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How to create your dream home

Britain's
Best
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Self-build
Magazine

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Beautiful
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**2018's
HOUSE
DESIGN
TRENDS**

**TRIPLE
GLAZING:
WORTH THE
INVESTMENT?**

BUILDING SOLUTIONS

- Replacing Windows
- Beginner's Guide to Project Management
- Roof Slates & Tiles
- Solar Panels
- Building Inspectors
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With hundreds of local and national specialist suppliers, you can see, touch and compare 1000s of products – from underfloor heating and windows to architectural services and staircases. Make crucial contacts all in one day!

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Bring along your questions and plans to our Advice Centre and get free 15 minute consultations from our independent experts from Homebuilding & Renovating magazine.

Ask the Architect

Fancy some free professional advice on your plans? Need design inspiration to improve your home? Bring your plans along and enjoy a free 15 minute consultation with an architect.

Planning clinic

Problem with planning approval? Get free planning advice on your project from planning experts at the Advice Centre! 15 minute slots are available on a first-come, first-serve basis.

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Whatever your area of interest, we've got a seminar for you. Spend 30 minutes absorbing information and ideas delivered by Britain's leading home experts. With topics covering areas such as heating, permitted development, dealing successfully with builders, managing costs and much more!

More shows this year



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LONDON 21–23 SEPTEMBER

EDINBURGH 20–21 OCTOBER

HARROGATE 2–4 NOVEMBER

SOMERSET 17–18 NOVEMBER



2018
DATES FOR
YOUR DIARY



22–25 MARCH
NEC 2018
BIRMINGHAM

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EDITOR'S LETTER

January 2018

The concluding months of the year are always special for this magazine, as we announce the results of The Daily Telegraph Homebuilding & Renovating Awards. We were inundated with amazing homes in 2017 and whittling the entries down to a shortlist was a difficult task; choosing the winners, even harder.

Our winners this year are testament to the broad range of building projects covered each month in these pages. Among them: a characterful new home built against the odds and almost entirely by its owner — for £67k; an ingenious London custom build scheme (which could just provide a model for future housing in the city); a low-cost terrace renovation; a Passivhaus self-build on stilts; and individual homes that represent the very best in 21st-century British architecture (this month's cover house included).

Which brings us to the Overall Winner: a low-energy, space-savvy conversion of a former newsagents, which has provided one young couple with their first home. This project has not only brought a derelict building back into use, but costing just £68k, has left the couple almost mortgage-free. Judge Neil Turner sums this building project up quite nicely when he says: "It just makes you smile."

I hope these homes leave you feeling inspired — and we look forward to seeing your projects when we open for entries in spring 2018. **H**



Claire Lloyd, Editor

has been a member of the *Homebuilding & Renovating* team for almost a decade. She's renovating an old stone cottage with her partner Ed, a builder.

MEET THE TEAM



Natasha Brinsmead

is *Homebuilding & Renovating's* associate editor. She is nearing the end of the DIY renovation of an Edwardian cottage.



Daisy Jeffery

is a features editor on *Homebuilding & Renovating*. She has been working on the magazine for five years.



Billy Peel

now lives in Shropshire after 30 years in London. He is HB&R's head of art, responsible for the magazine's recent design refresh.



Nick Robbins

is a features editor. This issue, Nick investigates how to find the right building inspector for your project (page 177).



Alison Wall

is *Homebuilding & Renovating's* chief sub editor. At the moment, she's renovating a 1970s house in north Worcestershire.

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THE EXPERTS

January 2018



Sally Tagg

Planning consultant Sally Tagg is MD of Foxley Tagg Ltd. She also advises the Department for Communities and Local Government on policy.



Bob Branscombe

Bob is a chartered surveyor with 30 years' experience running residential and commercial projects. He's an expert in cost estimation and project scheduling.



Jason Orme

The former Editor of *Homebuilding & Renovating* magazine, Jason is an experienced self-builder and is currently renovating a 1960s home.



Paul Hymers

Paul Hymers is a building control officer and has written eight books on home improvements and building homes.



Ian Rock

Chartered surveyor Ian Rock MRICS is the author of eight popular *Haynes House Manuals*, and is a director of Rightsurvey.co.uk.



Andy Stevens

Andy is an award-winning builder and managing director of Eclipse Property Solutions (eclipseps.co.uk). He also presents a radio show on *Fix Radio*.



Chris Reeves

Former builder Chris Reeves is now a construction solicitor and chartered building consultant. He also acts as a specialist mediator in construction disputes.



Allan Corfield

Allan runs Allan Corfield Architects, which he set up in 2009. He is an expert in designing high-performing, energy-efficient homes.



David Snell

The author of *Building Your Own Home*, David is a serial self-builder and has been building homes for 50 years. He has just finished building his fourteenth home.



Tim Pullen

Tim is an expert in sustainable building methods and energy efficiency in residential homes. He is also the author of *Simply Sustainable Homes*.



Oliver Steele-Perkins

Oliver is the owner of Steele-Perkins Project Management. He specialises in pre-construction project preparation for homeowners.



Michael Holmes

Michael is HB&R's Head of Content and Product Development. He also chairs NaCSBA (National Custom and Self Build Association).



Neil Turner

Architect Neil Turner is director at Howarth Litchfield Partnership and specialises in residential design.



Mark Brinkley

Mark is the author of the ever-popular *Housebuilder's Bible* and an experienced builder. He's just started another self-build.



Lawrence Grigg and Lydia Robinson

Lawrence and Lydia run award-winning practice Design Storey. They're currently renovating a Grade II-listed property.



Charlie Luxton

Charlie is an experienced architectural designer and TV broadcaster. Read the diary of his own self-build project on page 101.



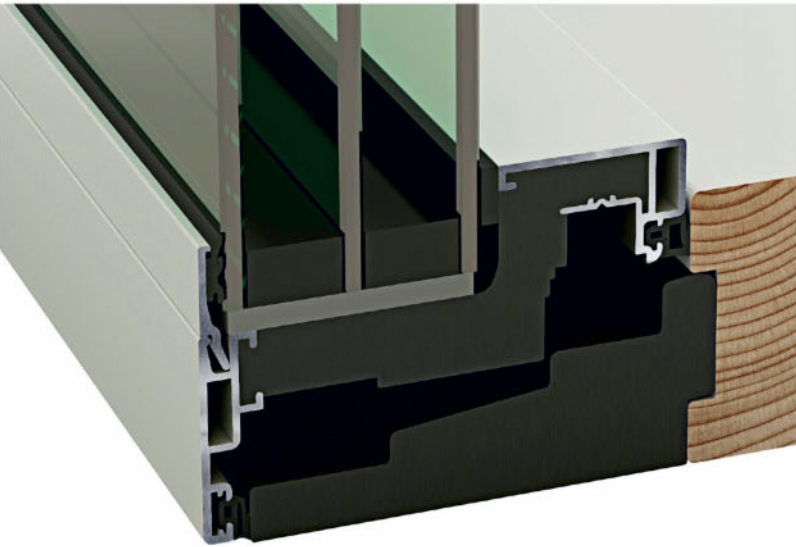
Pete Tonks

Pete Tonks is a design expert and director of PJT Design Ltd. He has been designing self-build homes for over 20 years, and is a specialist in designing oak frame homes.



David Hilton

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



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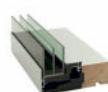
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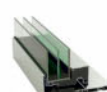
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Homebuilding & RENOVATING SHOW

Meet the Experts in Person

Want a free 15-minute consultation with one of our experts (see page 11)? Meet them at The Advice Centre at the National Homebuilding & Renovating Show, from 22-25 March 2018, and Glasgow Homebuilding & Renovating Show, from 16-17 June 2018.*

homebuildingshow.co.uk

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* VISIT HOMEBUILDINGSHOW.CO.UK TO DISCOVER WHICH EXPERTS ARE AVAILABLE AT EACH SHOW

The advertisement features a modern living room with a white sofa, a yellow beanbag chair, and a stone fireplace. A white Uponor Smatrix Style thermostat is mounted on the fireplace, displaying 21.0°C. The background wall has vertical wooden slats.

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Timber Beams Top UK List

Timber beams have topped the list of the UK's most liked interior design trends, with fluffy rugs/blankets and feature walls also finding favour, according to a new survey from Axa Insurance. Surprisingly, exposed brickwork is flagged up by 59% of respondents as a design no-no, while magnolia remains a firm favourite with 51% of those in the survey.

UK's Most Liked Design Trends

Timber beams	65%
Fluffy rugs and/or blankets	58%
Feature walls	57%
TV in the bedroom	52%
Magnolia	51%

UK's Least Liked Design Trends

Taxidermy	76%
Cluttered rooms	73%
Carpet in bathrooms	67%
Animal print	66%
Exposed brickwork	59% ➤



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Vieo is the cost-effective, convenient alternative to traditional metal roofing and cladding. It provides clean lines as part of a new build or refurbishment and is the perfect complement to modern aspirational homes.

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Vieo can be supplied in steel, aluminium and natural metals such as zinc. A huge range of colours and finishes, is available including VieoZinc; an aluminium material with a zinc-rich coating, providing the look of zinc at half the cost.

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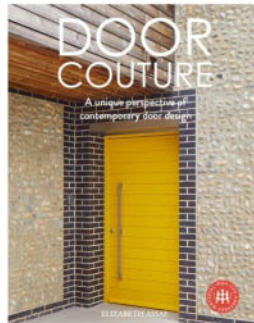
A new company, i Manage My Build (imanage-mybuild.com), has been launched by building professional Robert Burns, who has 40 years' building experience. Homeowners can log their project information, create tenders and wait for quotes from local trades. They can also manage their project through the new site, with a member of i Manage My Build's office-based support team managing the build, workflow and communication between the homeowner and tradesperson.

"I wanted to create a level playing field for homeowners and tradespeople and restore the trust that has been lost in the domestic building industry," Robert says. "We want homeowners to save money, get their project completed to their requirements and protect their most valuable asset."

40%

*of self-builders finance their project through savings**

BOOK OF THE MONTH



Door Couture by Elizabeth Assaf

Drawing on many years of experience working with specifiers, architects and clients, author Elizabeth Assaf (co-founder of door designer and manufacturer Urban Front) covers all elements of door design from surface patterns and colours to deciding on materials via numerous case studies.

Door Couture is priced at £25, available from amazon.co.uk or urbanfront.com.

Loft Ladder Achieves Passivhaus Accreditation

The Passivhaus Institute has awarded the Designo loft ladder certification for use in Passivhaus projects. The Designo offers excellent thermal efficiency (with a U value of 0.60W/m²K) and an airtight seal (class 4 certified), thanks to a highly insulated trapdoor with a six-point locking mechanism. The Designo, from Premier Loft Ladders, also features concealed hinges and a recessed operating latch.





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NEWS

January 2018



UK Cities Buck National Trends

Certain cities have particular tastes when it comes to decorating their homes, many of which go against our preconceptions of trends in certain areas, according to new research from Axa Insurance.

Those living in London are the most inclined to appreciate Victorian/heritage design (41%), which is almost double the national average at 22%. In fact, cities further up north prefer the minimalist style, including Newcastle (39%), Manchester (33%) and Leeds (33%).

Outside of London, Birmingham comes top of the list of cities that love shabby chic, with one in five enjoying the upcycled style. Meanwhile, those in Brighton and Hove are most fond of the hipster trend (13%). ➤



QUOTE OF THE ISSUE:

"I have lost count of the number of times I have seen designs where the bedrooms are facing south and the living areas are facing north. The sun is a free source of heating for your home — be sure to use it."

Mike Cruickshank, page 143



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We are looking for people to take part in a new, primetime show for a major broadcaster and want to hear from owners of homes of all shapes and sizes, with a variety of budgets in place, willing to commit to radical transformations to parts of your home in 2018.

If you have a reasonable budget saved up and are ready for us to help transform your home in 2018, Remarkable Television would like to hear from you.

Please get in touch, sending your name, contact number and a brief outline of your project to the following e-mail address: house@remarkable.tv

Please note that Remarkable Television (the producers of the show) are not always able to respond to every interested applicant. We will use any information provided by you for the purposes of selecting participants for the programme, research for and production of the programme. We will only share information with the commissioning broadcaster, our insurers and any independent contractors involved in the programme.

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1 in 8

*British homeowners are planning to buy a second property in the next 10 years**

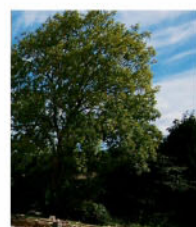
Flame-Retardant Paint Launched

Paint manufacturer JCB Paint has developed a new flame-retardant paint that can be used on most surfaces and is mould-, water- and stain-resistant. The paint is available in 12 shades and can be used on wood, masonry, terracotta, ceramic, plastic and metal.

JARGON BUSTER

ICF

Insulating concrete formwork is a quick and easy building method that's been compared with giant lightweight Lego blocks (typically made from polystyrene). It has been around since the 1970s, but is growing in popularity in the UK. Find out more at the Homebuilding and Renovating Facebook page.



GREEN NEWS

New Hard Water Solutions



David Hilton

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

Water softeners have often been fitted to homes to overcome hard water, caused by calcium and magnesium. However, they could not always be plumbed to all appliances, as the salt or softening agent could damage the appliances. The technologies are changing and this is no longer the case with all units.

There are two main ways of softening water. The cheaper method is to have a metal basket that hangs in the cold water tank; the basket contains

low soluble crystals that need to be changed about every six months. This discourages new furring but it cannot eliminate furring that already exists.

The second method, which is known as 'base exchange' or 'ion exchange', is where the water passes through a high pressure tank containing products such as zeolite, which absorbs the calcium and magnesium salts leaving the water 'soft'.

I have also seen some newer softening units that have food grade resin, which according to the manufacturers produces drinkable water meaning that it can be plumbed to the whole house. This results in clean appliances as well as clear pipework. Although the water is potable for most healthy households, it is important to check with your doctor before drinking if you have any extreme medical conditions.

The units are also 'programmed' and set to your household needs and

according to the hardness of the water in your area.

There are different sized units depending on the household size and the flow rate can be set so that it is compatible with all heating systems and pipe configurations. Expect to pay around £1,200 for a unit for a household up to six people and around £1,400 for households over six people.

The extra efficiency and prolonged operational lifetime of the appliances on a clean water system make water softeners a product that we really should consider, especially for households living in hard water areas. ➤



CONTACTS

Culligan: culligan.co.uk

East Midlands Water:
eastmidlandswater.com

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Ground Floor Insulation Can Reduce Floor Heat Loss by up to 92%

A

dding insulation to suspended timber ground floors commonly found in homes built before the second world war can reduce heat loss by up to 92%, new research has found. The research

team, from the University of Sheffield and University College London, say that this could dramatically reduce heating bills and contribute to the UK's CO₂ emissions reduction targets. The scientists tested two different types of insulation in a Victorian house. In one room, EPS beads were injected into the floor gap, entirely filling it. In another, the floorboards were pulled up and wood-fibre insulation laid between the joists. Results were monitored in 27 locations in the floor.

"When we analysed the results of the tests, it showed a 65% reduction in heat loss for the wood-fibre insulation, and a 92% reduction for bead insulation. Our research suggests that there could be massive potential for cost savings in the average property," says Dr Pelsmakers of University of Sheffield.

While modern homes tend to be built with solid concrete floors, older homes typically have suspended timber floors with a small area underneath for air to circulate. Dr Pelsmakers estimates there could be 10 million such houses, which could all potentially benefit from some form of ground floor insulation.

Installation costs could be as little as £200 per room for the competent DIY-er. Payback could be achieved within two to five years from DIY installation, say the researchers.



SIX KITCHEN MUST-HAVES*

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Cleobury North, Shropshire

Period semi-detached stone stables, partly developed offering an opportunity to create a three bedroom, two-storey property.

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Brecon, Powys

Detached three bedroom home in need of modernisation.

£235,000



Spalding, Lincolnshire

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Open Door Invite

If you're refurbishing a grand period home, or a more modest 20th-century property, take inspiration from one of these guided tours in spring 2018

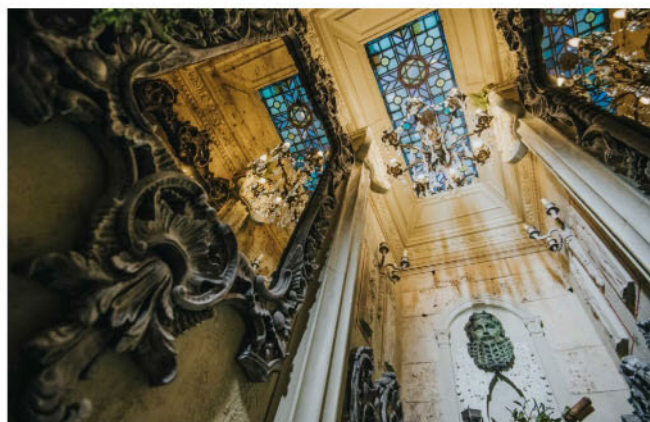
T

hese privately owned homes are rarely open to the public, but the owners have chosen to open their doors as part of the Invitation to View initiative. Booking for tours is via invitationtoview.co.uk. 



Shilstone House, nr Modbury, Devon

Shilstone House is a lovingly restored Georgian house (ABOVE and TOP) in the Devon countryside, that overlooks an important historical landscape, including the only known and nationally important 17th-century water theatre in the UK. The tour of the house, gardens and Devon Rural Archive takes place on 13 March 2018 at 2pm. It costs £18, including a cream tea.



