks they do as part of the process of buying land aren't undertaken. This may result in the issues previously discussed not being fully understood and considered prior to developing a design and securing planning consent.

At the very minimum, it's worth brushing off the old titles deeds and asking 'what's going to stop me building my home here?' If there isn't anything obvious, then dive a little further and ask 'what's going to prevent me servicing my home and getting to it once its built?'

If the answers are clear, and there's nothing obviously wrong, you should be fine, but if there's any doubt or you're in danger of jumping to assumptions that there's no legal issues, appoint a conveyancing solicitor to review your plans to make sure problems don't lie ahead. **H**



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How to save money on your lighting

*Energy-efficiency
expert Tim Pullen
switches on to the
lighting revolution
that could save you
thousands of pounds*

Having an Energy Performance Certificate (EPC) is mandatory when it comes to selling your home, but a careful read reveals some important cost-saving measures that all homeowners can benefit from. Indeed, the EPC calculations show that the two cheapest, most effective improvements you can make to your home are draught-proofing and replacing traditional light bulbs with light emitting diode (LED) bulbs.

Low energy lighting options have been around for some time but there is still confusion over their use. This confusion seems to be based on three things:

price, low energy bulbs are expensive; **light quality**, they are deemed to be variously brighter, dimmer and/or harsher than traditional filament bulbs; and **what constitutes 'low energy'**, with fluorescent, compact fluorescent lamps (CFL), LED, halogen lighting available, it can be difficult to assess which is the best option for your home.

Low energy?

Halogen bulbs are not, and never were, low energy bulbs. They are still available, but not for long and are likely to be gone by the end of the year. It's a matter of efficiency — how much of the electricity consumed by the bulb is converted to useful light (see table, right). The traditional tungsten filament bulb was between 5% and 10% efficient — most energy used being given off as heat. Halogen bulbs are up to 20% efficient and give more light than a filament bulb (1,200 lumens for a 50W halogen bulb compared to 850 lumens for a 60W filament bulb) but the light is directional — good for highlighting a spot but less good for lighting a whole room — so we tend to need more of them to achieve the levels of illumination we want.

It should be noted 60W incandescent bulbs are no longer available and halogen bulbs, as mentioned previously, are likely to be unavailable by the end of the year.

Therefore the realistic choice is between T8 fluorescent tubes, CFL or LED bulbs. From a purely cost/performance viewpoint the LED and T8 tubes are clear winners. But then functionality comes in to play; it is unlikely that fluorescent tubes will be welcome in the lounge or bedroom, mainly because of the brightness and colour of the light they emit. While there are LED bulbs available now for virtually every situation. And, unlike CFLs, LEDs illuminate as soon as you flick the switch.

Light quality

I can just about remember my grandmother moaning that the newfangled electric light was too bright. Twenty years after she lost her gas mantles she still thought they were better. The light quality of low energy lamps is different to filament bulbs, and some will say LEDs are too bright, CFLs are too dim, and halogen and fluorescent too harsh. There are, however, warm-white versions of both CFL and LED which do give the same quality of light as filament lamps.

While most suppliers and manufacturers will specify whether a lamp offers ‘warm-white’ or ‘cold-white’ light, it’s worth mentioning that some will also specify the Kelvins (a measure of the colour temperature), which is indicative of the warmth of the light. The higher the Kelvin rating, the whiter the light: around 2,700K offers warm white, about 4,000K gives a cooler light, and 6,000-6,500K offers light similar to daylight.



Downside of LED bulbs

The LED market is still self-regulated. This means that not all manufacturers put all their products through all the tests. LED bulbs should last 25,000 hours (which equates to 15 to 20 years) but they should also be able to switch on and off 30,000 times. Not all can do that. The big brands – Philips, Sylvania, Osram, etc. – can be relied on, but check that other brands’ products have been fully tested.

SAFE CHOICES
The Lumi-Plugin (www.lumi-plugin.com) system combines LED lighting with plugins including smoke, heat, CO alarms and PIR sensors to create streamlined lighting schemes with top safety credentials.

EFFICIENCY COMPARISON

	60W INCANDESCENT	50W HALOGEN	T8 FLUORESCENT	CFL	LED
LUMENS	850	1,200	1350	800	850
POWER (WATT)	60	50	18	13	9
LUMENS PER WATT	14	24	75	62	94
LIFESPAN (hrs)	1,000	2,000	20,000	8,000	25,000
PRICE PER BULB	n/a	£2.30	£3.50	£2.50	£2.00



“

If we assume there are 20 LED bulbs in the house then the saving is around £3,920

Not all LEDs give the same colour light, which can be an issue. Some produce a cooler, bluish light which may or may not please, while the best LEDs will give the same colour as incandescent bulbs. Again, check the packaging for information about what light to expect.

Then there is colour rendering — that is, how accurately the light reveals colour (it is why artists like Cornwall or the south of France as the natural light has good colour rendering quality). The self-regulated nature of the industry means that bulbs from different manufacturers are likely to reveal colours differently. That can make it difficult to get a consistent look in your home if you use bulbs from different manufacturers.

Dimmable LEDs are commonly available but you may have to change your dimmer switch if you want to use them as replacements for existing light fittings. Without getting too technical, dimmer switches reduce the current flowing to the bulb. Some LEDs will not switch off at the lowest dimmer setting as it consumes such a small amount of electricity that the switch could still send enough current to keep the bulb glowing.

Upside of LED bulbs

Yes, low energy bulbs cost a good deal more than the tungsten filament bulbs we used to buy — but that does not necessarily mean that they are more expensive. As with many energy-efficient products, the savings are made after the initial purchase. A higher up-front cost? Yes, but long-term savings should be made.

The cost of running a 60W incandescent bulb for 25,000 hours will be around £230 (assuming electricity at 15p/kWh for the whole of that period and including 20 new bulbs). The cost of running a 9W LED for 25,000 hours will be around £34. A saving of £196, per bulb. If we assume 20 LED bulbs in the house then the saving is around £3,920.

Worth the investment?

Like it or not, low energy bulbs are here to stay. Compared to energy-efficient bulbs, traditional tungsten and halogen bulbs are simply too inefficient and expensive to run. Modern CFL and LED bulbs are so much more efficient that it makes no sense to use anything else.

Companies like Which? test bulbs on a regular basis and find big



differences between bulbs from different manufacturers in terms of longevity, how well they deal with being switched on and off, the quality of the light and the way they reveal colours. This highlights that the technology is still young; development and improvement will come. A decade ago LED bulbs were costing close to £20, couldn't be dimmed and gave only a cold blue-white light. Now they are nearer £3, dimmable and give a warm-white light. If you are building a new house or renovating then research the market, find the bulb you like and install them. If you are just living in your house then the sensible approach would be to replace bulbs with an LED one as the old bulb dies.

No doubt my grandmother would have reacted in the same way as the current low-energy naysayers to these changes, but maybe it's time to get used to it — it's a done deal. **H**



CLOCKWISE FROM LEFT: The Vita Clava Dine is a sleek aluminium shade that can be fitted with a 6W LED bulb (www.cloudberryliving.co.uk); This large run of reclaimed 1950s industrial lighting (top) has been refurbished and

updated with an LED tube by AEI Lamp & Lighting Ltd (www.skinflintdesign.co.uk); These Masako glass LED pendants from Made.com (RRP: £139) feature integrated LED bulbs for up to 20,000 hours of light.

3 STYLISH LED PENDANTS



1. The Alonsa LED pendant (£238.80) from Dar Lighting has a sculptural form with a single line of LED lights contorting round. (www.darlighting.co.uk)



2. This XL Hereford Globe, £349, is paired with a Plumen 001 LED bulb to create a statement pendant light. (www.fritzfrayer.co.uk)



3. The brass Kokeshi pendant light, £140, by Mineheart comes with an LED bulb ready to make a statement in your hall or dining area. (www.limelace.co.uk)

Ask the experts

Our team of homebuilding experts provide the need-to-know answers to your questions. This month, they advise on blown render and replacing dated conservatories



ROB DWIAR
Rob Dwiar is a landscape designer and writer, RHS gold medal winner and 2016 RHS Young Designer finalist. On Twitter: @RobDwiar



TIM PULLEN
Tim is *Homebuilding & Renovating's* expert in sustainable building and energy efficiency.



IAN ROCK
Ian is a chartered surveyor and director of www.rightsurvey.co.uk. He has also written a number of Haynes Manuals.



JEFF KAHANE
Jeff Kahane is an architect at the award-winning Jeff Kahane + Associates practice (www.jeffkahane.com).

HOW CAN I INSULATE MY DAMP WALLS?

Q Our newly acquired rendered house was built in 1822 and we have found damp walls in three rooms. We've discovered that our chimney stack is missing lead flashings and soakers and that the ground floor damp is on walls with plants growing outside. We want to insulate all the walls, but are wondering what our first steps should be.

ANDREW STANDING

TIM PULLEN SAYS:

It is clear that the damp penetration to the upstairs bedroom is due to those problems with the chimney stack. You need to urgently rectify the issues and fit lead flashings and soakers, and address any big cracks in the render that make it easy for rainwater to get in.

The low level problems are a different matter and there are probably a number of factors at play. The plants are a likely culprit: they are encouraging water to enter the wall and preventing sun and wind from drying it. You should also check the external ground level — if it is as high as the internal floor level it needs to be dug away so that it is at least 150mm below it.

But I would suspect that this is not the true extent of the problem. I'd recommend inspecting the render on all external walls: look for powdery bloom and flaky paint — indicators of damp penetration. There will be two causes for this: gypsum plaster on the internal surfaces and external pointing done with sand and cement mortar. To get these walls properly dry (and ready for insulating) both of these need to be removed as they are preventing the walls from breathing.

Your first step should be to repoint with lime mortar to encourage any moisture to evaporate away. Then hack off the internal gypsum plaster and replace with (40mm or 50mm) wood fibre or cork board insulation and lime plaster. The result will be dry, warm, well insulated walls.

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DO I NEED MY SIDE RETURN ACCESS?

Q *We're going to be extending into the side return of our house which means losing access to the garden from the front. We want to update our garden and were planning to do it after the build but friends have recommended we do it before we lose the access as it's much easier for the tradespeople and will limit disruption. What's your advice?*

STEPHANIE PRICE

ROB DWIAR SAYS:

Maintaining side or rear access to your garden shouldn't be overlooked as a luxury but rather an incredibly helpful access point to your property — not just your garden. In the context of getting your garden redesigned, it is an extremely helpful factor and feature. In fact, one of the first things a contractor

is likely to ask you, particularly if you've completed a design, is: 'Do you have a back or side gate for access around the back?' When you say no, you may see an eyebrow go up.

While it's not impossible to overhaul a garden with access limited to just through the house – I have heard of stories of tonnes and tonnes of soil and rocks being transported through houses by hand, or cranes lifting things in over boundary fences – it will typically mean that everything takes longer and, inevitably, costs more.

Also remember that cutting off access to the garden could well impact other relentlessly real-world activities like getting the hose to the front to water plants or wash the car, or taking the bins out. It's one of those things that sounds boring and that you can do without, but once it's gone you'll very much notice it — only do it if it's really necessary and think carefully about how it will impact the use of your property in the future.

If it's possible and you've exhausted the possibilities of rejigging your extension's design to keep that access, my overwhelming advice would be to do all your major works in the garden first using the existing access, and only when that is complete, consider an extension that might take that access away.

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HOW SHOULD I REPAIR THE BLOWN RENDER ON MY PERIOD PROPERTY?

Q Last year I bought a stone house (likely to have been built about 150 years ago), which is rendered externally with roughcast. On one south-facing corner there's a 1m²-2m² area where the render is hollow and is beginning to fall off in large chunks. What could have caused this? Other areas of the house are showing a few very minor cracks, too. Is there anything I can do without having to have the whole house re-rendered?

BETTY DAVIES

IAN ROCK SAYS:

It's quite normal for walls with a rendered finish to require periodic maintenance. Most rendered masonry tends to have a painted finish which requires redecoration every seven to 10 years, depending on exposure.

There are a number of possible causes of localised patches of render losing their key and coming loose. A previous leaking gutter could be the culprit — once moisture gets trapped between render and the wall behind frost will eventually cause freezing and expansion, blowing the surface.