Talliston House and Gardens, Great Dunmow, Essex

John Trevillian has taken an ordinary three bedroom, semi-detached ex-council home (TOP RIGHT and RIGHT) and over 25 years transformed it into an amazing labyrinth of inspirational locations, times and places. The candlelight tour on 25 March 2018 starts at 3pm and costs £16.50, including tea or coffee and homemade cake. Other tours are also available on the last Sunday of every month.

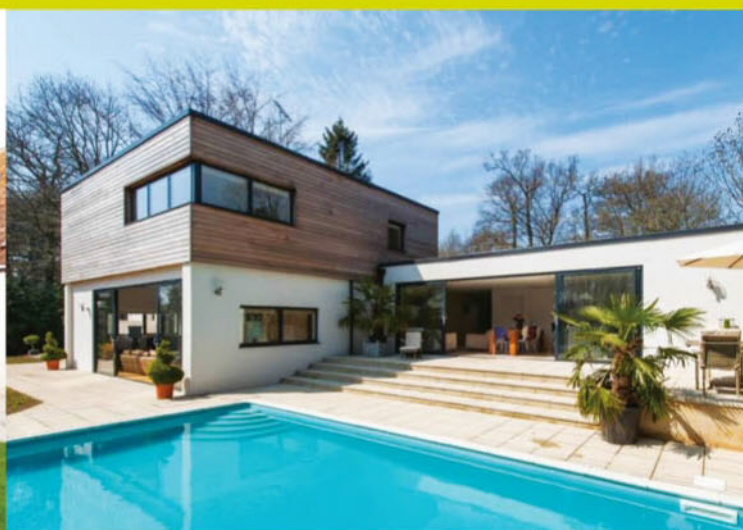


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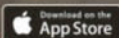
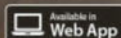
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An Inefficient Mode of Energy Efficiency

If we want to build the most energy-efficient homes, imposing green conditions as part of planning permission may not be the solution, argues sustainability expert David Hilton



In 2003, Merton Council introduced a rule that required commercial buildings over 1,000m² to generate 10% of their energy via renewables. Since then there has been an increase in the requirement for energy efficiency, CO₂ reductions and/or a percentage of energy generated from renewables as a condition of planning in many other areas, and not just for commercial buildings but domestic properties, too.

Although I can quite easily see the benefits of energy efficiency and the deployment of appropriate renewables, I question why planning authorities require these measures to be proven before planning permission is granted. Could the measures not be proven in the Building Regulations' drawings?

I remember when I first encountered the Code for Sustainable Homes; I was somewhat bemused by the fact that achieving a set level had become a planning requirement for some local authorities and had nothing to do with Building Regulations. It seemed that many of the details that added up to an energy-efficient home were evaluated and calculated in accordance with two different sets of criteria: one for the planning authorities and another for building control — both of which cost the self-builder considerable amounts of time and money. (Developers only had to evaluate one example of each house type on a whole development, but to the self-builder it was an additional cost to be borne on a single property.) The Code for Sustainable Homes has all but disappeared, but we are seeing more local planning authorities requiring energy efficiency measures or renewables.

I recently worked on a project requiring 10% of its energy from renewables. That seemed like a straightforward requirement — until we needed to prove it. The house was not built yet and all we had was a predictive SAP. A senior planning officer told us to use a specific software calculator — one that is provided free to the local authority, but costs the end user £210 for a single licence. The officer said the software wasn't compulsory, but that any figures and technologies that

we submitted would be tested and verified using it and therefore it was recommended. The software is fairly generic, and it does not allow you to add technologies that aren't already programmed in. When I challenged the software developers on this, they said it was not a design tool for technology. This made me question how anyone could build a property with new technologies, or with technologies that are perhaps not currently defined as renewable. Under this planning requirement, there would be no way to sign it off.

I certainly do bang the drum for energy efficiency and optimised performance in homes, but I will also be the first person to question the inappropriate use of products and criticise

mis-selling techniques. You must ask yourself if it is good practice to demand the adoption of renewables on a property when we don't know what the non-renewable alternatives are. I would argue that we should also be encouraging efficiency in the fabric of the building.

Rather than building a new home to current Building Regulations and meeting 10% of its energy from re-

newables, is it not a better solution to increase the insulation and airtightness of the fabric of the envelope to the point that it uses at least 10% less energy than current Building Regs' standards? A home should be built to last longer than any renewable technology, so surely it is better to introduce efficiency where it counts the most? A shed with a solar panel is, after all, still a shed.

Councils are promoting better energy efficiency practices at design stage, but what we need is joined up thinking so that we comply with one set of standards. Clearly if we want our plans approved, we need to go through the process, but let's make sure that the products we include in the calculation are the best ones for the project and not simply tacked on to achieve a planning permission result. **H**

David Hilton

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

"It is better to introduce efficiency where it counts the most... a shed with a solar panel is, after all, still a shed"

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BRITAIN'S BEST HOMES REVEALED

*In our annual awards special, we unveil 2017's
most inspiring self-build, conversion and renovation projects*



For over two decades, *The Daily Telegraph* and *Homebuilding & Renovating* have teamed up in search of the finest individual homes the UK has to offer — including our global search for the prestigious World's Most Amazing Home (the winner of which this year is a cantilevered vision, the ultimate home for life, designed by Strom Architects — and our cover house). Each year, the awards celebrate a broad church of house projects, from contemporary self-builds and conversions, to traditional and contemporary renovations and extensions, and everything in between. But the awards do not simply commend great design — they're a celebration of the homeowners behind these building projects, and the passion that has spurred their schemes on and led to the creation of their dream homes.

The Overall Winner in 2017, and also winner in the Best Starter Home category, is Clare Williamson and Oscar Baldry, whose conversion of a derelict newsagents — completed for a total cost of just £68,500 — embodies the

essence of what our awards stand for. They had the nous to spot the potential in a building which had lingered long on the market, and managed to create an individual home which they could never otherwise have hoped to afford.

The result is a characterful home where every inch of space within the modest footprint is put to good use, and incorporates Passivhaus design principles to provide lower energy bills and a more pleasing home to live in. This project ticks all the boxes and shows what can be achieved on a budget.

Elsewhere, category winners include an astonishing Passivhaus treehouse; an inspiring custom build — the tale of one man who boldly convinced his neighbours to knock down their '50s council block to rebuild a group of larger, modern flats for a whole community; a warehouse conversion; and a jaw-dropping self-build topping a limestone cliff on the Welsh coast.

We hope you enjoy reading about this year's crop of outstanding projects, and we look forward to seeing your home in the coming years (watch out for the launch in spring 2018).

See all of our awards projects in full over the following pages and in upcoming issues

THE JUDGES...



Jason Orme is the Editorial Director of *Homebuilding & Renovating* and an experienced self-builder. He is currently extending and remodelling his family home in Staffordshire.



Charlie Luxton is an experienced architectural designer and well-known broadcaster, presenting popular homes programmes such as *Building the Dream*.



Michael Holmes is Director of Content at *Homebuilding & Renovating*. He has self-built and renovated 27 homes, and is also Chair of the National Custom & Self Build Association.



Darren Bray is an architect at award-winning PAD Studio in Hampshire and is a sessional lecturer in architecture at the University of Reading.



Neil Turner is a director at Howarth Litchfield Partnership and specialises in residential design. His own home won our award for Best Remodel/Extension in 2014.

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As a family business founded in 2000, IDSystems has built an outstanding reputation for quality, technical expertise and award winning products. For more than 17 years it has installed industry-leading bifold doors, sliding doors and glazing on a wide range of renovation, new build and extension projects across the UK.

BEST CONVERSION

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BEST CUSTOM BUILD

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BEST PASSIVHAUS

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BEST SELF-BUILD STARTER HOME

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OVERALL WINNER
This award is given to the most outstanding project entered into the 2017 awards.



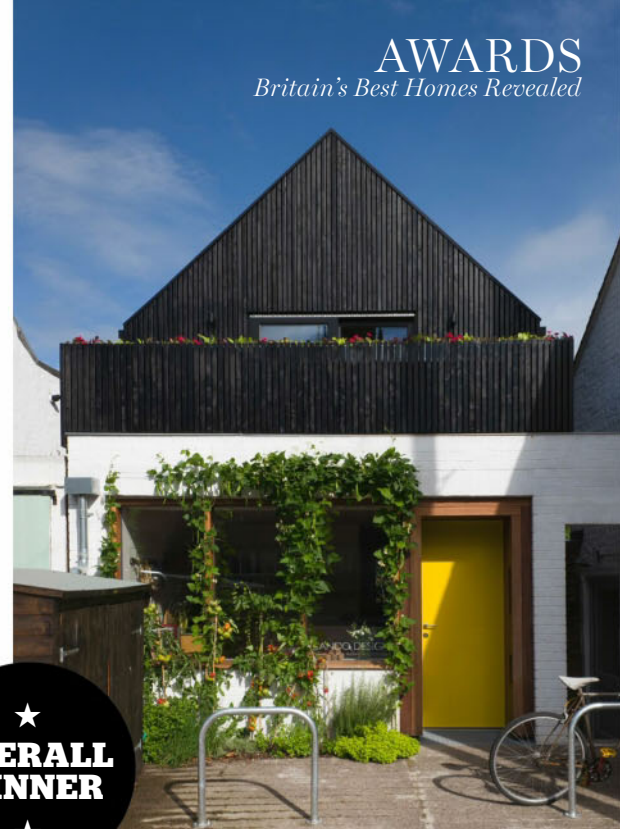
★ **WINNER** ★

Best Starter Home & Overall Winner

Homeowners Clare Williamson and Oscar Baldry
Project Conversion and extension
Location Shrewsbury
Size 42m²
Design CandO Design

▲ This project – the conversion and extension of a derelict newsagents in Shropshire – is outstanding in several ways.

First, there's the bravery needed to take on an old retail outlet that others had failed to secure planning permission on – helped by a proposal to retain much of the fabric of the building and the striking mix of white painted brickwork with black painted timber cladding above, a pleasing echo of the 'black and white' Tudor buildings found nearby. There is many a building ripe for conversion in our urban areas, and this project is a shining example of how to do it well.



★
OVERALL WINNER
★

Then there's the cost: the couple managed to work within a tiny build budget of £35,000 while applying Passivhaus design principles to create a truly energy-efficient home. As you might expect with such a small budget, this was a hands-on build; Clare and Oscar estimate that they took on around 90 per cent of the building work themselves.

Finally, there is the size. Says architect and judge Darren Bray: "This is a glowing example of how we should all be looking to maximise what space is available. It's not about having the largest site or budget, it's about how creative you are in adding value to something that no one else would take on."

Read the full story on page 45.



★ **WINNER** ★

Best Contemporary Self-build

Homeowners Andrea and Clive Silver
Project Contemporary self-build
Location Swansea
Size 350m²
Design Hyde + Hyde Architects

▲ "This is a truly outstanding piece of contextual architecture and a breathtaking response to its exposed site," says judge Darren Bray of this exceptional new house.

Located along a dramatic windswept coastline on top of a limestone cliff in south Wales, this impressive self-build has been constructed using in-situ concrete at ground level with a glulam timber frame first floor resting above. A timber ring beam separates both floors and cantilevers the house out towards the ocean.

Internally the accommodation has been laid out in an upside down arrangement over three floors, with the principal rooms orientated towards the rising and setting of the sun. "The choice of materials and detailing are absolutely sublime," continues Darren Bray. "It's a masterclass in crafted architecture, with detailing of the highest quality."

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★ WINNER ★

World's Most Amazing Home

Homeowners Pennie and Charles Denton

Project

Contemporary self-build

Location Dorset

Size 205m²

Design Strom Architects

▲ This building, designed by Strom Architects for retired couple Pennie and Charles Denton, sits with a light touch within the Dorset countryside. It's an elegant design comprising a simple rectangle, broken only by the chimney. But 'The Quest' is no architectural wallflower. The cantilevered west wing

conveys strength and modernity, while housing the master suite and offering sheltered parking underneath.

Internally, a large south-facing kitchen/living space lends itself to both entertaining and quiet reflection, and offers a strong connection with the valley beyond. Level access, a lack of corridors and low-maintenance materials, including the exposed concrete shell, also means that the house is futureproof; it's the ultimate lifetime home.

"This is a stunning piece of architecture," says architect and judge Darren Bray. "The level of care and attention to the overall form of the house, as well as the level of craft and detailing, means this has to be an award winner."

Read more on page 58.

★ WINNER ★

Best Custom Build & Spirit of Self-build

Homeowner Adam Street

Project Custom build

Location London

Size Adam's flat (210m²); total block 1,600m² (16 flats in total)

Design Peter Barber



WINNER



Best Passivhaus

Homeowners Jon Martin and Noreen Jaafar

Project Contemporary self-build **Location** Dursley

Size 200m² **Design** Miller + Howard Workshop

▼ Jon Martin and Noreen Jaafar's Passivhaus-certified home nestles among the trees on this half-acre plot that sits between a supermarket and a church. The timber-clad upper floors seem to float 12m up, but this is a clever illusion, with the ground floor clad in metal, reflecting the woodland that surrounds the building. The cantilevered structure allows for a veranda on the second floor, with the living spaces and bedrooms across the upper two floors.

The couple had to overcome a number of challenges, none greater than designing without using concrete foundations – a result of the 27 protected trees on the plot and the planners' desire to avoid damaging the roots. The solution was to bore 16 metal piles into the ground and erect a steel frame above.

This low-energy home is even more impressive on hearing that the couple took on most of the build themselves on a DIY basis. What's more, this project has brought a forgotten piece of land back into very good use.



◀ When Adam Street, who lived in an ex-local authority block in London's Battersea with his growing family, realised he couldn't afford to move to a bigger house, he embarked on a remarkable custom build project. "I convinced my six neighbours that if we demolished our 1950s council block, and rebuilt our homes at double the size, we could finance it by building eight new flats," he says. Amazingly, every one of his neighbours agreed to move out of their flats for the duration of the project, designed by architect Peter Barber.

It's an incredible story that has enthused all our judges. "This project demonstrates an innovative way forward," says judge Charlie Luxton. "We need to modernise our housing stock and increase density in employment areas and around transport hubs. This project shows how it can be done with the benefits going to the owners and wider public, not housing developers."

Adds fellow judge Darren Bray: "This project shows incredible entrepreneurial thinking in a way that must be congratulated and upheld as a shining beacon of hope, especially in an age where we are wrestling to find ways to create housing for all."



★ WINNER ★

Best Traditional-Style Self-build

Homeowners Helen and Richard Anderson **Project** Traditional self-build
Location Oxfordshire **Size** 350m² **Design** Anderson Orr

▲ Quietly positioned off a village high street and replacing a 1950s bungalow, this beautiful four bedroom self-build has been designed by architect/owner Richard Anderson to perfectly suit his family's lifestyle. Taking its cue from the Arts & Crafts era, the house features a steep roof pitch, low eaves, balconies built into the dormers, and an abundance of natural building materials. While the exterior takes on a traditional form, the interiors are given over to a glorious open plan arrangement, with varied ceiling heights and partition walls to both zone the living spaces as well as provide glimpses into different rooms – many offering through-views to the garden.

While the house is impressive in its own right, perhaps the greatest success is the thoughtful consideration of space, with every nook and cranny having a purpose. The end result is an idyllic family home that strikes the perfect balance between traditional-style design and modern living.



★ WINNER ★

Best Conversion

Homeowner James Davies
Project Warehouse conversion
Location London
Size 115m²
Design Paper House Project

▲ A warehouse landlocked on all sides off one of London's busiest high streets wasn't enough to put off James Davies, whose sheer enthusiasm and determination to create a home for himself has resulted in one of the most striking, minimalist conversion projects of late.

In the face of complex planning negotiations, difficult



site access and neighbourhood disruption, James has gone on to transform this formerly derelict structure into a modern home with a courtyard garden.

The fact that James has gone to the effort of restoring one of London's historic buildings, where so many would have simply knocked down and rebuilt, is truly commendable.

★ WINNER ★

Best Traditional Renovation

Homeowners Dan and Clare Stewart
Project Traditional renovation
Location Plymouth
Size 85m²
Design ADG Bespoke

► Dan and Clare Stewart have taken a run-down terraced house and transformed it into a fresh, bright home – undertaking the majority of the work themselves.

During the five-year project, the couple endured freezing cold winters with no heating and next to no insulation, rotten floorboards and an unimaginable amount of dust, created from stripping the entire house back to the brickwork.

The painstaking restoration work has resulted in a house that blends a stylish, classic backdrop with clever contemporary twists. Although the couple has altered the house to reflect a more modern way of life, they have retained many of its charming original features.

To read more on this project, turn to page 71.





★ WINNER ★

Best Contemporary Renovation/Extension

Homeowners Jonathan and Zahra Chambers

Project Contemporary renovation and extension

Location Alresford, Hampshire

Size 95m² extension

Design

Adam Knibb Architects

▼ Hurdle House is a Grade II-listed barn conversion, which dates back to the 18th century, sitting on a large plot, with views across the capacious garden previously only glimpsed from a single bay window.

"We felt the existing building didn't take advantage of the great topography of the site," says architect Adam Knibb, who the Chambers approached to design

the extension. "It runs right down to a stream at the back, but if you're looking at the building, it seems to face the wrong way. We wanted to change the social orientation of the house."