Another cause of damage can be structural movement in the building, so check for signs of any significant localised cracking to the exposed stonework and also internally in close proximity to the area of damage. Bear in mind however that it's normal for buildings of this age to be affected by seasonal ground movement due to their shallow foundations, so minor hairline cracks developing over time in render is very common and is not normally significant, other than the

fact that it can allow rain to penetrate. It's also worth noting that sunny, south-facing surfaces tend to be more affected by thermal movement.

Damaged render can also be the result of poor workmanship or an incorrect mix, but such defects tend to manifest themselves quite soon after application. Impact damage from vehicles is also a possibility, usually found at lower levels.

If the render is original, dating from the time of construction, it will probably be a traditional lime-based mix, although any subsequent re-rendering or patching is likely to be in harder cement. Hairline cracks of the kind you describe are more common in cement renders which are more brittle and less flexible than lime.

The most likely scenario for repair is to first check the wall surfaces generally for other areas of hollowness (e.g. by tapping with a mallet to see if it makes a hollow ringing sound). Then hack off any loose patches of render. It's essential to fix any sources of damp, such as leaking gutters or downpipes, and to allow sufficient time for moisture in the wall behind to dry out before applying fresh render. This work is best carried out in the drier months and a skilled tradesperson should be able to match the existing mix and apply a suitable roughcast finish.

Although the materials for patching render cost very little, you may need to allow time for two or three visits to carry out the preparation and apply individual coats.

“

Damaged render can be the result of poor workmanship or an incorrect mix

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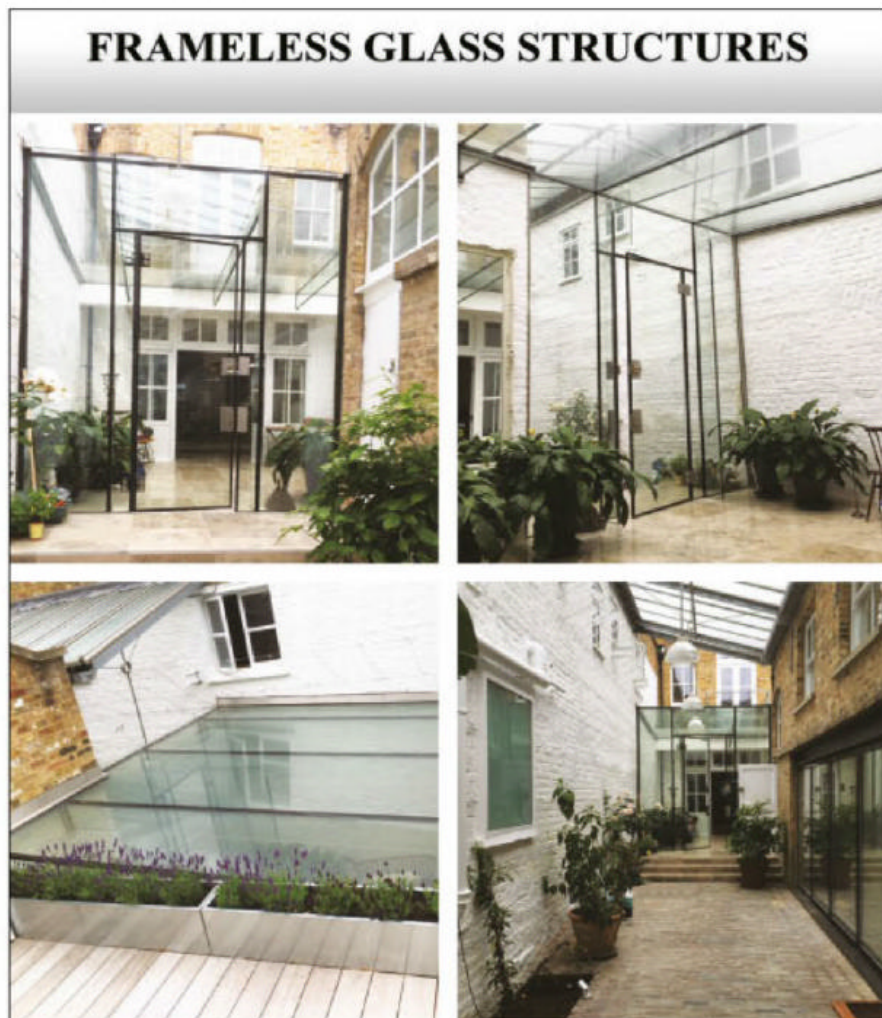
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WHAT SHOULD I DO WITH MY CONSERVATORY?

Q *We have a dated conservatory on the back of our house that's connected to our kitchen but it's cold in winter and too hot in the summer. We want to make it into a more liveable room, but we are not sure how we begin the process. Do we need a designer to help us with plans?*

SUE & PAUL CLARK

JEFF KAHANE SAYS:

If you are looking to start a project like this then yes, talking to an architect is a good first step. In fact, you should ideally talk first to two or three local architects, and maybe an engineer, to find the most appropriate answer for your specific situation and budget. Yours is an extremely common problem but there is no universally applicable solution: so approach it carefully.

If a full rebuild is not affordable then explore just substituting an insulated solid roof to shield the worst of the excessive solar gain and give you a ceiling for improved artificial lighting. Can the existing structure support the extra weight? Should it include an openable rooflight to avoid starving the kitchen of natural light and maintain ventilation? Will the building inspector accept a solid roof without other major upgrading, as the room will technically no longer be a conservatory — a category exempt from several of the Building Regs? Try getting preliminary free advice on this from your local council's building control or from a couple of private Approved Inspector firms.

Consider whether a solid and overhanging roof would look elegant rather than top-heavy when viewed from your garden. And crucially check that there are no planning implications in any such change: your council might still have a duty planner system giving this basic guidance without charge — especially to householders with no architect present!

As for the cold, re-glazing windows is likely to be costly but you can usually insulate a floor relatively cheaply: check first that a raised floor will not create a trip hazard or necessitate shortening existing doors.

Don't be daunted by asking all these questions: approach the project calmly and methodically, and the appropriate solution will normally become obvious — hopefully without you having spent much in getting there! **H**



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GETTING YOUR PROJECT INSURED

If you're planning an extension project, making sure you have the right insurance cover is critical for your peace of mind



Adding site insurance to the cost of your extension, renovation or conversion might not be something you've either thought about or made a priority for your upcoming project. But you can't just rely on your standard building insurance to cover the cost of any loss as, more often than not, they will not pay out on a loss involving a property under development.

But what if my contractor is insured?

Your contractor insurance cover may not always be the correct course of action. Many contractors only have public liability cover which is not enough as no one takes full responsibility for 'work in progress'. Note that public liability insurance only covers negligent acts and it is sometimes a very lengthy and costly process to prove this. Make sure that you see an original policy and importantly check the limits, sums insured and renewal dates.

Of course, most projects go from start to finish without the need to make a claim but, having insurance just gives you that peace of mind if anything did go wrong you would reduce your level of liability to an absolute minimum.

Any construction project will have risks during the work. These can arise from issues like liability, theft, storm damage and fire, but also from unfamiliar issues like tradespeople not completing the works satisfactorily, your contractor using unsuitable materials or your builder accidentally damaging your home.

The type of project you are embarking on will invariably involve a significant amount of investment, so ensuring you have the correct level of cover in place is essential. Details can be found right of the cover you'll want depending on the type of project you are embarking on.

An extension

Extension insurance should adequately cover the home and all the new work, materials and plant equipment, as well as your liability to others. Extension insurance can cover you if your home is damaged while creating the extension. Home insurance may not, and you must tell your buildings insurer what you are planning to do and get their written agreement that they will provide full cover during the period of the work. More than likely you will have plant, tools and equipment on site, and these will need to be covered and it is highly unlikely that your building or contents insurer will cover these, or any liability relating to the work.

A conversion

You'll want site insurance to cover the structure which is being converted, as well as the new conversion works and materials right up to the point of project completion. Plant, tools and equipment or a residential caravan should be included in the cover, if needed, too.

A renovation

You'll want your insurance policy to cover the property while being renovated, even if you aren't living in it. In addition, it should cover all the new work and materials, right up to completion of the project (additional contents cover may be needed though).

Get the cover you need...

Self-Build Zone offer a range of Self-Build Site Insurance cover. All the Site Insurance policies include public liability and employers' liability cover as standard. Visit www.selfbuildzone.com for more information. **H**



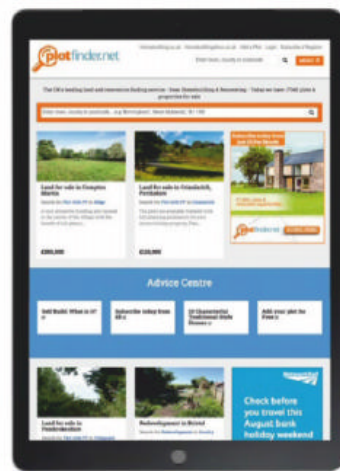
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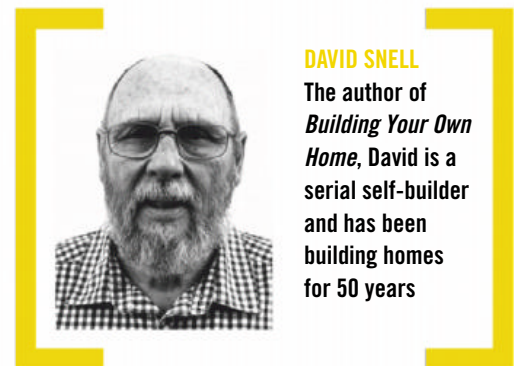
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How to find the best electrician

Experienced self-builder David Snell details how to avoid any nasty shocks when choosing the electrician for your project



Choosing an electrician for your project is a slightly different process to hiring other trades due to the more overt system of control and regulation that exists for this trade. Although it is possible to carry out some minor works yourself, in the main, electrical installations can, and must, only be carried out by competent contractors registered with one of the recognised schemes in order to comply with Part P of the Building Regulations. The three main schemes are:

- **NICEIC** – National Inspection Council for Electrical Installation Contractors.
- **NAPIT** – National Association of Professional Inspectors and Testers.
- **STROMA Certification Limited.**

Of these three, the first, NICEIC is, perhaps, the most recognisable and to find an electrician, you simply need to go onto their website (www.niceic.com) and enter your postcode to be presented with a list of approved contractors in your area. All of which is fine and a good starting point. As with other organisations, it tells you the names of approved members but it pays to do a little more digging in order to find the right electrician for your project.

Recommendations and enquiries

The fact is that, due to the strict control exercised by the professional bodies and building control, there are very few instances of new electrical installations going wrong. And even if they did, the schemes themselves have a compensation and rectification process that will put things right in short order.

Nevertheless, as with any other trade, it pays to make your own enquiries and, if at all possible, it's best to go by recommendation from friends or trades you're working with. In common with most other disciplines, electricians are usually quite happy to recommend contractors in other fields. So a plumber or a carpenter may well recommend a suitable electrician with whom they have worked on a regular basis, but it's unlikely that an electrical contractor will give you a recommendation for another electrician.

I would always recommend looking at their previous work and talking to their previous clients. As well as efficiency, time keeping and reliability, use your own eyes: look for socket outlets and switches being level, for example.

“

While they are involved in the early stages of the build... they are often one of the last out



If you see their job at the early stages, look to see that all wires are properly fixed and secured in straight lines vertically in the walls and clipped to joists in the horizontal. Make sure that, at the termination point (at the proposed consumer unit), all wires are clearly marked with indelible ink as to their destinations and purpose.

A recommendation from a self-builder or somebody who has recently had an extension carried out in your area, is palpably the best of all worlds. It's unlikely that there will be many issues about their work or the end result and the main observations may be on their personality and how they got on with other operatives. This is important, because the nature of their job means that they have to liaise quite closely with other disciplines and any friction can be detrimental to the site's efficiency and atmosphere.

Electricians have a close association with plumbers as they have to work alongside each other on tasks such as the wiring up of underfloor heating systems and the testing and firing up of any boilers. But be mindful that electricians and plasterers/tackers are the most likely to clash. It's not unknown for plasterers to plaster over back boxes or tackers to trap or nail through wires — nothing, perhaps, annoys an electrician more.

Specification and price

The main distinction between a trade such as an electrician and the labour-only trades is the simple fact that they have a 'money input' into the job. Although it is, presumably, possible to find an electrician who will work on a labour-only basis, this trade is almost universally 'supply and fix'. That means that they have to buy materials in order to carry out your contract and therefore they will have a vested interest in keeping you happy and satisfied with their work throughout.

Additionally, while they are involved in the early stages of the build – normally as soon as the home is weathertight – they are often one of the last out. Coupled with the fact that payment is usually made in two stages, first fix or carcassing and then second fix and completion, means that they have to show you a degree of trust.

Getting a price from an electrician can be done in various ways. If you're building a new home, you can opt to ask several electricians to quote for a minimal NHBC specification, where they are all theoretically on a level playing field, and then deal with the one who gives you the most advantageous price and/or you like. You can then go back to them and amend the specification to include everything you want and need.

Alternatively you can prepare a plan and specification for exactly what you want and deal with them on that basis right from the start. The important thing, if you do go down this route, is to be honest with them about what you are asking for. It's not easy,

JARGON BUSTER

Part P is the section of the Building Regs for England and Wales which relates to electrical installations in domestic properties. Most registered electricians can self-certify that their work is Part P compliant.

especially when the house is either not yet built or is a shell, but the more thought that you give to where you want lighting and sockets, the better.

Remember, you can never really have too many power sockets, especially in the kitchen, and it's so much easier and cheaper to put them in at the beginning. Going back on work for any trade is soul destroying and even more so for electricians where they have had to make careful calculations about loading and, once the house is plastered, the wires are not easy to dig out and relocate. A simple request for another power point can result in extra costs of between £50 and £70. So think about how each room will be furnished from the earliest stage: consider what electrical equipment and appliances you'll be having in the finished room and exactly where each item will be going.

It's also worth noting that it is unlikely that the larger electrical firms with fleets of vans, all with the company logo on, will be able to give you an advantageous

price. More likely is that the tradesperson you'll use will be a single contractor who generally works alone.

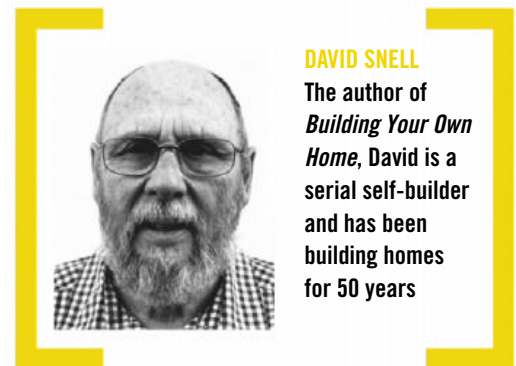
Prices will obviously depend on the specification you ask for and complexity of the project (a renovation may not be as straightforward as a new build), and an electrician may well work out their price on the basis of how long it's going to take them, working on a rate of between £200-£250 per day, or between £25-£40 an hour (depending on where you are in the country). Simply agreeing the contract on that basis wouldn't be a good idea, and the tradesperson with the courage of their own convictions and the confidence in their own abilities will happily amortise their time expectations and add them to the material costs in order to arrive at a lump sum price.

Happily, the electrician is quite likely to be the least troublesome and the most reliable of all of the tradespeople you'll deal with on your job. They're not flashy. They're not prima donnas. They just get on with their task. **H**



Electricians: What do they do?

- Fit temporary consumer unit to building supply
- Install and connect earth rod
- Lay and fix all carcassing wiring
- Drill joists where necessary
- Fix backplates to outlets and controls
- Fix proprietary sheathing over wires in walls
- Fix and wire up faceplates to outlets
- Fix and wire up light pendants
- Fit and wire up ceiling and wall lights
- Fit and wire up all external and security lighting
- Fit and wire up extractor fans and cooker hoods
- Cross bond and earth all pipework and sanitaryware
- Fit and wire up consumer unit
- Wire up thermostats and programmers
- Attend with plumber for firing up and testing of boiler and heating
- Test system



DAVID SNELL
The author of *Building Your Own Home*, David is a serial self-builder and has been building homes for 50 years

How I beat the cost estimator

In the fifth part of this series, serial self-builder David Snell takes a look at the carpentry and joinery costs of his latest self-build, set against original estimates and budgets, sharing his cost-saving tips along the way

Part Five: Carpentry and joinery



Before starting my last self-build project, I sent my Building Regulations' plans off to an estimating service and received back a detailed breakdown of each stage of the build, with costs divided into labour and materials. In this series, I have been looking at the key stages of the build and explaining the costs involved.

Happily, on this project I managed to bring the cost of my build in under estimate, so I'm also passing on my words of advice on areas where savings can be made without compromising quality.

This month, we look at the carpentry and joinery. This trade is often split into three: the roof, first fix and second fix, but the carpentry for the roof has already been dealt with in a previous article, so this article is concerned with the first and second fix elements within the trade.

For the most part, this element of the project involved just the carpenters and, in common with most sites, the first and second fix carpentry was carried out by the same tradespeople.

IN THIS SERIES...

IN FORTHCOMING ARTICLES IN THIS SERIES, DAVID SNELL WILL ALSO BE LOOKING AT THE COSTS ASSOCIATED WITH:

- ELECTRICAL, PLUMBING AND HEATING
- PLASTERING, DRYLINING, TACKING AND WALL AND FLOOR TILING



THE ESTIMATED COSTS*

The estimate for the **materials** for carpentry and joinery:

Intermediate flooring	£384.40
Inter joist/studwork insulation	£315.57
General timber including linings, architraves and skirting etc.	£1,283.33
Bay window trays and roof	£92.41
Staircase and balustrading etc.	£1,157.84
Internal doors	£600.00
TOTAL	£3,833.55

The estimate/budget for **labour costs** attributed to this task:

TOTAL LABOUR COST	£3,420.44
-------------------	-----------

TOTAL LABOUR AND MATERIAL COST: £7,253.99

- The estimate had assumed that we would choose softwood joinery for the staircase and that we would have hardwood panelled doors, but we knew we would choose better quality joinery.
- The fact that we chose more expensive doors – although they were by no means at the top of the price range – shouldn’t alter the labour costs. After all, hanging expensive doors involves the same amount of work as the cheaper alternatives.

THE TRADES INVOLVED IN THIS STAGE

- 1 The first task for the carpenters, once the home is weathertight, is to get the floor down and, once that’s done, any internal studwalls can be built and the door linings fitted.
- 2 That allows the electricians and plumbers to go in and start to carcass out their wiring and pipe runs.
- 3 That’s all the first fix work, and then, once the plasterers, tackers and dryliners have finished (the subject of a future article), the carpenters move onto the second fix part of their remit. That concerns hanging doors and the finishing and decorative bits, including the staircase.
- 4 But there are still elements of first fix that hang over into the later stages for the carpenters to concern themselves with, such as loft traps, and tasks that fit between the trades, such as window boards and insulation within the studwork and the intermediate floor zones.
- 5 On some sites the installation of insulation between the studs and between the intermediate floor joists is carried out by the general labourers, particularly if it’s the itchy mineral wool type. We opted for a more expensive form of insulation between stud insulation — something we regretted later, as, when we went to drill into walls to fix things, the drill bits snagged it and stuck fast.

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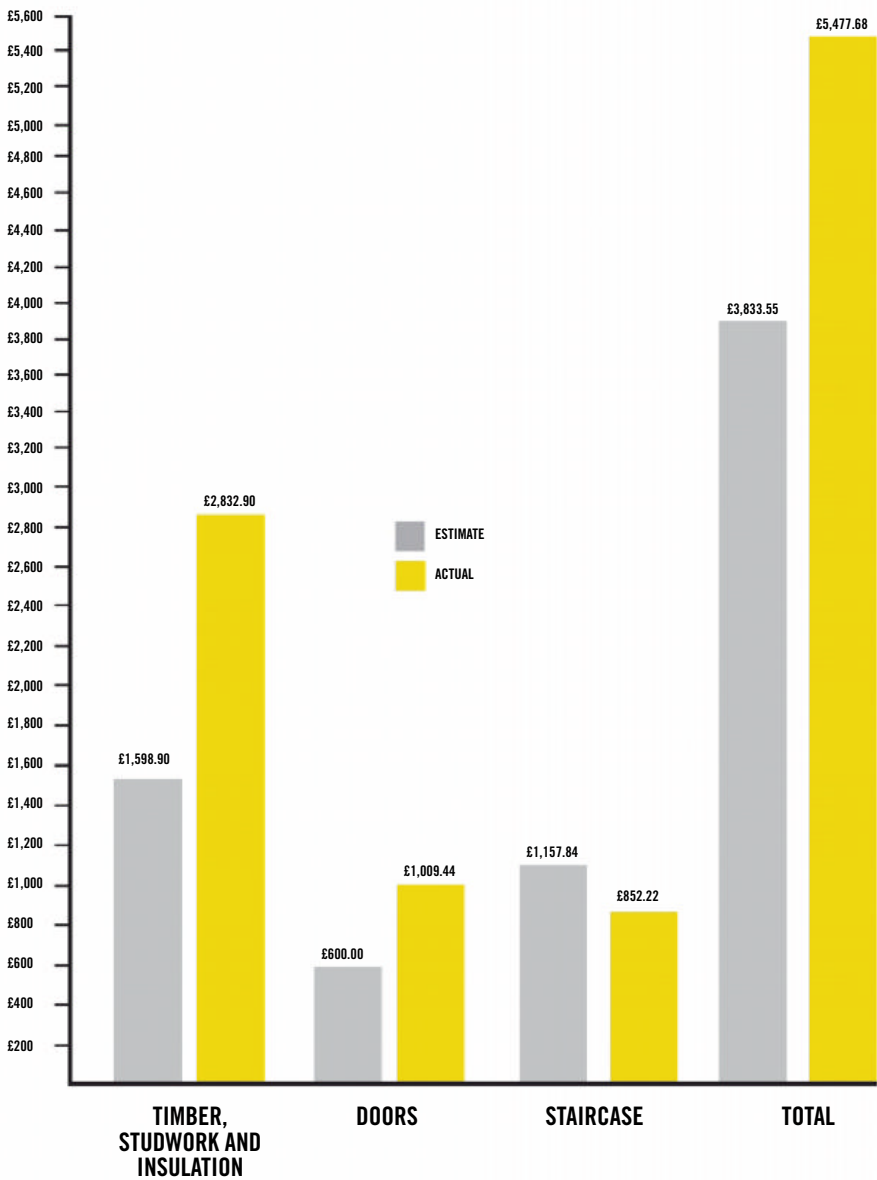


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ACTUAL MATERIAL COSTS*

Flooring materials	£561.91
Loose timber, studwork and insulation	£2,068.44
Second fix timber	£764.46
Packers and door linings	£221.21
Internal doors and furniture	£1,009.44
Staircase	£852.22
TOTAL	£5,477.68



ACTUAL LABOUR COSTS*

We agreed a lump sum for the prime labour costs with our builder. This was based upon, and an addition of, all of the labour estimates for each trade and section of the build within the costings that we obtained from the estimators, and came to a prime sum of £50,691.39, which was payable in five, more or less, equal stages:

- Stage 1: £10,138.28 on completion of works up to and including oversite
- Stage 2: £10,138.28 on completion of works to plate height
- Stage 3: £10,138.28 on completion of roof and slating
- Stage 4: £10,138.28 on completion of internal plastering and external render
- Stage 5: £10,138.27 on completion of the works

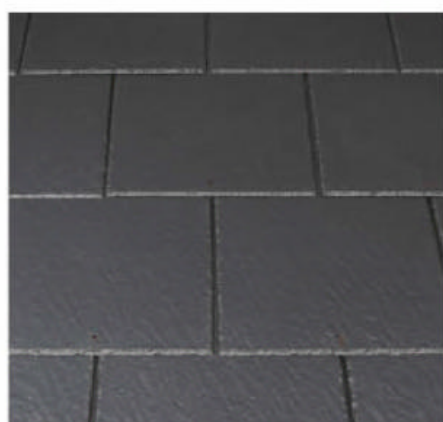
General plant, such as digger and mixers etc., was provided by the builder within the contract. Specialist plant was hired in at appropriate times. (Where there were agreed labour extras, these are listed as individual costs, at the relevant stages.)