The final design is a 95m² extension, connected to the building by a glazed link, which replaced the bay window. The contemporary extension runs perpendicular to the house, creating a courtyard-style entrance at the front of the property, and providing more privacy to the garden. The extension comprises an open plan kitchen/dining/living space, bathroom and utility.

"This extension to Hurdle House is a beautiful piece of silent design," says judge Darren Bray. "The use of simple vertical cladding also allows the building to sit comfortably within the existing landscape."

Read more on page 80.



AWARDS
Britain's Best Homes Revealed

★ WINNER ★

Spirit of Self-build

Homeowners

Justin and Linda Tyers

Project Traditional self-build

Location Somerset

Size 90m²

Design Self-designed



▲ A true representation of self-builders taking on the DIY, 'can-do' approach, Justin and Linda Tyers have not just self-designed their own home within Exmoor National Park, but they also built it themselves. They handled every aspect from the planning application to the Building Regulations' compliance, plumbing, plastering and everything in between.

The self-sufficient new home is completely off-grid for electricity and water, and has been constructed using locally sourced, compressed straw bales set within a timber frame. Inside, the two bedroom home boasts vaulted ceilings with an exposed frame providing instant character. Meanwhile, a mezzanine housing one of the bedrooms is accessed from the light-filled open plan living space. What is perhaps most impressive, however, is that this DIY self-build was completed on a budget of just £67,000.

THE SHORTLIST

Homeowner Graham Ebbs

Project Traditional renovation

Location Bedfordshire

Size 400m²

Design Oakwrights, Nicolas Tye Architects and ARC Design

► "People actually said we were mad, including the conservation officer," says homeowner Graham Ebbs, whose six-year project to transform a farmhouse on the brink of collapse became a labour of love for his family.

Not only has the existing structure been lovingly restored but a new oak frame extension has been added, and an adjacent World War I MOD barn converted and linked back to the house via a glazed corridor. These dilapidated buildings have been brought back to life to create a truly stunning home that marries characterful details with modern family living.



Homeowners

Phil and Yvonne Garnett

Project

Passivhaus self-build

Location North Yorkshire

Size 200m²

Design Ecoarc and Oakwrights

► After taking on her mum's 1930s bungalow with a view to knocking it down and rebuilding a modern home on the Yorkshire coast, Yvonne Garnett has, with her husband Phil, created a unique, high-spec home.

A collaboration between client, design practice Ecoarc and oak frame company Oakwrights, the house combines airtight, energy-efficient living with the beauty of an oak frame interior – in fact it is the first oak frame Passivhaus-certified home in the UK, and rightly deserves to be highly commended.



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★
HIGHLY
COMMENDED
★

Homeowners Tom Allen and Natalie Scroggie

Project Contemporary self-build

Location Nottingham

Size 120m²

Design ta Architecture

▲ Tom Allen came up with an ingenious design for a contemporary house on a modest budget, using land at the rear garden of his existing home.

Aware of the compact dimensions of the plot, architect Tom's main design aim was to maximise the sense of volume of the house in order to inject a sense of space.



The new house is single storey at the rear, with a cantilevered first floor, supported on a Y-shaped steel column, that was designed specifically to create more useable space upstairs.

Externally, a combination of cedar cladding, large expanses of glazing, grey through-coloured render, along with the striking asymmetrical design of the building, belie the impressively low build costs – just £165k. Equally impressive for such a cost-effective build are the contemporary interiors, where a simple, industrial-inspired look has been achieved.

Tom's DIY approach and clever design solutions showcase what can be done on a budget.



Homeowners Henry Hudson and Holly Johnson

Project Victorian renovation **Location** Derbyshire

Size 140m² **Design** N/A

▲ As first-time buyers, Henry Hudson and Holly Johnson were undaunted by the neglected state of the Victorian house, which they have now turned into a warm home that embraces the property's original features. Faced with a building site, with little in the way of a kitchen or even a proper bathroom, Henry and Holly carried out work on the house room-by-room on a DIY basis and slept in the living room for four months while work upstairs was carried out.

The finished house is a shining example of what can be achieved on a limited budget. Original features have been carefully restored wherever possible, while any fixtures and fittings that were removed during the project have either been reused or upcycled.

The couple's 'give it a go' attitude, along with their determination and methodical approach to budget planning, means that the project came in at just £45,000.

Homeowner Patrick Michell **Project** Contemporary self-build
Location Norfolk Broads **Size** 165m² **Design** Platform 5

▼ Backwater replaces an outdated bungalow prone to flooding on a promontory in a secluded lagoon in the Norfolk Broads. Arranged as three low-rise bays that splay out to the waterfront, the house is orientated to address different views across the wetland landscape. Pitched roofs clad in blackened timber shingles echo the shape of the working boat sheds nearby, while untreated timber shingles to the entrance will weather over time to create a textured appearance.

Inside, a simple broken plan arrangement allows for flexible living through the use of large rolling timber doors. The central bay contains a large kitchen and dining area that flow into an adjacent double-height, vaulted living space. Split over two floors, three bedrooms occupy the third bay.

Backwater demonstrates the viability of constructing close to the water's edge and on an existing flood plain, offering an innovative solution to flooding and construction in the UK.



Homeowners

Jo and Andy Houghton

Project Traditional self-build

Location Cambridgeshire

Size 470 m²

Design Snell David Architects

► For their fourth self-build, Jo and Andy Houghton have created a handsome traditional-style self-build on a former apple orchard, which previously housed a 1930s chalet bungalow. The property sits in a village conservation area and is adjacent to several listed buildings.

Externally, this new home is designed to evoke a 17th-century Suffolk farmhouse that has been extended over several generations. Sitting in a yard surrounded by a barn and outbuilding, the house picks up the local vernacular of different eras, with a subtle nod to Arts & Crafts in the roofline.

The footprint of the house, along with its position on the site,

means that it is not possible to see the full extent of the property from any one angle – another architectural device employed to suggest that this house has been here for centuries. Internally, antique French furniture works alongside cream interiors and layered lighting for a relaxed feel.

This highly satisfying property fully deserves its place on this year's shortlist. ►



AWARDS

Britain's Best Homes Revealed



Homeowner Confidential

Project Contemporary self-build **Location** Cornwall

Size 227m² **Design** Nicholas James of Kast Architects

▲ Perched above the dramatic Cornish coastline, just off the cliff path and with nothing in front but unobstructed sea views, this new home was a real contender in the Best Contemporary Self-build category. The first residential project of new practice Kast Architects, this spectacular self-build oozes minimalist style and drama, thanks to the cantilevered structure. The home's pared-down palette of materials also lends a modern coastal charm, providing the homeowners with an idyllic holiday home that the whole family can enjoy and relax in.



Homeowners Eleanor and David Parsons

Project Contemporary renovation and extension

Location London

Size 131m²

Design Selencky Parsons

◀ Eleanor and David Parsons have transformed their 85m² three-bed London semi into a 131m² four-bed family home.

The renovation work included a loft conversion, a two-storey extension and a complete remodel. The master bedroom now sits in the converted loft, providing panoramic views across London, while some of the most impressive work was done on the ground floor, with a new split-level open plan family space that even includes a mezzanine reading 'nest'.

The couple has managed to create a superb family home, on a respectable budget, which judge Darren Bray describes as "quirky, simple and intelligent".



Homeowners Jeremy Witt and Hannah Smith

Project Conversion

Location Essex/Suffolk border

Size 524m²

Design David Nossiter Architects

▲ This ambitious conversion sees a timber and brick barn transformed into a light-filled contemporary home that retains the building's cathedral-like proportions. The design follows the barn's floorplan and incorporates many of the original features, including a row of concrete cattle stalls (now

storage for the homeowners' scooters and bicycles). Externally, the Welsh slate roof and brick walls sit alongside new larch cladding, which has been left to weather to a silver grey. Internally, the barn's original cruciform central space forms the kitchen, dining and circulation areas, with smaller spaces flowing off for bedrooms, a library and study.

Says judge Darren Bray: "To tackle an existing building like this, you have to take a forensic approach to create a piece of architecture within the existing structure. This is also a prime example of someone knowing when to stop adding layers."



Homeowner Confidential

Project Contemporary renovation/extension

Location Nr. Maidenhead

Size 170m²

Design Hamish & Lyons

▲ This 170m² extension, designed by Hamish & Lyons, is set on a steel deck and stilts over a man-made lake at the rear of a traditional-style home. The glulam structure has been divided into two discrete spaces, separated by a walkway: a living space closest to the main house

and a guest suite with kitchen at the far end – each features a mezzanine level with bedroom.

Connection to the main building is provided by a glazed bridge, but there is a marked contrast between the traditional brick structure and the timber and glass-dominated extension. Sliding glazing and rooflights, which run through the centre of the pitched roofs, provide transparency across and through the entire space. "This extension is truly awe-inspiring," says judge Jason Orme.

IMAGES: ANTHONY GREENWOOD PHOTOGRAPHY; SIOBHAN DORAN; JAMES BRITTAIN; STEVE LANCEFIELD



Homeowners Jane and Tim Meggitt
Project Contemporary self-build **Location** West Sussex
Size 270m² **Design** Nick Willson Architects

▲ Homeowners Jane and Tim Meggitt have built a light-filled, sustainable contemporary home on a nine-acre site in rural West Sussex. In keeping with the local vernacular, the northern façade comprises a typical Sussex chimney stack and local red brickwork in a mixture of bonds. To blend with the surrounding woodland, the other three façades are a mixture of aluminium-framed glazing and timber cladding. Internally, exposed brickwork with herringbone bond sits alongside bamboo joinery for a dramatic feel, accentuated by the double-height ceilings and full-height triple glazing.

The house steps down the site and is orientated south for maximum solar gain. A prefabricated timber frame filled with natural sheep's wool for insulation keeps energy loss to a minimum. In addition, high levels of airtightness, an MVHR system, solar panels and an air source heat pump help to meet heating needs. Sedum roofs and abundant water plants in a natural swimming pond support the flora and fauna.

It is this blend of contemporary design, sustainability and sensitivity to the local area and wildlife that means this self-build justly deserves its place as one of the UK's best contemporary self-builds.



Homeowners Darren and Lucy Henderson
Project Contemporary self-build
Location Bournemouth
Size 160m²
Design dot architecture

► Overlooking a leafy park just a stone's throw from Bournemouth beach, Darren and Lucy Henderson jumped at the opportunity to build their own home on the site of a former garage block. Thanks to their vision - and the use of a trusted structural engineer - they have managed to create a beautiful family home for themselves and their two children which makes best use of the tight plot, with a basement level housing the bedroom accommodation and a sunken courtyard.

With little space to work with, the couple exactly managed every detail of the build on this urban brownfield site.

"This is a very innovative and entrepreneurial response from a local architect, who saw the



potential in some disused garages," says awards judge Darren Bray. ►



Homeowners Oliver and Julia Jackson
Project Contemporary renovation and extension
Location Kent
Size 135m²
Design AAvA Architects

▲ The stunning cedar-clad home that Oliver and Julia Jackson now call home is worlds away from the dark, run-down 1970s shack they originally bought. Seduced by the coastal location and armed with a clear vision of the type of house they wanted to create, the Jacksons

decided that the easiest route in terms of planning permission would be to demolish only part of the house. They worked with the existing footprint and replaced the first floor to create a contemporary home suited to their needs.

Striking features, such as a swathe of glazing that runs along the entire front of the house, Kebony cladding, and a combination of clever and cost-saving design elements, mean that the couple has achieved a high-end design for £286,000.



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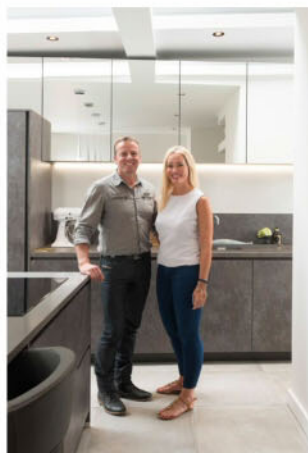


Homeowners Sheryl and Andrew Wilson
Project Contemporary renovation
Location New Forest, Hampshire **Design** PAD Studio

▲ Located within the New Forest, this four-storey water tower has been the subject of an impressive renovation to become the guest wing of Sheryl and Andrew Wilson's home (the adjoining cottage). Originally constructed in the early 1900s to gravity feed water to the adjacent building, the tower, which had been previously converted, had been left in a bad state of repair.

Thanks to the vision of PAD Studio, a significant refurbishment has brought new life into the old structure, with the existing fabric of the building revealed and restored before a series of contemporary interventions - including an impressive ribbon-like steel staircase and large protruding picture window - were introduced.

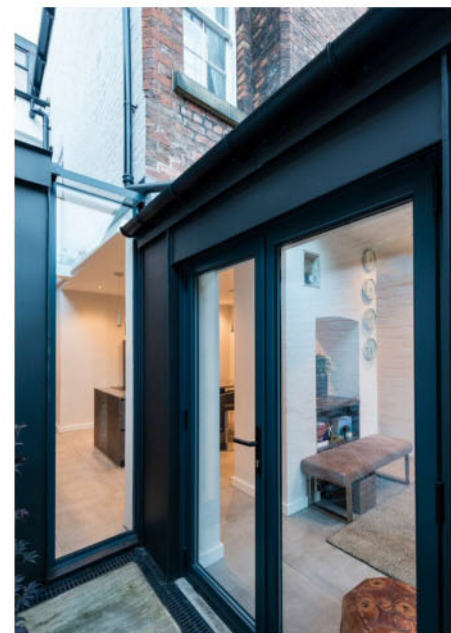
The tower now offers additional living accommodation where owners Sheryl and Andrew can relax while enjoying far-reaching views of the Forest, as well as space for visiting guests to unwind. The attention to detail and respect for the existing fabric of the building are what makes this project such a success.



Homeowners Mike and Rebecca Fairhurst
Project Georgian office conversion
Location Cheshire
Size 223m²
Design Guy Taylor Associates

▲ Mike and Rebecca Fairhurst have converted a Grade II-listed townhouse from an office into a home. The couple wanted to bring the building back to its former glory while ensuring the new spaces were suited to family life. A rear side infill extension has been added, while the ground floor has been completely remodelled in order to create a family kitchen, dining and living space, with clear access to the rear garden.

There was previously no connection to the outside spaces,



with only a store room having a view of the garden and next to no natural light coming into the rear of the house.

To overcome this, a glazed 'slot' runs through the extension. The purpose of this striking design feature is not only to flood the kitchen space with light, but also to create a sensitive margin between the old and new sections of the house. The glazed run also gives amazing views of the Georgian façades above.

This is an impressive example of how a former commercial premises can be transformed into a family home.



★
HIGHLY
COMMENDED
★

Homeowner Roger Zogolovitch
Project Contemporary self-build
Location Poole, Dorset
Size 241m²
Design Mole Architects

▲ For practice Mole Architects, it was an honour to have architect Roger Zogolovitch - who has been responsible for some of London's most exciting developments - enlist their expertise to help develop ideas for his new family holiday home.

A dream commission, Mole Architects has taken Roger's brief and gone on to deliver an

inspired design that takes the form of a vessel almost floating on the nearby water. From the full-height glazing to the exposed aggregate concrete, curved internal timber walls that create the illusion of being in the hull of a ship, and the ingenious split-level design (one of Roger's design signatures), the new home is a stroke of architectural genius.

"It really is a masterclass in how to respond to one's natural surroundings - taking its cues and influences from its coastal location," says architect and judge Darren Bray.



★
HIGHLY
COMMENDED
★

Homeowners Anne and Tony Pender
Project Contemporary self-build **Location** Northumberland
Design Dan Kerr of MawsonKerr

▲ When Anne and Tony Pender decided the time had come to move on from their farmhouse to a lower-maintenance property for their retirement, a small barn on their land presented the starting point for architect Dan Kerr's inspired design. The resulting build (part conversion, part new build) takes its cue from the barn-like forms of the local vernacular. The house has also been designed with Passivhaus principles in mind, offering the homeowners a comfortable environment in their later years.

The couple's son, Richard Pender, was instrumental to this project - he took the plunge and completed most of the build himself. The result is a family-led project that deserves to be highly commended. **H**

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SMALL WONDER

Clare Williamson and Oscar Baldry have transformed a former newsagents, taking on almost all the building work to create a characterful and energy-efficient home — all for just £35,000

Words **Claire Lloyd** Photography **Jeremy Phillips**

PROJECT NOTES



See more on Clare and Oscar's build online:
homebuilding.co.uk/awards



JUDGE'S COMMENTS

"This project is impressive in a number of ways. Firstly the cost: £35,000; the use of Passivhaus design principles; the planning success; and finally the size — to create a home from 42m² is quite remarkable. The homeowners really need to be applauded — taking on all of the challenges and being tenacious enough to see them all through to the end.

"There are some wonderful uses of tiny spaces to get the best out of such a tight site. This really is a glowing example of how we should all be looking to maximise what space is available, because it's not about having the largest site or budget, it's about how creative you are in adding value to something that no one else would take on."