* PRICES AS OF 2018

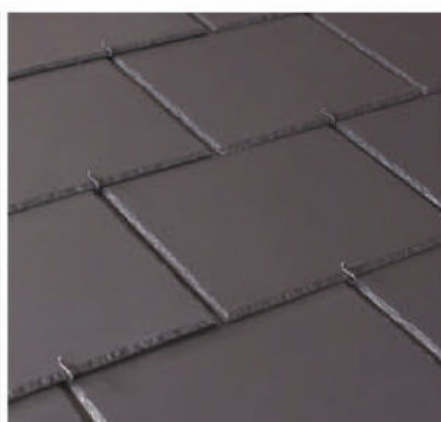


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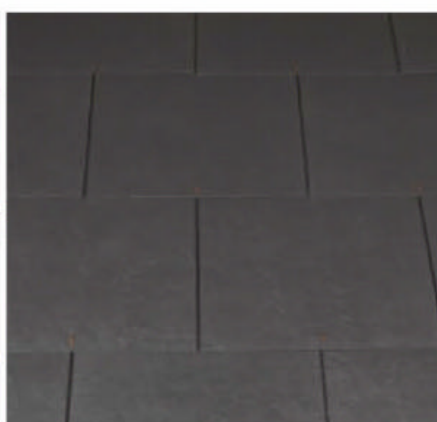
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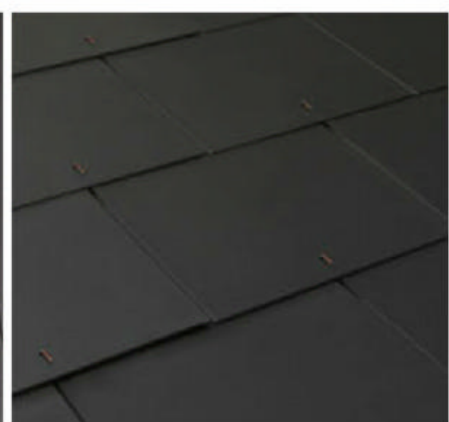
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THRUTONE Smooth surface and square cut edges give a low profile slate at an economical price

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COST-SAVING TIPS FOR CARPENTRY AND JOINERY

- Unless given specific instructions, the estimators are always going to assume the most cost-effective options/products. This means they are going to assume fairly cheap internal doors and a softwood or plywood staircase — as they did for our project. Look out for this when analysing your budget. If that's what you want, then fine. Otherwise you'll have to make a note of probable extras.
- You insulate between joists and studs to cut down on noise transmission. So do the same beneath the staircase. Where the underside is boarded, stuff insulation beneath the treads for a silent staircase.
- Don't forget to allow for the thickness of any future floor coverings such as tiles or carpets when hanging doors.
- MDF skirting and architraves may cost more but the finish and stability is so much better. Be aware though, that if you combine these with softwood linings, there will be differential drying out and that may mean more work in a year's time when you redecorate.

Did I beat the estimator?

Once again we have exceeded the original budget (if you're following the series, you'll know we went over last month, too) — this time by £1,644.13. That's not disastrous and, many people would consider that as being broadly on budget, especially when various factors are taken into account.

1 The doors were more expensive:

£1,009.44 instead £600. In large part the additional spend was down to our choice of door. The estimators had estimated for hardboard panelled-type interior doors, and we wanted something a little better quality. We considered oak but didn't feel the need to spend the hundreds of pounds that solid oak doors can cost.

Luckily for us, Howdens had a sale and we managed to pick up all of the oak veneered doors from them (at a cost per door of just under £50 for the standard doors and a little bit more for the glazed ones). It was way before we needed them and we arranged to store them at my son's unit until they were due to be fitted.

2 We saved money on the stairs:

£852.22 against £1,157.84. This saving came about because we ordered the whole thing online from Stairbox.

3 Timber costs (loose and structural) were greater than estimated:

£2,832.88 against £1,283.33. There was greater expenditure on loose timber for both first and second fix. This can be explained to some degree by the decision to opt for MDF skirting and architrave. However, our timber costs also included the wainscoting and dado mouldings that we used in both bathrooms, which in turn, would have the effect of reducing the cost of the wall tiling that it would replace. And we over-ordered on structural timber. However, this meant that there was sufficient for the construction of the lean-to garage/carport, which was not included in the original estimate/budget. ^H

Your build costs

Find out how much your new home might cost to build, with our self-build cost calculator

One of the most important aspects when planning your self-build or home renovation/extension project is working out how much it is going to cost. This figure will depend on the size and shape of the house, the level of your own involvement, where in the country you intend to build, and the materials you’re going to use. If you can make even rough decisions about these factors, then you can begin to work out how much it is going to cost.

As a very general rule of thumb, expect a building plot to cost between a third and a half of the end value of the finished house. The costs of building a house will then depend on the variables listed above. All building work is usually quoted on a cost/m² basis. For example, a typical new four bedroom self-built home is around 200m² (with 100m² on two storeys) and

usually varies between £1,000-£2,500/m² (although self-builders can achieve costs of between £500-£3,500/m²+).

Renovation costs are more difficult to establish as they involve many variables, but allow at least £1,000-£1,500/m² for work. This, added to the cost of the plot/house and with a 10-30% contingency, should result in less than the final end value of the house. The table below, based on information from the Building Cost Information Service (part of the RICS, the Royal Institution of Chartered Surveyors), is updated monthly to help you work out a more accurate estimate for your self-build. Note, these figures are for build costs only and do not account for VAT, which is not charged for self-build projects.

There is a free online version at www.homebuilding.co.uk/calculator.

		BUILD ROUTE A			BUILD ROUTE B			BUILD ROUTE C			BUILD ROUTE D		
		(DIY + subbies)			(Subbies)			(Builder/subbies)			(Main contractor)		
		Standard	Good	Excellent	Standard	Good	Excellent	Standard	Good	Excellent	Standard	Good	Excellent
SINGLE STOREY													
<90m ²	Greater London	1366	1580	1900	1446	1673	2012	1527	1766	2124	1607	1859	2236
	South-East	1198	1386	1667	1268	1468	1765	1339	1549	1863	1409	1631	1961
	NW, SW, East & Scotland	1089	1262	1517	1153	1336	1606	1217	1410	1695	1281	1484	1784
	Mids, Yorks, NE & Wales	1042	1206	1450	1103	1277	1535	1164	1348	1621	1226	1419	1706
91-160m ²	Greater London	1251	1518	1972	1324	1607	2088	1398	1697	2204	1471	1786	2320
	South-East	1097	1331	1730	1162	1409	1831	1227	1487	1933	1291	1566	2035
	NW, SW, East & Scotland	998	1211	1575	1057	1283	1668	1116	1354	1760	1175	1425	1853
	Mids, Yorks, NE & Wales	955	1158	1506	1011	1227	1594	1067	1295	1683	1124	1363	1771
161m ² +	Greater London	1114	1461	1833	1179	1547	1940	1245	1633	2048	1310	1719	2156
	South-East	977	1281	1607	1034	1356	1702	1092	1431	1797	1149	1507	1891
	NW, SW, East & Scotland	889	1165	1464	941	1234	1550	993	1302	1636	1045	1371	1722
	Mids, Yorks, NE & Wales	849	1115	1399	899	1181	1481	949	1246	1563	999	1312	1645
TWO STOREY													
90-130m ²	Greater London	1314	1521	1868	1392	1610	1978	1469	1700	2088	1546	1789	2198
	South-East	1153	1333	1639	1221	1412	1735	1289	1490	1831	1357	1569	1928
	NW, SW, East & Scotland	1049	1214	1492	1110	1285	1580	1172	1357	1668	1234	1428	1755
	Mids, Yorks, NE & Wales	1002	1161	1426	1061	1229	1510	1120	1298	1593	1179	1366	1677
131-220m ²	Greater London	1107	1340	1700	1172	1419	1800	1237	1498	1900	1302	1577	2000
	South-East	971	1176	1491	1028	1245	1578	1086	1314	1666	1143	1384	1754
	NW, SW, East & Scotland	883	1070	1357	935	1133	1436	987	1196	1516	1039	1259	1596
	Mids, Yorks, NE & Wales	845	1023	1297	895	1083	1373	945	1143	1449	994	1203	1526
221m ² +	Greater London	1021	1308	1641	1082	1385	1738	1142	1462	1834	1202	1538	1931
	South-East	897	1146	1441	949	1214	1525	1002	1281	1610	1055	1349	1695
	NW, SW, East & Scotland	815	1043	1310	863	1105	1387	911	1166	1465	959	1227	1542
	Mids, Yorks, NE & Wales	780	997	1253	826	1056	1327	872	1114	1401	918	1173	1475



You can also use our
self-build cost calculator
online: www.homebuilding.co.uk/calculator

HOW IT WORKS

1 IDENTIFY YOUR BUILD ROUTE FROM THE FOUR OPTIONS

Your level of involvement in the project will influence the build costs. For simplicity, the four most common build routes have been identified below:

BUILD ROUTE A: **DIY + subbies**

Building on a largely DIY basis, substituting around 30% of labour costs with DIY, and employing help with the rest of the building work. Materials purchased directly.

BUILD ROUTE B: **Subbies**

Building using tradespeople hired directly — you will be project managing, but there is minimal DIY involvement. Most or all materials purchased directly.

BUILD ROUTE C: **Builders/subbies**

Building using a main contractor or package supplier to complete the structure to a weathertight stage, with the remaining work undertaken by subcontractors and most materials purchased by self-builder direct from suppliers.

BUILD ROUTE D: **Main contractor**

Building using a main contractor. Building in this way requires the least involvement from the self-builder.

2 IDENTIFY YOUR EXPECTED LEVEL OF SPECIFICATION

The standard of specification that you choose will have an enormous influence on your build cost. For estimating purposes, three general categories of quality have been identified:

Standard

This serves as a basic build quality equivalent to that offered by most speculative developers. A house may include standard softwood joinery, studwork partitions, a contract kitchen, basic sanitaryware and radiator central heating.

Good

This is equivalent to that offered by quality developers. Features may include high-end, off-the-shelf softwood joinery, blockwork partition walls, contract quality kitchen and sanitaryware and underfloor heating (UFH) downstairs.

Excellent

A very high standard. This house may include hardwood joinery, a bespoke kitchen and quality sanitaryware, and UFH, for instance.

3 MULTIPLY THE FIGURE BY YOUR HOUSE SIZE

We have used gross internal floor area as a measure (it's the most common in the industry). It's the area of a building measured to the internal face of each perimeter wall for each floor level. It includes areas occupied by internal walls and partitions. **H**

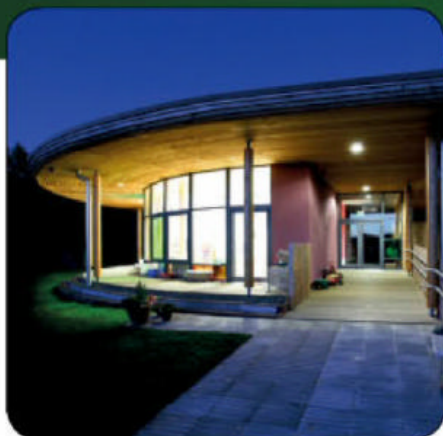
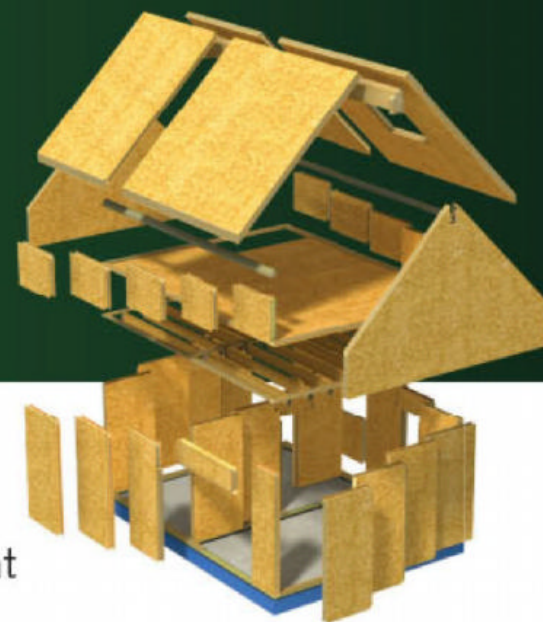


Expect a building plot to cost between a third and a half of the end value of the finished house



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HOW TO MINIMISE MID-PROJECT PRICE HIKES

The uncertainty around UK politics is impacting builders' workloads and material prices, says the FMB, so plan ahead



SARAH MCMONAGLE
is Director of
Communications at
the Federation of
Master Builders

The Federation of Master Builders' (FMB) State of Trade Survey for Q1 2019 found that workloads for small builders dipped for the first time in six years. Construction typically mirrors confidence in the market, and recently, things have been quite up in the air. Builders have been struggling to find skilled tradespeople, with 64% of respondents saying there was a shortage of bricklayers over the first quarter of the year, as well as struggling with the prices of materials, with 88% anticipating price rises over the next two quarters.