Darren Bray, architect

Homeowners

Clare Williamson
and Oscar Baldry

Project Conversion
of a former newsagents
and first floor extension

Location

Shrewsbury, Shropshire

Build time

Feb 2014 – Jul 2015

Size 42m²

Building cost £33,500

Build cost £35,000

Value Unknown

Suppliers

Architect and structural engineer

CandO Design:
candodesign.co.uk

**Bespoke triple-glazed
kitchen window**

Manley & Son Joinery:
armanley.co.uk

**Moralt Passivhaus-
certified front door**

Latham Timber:
lathamtimber.co.uk

**Mechanical ventilation
heat recovery system**

Titon HRV 1.25: titon.co.uk

Triple-glazed windows

Rational: rational.co.uk

**Rough sawn interior
timber cladding**

G & T Evans: gtevans.co.uk

Stainless steel worktop

Pod Stainless Steel:
podstainless.co.uk

Structural engineer

Bob Johnson Consulting
Engineers: bjse.co.uk

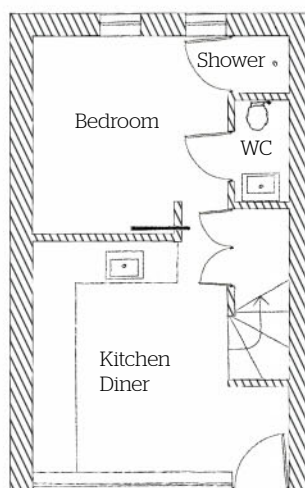
**Warmcel insulation and
airtightness products**

PYC systems:
pycsystems.co.uk

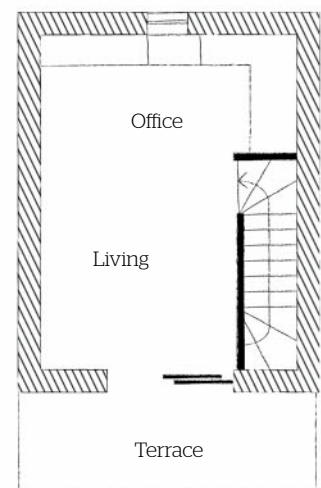
The Floorplan

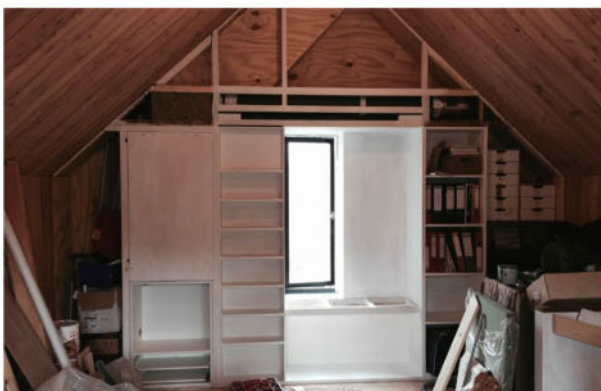
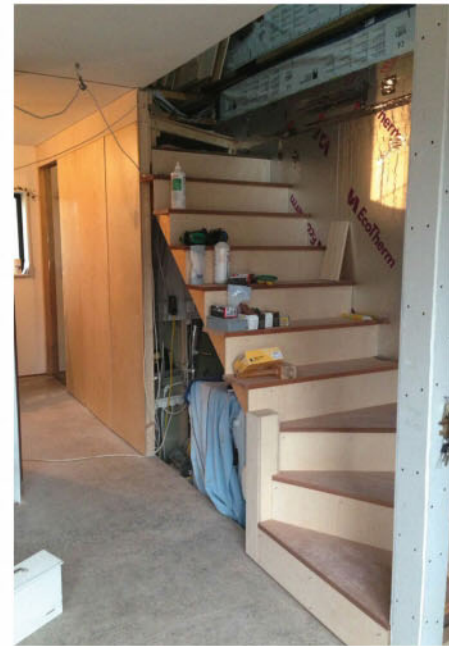
The kitchen diner is at the heart of the ground floor; a sliding door provides access to the bedroom, WC and shower room behind. The first floor living room and office opens to an enclosed terrace, with views over the adjacent church.

Ground Floor



First Floor



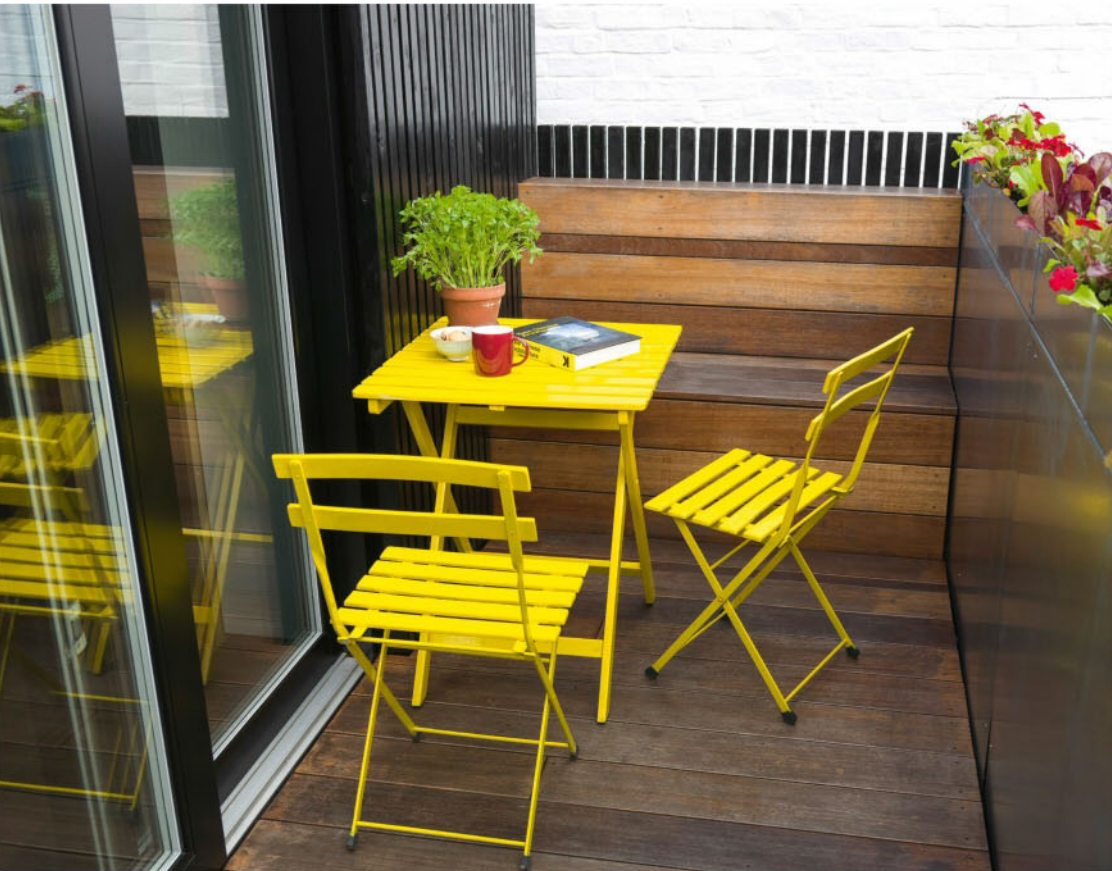


A Hands-On Build

Clare and Oscar estimate that they took on around 90% of the building work themselves – including insulating and laying the concrete floor slab (TOP); installing the mechanical ventilation heat recovery system (CENTRE); fitting the kitchen (FAR LEFT) and taking on all other joinery within the building (BOTTOM LEFT), among many other tasks on site.

Recognising the need to get the building watertight as swiftly as possible, they hired trades to complete the roof. They were also aided by a local carpenter when building the first floor timber frame extension. (Kind neighbours were of great help too; one neighbour even plated up a roast dinner for Clare and Oscar every Sunday.)





The First Floor

Clare and Oscar opted for rough-sawn timber cladding for the ceiling and walls of the first floor living/office space, to add texture to the walls and keep plasterboard to a minimum (as a means of eradicating 'wet trades' from this project). A wall of storage (built by the couple) provides a home for many of their possessions – including a slimline cupboard specially designed for their snowboards. This living space also opens up to a small terrace (LEFT).





“It was the cheapest thing available; and it was within our means,” begins Oscar Baldry, describing the derelict newsagents that he and partner Clare Williamson went on to purchase for the sum of £33,500, and artfully transform into their new home. Having spent some time travelling and living in a van that they had converted into a temporary home, the couple were ready for a conversion project on an altogether different scale — and one which would offer an opportunity to gain a foothold on the property ladder.

The former newsagents in Shrewsbury had closed for business almost a decade previous, and had been on the market for some time; there had been several rejected planning applications to build a new two-storey dwelling on the site. Still kitted out with its original shop fittings (one shelf was even stocked with chocolate bars and Pot Noodles), the building was showing serious signs of neglect, including settlement and a roof in desperate need of replacement. The couple approached the vendor, agreeing to purchase the building subject to receiving planning permission and successfully securing a change of use.

As an architect, Clare was well-placed to develop the design, with Oscar, a structural engineer, bringing invaluable knowledge. Clare’s proposal saw the fabric of the building, in particular the original brickwork and shop front, retained, with a new first floor timber frame extension added. A striking mix of white painted brickwork with black painted timber cladding above was proposed as a nod to the ‘black and white’ Tudor buildings found throughout the town.

The cladding proved the main sticking point with the local planning department however, who favoured white render, in keeping with adjacent properties. Fortunately the conservation officer could see the merit in this element of the design, and the application was subsequently approved.

After completing on the sale, the couple parked their converted van on the driveway, ready to roll up their sleeves for what would become a very hands-on project.



Working to a Tight Budget

One of Clare and Oscar’s main ambitions for taking on this project was to create a home that would leave them with little to no mortgage. And so they set themselves a tight budget — and kept a close eye on costs throughout the build.

“I created a thorough budget plan before we started,” begins Clare, who acted as project manager. “If, in the course of the month, we overspent, I’d then look to how we could save money elsewhere. I was constantly reviewing the budget plan.” Savvy specification was also key.

Of course, the couple saved money on professional fees, but even so, their incredible build cost is as much down to taking on most of the build themselves. They estimate they completed around 90% of the work between them — from underpinning the foundations right at the very start to insulating the building, installing the timber cladding and creating all the joinery.

Passivhaus Principles

Just before taking on this project, Clare qualified as a Passivhaus-certified designer. As such, the project provided the “perfect ►



Clever Storage Solutions

A studwall between the staircase and the Passivhaus-certified front door (BELOW) provides a lobby space. This wall also doubles up as useful storage with long drawers incorporated under the stair and a place to hang coats. The kitchen bench seats fold up to provide additional deep storage, too.

The Staircase

Smooth birch-faced ply has been used to clad the staircase – which the couple built themselves. The concrete slab was stepped down beneath the staircase in order to accommodate the 90litre hot water tank and washing machine beneath.





The 'Shop' Window

The bespoke triple-glazed window, created by local joinery company Manley & Son Joinery, emulates the former shop window, and frames the south-facing view towards the church opposite. (Elsewhere, the triple-glazed windows were specified from Rationel.) The couple now grow beans along the front window not simply for the produce – the greenery was always an integral part of Clare's design, with the vines providing solar shading in the summer months (and lending privacy).





test bed” for applying Passivhaus principles. The decision informed some of the major construction decisions. “For instance, we used Posi-joists for the first floor in order to accommodate ducting for the mechanical ventilation system,” Clare explains.

Thoroughly insulating the building was obviously essential, too. The couple excavated the existing concrete slab in order to add 200mm of insulation. This was topped with concrete, which the couple polished themselves to create an inexpensive and robust floor finish for the kitchen and bedroom.

The existing cavity walls were insulated with Celotex, and the breathable timber frame first floor extension insulated with Warmcel, an insulation made from recycled newspaper (there’s some poetic irony here, perhaps). The whole building was then

wrapped in an airtight membrane, with service points and window and door openings sealed. “We’d have liked the house to have been certified,” reflects Oscar, “but our (very tight) budgetary constraints meant we couldn’t afford to specify certified products and pay for the certification process.”

This well-insulated, airtight home has provided an added bonus — minimal running costs. The low-energy design also removed the need for (and added expense of) a boiler. The house is heated by two 400W electric heaters and a 55W towel rail instead, with hot water provided by a tank concealed beneath the staircase, which was exactly designed to accommodate this feature. “While the house is small, everything has its place; we just love living here,” smiles Clare. **H**

The Kitchen

The couple created the birch-faced ply kitchen doors themselves, pairing them with Ikea carcasses to create a bespoke kitchen on a budget. The robust, practical stainless steel worktop was one of their biggest spends at £1,000, but both agree it has been worth the investment. Appliances were specified second-hand or as seconds, again helping the couple to remain within budget. Introducing open shelves rather than wall units adds to the illusion of space in this small home.



The Bathroom

Plywood cladding was continued down the length of the bedroom and bathroom – creating a sense of flow between the kitchen and bedroom. The bathroom facilities have been split into two – allowing the toilet to be accessed while the shower is in use. The couple stepped the concrete slab down along this side of the build – this allowed for a high-level ventilation gap to be created between the two spaces and space for hanging clothes at high level in the bathroom.





THERMAL INSULATION AT ITS BEST

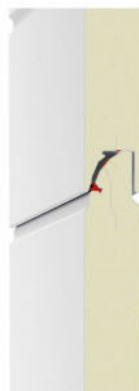
Garage door specialist Hörmann has launched a new sectional garage door — with the lowest U value of any sectional garage door in its range

With winter fast approaching and the cost of energy rising, architects and specifiers are under increasing pressure to help homeowners reduce carbon emissions and keep heat loss to a minimum. To help them do this, Hörmann has launched the latest addition to its range of sectional garage doors, the LPU 67 Thermo.

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New Addition

The highly insulated LPU 67 Thermo (ABOVE) is the latest addition to Hörmann's range of sectional garage doors. The optional ThermoFrame (LEFT) creates a thermal break between the frame and brickwork, increasing thermal efficiency by up to 10%.

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Low-Maintenance Living

This contemporary single-storey house has been designed as a low-maintenance home, with simple landscaped gardens.

FUTURE VISION

Light, space and modern open plan living were just as important for Charles and Pennie Denton as low maintenance, level access and energy efficiency

Words **Alison Wall** Photography **Michael Sinclair and Martin Gardner**

PROJECT NOTES

Homeowners

Pennie and Charles Denton

Project Contemporary self-build

Location Dorset

Build time

Oct 2014 – Dec 2015

Size 205m²

Cost per m² £3,660

Construction Waterproof concrete structure

Project Timeline

Plot purchased Apr 2013

Planning submitted

Dec 2013

Planning approved

Feb 2014

Start on site Oct 2014

Foundations completed

Feb 2015

Watertight shell

Oct 2015

First fix Oct 2015

Second fix Nov 2015

Final decoration Dec 2015

Date occupied Dec 2015

Stone suppliers

Landers Quarries (stone flooring and fireplace surround):

purbeckstone.co.uk

H F Bonfield & Son

(exterior stone wall):

naturalpurbeckstone.co.uk

Kitchen design

Harvey Jones:

harveyjones.com

Kitchen table design and fabrication

Whetstone Oak:

whetstoneoak.co.uk

Landscaping

C P Brown:

07970 982935



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The Floorplan

The simple floorplan allows for a generous open plan living space for entertaining, with more private spaces at either end. The single-storey plan, with level access from the rear, also offers accessible space for the couple in the future, should they need it.



JUDGE'S COMMENTS

"The level of care over not only the overall innovative form of the house, but the craftsmanship and attention to detail, means that this has to be the worthy winner of World's Most Amazing Home. For me, this is an outstanding project on every level. The dwelling sits beautifully with a very light touch in the landscape."

"The engineering and detailing is sublime and is the perfect lesson in restraint. So many architects get carried away with too much texture and materiality, but this is an excellent example of knowing when silence is enough."

Darren Bray, architect

Suppliers

Architects

Strom Architects:

stromarchitects.com

Main contractor

Matrod Frampton:

matrod-frampton.co.uk

Structural engineer

Barton Engineers:

bartonengineers.co.uk;

Calcinotto Consulting

Engineers: calcinotto.co.uk

Groundworks and Puddle

waterproof concrete

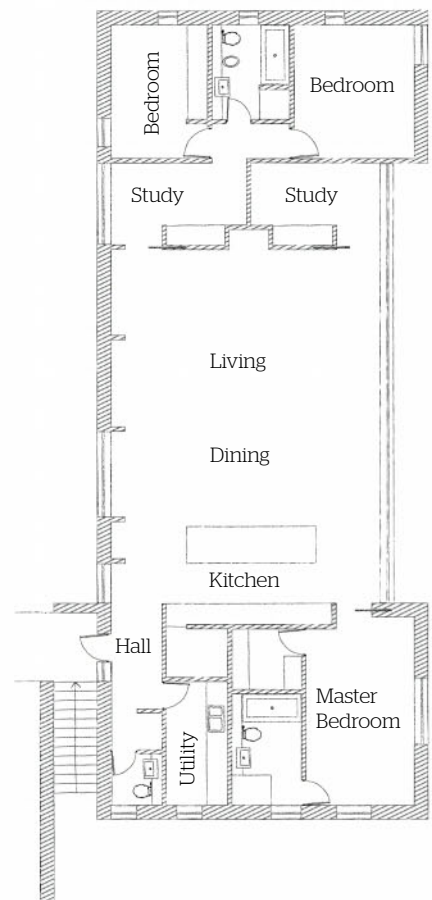
MCB Civil Engineering:

mcb-civils.co.uk

Cost consultant

Stockdale: stockdaleuk.com

Ground Floor





Reinforced Cantilever

The reinforced concrete cantilever, which houses the master bedroom, brings a sense of drama to the property. The cantilever also follows the natural contours of the land and offers protected car parking. The low-profile single-storey building sits comfortably within the surrounding countryside.