Unfortunately, these skill shortages have the potential to be exacerbated by the impact of Brexit on the immigration system and, down the line, key construction trades sometimes labelled as 'low-skilled'.

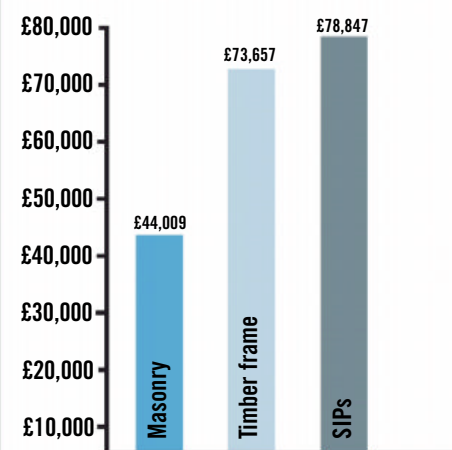
For those planning a project, one of the best things you can do is start thinking about it early. While workloads have dipped, that's not to say that Master Builders are sat around twiddling their thumbs. In many parts of the country, workloads are very high so you should always be wary of a building firm that can start tomorrow. Indeed, FMB research found that homeowners will typically wait four months for a quality builder to become available. We know that experienced builders are booked-

up far in advance so it's always worth waiting.

The uncertainty of British politics of late has meant that material prices are rather volatile and some clients have been caught short due to significant price increases occurring mid-project. These are beyond your builder's control, but to protect both parties ensure your contract includes wording that means the builder and client must agree any project price changes due to material price hikes mid-project before work continues.

Another option is to use less expensive materials. Brexit or no Brexit, it's always useful to build in a contingency fund to cover any unexpected eventualities that might occur. **H**

COMPARING AVERAGE BUILD STRUCTURE COSTS*



£4,000

...is the amount Brits can spend on services such as legal fees, surveying costs and removal bills when buying and moving to a new home, according to research commissioned by online lender MYJAR, with almost a third of homebuyers having to borrow to cover these costs.



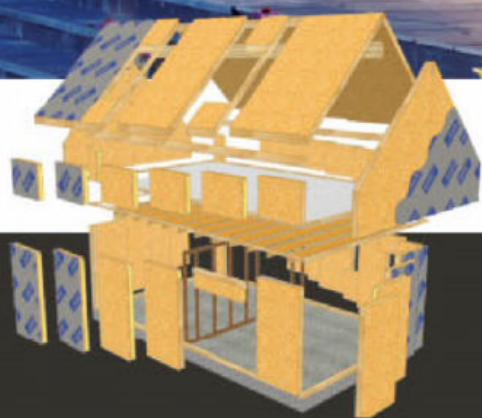
Homeowners will typically wait four months for a quality builder to become available

INSULATION PRICE INCREASE

Thermal and acoustic insulation materials have risen by 11% year-on-year according to the Department for Business, Energy & Industrial Strategy (BEIS).

MATERIALS WITH THE GREATEST PRICE INCREASE	% CHANGE FROM 2018
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Imported sawn or planed wood	7.5
Kitchen furniture	5.3

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IAN ROCK is a chartered surveyor and director of www.rightsurvey.co.uk. He is currently extending his family home by 100m²

The final building control inspection begins

Ian installs the finishing touches to his extension before the building control officer visits for the final time

There was a knock at the door last Thursday evening at about 8.15pm. “We’ve got a couple of Juliets for you in the wagon,” a cheerful Yorkshire voice announced. Mrs Rock shot a quizzical glance in my direction — the two balcony railings we’d ordered from Iron Octopus weren’t officially due for delivery until the following Wednesday. But this logistical windfall was extraordinarily opportune since getting our ‘faux balconies’ in place was the only significant outstanding task before the final building control inspection could be booked.

The finishing touches

The following weekend, ably assisted by my student son Joe, I set about installing the two sets of Juliet railings with the help of a hired scaffold tower and some plywood templates to mark the bolt locations. Once they were fixed in place, we stood back in the garden to admire our handiwork. With any new installation there’s a ‘proof of the pudding’ moment when you ask yourself the killer question: ‘Does it look right?’ First impressions really matter and, fortunately, the traditional black ironwork looked pleasingly striking against the white rendered walls. I was particularly enchanted with the shorter of the two Juliets which we’d had custom-made to guard the French windows on the upstairs landing.

Booking in final checks

The underfloor heating system programmer and thermostats still awaited their final connection so when our heating engineer’s electrician dropped by I took the opportunity to have him check my Part P compliant work extending the lighting to the small kitchen extension ceiling, too. But before revelling in the sensory underfoot delights exuded by our newly super-warm floors, I made a point of phoning the Local Authority Building Control to book the final inspection. In my experience, building control tend to devote more time to their final visit than

the preceding ones, probably because it covers the whole building rather than just a handful of areas.

The interior inspection

Andrew, our building control officer, duly materialised on site at the appointed time and we embarked on an amiable yet businesslike stroll around the new space.

Having monitored the construction process on previous visits he was genuinely interested to see the resulting edifice, notwithstanding the lack of interior decoration, missing skirting boards and absent floor tiling.

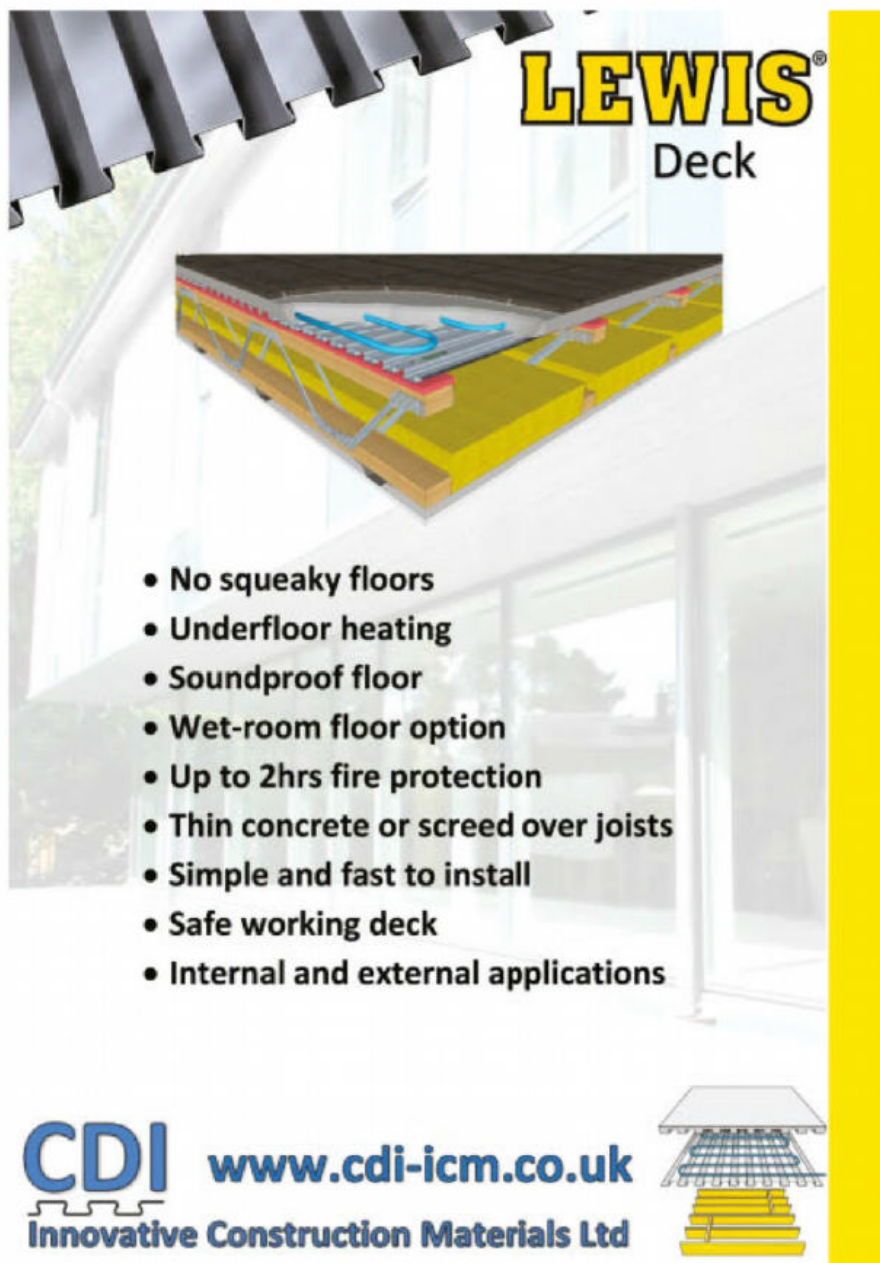
The first issue he spotted concerned the stairs. Although we’ve got conventional banisters and balustrades extending down one side, we’d consciously left the bottom five steps on the opposite flank unencumbered and open. To safeguard any risk from falling, he suggested that we install a matching newel post, handrail and spindles. But I wasn’t keen on this idea because there were aesthetic implications, clashing with the overall open-plan theme. So I resolved to try and come up with a more creative solution.

The inspection then moved in the direction of the woodburning stove. For obvious reasons stoves are high on the list for checking compliance and fortunately ours got the thumbs up. Other stuff like extractor fans, cooker hoods and ceiling insulation were also judged innocent of any transgression.

The next bone of contention was the smoke alarm on the upstairs landing; it had been positioned on a partition wall because the high sloping ceilings would be out of reach in the event of a false alarm. Andrew suggested we relocate it to the central apex of the ceiling above the landing and stairwell. Smoke detector positioning rules are based on the dynamics of smoke emissions during a fire but are drafted with conventional ‘box’ room layouts in mind, and can require some interpretation with more creative interiors like ours. **H**



FINAL INSPECTION Ian employed a HETAS-certified professional to install his woodburning stove — ensuring it received sign off during the final inspection from the building control officer.