Exterior Materials

The exterior surfaces comprise exposed waterproof concrete, which forms the shell of the house, untreated larch cladding and Purbeck stone. None of these materials require any maintenance or treatment. "The materials were chosen for their natural aesthetic as well as for their ease of care," says architect Magnus Strom.



Natural Daylight

Sliding doors, 2.8m high and 3m wide, offer views over the valley as well as generous amounts of daylight. "Teenagers can happily live in a cave for 18 hours a day but as we grow older, the need for light increases," says architect Magnus Strom.



“Commissioning the house was the best decision that we have made in more than 50 years of marriage”

If you are wondering whether a minimalist-inspired contemporary design can provide ultra-low maintenance living suitable for every stage of retirement, look no further. Dorset-based Pennie and Charles Denton have not only created a stunning home for their later years that wowed all of our judges and scooped the title of ‘World’s Most Amazing Home’ but meets their requirements for easy living both now and well into the future.

The well-travelled couple were holidaying in Italy when the subject of moving from their converted barn (coincidentally, just a few hundred metres from their current home) cropped up. “Originally we weren’t thinking of building something, but it was difficult to find a house we liked,” says Pennie, a researcher and writer (husband Charles is a former television and film producer). She remembers telling Charles: “I’ve been thinking — our house is a bit dark and a bit big: do you think we have another project in us?” “Of course!” replied Charles — and the project was officially born.

The couple jotted down their brief, which found its way to Strom Architects: low-maintenance living; energy efficient; a big space for entertaining; a study each (“Pennie and Charles say it’s the secret of a successful marriage,” laughs Magnus Strom). They didn’t specify an architectural style, but after years of living in a period property, and with a love of abstract and modern art, they were attracted to modern



light-filled spaces with a good connection to the outdoors. The result, The Quest, is a three bedroom, single-storey house with an internal area of 205m². A large open plan kitchen/dining/living area occupies the centre of the plan, with a covered terrace spanning its length and giving a sheltered outdoor area overlooking the southern views. To the eastern end of the house sits the guest accommodation and two studies, with the master suite positioned within the cantilevered western end of the house. Star of the show internally is, without doubt, the open plan kitchen/dining/living area, ➤

Focal Point

A large open fireplace (OPPOSITE, ABOVE) provides the focal point in the main living space and partially hides the two studies directly behind. The slim columns (TO RIGHT OF IMAGE) were prefabricated in Italy from ultra-high performance concrete, reinforced with metal fibres. Underfloor heating sits below the local Purbeck stone flooring, while the home’s insulation, orientation and deep overhangs keep the home cool during summer months.



Open Plan Storage

The open plan kitchen (LEFT) was commissioned by Pennie and Charles. A larder is hidden off the kitchen and is accessed through a kitchen cupboard. "When you have an open plan space, it's very important to consider built-in storage," says architect Magnus Strom. "With flat-roofed houses you don't necessarily have the attic space or the basement that older houses might have."



which is a generous eight metres wide (six metres would be more normal). “When you have got a beautiful space like this, keep what you put in it to the minimum,” suggests Charles. “We have just three items here [kitchen, table and sofa], although they are all pretty large. I also had to resist the temptation to put some of our paintings over the fireplace.”

Construction was straightforward, despite the discovery of a large old stone mine, which needed to be partially infilled and slabbed over before works could begin. There was already a building on the site: a World War I prefab for convalescing soldiers gifted to the UK from the Canadian government. That was quickly demolished, helped along by a complete lack of foundations. Once out of the ground, construction of the exposed waterproof concrete shell, clad with open-jointed larch and insulated internally, could proceed without delay.

Sustainability was another important part of the project. The orientation of the house allows for passive solar gain, while hidden photovoltaic panels on the roof offset the energy used by the air source heat pump situated in the chimney breast — with Feed-in

Tariff payments, electricity bills are around £1,000 a year. Overhangs create shading in the summer, removing the need for air conditioning. A large rainwater harvesting tank is buried on site and provides automated irrigation of the gardens — another time-saving device for Pennie and Charles.

Architect Magnus is clear about why he thinks this house is so successful: “It’s very easy to understand the house — you kind of see it and you get it. It’s not complicated, but it’s not simplistic either.”

He also applauds Pennie and Charles’ confident brief. “Lots of people today don’t see why they should change their way of life massively because they are growing older,” he says. “There’s a lot to be said for having a contemporary design that offers a really modern way of living. That can bring a lot of joy to people.”

Charles agrees. “The house has been better than we ever thought — for me, the best things are the light and the peace. Commissioning the house was the best decision that we have made in more than 50 years of marriage. We should have done it earlier — I am 80 at Christmas — but we will get a lot of fun from it while we are here.” **H**

Sociable Space

The bespoke kitchen table, commissioned from a furniture maker in Kent, provides ample space for entertaining the couple’s friends and large family. “We moved in on 21 December 2015 and on Christmas day we had 13 visitors,” remembers Pennie.



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We first started seeing porcelain patio paving used in the UK a few years ago, but it has to date only enjoyed limited success as it is not best suited to traditional UK paving practice of installing over a Type 1 sub-base.

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Pre-bonding the porcelain has solved many of the issues inherent in UK construction and installation methods. Until now, the impermeable nature of porcelain meant that they were especially prone to the effects of the harsh UK winters, making them susceptible to popping loose from their substrate during the freeze/thaw cycles.

Installation

The conventional installation methods used to lay GeoCeramica — with their special built in spacer nibs to help create even joint widths — also means that GeoCeramica porcelain paving slabs are also quicker and easier to install than ever before.

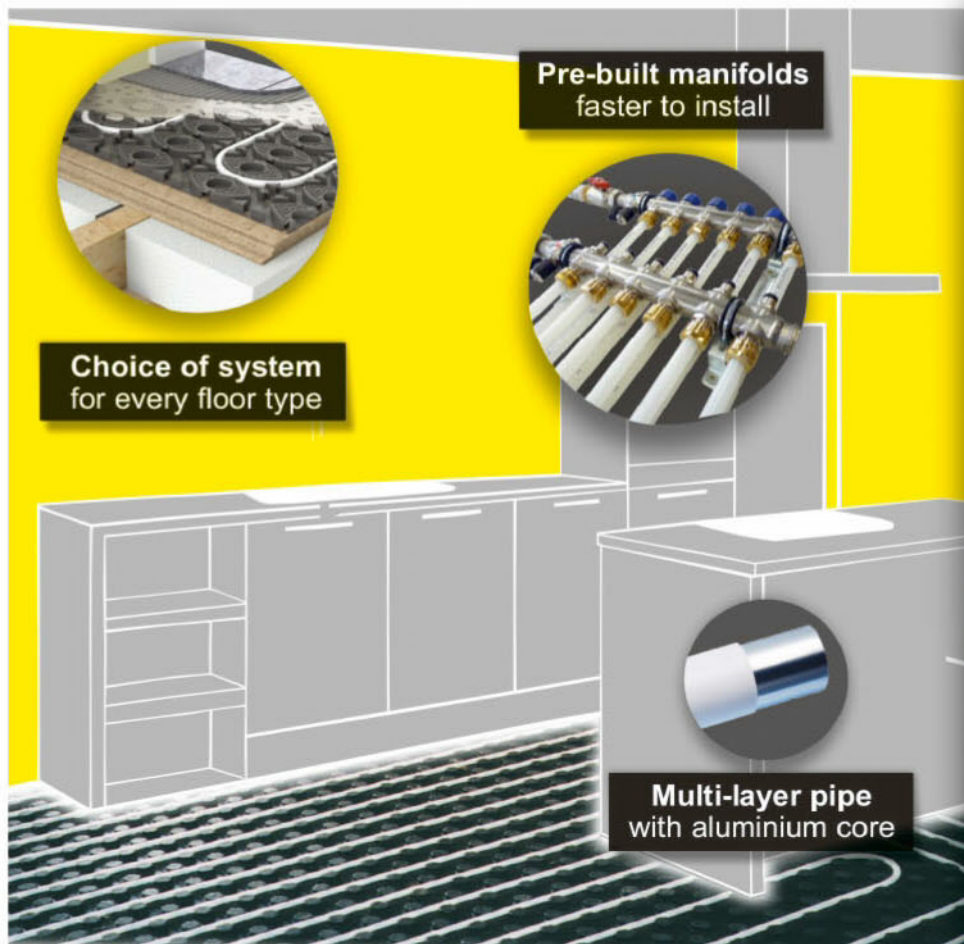
"It's the easiest bit of paving I've ever laid," said John McGinlay from Paramount Paving, a Brett-approved installer working on his first GeoCeramica project.

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GeoCeramica is now available through selected Brett Landscaping stockists. If you think GeoCeramica can match the aspirations of your home, our Brett-approved installers are best placed to assist. Our website (brettpaving.co.uk) will help you find one close to you. **H**

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TERRACE TRANSFORMED

Dan and Clare Stewart lived in their renovation project while they transformed it from a dated and run-down building into a stylish, bright and modern home, enduring freezing cold winters with no heating and carrying out the majority of the work themselves

Words **Natasha Brinsmead**
Photography **Anthony Greenwood**

PROJECT NOTES

Homeowners

Dan and Clare Stewart

Project Terrace renovation

Build time

Jul 2011 – Jan 2017

Size 85m²

House cost £140,000

Build cost £44,764

Value £202,000

Suppliers

Architect

Dan Stewart of ADG

Bespoke: adg-bespoke.com

Building materials Totem

Timber: totemtimber.co.uk

Glass shelves and mirrors

Union Glass:

unionglass.co.uk

Window suppliers

Landmark Window

Systems: landmarkws.co.uk

Kitchen

Howdens: howdens.com

Appliances

Appliances Online: ao.com

Worktops

Worktop Express:

worktop-express.co.uk

Lighting

Urban

Cottage Industries:

urbancottageindustries.com

Bathroom supply

Devon Bathroom Centre:

devonbathroomcentre.co.uk

Tiles Tons of Tiles:

tonsoftiles.co.uk

Flooring supplier

Southern Timber:

southern-timber.co.uk

Floor sanding

Pomdoo: pomdoo.com

Bathroom vanity tops

Mayflower Stone:

mayflowerstone.co.uk

Slate hearth

Markstone Granite:

markstonegranite.co.uk



JUDGE'S COMMENTS

"The transformation of this house on a very tight budget, from an extremely run-down and unloved house into the bright, well-proportioned home that it is today is a prime example of what can be achieved with hard work and good planning."

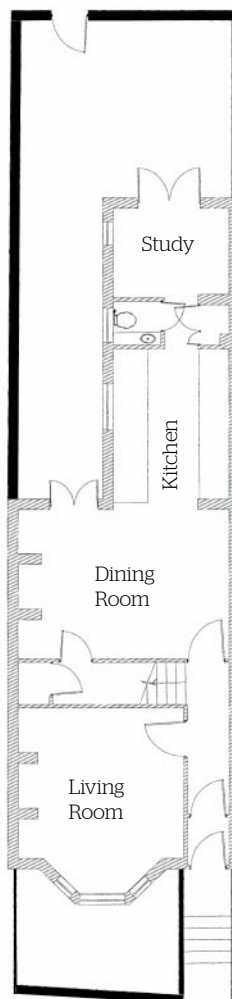
"The reorganisation of the awkward layout has opened up the previously cramped mid-terrace to make the most of the space available and this, along with the clever relocation of existing features, shows off the mix of classic and contemporary fixtures and fittings perfectly."

"To obtain this stunning result through a huge amount of DIY, and for under £45k, is a huge achievement."

Jason Orme

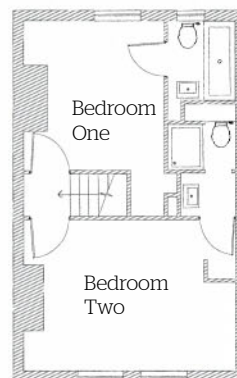


Ground Floor



The Floorplan

On the ground floor, the study now sits where the old bathroom was, while the dining room and kitchen have been opened up to one another. On the first floor, a box room and unused landing space have been turned into two en suite bathrooms.



First Floor



Letting in the Light

The wall between the kitchen and dining room (ABOVE) has been removed to create a more open plan ground floor space, while the addition of French doors, where a window once was, means more natural light can enter this space. The step up to the kitchen reflects the slightly sloping nature of the site. The fitted cupboards in the dining room (LEFT) were one of the many original features that attracted Dan and Clare to the house, as were the timber floorboards in the living and dining room.

With its painted brickwork and fuschia front door, there are small hints of what lies beyond the façade of Dan and Clare Stewart's mid-terrace house in Plymouth, Devon. "We were looking for a renovation project when we came across this house," says Dan, who is an architect. "It had views down to the bay and a park opposite, but was a deceased estate and in a very bad state of repair. The house had been in the owner's family since 1913 and this was the first time it had been sold on."

Although Dan and Clare were by no means unaware of the issues that came with a house of this type – including the presence of asbestos, rotten timber floors and a ground floor bathroom – they admit that they underestimated the time and costs involved.

"We thought it would take a year and cost about £10k," laughs Dan in retrospect. "The first three winters living in a building site were very cold."

Improving Energy Efficiency

Dan and Clare moved into the house and stripped it back to the brickwork, before first fix plumbing and electric works, including the installation of a new boiler, was carried out. Although this provided heating in the living room and front bedroom, the rest of the house was left unheated for the next three years.

"We took off the wallpaper and the plaster just fell off," recalls Dan, "but it was so cold so we took the opportunity to add lots of insulation and improve the energy efficiency of the house, which was important to us."

"The external walls have all been insulated, boarded and skimmed internally. We also added insulation to the floors and roof. This, combined with low-energy LED light fittings throughout and high-efficiency appliances, means that our annual gas and electricity costs have dropped to around a third of what they were."

Altering the Layout

The ground floor layout reflected the age of the house, with a downstairs bathroom off the kitchen, and walls separating the two reception rooms and entrance hall.

The walls between the kitchen and dining room were removed to make the layout

more suitable for modern life and also to allow natural light to flow through the spaces. The wall that once separated the entrance hall was also removed, eliminating the 'rabbit warren' feel so common in terraces.

"The kitchen was the last room we renovated," says Dan. "It was a typical 1960s kitchen, with old freestanding units. We took a long time researching in order to keep costs down. The units were from Howdens, but then we found the oak worktops online and shopped around for the appliances – I think we saved about £2,500."

The ground floor bathroom that led off the kitchen has been replaced with a bright office space, accessed through double doors. It's been clad in plywood, with Dan building the framing for the ply cladding and the new stud partition walls throughout. On the first floor, the small third bedroom has been divided into two en suite bathrooms to serve the bedrooms.

Style on a Budget

The old 1960s kitchen is now a bright space with Shaker units – Dan and Clare spent a lot of time researching worktops and appliances in order to get the best value for money. The plywood-clad study (BOTTOM) was once the downstairs bathroom. It can be closed off when needed and has access directly into the rear garden.

BEFORE





Dining Space

Dan spent six weeks removing the gloss paint from the original cupboards in the dining space. The addition of French doors has made a huge difference to light levels in this room.

“I would advise others thinking of living in a renovation to brace themselves!”



Original Features

The fireplace in the living room was actually found in the master bedroom and moved. The original floor tiles were also cleaned up in the hallway, while the original doors and mouldings have been stripped and repainted.





New First Floor Layout

The master bedroom (TOP) now features an original fireplace that was found in the second bedroom. Two new en suites (ABOVE) have been formed from the old first floor box room.

Hands-On Approach

The original staircase (LEFT) has been updated – layers of gloss paint were stripped away before it was repainted. A new handrail conceals LED lights.

Restoring Original Features

The floorboards in the living and dining rooms are original but were in bad condition, as were the underlying joists. “There was a very deep space under the boards in the living room,” explains Dan. “I took up the floor, rebuilt the structure and relaid the floor. It may have been more hassle than it was worth, but we were adamant we wanted to keep them.”

Dan and Clare were also lucky enough to find the original fireplaces. “In the living room there was a 1950s tiled surround,” says

Dan. “We found a big original surround in the master bedroom and moved it down to the living room. We then moved the smaller fireplace from the back bedroom into the master bedroom.”

With a limited budget, Dan and Clare have reused what they can. The staircase is a good example of how the couple have painstakingly updated the original features. The existing staircase was covered in layer upon layer of cream gloss, so this was stripped back and repainted using white Farrow & Ball stair paint. The handrail was replaced with a modern ‘pig’s ear’ design, with a timber strip on the underside concealing a run of LEDs that cast a soft glow.

A Learning Curve

“Looking back on those cold winters, when we could see our breath and had to scrape ice off the walls, I would advise others thinking of living in a renovation to brace themselves! Living here while we did the work meant we had to keep on moving everything around, and the amount of dust was just unbelievable,” says Dan.

“We are massively pleased with the end result but we did underestimate the amount of unknowns.” **H**



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CREATE A FOCAL POINT

If you're looking to invest in a contemporary stove, Contura has two new models designed to transform any space

Contura

Installing a woodburning stove is fast becoming a key part of any home transformation, acting as a natural focal point in your room. To help you create the perfect new-look living space in your home, Contura's two new stoves are both stylish and practical.

The 710 and 720T models are both small and compact, with clean, simple lines. Both models have one glass panel at the front and solid sides, making them easy to fit into any home, whatever its size.

Contura is one of Europe's market leaders in stove design and manufacture, combining traditional Swedish engineering skill with a modern aesthetic. Its stoves are made with great consideration for the environment, producing lower emissions than ever before. They also come with user-friendly features, such as soft-close doors and finger-touch sensitivity.

The compact shape of the Contura 710 means that it can be placed into a corner, while offering a heat output of 3 to 7kW.

But if you're looking for extra efficiency, choose the Contura 720T, which has an attractive heat-retaining soapstone surround and releases the heat over a longer period of time. Both are available with a glass or sheet metal floor protector, plus an outside air connection and chimney.

"A lot of people have asked for a stove with clean, simple lines that is easy to position, which made it extra special for us to be able to introduce the 710 and 720T," says Phil Wood, Contura's UK country manager.

The 700 series is available from Contura dealers across the country — the 710 costs from £1,645, while the 720T is priced from £2,505. These models complement the best-selling 750 and 780 stoves.

To view the full range and find your local stockist, visit contura.eu/english. **H**

Above

The 710, painted sheet-metal stove with cast-iron door and top (115 x 45.9 x 37.2cm), £1,645.

Below

The 720T soapstone-clad stove with cast-iron door (117.9 x 55.6 x 40.7cm), £2,505.



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Old Meets New

The listed barn conversion peers from behind the striking contemporary extension, designed by Adam Knibb Architects. The vertical oak cladding is complemented by horizontal accents to the left of the sliding door, while the bay window breaks up the rear elevation.



BOXING CLEVER

Jonathan and Zahra Chambers' extension to their Grade II-listed barn, Hurdle House, has not only added space but also radically changed the social orientation of the plot

Words **Nick Robbins** Photography **James Morris**



PROJECT NOTES

Homeowners

Jonathan and
Zahra Chambers

Project Contemporary
extension to a listed
barn conversion

Location Alresford,
Hampshire

Build time
Five months (pre-fab
structure: four days)

Extension size 95m²

Build cost

£250,000

Value £1.5million

Selected Costs

CLT panels	£45,734
Cladding	£6,770
Front door	£2,867
Glass link	£16,723
Kitchen	£12,784

Suppliers

Architects

Adam Knibb Architects:
adamknibbarchitects.com

Engineers

Eckersley O'Callaghan:
eocengineers.com

Managing contractor

Gregory Collins Ltd

Cross-laminated timber
(CLT) KLH UK: klhuk.com

Cladding Vastern Timber:
vastern.co.uk

Kitchen Alresford Interi-
ors: alresfordinteriors.co.uk

Glass link IQ Glass:
iqglassuk.com

Joinery/doors

Tucker Joinery:
tuckerjoinery.co.uk

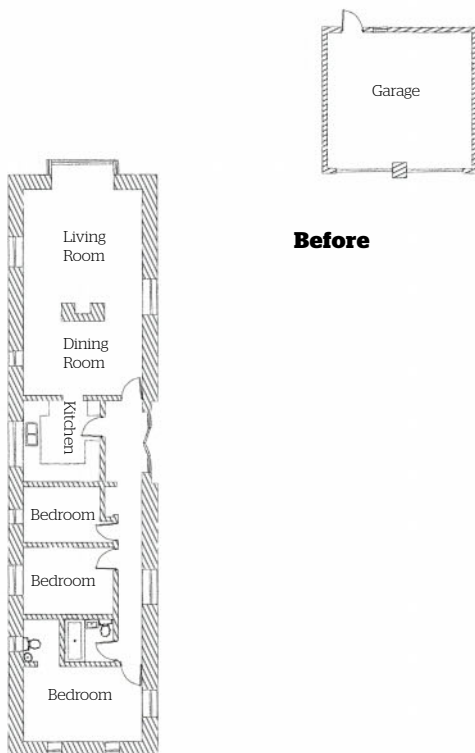
The Architect's View

Adam Knibb of Adam Knibb Architects: "As soon as we made the first site visit we came to the realisation that the materiality of any proposal would have to tie in with the expansive landscape that surrounded the property. Timber appeared to be the ideal solution.

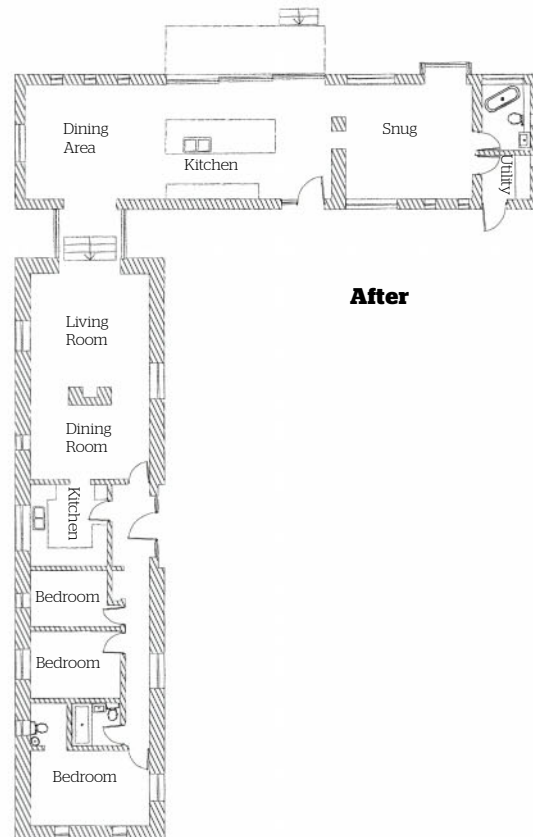
"Adam Knibb Architects recognises the importance of sustainable/emerging technology within design. We encourage the use of sedum roofs, air/ground source heat pumps and solar panels within many of our projects. The use of cross-laminated timber panels ensured a higher level of accuracy on site and simplified the construction process, therefore making the whole build more efficient.

"The agricultural appearance of the surrounding area informed our choice to use timber as a primary cladding material. Using a natural building material helped us to reference the traditional agricultural buildings yet still develop a contemporary design of our time that was integrated with the surrounding dense green landscape.

"Hurdle House strives to demonstrate, through the improvements in efficiency, sustainability and build times on site, the benefits of timber as a key building material in the housing sector."



Before



After



Redefining the Site

The extension replaced an existing garage block, and provides some privacy to the site, creating a courtyard-style entrance and disrupting a through-view to the garden from the road and approach (ABOVE). Little work was done on the listed barn conversion, but a bay window was removed and the opening extended to allow the creation of the glazed link that connects the original building and the extension (RIGHT).



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Framing the View

The extension is zoned off from the old house by the change in flooring and the steps down. "The view between the old and new provides a memory from one to the other," says architect Adam Knibb. "The contrast is highlighted with furnishings and helps to frame the old chimney breast."

When Jonathan and Zahra Chambers brought in Adam Knibb Architects to design an extension to their Grade II-listed house, he recalls being struck by how the building “seemed to face the wrong way”. It ran vertically down the edge of a large plot, with only a bay window from the living room providing views of the garden, which has a stream running along its edge.

Working closely with the Chambers, Adam came up with a plan that would “change the social orientation” of the house, which had started out life as a barn in the 18th century, before being converted into a home.

The solution: a 95m² contemporary extension perpendicular to the house, replacing a 1970s garage block and providing both privacy – by blocking off the view to passers-by and creating a courtyard entrance – and a new contemporary kitchen, dining and living space that would best take advantage of the site’s views and topography.

“We absolutely wanted to have something that was a total contrast to the barn,” Zahra Chambers says. “We wanted it to be open plan with a lot of light and windows so that we could actually see our garden.”

“I think the planners liked that we were showcasing architecture from two different eras, rather than trying to create some pastiche of a bygone age,” Adam says, explaining the smooth planning process. And though the building’s listed status meant that English Heritage and the historic team at Winchester Council wanted little change to the existing building, two major works were approved: new glazing and a new front door that would match that on the extension; and the bay window, which wasn’t original, removed and a glazed link added that offset the extension by 1.5m. “The question we had was how to bring the two elements together without them clashing,” Adam says. “A glass link was the answer: it acts a buffer between the two.”

Building the Extension

Looking to stick to a tight budget and with no pressing time concerns, Jonathan decided against a main contractor and tendered out each package of the build. The main structure is constructed from prefabricated cross-laminated timber (CLT) brought in from Austria. “CLT is a bit more expensive than your stand-



ard studwork, but crucially it allowed us to keep control of the building,” Adam explains. “The tolerances are so good with CLT that you can order the glazing off the drawings. One week the building goes up, the next the glass is in and then you’re watertight and the trades can come in. So that worked well for the homeowners.”

Externally the CLT is faced with 130mm of rigid Celotex insulation, a UV breather membrane and the battens, onto which the untreated oak cladding is affixed.

To save extra expense, the Chambers decided against plasterboarding out or choosing a ‘visual grade’ finish for the CLT. Instead it has been whitewashed, but otherwise left exposed – the dining room table is even fabricated from an offcut, providing a striking centrepiece to the space – with all the conduits and pipework either facefixed or run through the ceramic tiled floor.

Changing Way of Life

The extension has revolutionised the way the Chambers live: the kitchen is sourced locally from Alresford Interiors and mixes plywood units with the pitted Amazonian granite worktop. A bathroom and utility room sit at the far end of the extension, with a discrete living area zoned off from the kitchen.

Across the rear elevation is an expanse of aluminium glazing, including sliding doors, a window seat framed in a bay window, and a slot window in the bathroom, creating the connection to the garden the Chambers craved and leaving them with a contemporary extension to their listed home that redefines the site and the way they can enjoy their house and gardens. **H**

The Missing Link

The top of the glazed link is at a slight angle to allow the rainwater to run off. “Funnily enough they put the angle in slightly steeper than I was expecting, but I really like it,” says Adam Knibb. “Everything else is orthogonal, so it’s a good contrast.”



“The question we had to answer was how to bring the two elements of the project together without them clashing”

Internal Finish

The kitchen was locally sourced and heavily features plywood, continuing the timber theme that runs throughout the extension. The CLT was whitewashed internally (RIGHT) but otherwise left exposed: “It’s starting to open and close, but that goes with the beauty of it,” says Adam.



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2018's HOUSE DESIGN TRENDS

Daisy Jeffery explores the emerging trends and themes evident in the winners and shortlisted projects of The Daily Telegraph Homebuilding & Renovating Awards — and how they can inspire your project in the coming year

Hidden Staircases

While many projects boast grand sweeping staircases that greet you as you open the front door, a more understated flight of stairs, perhaps hidden deep within the floorplan, appears to be a trend gaining favour among architects and homeowners alike. It's a creative solution for those looking to save on circulation space and do away with the traditional hallway.

This staircase is case in point – it subtly lands between the kitchen and living room, but still packs an architectural punch.



Window Seats

Providing the perfect spot to curl up with a good book or just admire the view, the window seat is a firm favourite in both traditional and contemporary homes. Whether you're opting to add a cushion to a deep reveal or go as far as building a purpose-built bench set within wraparound glazing, it's a good feature to include within your new home in 2018.



IMAGES (CLOCKWISE FROM TOP LEFT) © SELECKY PARSONS, JEREMY PHILLIPS, SIMON MAXWELL X2

“Chunky chimneys are making a comeback, if the awards shortlist is anything to go by”



A Cohesive Landscaping Scheme

For a house to truly nestle within its setting, the landscape design should be an integral part of your overall scheme. By considering the composition of the site, where the house will be located and the views you aim to capture from the internal spaces, planning your garden early on will really allow the end result to sing.

This year's homeowners also planned for their landscaping while building or renovating, meaning that once their homes were finished, their garden had become established, too. Making the landscaping a forethought rather than an afterthought means you'll be looking out over green vistas when you finish your new home – rather than a muddy plot.





Cantilevered Structures

Adding depth and new dimensions to homes through cantilevers has been a big trend since Frank Lloyd Wright's Falling Water project, and the class of 2017 was no different.

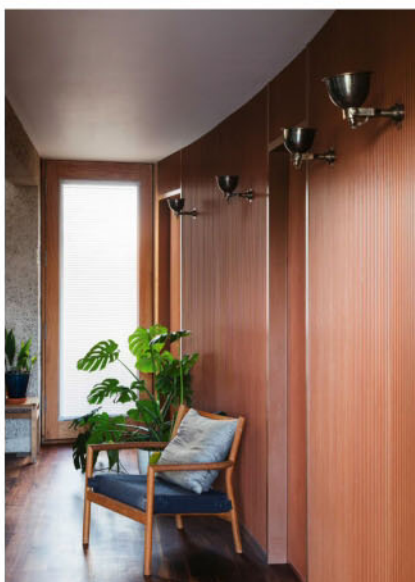
Perhaps one of the most arresting was the winner of this year's World's Most Amazing Homes award, The Quest by Strom Architects (BELOW), which boasts a dramatic cantilever. The result, while impressive visually (the site appears to fall away), also doubles as a practical carport and sheltered entrance space. The cantilever is certainly one means of adding drama to your building project.



Bespoke Joinery

Perhaps it's our love of clever storage, or our renewed interest in craftsmanship, but more homeowners are beginning to commission bespoke joinery; the joiner is once again becoming a key part of our self-build team. From built-in bookcases to James Bond-style secret doors, creative wall cladding and pantries hidden behind kitchen units, we've seen it all in this year's awards.

Jane Meggitt employed the services of a local joiner while building her striking new home (FAR RIGHT). The company not only went on to craft the kitchen, but had a hands-on role in the entire build. The entrance hall, complete with bamboo panelling concealing doors to service spaces and storage, is a particular highlight. ➤

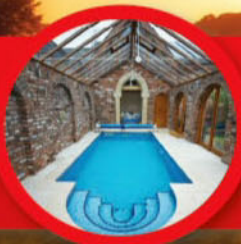


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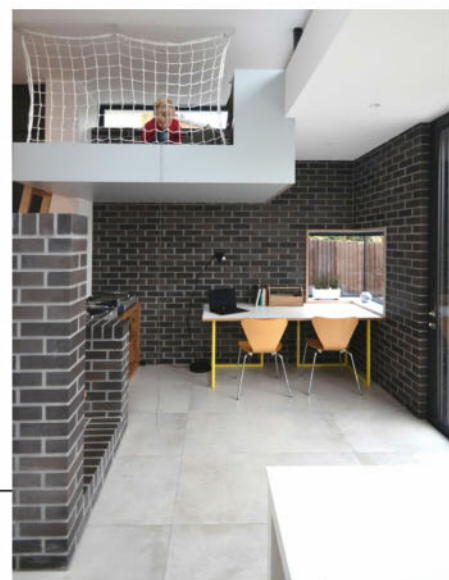
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Exposing Raw Materials

A common theme among this year's projects has been the decision to reveal the fabric of the building as an interior finish. In this year's Best Contemporary Renovation (page 80), designed by Adam Knibb Architects, the homeowner decided to leave the prefabricated cross-laminated timber (CLT) structure exposed internally, instead of adding a layer of plasterboard – this not only lends a Scandinavian feel to the interiors (the CLT panels have been whitewashed), but also saved money. Likewise, the Henderson family (shortlisted for Best Contemporary Home) chose to reveal the steel and glulam beams that support the open plan spaces on their ground floor (TOP LEFT).

For some, opting for 'raw' materials as a finish was very much a conscious decision. Mole Architects worked with homeowner/architect Roger Zogolovitch to create this groundbreaking holiday home (LEFT) – exposing the concrete portal frame was key to the interior. While, for the homeowners behind the shortlisted Selencky Parsons' extension scheme, exposed brick lends industrial flair to the kitchen diner (ABOVE RIGHT).

The Return of the Chunky Chimney

Open fireplaces have become less commonplace as our new homes become more airtight – chimneys are often excluded from the design as a result (perhaps replaced with a twin-line flue for a woodburner). However, sizeable chimneys are making a comeback if the awards shortlist is anything to go by. This is more for aesthetic reasons, often anchoring a new build to its plot, than practical ones. It's a feature that works for traditional and contemporary homes alike. **H**

IMAGES: SIMON MAXWELL, X2, RORY GARDINER, C/O SELECKY PARSONS





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HOUSE IN FOCUS

LARCHWOOD HOUSE

Healthy Living

This Baufriz home in Hampshire uses sustainably sourced, low emission non-chemically treated building materials, natural products and building methods.