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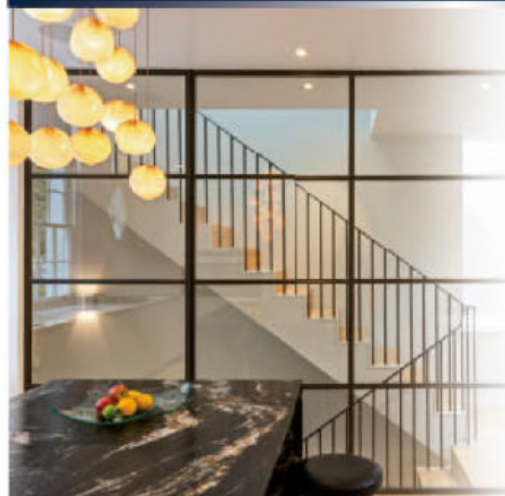
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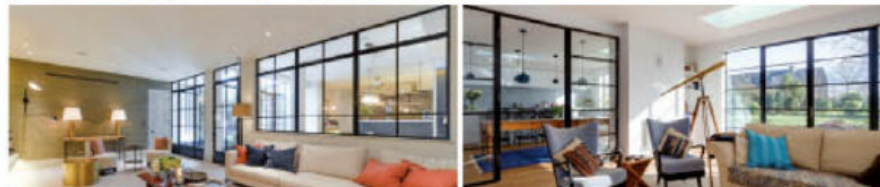
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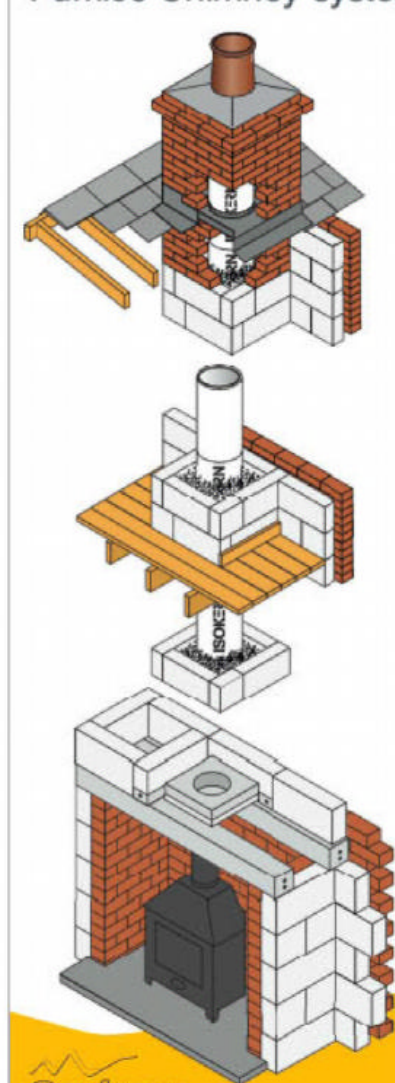
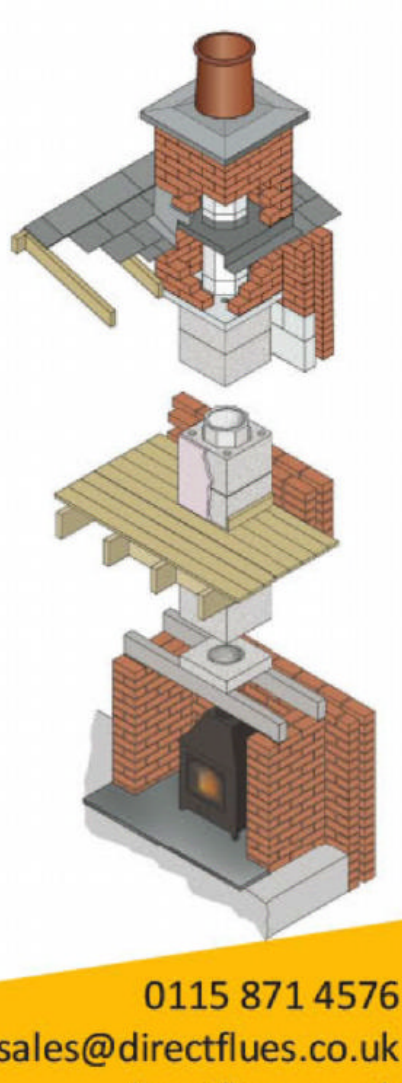



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PAUL TESTA is the director of Paul Testa Architecture and has a special interest in sustainable design

Fixing airtightness issues was certainly a testing time

Paul and his team test for EnerPHit levels of airtightness in his 1960s semi-detached renovation project in Sheffield

EnerPHit has a strict pass or fail airtightness limit of 1.0 air changes per hour at 50 Pascals of pressure (the n50 result). It equates to just 1/10th of the leakage allowable by Building Regulations for new builds (Building Regulations only require 5 to 15 air changes per hour in new homes). This is a tough target and particularly difficult to achieve in an existing building. For this reason it was critical in my mind that we could complete the airtight layer as early in the project as possible so that we could test its effectiveness before progressing too far with second fix work and hiding this layer behind finishes.

Testing airtightness

We were on site when the first test was undertaken and it was a nerve-wracking event. It was going to expose how effective or not the last couple of months of work had been and whether we were in realistic sight of our EnerPHit goals. The test result was 0.97, which we were ecstatic with. This happiness was quickly followed by disappointment when we realised the tester had measured air leakage per m² and that this actually equated to 1.08 air changes per hour. It was very nearly there, but some work was needed and we didn't have the clearest steer as to where it was required. The first lesson here was to not let the tester leave until we'd identified all likely leaks. We booked a second test for a month later.

We identified and sealed a number of small leaks in the building fabric, adjusted doors that had leaked before and sealed all the penetrations made by our subsequent first fix works. We were pretty confident, so doubly disappointed when our second test result was slightly worse at 1.11 air changes.

Fixing the airtightness issues

We realised that the diagnostic and investigative purpose of the first test had failed because of the lack of clarity with regards to where the weaknesses

were. Fortunately, we undertook the second test before we had started covering up the building fabric and this enabled a much more detailed investigation that uncovered a number of additional weaknesses in the sealed envelope.

It was not an easy process as the building really was very airtight already. We bought a large ventilation fan and fixed it into a window opening so we could carry out our own smoke pencil investigations (used during airtightness testing) and the final remedial sealing works were undertaken. Finding the weaknesses using a smoke pencil is slow work, requiring patience as you test every junction and detail of an airtight layer as complex as this one.

Green Building Store, our window supplier, also came out and spent some time ensuring the doors were adjusted properly for an airtight seal. They are fantastic to work with and this level of support is one of the many reasons we chose their products.

Our final investigative test took place less than a week later and we were delighted with the result of 0.791 air changes. Well within our target and a testament to the hard work and attention to detail from the guys on site. **H**

LESSONS LEARNED
Testing the airtightness levels at an early stage in this project and investigating the source of leaks methodically are essential lessons Paul has taken away from the project. (He is building to EnerPHit energy efficiency standards — the Passivhaus equivalent for existing homes.) Paul found a ventilation fan (below, right) and a smoke pencil invaluable for detecting leaks in the building's fabric.



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KATIE THOMASSON has renovated four period properties, taking on much of the work on a DIY basis

Installing our underfloor heating required considerable prep

Katie and Andy prepare the subfloor for their 'splash out' expense: underfloor heating

Building on a tight budget has always meant that every single detail has to be carefully considered — not only on its cost, but also its value for money and what it adds to the end result.

We decided early on in this renovation project that we would allow ourselves the added luxury of underfloor heating (UFH) across the majority of the downstairs floor space. As this area is quite large and open plan, we wanted to make sure it felt cosy, without any cold-spots. We're opting for engineered wood flooring throughout and we know from previous experience that it can be pretty cold and uncomfortable for guests to walk on if they've not remembered to bring their own slippers!

We exempted the snug from UFH, which is one of the few areas downstairs that isn't open plan, and will also be the only area that we'll be carpeting.

Weighing up the costs

In our experience, UFH is not cheap. It's not just the kit itself that we had to purchase, but we also had to factor in the cost of the subfloor prep, liquid screed and insulation boards. However, we realised that by the time we'd re-plumbed and installed new radiators, UFH wouldn't work out to be that much more of an expense in the grand scheme of things. But most importantly, the benefits we'll get from having UFH far outweigh the extra costs — and that to me is all part of making the right decisions when considering cost vs benefits.

Unfortunately, it does also mean a lot more work for us, as there's a lot of effort involved in preparing the subfloor.

Preparing for installation

First of all, we had to remove all the existing timber floorboards and floor joists. There was also quarry tiles in the hallway and kitchen floor to remove, along with all the clay, rubble and cement on which they had originally been laid. Essentially, we had to remove a couple of feet of the existing earth floor

to enable us to start afresh with a solid, level and damp-proof base.

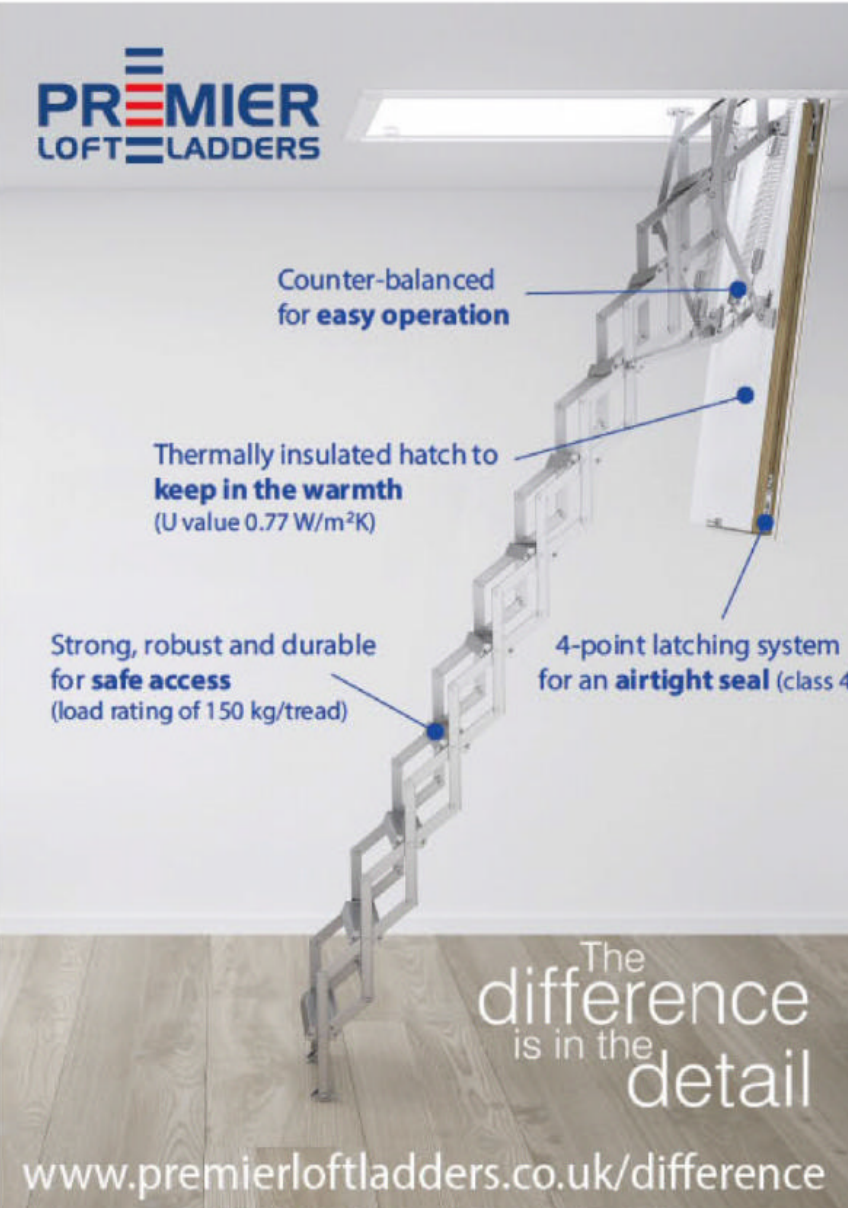
We used 20 tonnes of a 20mm limestone/dust mix (similar to MOT type 2) that was compacted down by running a wacker plate over it. We wheelbarrowed the limestone in from the driveway, which was quite arduous work (approximately 200 barrow-loads), but there wasn't really another way of doing it. We then laid the damp-proof membrane over the top, before finishing the floor by installing the insulation boards.

A local company installed the UFH pipes on the first day and laid the liquid screed floor for us on the second. The depth of the screed is 50mm, and was good to walk on after 48 hours. If we had had the boiler installed and commissioned at this stage (thus meaning we could have run the UFH), we would've been able to follow a process whereby the final floor finishing (in this case, engineered oak) could be ready to install in 30 days' time. However, as we're not yet at this stage, our 50mm depth of screed will take 90 days to fully dry naturally before we can be sure that the floor is safe to fit. Luckily we have a lot of other renovating and decorating to be getting on with upstairs and outside while we wait! **H**

CREATING A HOME
Katie and her husband Andy plan to live in one of the two cottages they are renovating in Leicestershire. They are undertaking a lot of the work themselves in order to keep to their budget. Installing underfloor heating on the ground floor required a considerable amount of prep work (below).