This eco house by Baufriz is contemporary in design, yet is in keeping with the local vernacular of the South Downs

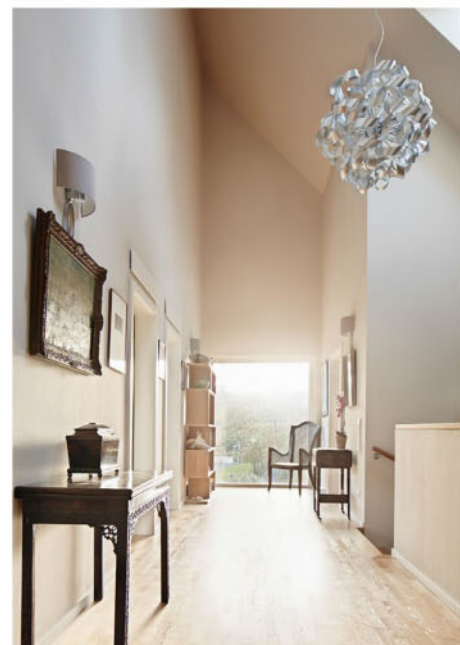
Larchwood House is a compact detached contemporary eco house by Baufriz on the fringe of the South Downs National Park. The homeowner, Merula Frankel, is a retired health professional who had been looking to downsize for some time, and had decided to subdivide her large garden and build a smaller house on the site of a disused tennis court. Mrs Frankel was attracted by Baufriz's environmental credentials as well as the support offered by the Baufriz team. The company's prefabricated timber frame construction method meant that all design decisions were taken early on with lots of support from Baufriz's design advisers, ensuring a quick and trouble-free construction. Mrs Frankel's house was prefabricated in Baufriz's factory in Germany before being brought to the UK where the shell was constructed in under a week — in contrast with traditional construction methods. This meant that Mrs Frankel was able to oversee her project with ease and move in within a short period of time.

The house is rectangular in plan with a steep pitched roof to match neighbouring properties. Although clearly contemporary in design, its external materials, with a palette of clay tiles, render and horizontal larch cladding, were selected to blend with the surrounding buildings. Inside, the wide entrance hall opens onto a large

open plan kitchen, living and dining area. Large full-height windows fill the room with light and provide outstanding views across the garden. Timber floors and a light decorative scheme — showcasing Mrs Frankel's fine collection of furniture and paintings — enhance the sense of space. A quiet study and utility room are tucked away on the other side of the hallway. The first floor contains a large master bedroom suite, an en suite guest bedroom and two further bedrooms. The wide first floor hallway opens up to the roof space to create a tall, bright room incorporating a reading/play area with views across the garden from a large full-height window.

Mrs Frankel's house is an eco-friendly, low-energy home for healthy living. Wall and roof panels are filled with a 240mm-thick layer of Baufriz's 100% natural wood shaving insulation, providing outstanding thermal performance and ensuring the house is warm in winter and cool in summer.

The house is orientated towards the south to make use of passive solar gain, while integrated electrical venetian blinds keep out summer heat. The high-performance triple glazing, gas condensing boiler and integrated mechanical ventilation system with heat recovery (MVHR) also keep energy costs down. For more information, visit baufriz.com. **H**





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IDEAS & INSPIRATION

ON SITE

January 2018

Each month, we follow our experts as they embark on their own building projects — passing on their words of wisdom and advice in the process



The Self-build

Charlie Luxton is an experienced architectural designer and broadcaster, presenting programmes such as *Building the Dream*. He's building his own home in Oxfordshire.



The Extension

Ian Rock is a chartered surveyor. He is currently in the midst of adding a 100m² extension to his late 20th-century home in Buckinghamshire.



The Renovation

Lydia Robinson and **Lawrence Grigg** of award-winning architectural practice Design Storey are renovating a neglected Grade II-listed property in the Cotswolds.



The Remodel

Former Editor of *Homebuilding & Renovating* and experienced self-builder **Jason Orme** is remodelling a 1960s property to create a family home in Staffordshire.



Your Projects

Each issue, we follow one of your projects. This month, **Kevin Bankhead** tackles a major extension and remodelling project in a bid to transform his semi-detached home in south Wales.



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THE SELF-BUILD

Managing the Budget

Architectural designer Charlie Luxton explains how he's keeping his self-build project in Oxfordshire on track and under budget

I've always had so much respect for anyone who builds their own home. It is a difficult task, and increasingly it's like the reward of building the house is secondary to the fact you've just achieved it. I've never lived on site while undertaking a build — and it's another level of difficult.

We're managing to keep roughly on time and on budget, and key to that has been the work we put in before the build started. I had a lot of professional help to get the cost plan in place — putting together a really detailed spreadsheet with input from my quantity surveyor. While many self-builders may work the cost plan out themselves, they do end up missing things. But we made sure to include everything, even things I queried when I first saw them.

Having such a detailed cost plan means I know what my targets are for all the individual elements. It also gives me a benchmark when paying for things. If something goes slightly over, I know I need to get the next thing for slightly under. As the build has progressed quite quickly, I wanted to take stock of where we are. I thought we had gone a little over budget, but we're current-

ly coming in around £5,000 under — and that's without spending any contingency.

I put this down to a number of factors. One is that my sub-contractors are all on day rates. There is an inherent risk here: if something goes wrong and they're just standing around, I'm paying for it. But by not paying the fixed price, I'm not having to cover that eventuality, and if I can manage them effectively, they won't end up standing around!

I'm also not paying a contractor; I'm managing everything directly. It does mean I have to spend a lot of time being here and doing it though. I'm putting around four or five hours a day into this project, with eight hours a day at the weekend pretty common.

It's the small things that make a big difference. I bought my blocks in bulk and saved around £500. I've got a deal with my neighbour who's a farmer, and he moves all my stuff around on site after work. That means I'm out here at 8pm telling him where the blocks go, but it's cheaper than having a telehandler on site. The steelworks are another example. I ended up saving £3,000 by shopping around. I'd recommend that you question every price, but remember that it does take time.

It's those little things that you need to keep an eye on, and that's what a contractor will do for you. It's why you pay the 20% contractor's overheads. And if you don't have a contractor you need a good project manager. You can't underestimate how much value they provide, but it will cost you.

One tip I've learned the hard way came after excavating the foundations and installing the sheet piling (RIGHT) — the interlocking, folding steel sheets that you hammer into the ground to protect workers from any falling debris. What I didn't realise when I hired them is just how quickly the costs rack up. I have just over 40 of them on site at £2 each per week, and that cost has soon added up. I then found out that you can buy them for £50 each — and sell them afterwards, of course.

Seeing my sheet piling is slightly galling when I realise I could have saved money if I'd have bought rather than hired. So make sure you consider all your options and, crucially, be smarter than I was! **H**

Next month:
Backfilling the space



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Charlie is managing all aspects of the build...



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Charlie could have saved money on his sheet piling.

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THE REMODEL

A Home Appears

Editorial Director Jason Orme can see the finish line in sight for his remodel as the staircase and kitchen begin to take shape

Plastering done, the project is transitioning from building site to house — and with it our mood brightens. We can see what we're getting, where the investment is going, and we're beginning to imagine what life here will be like.

During the project we decided to amend our design to make more of the fabulous hallway and landing space we'd be creating. This involved moving the stairs from their poky and complex location at the back of the hallway to a more central position in a straight flight. This, and our concurrent decision to knock a hole in the wall between our front living room and the hallway to insert a fixed glazed panel, were pretty much entirely aesthetically led — but critical for us in terms of getting what we wanted.

One of the many design problems the house presented was the tiny size of the landing and the dark and miserable hallway. I also felt that, in design terms, the internal feel of the house would be best served by having long architectural views through its length. It is a wide house, and you never really got a sense of it before.

The statement design choices found us attempting

to tap into the 1969 origins of the house and bring out a mid-century vibe. Additionally Sarah, my wife, was keen to counterbalance my modern design-isms and ensure we had a cosy, warm, family home. Hence — lots of wood.

The staircase was obviously a critical part of the new home and we wanted something 'wow' but also ideally 'cheap'. Working with Ben Schuck, our builder, and the local joinery firm, we designed a staircase in sapele that would have the spindles reaching from handrail to floor. (As an added bonus, it provides a useful under-stair area.) This was achieved for around £2,500, including the fitting by Ben and his merry team. Ben also suggested the fixed glazed panel between the hallway and front living room. Framed in sapele, it's a fabulous feature — and a great example of builders being actively involved in making homes better.

An oversized front door is part of the design language of modern homes these days. With a 6m-high entrance tower, anything else would have looked perfunctory to say the least. We used a talented local joiner, Philip Harding, to build us a new solid front door finished in the same RAL colour as our

lovely aluminium windows (from Velfac). It looks beautiful and came in at a significant saving on the big door manufacturers in this field.

One of the other major design problems we inherited with the house was the kitchen — it was pretty small and not terribly functional.

We were knocking some walls down anyway to create a large open kitchen/dining/living room (along with, it seems, the rest of the population) and wanted to come up with a kitchen layout that didn't dominate this new space, which is around 11m long and 4.5m wide (up to

"We can see what we're getting, and we're beginning to imagine what life here will be like"

8m in parts). In the end we fed the kitchen island out into the old rear living room so that it clearly became part of this space, but in the overall scheme of things we've been restrained in terms of units.

We converted an old walk-in cupboard into a pantry, and decided against wall units. We chose units from Benchmark, appliances from AEG and, perhaps most importantly from a tactile-design-quality perspective, a tap and sink

combination from Blanco — all give plenty of design appeal, I think.

So much of kitchen design concentrates on the big picture, when in actual fact it's the weight of well-made taps and the sharp sink design, as much as the unit doors, that makes a difference on a day-to-day basis. **H**

Next month:
Bathroom fitting
and lighting design



Sapele spindles run to the floor on the new staircase.



The kitchen island extends into the old rear lounge.



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THE EXTENSION

Arrival of the Brickies

The foundation walls begin on Ian Rock's 100m² extension project, but miscommunication with a delivery threatens the entire build programme



After the quiet spell I described last month, it was all action when the bricklaying team of Nigel, Dave and labourer Nick turned up, with a cement mixer in tow, to start building the foundation walls. Although full-width 300mm foundation blocks had been specified for this purpose, nationwide shortages meant we had to resort to traditional cavity construction, which would later need to be backfilled.

Mindful of the problems that rationing of scarce materials can cause on site, I wanted to ensure there wouldn't be any problems with the next major item scheduled for delivery: the concrete floor beams. I phoned the transport manager at the supplier to get an accurate date and time for delivery. When the order was originally placed I'd made it clear that our backwater lane location couldn't accommodate the normal articulated lorries, so a smaller rigid truck with a HIAB crane would be needed. Given how much notice I'd provided, I assumed this wouldn't be a problem.

Delivery was confirmed for the following Thursday: "It should be later in the afternoon; you're the one after Beaconsfield," said the

manager. This was pleasingly swift progress, with the beams manufactured and the order completed in just 12 working days, well within the originally estimated two to three weeks. Beaconsfield is about an hour's drive, so I figured we'd be offloading around mid-afternoon.

Water Everywhere

With the mini digger still on site it made sense to get the slim trenches for the underground rainwater pipework excavated. When you're building an extension, the depth of the drainage sys-

tem is largely determined by having to connect to what's already there, and it turned out that our surface water pipes were significantly deeper than the foul drain runs. The incoming underground rainwater pipe from next-door's house also needed to be connected to new pipework and extended around the footprint of the extension to the pond (rather than terminating in a soakaway like the one that had flooded our foundation trenches!).

In my opinion, it would be a good idea if underground rainwater pipework was a different colour from foul waste, but in practice both use tan-coloured plastic or terracotta.

Although pipework needs to be laid to a shallow fall of about 1:40, underground rainwater systems get an extra boost from water descending through downpipes, which exerts a downward force helping to propel it through the subterranean system. In total we needed four lengths of 6m-long 110mm plastic pipes plus an inspection chamber (a



The foundations had to be bailed out after heavy rain.



The brickies began work on the lower walls.

"Torrential rain turned the site into a shallow swimming pool set amid a sea of mud. Work was held up while the brickies bailed out water with shovels"

spare one salvaged from the old foul system was utilised).

That night torrential rain turned the site into a shallow swimming pool set amid a sea of mud. So the following morning work was held up while the brickies bailed out water with shovels. But the weather started to cheer up. Once Godfrey had completed the foul drain modifications and checked the falls, the oversite underfloor area could be levelled and covered with a weed suppressant fab- ➤



Builder Godfrey had to modify the drain run.

the landscape
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ric membrane secured with shingle and sand on top. Builders sometimes forget to place a bed of shingle under new pipework so we made sure this wasn't omitted.

With the lower walls now complete and dwarf sleeper walls in place to support the ground floor structure, work on site tailed off in anticipation of the delivery of concrete floor beams, which was scheduled for Thursday afternoon.

An Early Delivery

The second building control visit wasn't due until construction of the ground floor was underway, so the site was vacant once again. Precast concrete floor beams are extraordinarily heavy things and can't just be plonked down anywhere. The builders weren't expected to arrive until after lunch with a powerful digger to help offload and manoeuvre them so they didn't block site access.

On any construction project there's a familiar soundtrack, often punctuated by the routine beeping of trucks reversing, so I only faintly registered the arrival of a huge lorry at 8.15am. I assumed it was Buildbase delivering jumbo bags of cement and shingle, but as the truck came into view I could see it was loaded to the gunnels with dozens of giant pre-stressed concrete beams — about six hours earlier than scheduled!

It was far too large to make it up the drive and with no one to help, and the rear-mounted crane of limited reach, it looked as if the beams would end up being dumped on the street, or have to be sent back and redelivered a week or so

later, wreaking havoc with our build programme.

The driver seemed unaware of the scheduled delivery time; this was his first drop of the day. Maybe he could crane them over the gates, I suggested. "It's all health and safety now," he replied, which seemed a slightly odd thing to say given the conspicuous lack of hard hat, hi-vis jacket or steel-capped boots. Then with a pained expression accompanied by a deep intake of air he said that if we lifted the fence gates off their hinges and he inched the lorry up the embankment, then there'd be just enough room to crane the 52 monster beams in and stack them so they didn't block access. The main beams were a hefty 4.3m long and weighed 150kg apiece (35kg per linear metre) and were packed in sets of five or six, with each bundle weighing around 750kg. Navigating

large heavy loads at height takes considerable skill and he worked hard to make the best of an unfortunate situation, stacking them neatly six layers high.

I phoned the transport manager and pointed out that it might be an idea to communicate with the client if delivery times changed. But it was a timely reminder for me that promised delivery times need to be taken with a fairly large pinch of salt. 🧂

Next month: Constructing the ground floor



The site, ready for the delivery of the beams.



Work slowed in anticipation of the delivery.



52 beams had to be craned onto the site.

"A truck came into view – loaded to the gunnels with dozens of giant pre-stressed concrete beams – about six hours earlier than scheduled!"



Each 'bundle' of beams weighed 750kg.



The driver was able to stack the beams out of the way.



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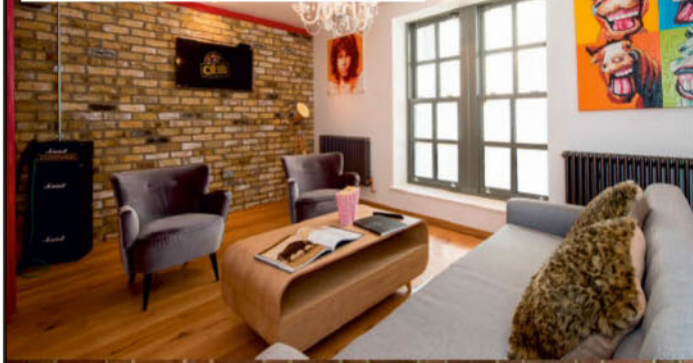
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THE RENOVATION

Stockpiling Materials

Architect Lydia Robinson and project manager Lawrence Grigg make use of new local contacts to source suitable materials for their repairs to Mabel's Farmhouse



Old buildings are made of local materials, which were typically made, quarried or felled near or next to where they were constructed.

Often the more vernacular and humble buildings were constructed with the simplest local materials; there was no reason to bring anything in from afar. Prior to the industrial revolution, transportation of building materials was expensive and difficult, and so only the finest country houses would have been constructed using materials that were not found in the local area.

Mabel's was built in 1710 and the materials and construction techniques are typical of the area and the style of building. The walls are constructed from local Cotswold stone and the internal joinery features elm that was likely grown locally — elms are so common in the village that the old English name for the village was Elmington.

Our first task at Mabel's was to source local stone to repair the drystone wall that surrounds the house and to find high-quality dressed stone to repair the external walls of the house prior to underpinning. Mabel's is constructed from

Cotswold stone; however as the Cotswold escarpment stretches from Wiltshire to Warwickshire, the limestone across the area varies from lemony grey in the south, to the orangey brown of the local stone in our village.

There used to be hundreds of quarries in the area. Now there are a handful and therefore there is a lot less variation in stone available. The new Cotswold stone available is honey yellow and not at all similar to our local Hornton stone, so we need to source an exact match to ensure a good quality repair.

Of course, building materials and products are manufactured and imported from all over the world nowadays. It would be rare to find a modern building where all the materials are sourced locally, as many of the quarries, gravel pits and local industries have long gone. Sourcing materials to repair listed buildings can be a real challenge that involves research, timing and a bit of luck. However reclamation yards, ebay and local builders' merchants can all be good sources of materials.

For the repairs to Mabel's, where better to find some local stone than in our own back yard? An impromptu

meeting in the community shop with a neighbour, local farmer and a parish councillor was the answer.

We happened to mention that we needed some stone for repairing our wall, and by chance another neighbour was removing their wall and needed to get rid of the stone.

Our local farmer Rob and parish councillor Jeff offered to take down the wall and deliver the stone for a very reasonable sum. Rob has proved to be a great contact; the following week he had sourced us some lovely dressed stone from an old lean-to that will be perfect

“For the repairs to Mabel's, where better to find some local stone than in our own back yard?”

for our external repairs.