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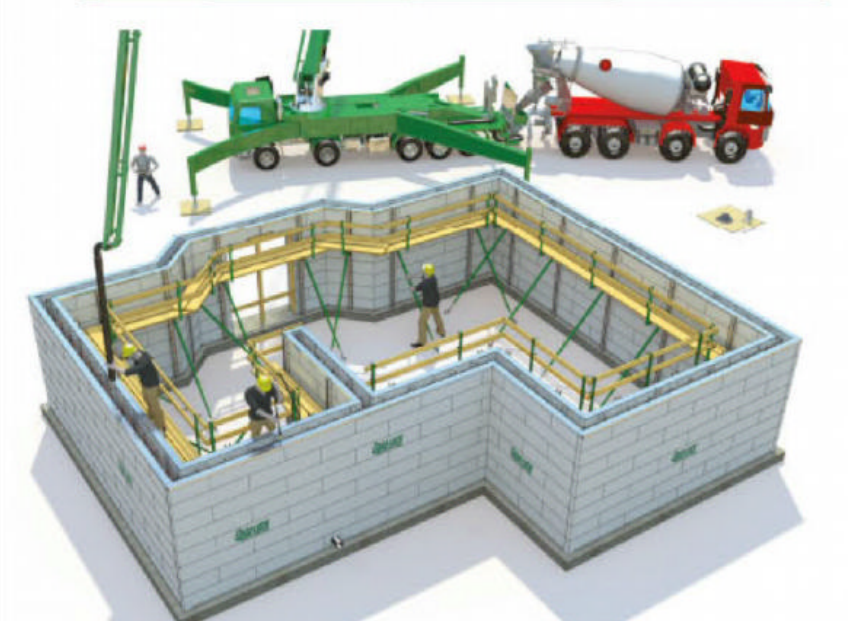
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RICHARD JACKSON AND JANET WATSON are building a one-and-a-half storey home on the grounds of Richard's previous home

The serial self-builder

Richard Jackson is currently building his fourth timber frame self-build in Essex with his partner

After completing three self-builds in the space of eight years, photographer Richard Jackson took a break, enjoying the large seven-bedroom home he had designed in a small village in Essex. However, 13 years on, the self-build bug had returned, as he looked to downsize and settle down with his partner, Janet.

Fortunately, the plot upon which his third home had been built would also prove large enough to accommodate his fourth project. Richard originally bought the plot in 2006 — although he nearly missed out to a developer, who had outbid him, but whose plans for multiple dwellings on the land were rejected by the local planning authority at the time. But in 2018, with the village steadily growing courtesy of a new estate and various self-build projects, Richard decided to put in an application for a house subservient to the first. “The garage and pool to the house had been damaged by a fire and I was looking to downsize after living with lodgers for the past couple of years,” Richard begins. “We love the location of the little village and the back of the plot has its own access so it made sense.”

Richard initially worked with an architect to design his new home on the site where the pool had sat. After the first planning application was rejected, he discussed what changes needed to be made with the planners and reapplied — and he was successful.

Constructed in timber frame, Richard's latest build will be a one-and-a-half storey traditional-style house with four bedrooms, featuring a largely open plan ground floor and large amounts of glazing both internally and externally to maximise the living space and views over the countryside.

The first floor initially worried his partner, after years of living with a loft conversion that caused a few bumped heads, so Richard played around with the second draft of designs to raise the roof beam to optimise the space in the bedrooms, before getting



planning approval. “The house was designed to be fit for purpose; every space has been considered for how we live our lives. In my previous self-build, there was a large dining room that was used maybe four or five times in 13 years. Even at Christmas we'd sit in the kitchen and orangery, so it made sense to remove this traditional layout and go pretty much completely open plan,” explains Richard.

Throughout the project, Richard's cool head has prevailed and his previous self-build experience has been a great asset. Currently at first fix, he plans to sell his former home next-door to fund the rest of the project so he can move into the new house before completion. “People tend to spend all of their budget at the beginning and forget how much it costs to finish a house to a good quality,” he states. “I missed not doing a self-build but I forgot how much research you can get sucked into. Every decision can lead down a rabbit-hole until you get the best spec for your money.”

So, how has this project compared to his previous self-builds? “My first self-build was ridiculously straightforward without any real challenges. We broke ground the week after my daughter was born and we moved in just three months later so I'm not sure you can compare anything to that!” Richard smiles. “When you know what you can get with self-build it's hard to go back to buying a house in the traditional way.” **H**

FAMILIAR FOOTINGS Not wanting to leave the stunning scenery of his small village location, Richard is building his latest project (his fourth self-build) in his garden.



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Living in the UK means that we have to prepare for the weather when planning barbecues and garden parties, so when we do get some sunshine (or even just a break from the rain) we know how important it is to make the most of it. The last thing you want to spend your time doing is giving your patio a deep clean or treating your decking. Unfortunately, this is the reality if you use a natural material like stone or wood. Luckily there is an alternative in porcelain — a hard-wearing and low-maintenance alternative to traditional paving materials.

Porcelain has long been a favourite material choice for walls and floors inside the home, but over the last few years it has become popular on patios. It turns out that the reasons we love porcelain for internal use — easy to keep clean, hard-wearing and available in a wide range of designs — are also features we crave for our outdoor areas. Thanks to the latest printing technology, porcelain can

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Extension and remodel

WORDS Victoria Jenkins PHOTOGRAPHY Lisa Lodwig

The handmade tale

While living in a caravan on site for almost two years, Lisa and Ryan Tucker relied on their DIY skills to transform this 19th-century cottage into a contemporary family home



PROJECT NOTES

HOMEOWNERS Lisa and Ryan Tucker

PROJECT Extension and remodel

LOCATION Cheltenham

SIZE 180m²

BUILD TIME Eight months

BUILD COST £138,000



THE KITCHEN

The kitchen/dining area (above) is situated in the new 56m² two-storey extension that replaces a previous single-storey extension built in the 1980s. Above it sits the master suite. The Tuckers also decided to partially rebuild the 1990s conservatory, replacing it with a more modern space (right). “By moving the kitchen so that it now faces south and east and putting in bifold doors, we have natural light all day long and a lovely warm room,” says homeowner Lisa.

It’s remarkable that Lisa and Ryan Tucker succeeded in buying their cottage at all, given the many twists and turns of fate. “We first saw it in 2014 after we had been looking for a long time,” begins Lisa. “It wasn’t beautiful and we didn’t exactly fall in love with it because it was damp, very cold and had been empty for some time. But we could see the potential.”

The 1820s cottage was originally a ‘two up, two down’, but had been extended in the 1970s; the extension consisting of a lounge and kitchen with a bedroom and bathroom above. A single-storey extension in the 1980s had added another room, a long hallway, a cloakroom and a utility room, with a conservatory appended in the 1990s.

“We could see there would be a huge amount of work,” says Lisa, who at the time was expecting her second child, Francesca. The work required to ensure the house reached its potential, combined with raising a new baby and their son Ruben, stopped them from placing an offer.

But after Francesca was born the couple had a change of heart. “I rang the agent who said firmly that no, the house was not available, the sale was going ahead,” says Lisa. “Nevertheless, I rang again two weeks later — and was delighted to hear that now the sale had actually come unstuck.”

The couple contacted a solicitor to expedite things and in anticipation sold their car and Ryan’s expensive watch to raise extra funds.

But then the solicitor told them their purchase had also fallen through. “We were gutted,” says Lisa. “It quite spoilt our Christmas, especially as we had already sold our house and would have to move anyway in the April.”









REWORKED SPACE
The sitting room used to be the cottage kitchen, but much of the floorplan has been rejigged to adapt it for modern family living. Ryan built the fireplace from old handmade bricks which were found in the garden; a HETA Inspire woodburner was then installed (top right).



Then, out of the blue, in January 2015 they received the news that all problems had been resolved and the cottage was theirs. “We spent the next three months clearing the very overgrown garden and field — so overgrown in fact we had no idea there was an old railway carriage in the garden and a second one in the adjoining field!” Lisa laughs.

Because the cottage was uninhabitable, the family moved into a caravan in the front garden. “With two children and two dogs!” says Lisa. “And later we incubated some chicks in it too! But it was fun, despite being exhausting, exciting and unpredictable.”

A complex build

The couple employed Gary Patefield-Smith, senior engineer and director at Davidson Walsh, a structural engineering company, for the drawings and planning permission. “The original plans were to have a single gable over the new extension with a flat roof beyond to the rear with render and stone quoins. The planners didn’t like this scheme therefore it was altered to what has been built today,” begins Gary.

What has been built is testament to Gary’s problem-solving abilities, which were tested by the design of the new extension. “The first floor structure of the extension needed to span the large openings within the ground floor while keeping the floor thickness as thin as practically possible. Therefore steelwork was introduced to split spans and keep the floor thickness to a maximum of 215mm overall,” says Gary. “The roof also presented many challenges due to the large spans and desire to have flexibility in the first floor layout, coupled with the need to create two gables with a central flat roof. This was resolved by minimising the number of load-bearing walls taken to wall plate level and introducing load transfer structures to support the roof structure in key locations.”

The family lived in the caravan while the building work went on. They gutted the original cottage, rewired, replastered and replumbed. The old staircase at the end of the cottage was demolished and a new one was put in in the centre of the house. They reconfigured the rooms and introduced new double-glazed windows, doors and bifolds throughout.

The plan also involved knocking down the single-storey 1980s extension to build a new 56m² two-storey extension.



“

It wasn't beautiful and we didn't exactly fall in love with it, but we could see the potential





HANDMADE TOUCHES
Ryan has finished the house off with a number of bespoke, handmade furniture pieces. The bar cart (top middle) was made from salvaged pieces from one of the old railway carriages on the property, along with a shelving unit crafted from boards rescued from a skip. The snug (below) originally functioned as a dining room before the remodel, and Ryan had to replace the old flooring, with Lisa painting it to give a more characterful look.



“So now we have a big kitchen/dining room with a master suite above,” says Lisa. And it was Ryan who fitted the German-made Leicht units from Contour Kitchens, with the help of a friend. Lisa wanted the kitchen to have a crisp but coastal look and she achieved this with worktops of Spekva heart ash and Silestone.

The couple did as much work as they could themselves while keeping their business running. Ryan, for example, did all the plumbing and flooring throughout the house and made a great deal of the furniture too. The bedroom furniture was crafted out of old floorboards which Ryan’s brother rescued from a skip, a bench was made from an old RSJ which they had to replace in the lounge, and the fireplace was concocted from various handmade bricks found in the garden.

The final touch was reworking the 1980s single-storey extension as a conservatory from World of Smile — its new warm roof system, designed to replace an average glass or polycarbonate roof of a conservatory, while maintaining the original windows, doors, frames and walls.

Having endured a very windy winter – which nearly blew their caravan over – the family managed to move into their new home in October 2016. However, it wasn’t until the end of 2018 that all the decoration and Ryan’s furniture making was finished and they considered it complete.

As for the carriages, one has become the hay store for their five alpacas, and the other a glorified shed. “We love the combination of old cosy cottage and bright contemporary rooms,” says Lisa. “Plus the mature garden and adjoining field are a haven for us all and have given us a huge sense of freedom.” **H**



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MASTER SUITE
The master suite (sporting a handmade bed) sits above the kitchen diner in the new extension and features a large en suite bathroom (below).

KIDS' ROOMS
Ruben's bedroom (above) is in the original cottage, while the children's bathroom (right) was originally a bedroom that Ryan replumbed.



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THE FLOORPLAN

“We moved the kitchen from a dark position facing north to one with east and south-facing windows/bifold doors which give fabulous light and make the room lovely and warm,” says Lisa. “It’s a really lovely home. The old part is cosy and traditional and the new part is airy and modern.”

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PROJECT TIMELINE

PLOT PURCHASED January 2015

FIRST PLANNING APPLICATION SUBMITTED
March 2015

SECOND PLANNING APPLICATION SUBMITTED
June 2015

PLANNING PERMISSION APPROVED
July 2015

START ON SITE December 2015

FOUNDATIONS COMPLETED
December 2015

WATERTIGHT SHELL April 2016

FIRST FIX May 2016

SECOND FIX July 2016

DATE OCCUPIED October 2016

FINAL DECORATION

October 2016 - October 2018

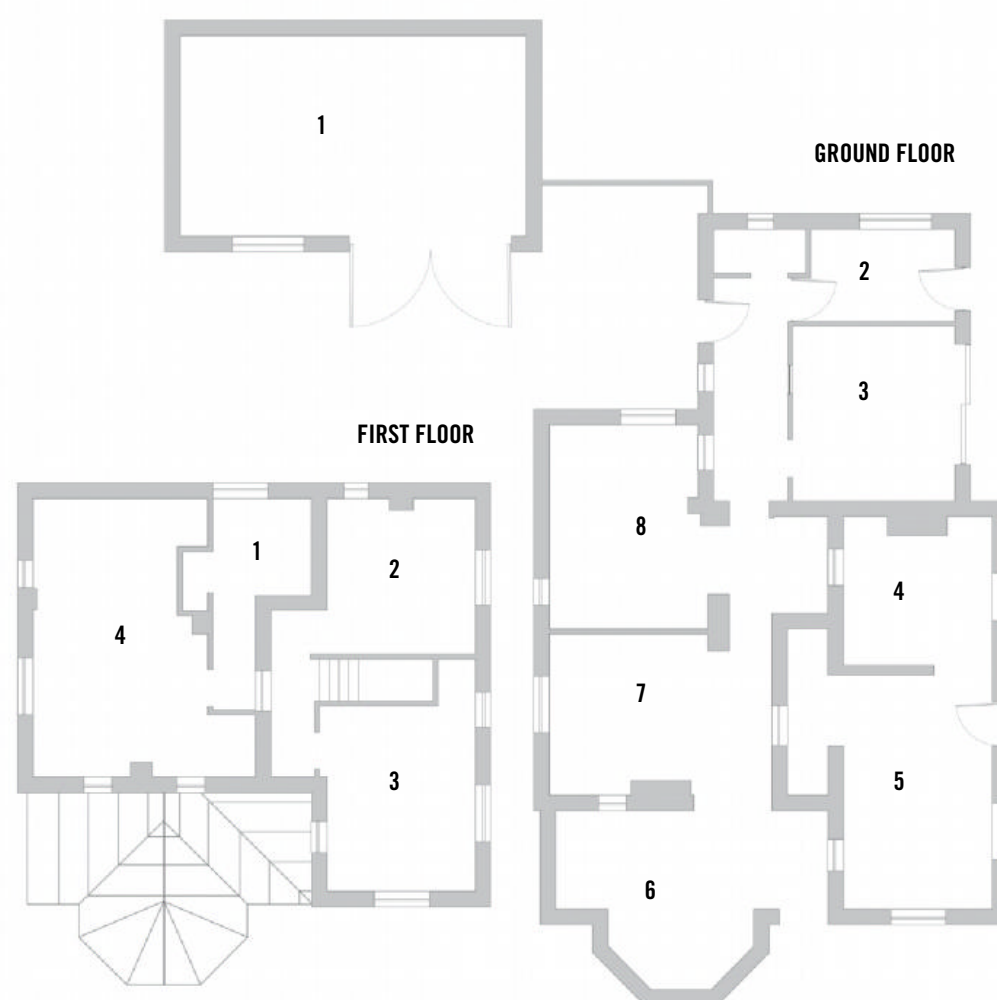
BEFORE

GROUND FLOOR

- 1 Garage
- 2 Utility
- 3 Playroom/bedroom
- 4 Study
- 5 Dining room
- 6 Conservatory
- 7 Sitting room
- 8 Kitchen

FIRST FLOOR

- 1 Family bathroom
- 2 Bedroom
- 3 Bedroom
- 4 Master bedroom



AFTER

GROUND FLOOR

- 1 Garage
- 2 Utility
- 3 Kitchen
- 4 Office
- 5 Snug
- 6 Sunroom
- 7 Lounge
- 8 Kitchen

FIRST FLOOR

- 1 Master bedroom
- 2 Bedroom
- 3 Bedroom
- 4 Bedroom
- 5 Family bathroom
- 6 Dressing room
- 7 En suite



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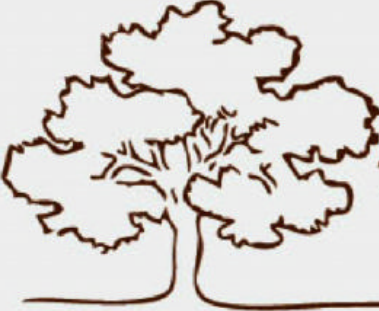
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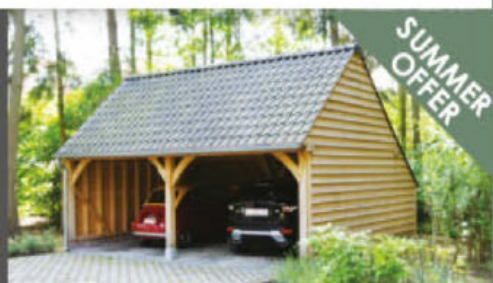


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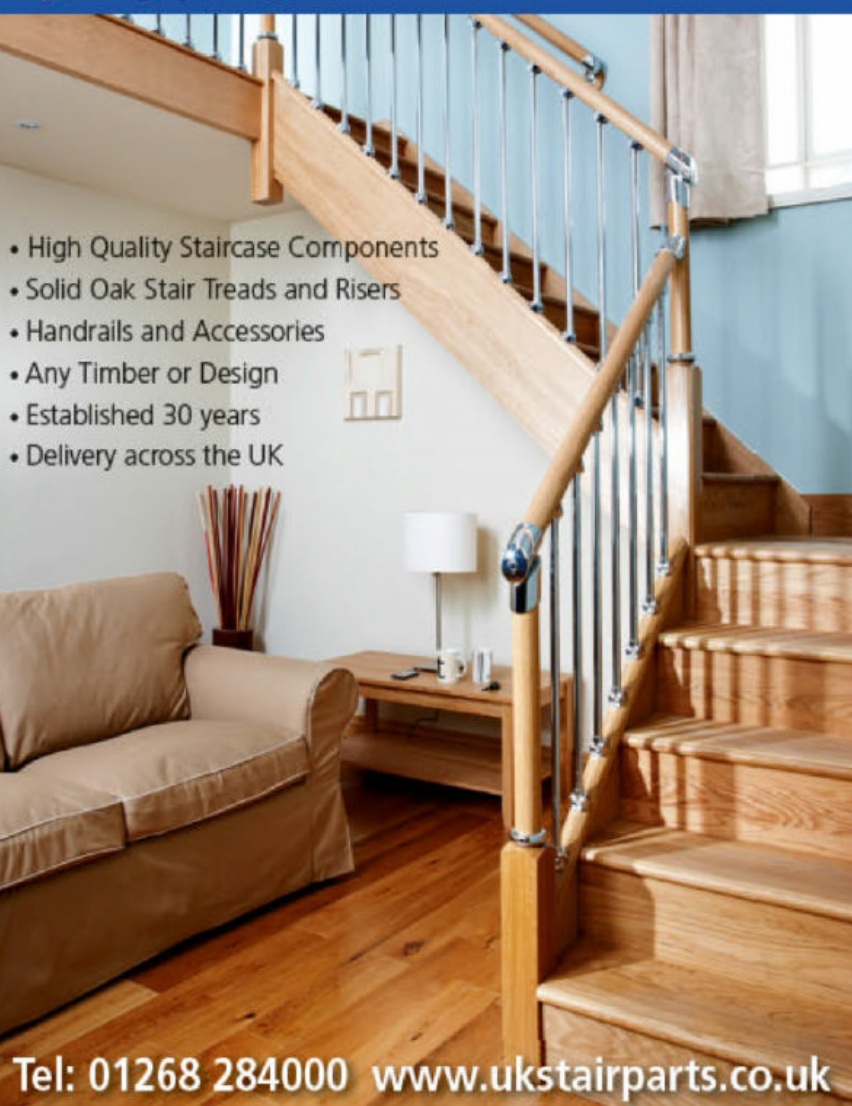
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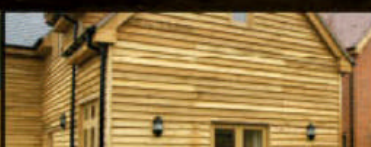
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Signing off...

What we've seen, recommend and love this month

LIFE'S TWISTS AND TURNS

The Lifestyle series in *HB&R* is always a great read. People's tenacity, grit and sheer determination to take on such gargantuan projects – involving huge amounts of DIY or buildings of considerable proportions, for example – are inspirational and admirable. And this month's example is nothing short of amazing as we hear the serendipitous story of serial renovator Paul Bradby who stumbled across a Cornish hamlet for sale while on holiday. A hand shake later and... well turn to page 44 and find out what happened!

Michelle Guy, Assistant Editor



GARDEN INSPIRATION

Now my own renovation is finished, my thoughts have turned to the garden design — and in particular, the front garden which has, until now, been somewhat of a let down. So, it was with great interest that I read Paul Hervey-Brookes' piece 'How to Design a Front Garden' on page 100 in this issue. I had never realised that certain plants suited certain styles of home or that some plant colours can distract the eye or overstimulate the brain. I feel far more confident picking out a planting scheme to do the house justice now.

Natasha Brinsmead, Associate Editor

GOING GREENER

With all the best intentions, it can be really difficult to apply sustainability advice to a modern lifestyle, even more so when organising a self-build or extension project where every product seems to be wrapped in more plastic than the last.

However, Nick Robbins' '15 ways to achieve a sustainable self-build' (page 133) advises how to make manageable changes to reduce the impact of your project on the environment and gives great tips on how to apply them to any stage of a project. It's one step at a time when it comes to preventing further climate change and by voting with your wallet, or in this case, your home, hopefully the housing sector will take note and up its game for the better.

Amy Reeves, Editorial Assistant

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Featuring Oak and Ebony Vertical from Portfolio's Classic and Exotic Collections.



Both doors featured within Premdor's SpeedSet Plus internal doorset system.

Real Veneers. Consistent Grain. Consistent Colour. Never Identical.

Portfolio doors are more than just 'doors'.

TWO TICKETS! WORTH £36*



London

Homebuilding & Renovating Show

4-6 OCTOBER



Gain your two tickets (worth £36*) to the London Homebuilding & Renovating Show, 4-6 October, by filling out this form and taking it along to the ticket office.

Or to register for your tickets and print them at home, simply visit

www.homebuildingshow.co.uk/hbrshows

VISITOR 1

Title

First Name

Surname

Address

Postcode

Email

Telephone

VISITOR 2

Title

First Name

Surname

Address

Postcode

Email

Telephone

1 PROJECT TYPE

- ☐ A1 - Building
- ☐ A2 - Home Improvement
- ☐ A3 - Renovation
- ☐ A5 - Other

2 PRODUCTS YOU ARE INTERESTED IN

- ☐ Y0 - Draining & Plumbing
- ☐ Y1 - Heating
- ☐ Y2 - Renewable /Microgeneration
- ☐ Y3 - Ventilation
- ☐ Y5 - Bricks, Blocks, Cladding & Aggregate
- ☐ Y6 - Conservatories
- ☐ Y7 - Doors & Windows
- ☐ Y4 - Foundations & Below Ground
- ☐ Y8 - Insulation & Damp Proofing
- ☐ Y9 - Merchants, DIY Tools & Equipment

- ☐ YA - Roofing
- ☐ YB - Structural Systems
- ☐ YC - Antiques & Salvage
- ☐ YD - Bathrooms
- ☐ YF - Flooring & Floor Structures
- ☐ YG - Furniture
- ☐ YH - Garages & Garden Buildings
- ☐ YI - Gardens & Leisure
- ☐ YJ - Gifts & Lifestyle
- ☐ YL - Home Technology & Security
- ☐ YE - Internal Decor, Paints & Finishes
- ☐ YM - Kitchens
- ☐ YK - Landscaping
- ☐ YN - Leisure
- ☐ YO - Lighting & Electrical
- ☐ YP - Soft Furnishings & Home Accessories
- ☐ YQ - Staircases & Stair Parts
- ☐ YU - Architects & Designers

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* Saving is based on standard door price ticket for two tickets.

To gain entry to the Show you must take this form with you (please redeem your form at the ticket desk) OR by registering for your tickets at: www.homebuildingshow.co.uk/hbrshows. Children under 16 go free.