There is something quite satisfying about being able to use local materials from the village for our repairs — it feels like stepping back in time and is more wholesome and sustainable than something that has been imported from overseas. **H**

Next month:
Design ideas for the renovation evolve



Dressed stone was needed to repair the external walls.



Sourcing local materials is key to the project.



The drystone boundary wall was in need of repair.

YOUR PROJECTS

A Test of Patience

Interior designer Kevin Bankhead took on a major renovation and extension project to provide a modern home for his family in south Wales

When Kevin and Helen Bankhead attended an open day for a semi-detached three-bed house, they felt like one of the few who spotted its potential for renovation. Kevin, who works as a commercial interior designer, was able to look past the shabby condition of the house and see a new family home. The property was run-down and had been unoccupied for some time. A rear extension had been added at some point in the previous decades, but had failed to maximise the available space and created an awkward layout. The couple arranged for a second mortgage and bought it, influenced by its ideal location — closer to Neath town centre and to their children's school.

"I worked on my old house about 15 years ago — we took that back to brick — but hadn't taken on anything on this sort of scale," Kevin says. Once the contracts were exchanged plans were submitted for a new two-storey 70m² extension to the side and rear, which involved the old extension being partly knocked through and the remaining section converted into an office for Kevin's business,

Bankhead Design. Kevin wanted to create a space for a large open plan kitchen diner, fitted with bifold doors to create a connection to the garden. The extension plans also included a new bedroom suite and bathroom on the first floor and a small wrap-around to the side that created space for a utility room and downstairs toilet.

While waiting for the plans to be approved, Kevin and Helen started gutting the existing house, which included sanding down woodwork

"When I removed the ceiling some used syringes fell down — that wasn't too pleasant"

that had been painted black. "When I removed the attic ceiling some used syringes fell down, so that wasn't too pleasant," he laughs.

From the start the project has been beset with delays: a six-month battle with Welsh Water over the placement of a manhole that stopped work from starting; a non-materi-

al amendment to the planning when they discovered that the first floor extension had to be raised to create more headroom; and a trip to A&E when Kevin's dad, Brian, fell through the ceiling joists and broke his heel. Kevin has remained phlegmatic throughout, however: "We didn't imagine we would still be on site now, however I have remained confident that we would eventually get there, and we are pleased with how things are looking."

To keep costs down, Kevin

and Brian, a retired plumber, did as much of the work themselves as they could. Kevin brought in subbies to build the blockwork for the ground floor extension, and a local timber frame company for the first floor shell. "We wanted to create a contemporary extension on a budget, and we just couldn't have afforded to have a builder coordinating everything. I think the biggest thing I've learned is about linking the subbies' work together. When the work is done piecemeal,



Part of the existing extension was demolished.

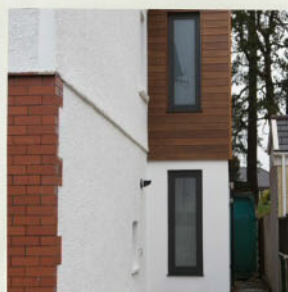


The house needed gutting before work started.



The rear of the house was completely stripped back.





Kevin designed a wraparound extension...



...which added a utility space and small toilet.



Bifold doors and a rooflight bring light into the extension.



Fitting the kitchen is the next job.

there are always grey areas between trades that need to be managed. I think if a builder was working on the whole project he'd have been more aware of these things."

Kevin initially planned to build the entire extension from timber frame, having researched the insulative properties of this build method, but opted for a 'half and half' method after realising the majority of builders in his area were more well-versed building in blockwork.

"Looking back now I wonder if I could have done the whole thing in blockwork," Kevin admits. "Would it have been quicker if we'd have just carried on while the brick-

layers were on site? The timber frame element was more time-consuming than I had anticipated due to the amount of work left to do, including insulating and plasterboarding, after the timber frame had been constructed. It was quite an effort to get it sorted."

The work is coming to an end, however. The kitchen is the next job, followed by the flooring and the painting, but the delays have had financial implications, especially as the family has been paying two mortgages. "It's like working a lot of the big interior jobs. By the time you get to the nice things, that's when you're struggling with money," he

admits. "You don't want to compromise too much, but that's when you've got to use your skills in terms of designing the interiors."

The Bankheads are now waiting to move into their new home, but mindful that the small jobs left may still take some time. "I keep thinking about the property TV shows. They always say 'It'll take longer than we thought', but it always turns out well in the end. I'm sure it'll be the same here." **H**

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THE BRIEF

January 2018

Inspiration, design ideas, planning and product advice to create the perfect brief for your home. This month: range cookers, the pros and cons of triple glazing, and more



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RANGE COOKERS

FOR THE 21ST CENTURY

Range cookers may not be as energy efficient as a conventional cooker, but their energy efficiency has increased by leaps and bounds, says Tim Pullen



Wood Fired Cook Stove

The Ironheart, from Esse, is a stove as well as a range cooker, with convection panels that radiate warmth like a woodburning stove. The model has a heat output of up to 9.7kw and can burn either wood or smokeless coal. The Ironheart has a maximum efficiency of 81.8% and CO (carbon monoxide) emissions of 0.27 (the EU standard for CO emissions is currently 1% maximum).



Energy-Efficient

Everhot's sales director Richard Frost says that its hand-built cookers are the most energy-efficient heat storage ranges on the market. Using less than half the energy of comparable range cookers, Everhot cookers are also well suited to running off solar or other forms of renewable energy. The Everhot 110 in Dusky Pink (ABOVE LEFT) retails from £8,425.



Tim Pullen

Tim is *Homebuilding & Renovating's* expert in sustainable building and energy efficiency. He is the author of *Simply Sustainable Homes*.



Range cookers may look like 19th-century technology but they still hold a place in the hearts of many homebuilders. Their look, their functionality, indeed their sheer presence brings a specific, recognisable character to a house. Many would never be without one and others aspire to owning one. In fact, some often take the opportunity that building their own home offers to put one in the budget. As Alix Eltringham of Esse Cookers says: "A cast iron cook stove has the ability to draw people near; you are attracted by its looks, its warmth and, best of all, the tasty

Induction Option

This Thornhill five-oven gas or oil range cooker (ABOVE RIGHT) has an induction hob for summer use. The oven takes just 30 minutes to heat up and works with a time clock for room heating. Running costs are from £1 a week. Prices start from £7,950 including VAT and delivery to the kitchen.

delights that appear from within." It is that sense of 'heart' that has kept these cookers in fashion for nearly 100 years. But are they really still 19th-century technology and can they fit in a modern, energy-efficient build?

Cast Iron Stoves

The cast iron, heat storage stove cooker – to give it its full name – has been in almost continuous evolution since its inception in the 1920s. Original models were coal-fired and kept lit 24/7, a great idea in the big, draughty houses they were intended for. Later in that century, water heating was added, although the idea of using the cooking heat source to also heat water had been around for a very long time, just not in the same machine. Equally, using the room (or, actually, house) heater to cook on has been around since at least 1834, when Esse produced its first machine.

But what we have now from manufacturers such as Thornhill, Esse, Aga, Klover, Rangemaster, Lacanche and Everhot are very different machines. They now boast efficiency and functionality undreamed of in the 1920s and are far less challenging for today's housebuilder than they were even 10 years ago. ➤



Compact Model for Smaller Kitchens

The Rayburn 200 Series is a compact model suitable for smaller kitchens, with a boiler output capable of heating up to three radiators. Prices start from £5,345.



Highly Efficient Oven

The Hergom Cares woodburning oven from Eurostove (LEFT) is highly efficient (80% with an 11kW output). The Cares can be fitted with a rear or top flue exit and has gradual air control and an external air inlet. Prices start from £4,333.

Fuel Options

It is now possible to have a range cooker to run on pretty much any fuel you want. Coal is still an option (but perhaps not recommended), but now there is gas, mains or bottled; oil, kerosene, diesel or biofuel; wood, logs or pellets; and of course electricity. Graham Thornhill, managing director of Thornhill Engineering, points out that most electricity in this country is still generated using natural gas and it therefore makes better efficiency sense to use that gas directly in the stove than suffer the losses, and extra cost, of turning it into electricity

first. Mark Blewitt, sales director of Esse, adds that its newly patented wraparound technology makes for a highly efficient cooker, with better cooking quality, that reaches the parts that gas can't get to.

Wood, in any form, is more 'hands on' than other fuels but suits the more ecologically minded. It has to be said that unless the owner has a private wood supply it is not a lot cheaper to run but is, effectively, zero carbon. But then running costs have never been the big issue for the owners. All the range cooker manufacturers spend a lot of time telling us how cost-effective their products are while the reality is that we all know that any other means of cooking and/or heating a house would be cheaper. That is not why we buy a range cooker. We know that an electric heat storage range cooker will cost around three times as much to run as a conventional electric stove but we want the character and that warm heart of



Carbon-Neutral Fuel

The Klover Smart 120 cooker burns clean, carbon-neutral wood pellets, which will need topping up once a day. The cooker provides central heating and hot water, lighting itself whenever there is a heat demand. The RHI grant scheme will reward householders with up to £11,000 following installation. The model is priced at £6,650 including VAT.

the home that the range cooker provides. The purchase price and running costs are something we choose to afford.

Technical Innovation

Range cooker manufacturers are working hard to ensure that their products remain relevant in the 21st century. Esse is now putting a catalytic converter in its gas-fired products — making the range cookers massively more efficient than was once the case, but also meaning that they don't need a flue. They also have gasification technology in the log-fired boilers, while Thornhill has the world's first wood pellet-fired stove, using similar highly efficient technology to that found in wood pellet boilers.

Most manufacturers provide programmable thermostatic control, in one form or another, allowing the stove to go into 'slumber mode' when not actually in use, and providing a shorter warm-up time, as little as 15 minutes in the case of some of the Thornhill products. For some machines, that control can be on your phone. Many machines, from Aga, Esse and Thornhill, for example, also have electric induction hobs included. For the Thornhill cooker, it is the lid to the wood pellet hopper. That innovation recognises that sometimes we need cooking options that are a bit quicker and more controllable, and that owners often invest in a conventional cooker as well.

Actual Heat Output

Range cookers are valued as much as a room heater as a cooker, and it is here that problems can start to occur. The addition of those modern innovations mean that

the 'waste' heat — heat emitted by the stove at times when it is not wanted — is minimised. In some cases, where the machine is switched off when not in use, that will be virtually zero. In other cases it can be well over 10,000kWh per year. Aga's new dual control system, for example, allows the ovens to be kept warm in slumber mode but to have the hot plates switched off, minimising waste heat output.

The emotion that drives the purchase of a range cooker is often strong enough to step over any obstacle, including excessive heat output. This can then become a problem in a modern, well-insulated home as the underfloor heating is thrown into a tizzy when the thermostats are showing the room is warmer than it should be. The key is to understand exactly how much heat the stove will actually put out and give that information to the heating system designer, who can then make the problem go away.

Conclusion

It is the ongoing technical innovation that ensures that heat storage range cookers, with a 19th-century look, remain relevant in the 21st century. In terms of energy efficiency, these machines are not as efficient as a conventional cooker. But that they are loved is undeniable and they make the statement that every owner wants to make. It is almost impossible to enter a room with a range cooker in it without being drawn over to look, and even to touch it. That has never been true of a conventional cooker and it is that indefinable quality, together with innovation, that will keep them going, probably well into the next century. **H**

WHO SHOULD LEAD THE DESIGN PROCESS?

What happens when both client and designer have strong ideas on the overall design of a project? Architect Neil Turner explains why balance (and trust) is key to creating your dream home

The term 'design lead' is often applied and attributed to the architect or house designer, who will then go on to lead the structural engineer, planning consultant, mechanical engineer, landscaper, lighting designer and so on — all the key professionals who may be involved in your building project. This makes sense as the architect will have knowledge based on the longest involvement with the project and, through experience, can coordinate all these different people.

However, this leading role has many stages and the first vital relationship is with the client. The best house designs are borne out of a client with vision in combination with an architect who has the ability to match that vision and turn those ideas into a reality.

Establish Who Does What

A client must appoint a designer that can tune into their aims and deliver the project. This lead role must provide a continuous (and consistent) position on the intellectual nature of the design and marry this with the client's budget. What starts as a good design can, over time (through planning, value engineering and so on), become 'watered down'. I have seen many a client employ a designer to design a house and then allow a contractor to detail it — the house loses its crispness and rationale as key elements change, materials get swapped and proportions are altered. Equally, the lead designer should keep control of the costs too. I

always advise on the creation of early cost plans so that the client knows from the outset what their project is going to cost and so that they can plan a realistic budget and not hope for a miracle at the tender stage.

In fact, the hardest element is cost control. To avoid the disasters that are seen so often on TV shows, it's vital for the designer to start with an approximate figure the client wants to spend and involve a cost consultant or quantity surveyor (QS). Some clients don't want to spend money on a cost plan or QS, but then run the risk of costs growing. It's money well spent.

The client should ideally create the first brief or description and the designer should pick this up and develop the brief. This brief would typically be written in isolation or together with the designer, who will set targets for costs, size, spatial linkage, use and character.

However, clients vary and some can be overbearing and try to micro-manage everything, yet they can also be the opposite and seem to have little involvement at all. A good designer will recognise the character of a client early on, and work with them accordingly. I usually ask clients a little about themselves to judge how involved they want to be, and test them on material and layout preference, before designing a solution that I think is appropriate to the site, the brief and the people who will live there.

During the design process it is also important to remember that the house is yours, not your designer's — never



forget that. If you don't like an idea, say so. The designer shouldn't be offended. The design lead is there to come up with ideas and options for the client to choose.

A good designer should also produce a house design that excites, delights and even surprises you. It can be great fun to see the reaction of a client as they see their ideas expressed in 3D form. My role is to push the boundaries on the form, the shapes and use of a site. It can be disappointing when a client simply doesn't want anything but a 'box'. I remember many years ago designing a new house for a client who kept trying to copy the layout of his existing estate house. The result was ordinary and he was happy, but it felt like a wasted opportunity.

Concerns Are Best Voiced Early On

As a client you may go through a process to select an architect, but if they don't work out then don't be afraid to say so. Try and explain what you don't like in the approach. Is it the presentation, the layouts, the size, or even the relationship with the architect? Could the practice change the architect leading your project? If you are not happy you need to raise this sooner rather than later.

History tells us that some of the most famous architects were hard to get on with. They demanded total artistic control to the point that the client had to simply accept what they were offered — this is not the way you should operate. If you don't like the result then say so and give the archi-

"The house is yours, not your designer's — never forget that. If you don't like an idea, say so"

tect the chance to remedy the problem; could it be that the brief needs to be reconsidered? A happy client/architect relationship is about trust, respect and enjoyment in their company. I've worked for clients in the commercial sector that can be hard to get on with, but on a domestic level it's always best if the chemistry is right.

The design, build and contract stages can all have different stress points. The design tends to be an exciting, euphoric stage. However, as Mies Van Der Rohe stated: "God is in the details." The hard work should carry on through the detailed design — the choice of fittings and lighting, for example — and then the build stage itself. I firmly believe that if the architect doesn't control the build stage the capacity for the design to wander off in any direction is most likely. Clients are faced with a huge number of 'experts', from subcontractors to kitchen fitters — all of whom are specialists who invariably try and influence the work. Often, this is with good intention and other times to simply suit their own trade. The architect provides the one role that can link all the elements together to create that dream house. **H**



INSURANCE TIPS FOR HOME IMPROVERS

If you're planning to transform your home, use this advice from the experts at Self-Build Zone and Build-Zone to ensure your project will always be fully protected

1 BACK UP YOUR BUILDER Many builders will have public liability insurance, but this only covers your project if the builder can be proved to be at fault. Instead, choose site insurance that covers the entire project and your liability needs.

2 DON'T RELY ON YOUR HOME INSURANCE Altering the structure of a property is often excluded from your home insurance. During this time, you will need site insurance to cover the existing structure and the new works.

3 PROTECT PLANT HIRE If you are hiring equipment, the person who has signed the contract is responsible for repairing damage to the equipment and for continuing the hire charges until the item is replaced if it is lost or stolen.

4 TAKE CARE OF YOUR NEIGHBOURS If you're working close to your neighbours' homes and weaken their foundations, the damage won't be covered by your builder's public liability insurance; you will need site insurance to cover this.

5 THINK HEALTH AND SAFETY There is clear guidance for home improvers regarding health and safety. Ignoring this could leave you with a court case and costly bills if someone working on your project suffers life-changing injuries, so make sure that you're protected.

6 BE INSURED FROM THE START Leaving your site insurance until you are part-way through the build is short-sighted. Even if there are only three months to go, your insurer will charge you a premium based on the professional reinstatement cost right at the outset of the build.

7 KNOW THE UTILITIES ARE COVERED Emergency utility repair bills can run into thousands of pounds, especially if fibre optic cabling is damaged, so it pays to know you're covered.

8 DON'T FORGET TO EXTEND Site insurance policies cover a particular project and are not renewable. If your project is going to take longer than you originally

thought, you may be able to purchase another short-term policy to cover you until completion.

9 THINK SELF-BUILD WARRANTIES A structural warranty for your self-build project offers peace of mind that your home is covered against defects in design, materials and workmanship, as well as being a requirement from lenders when issuing mortgages.

10 PROTECT YOUR PROJECT TODAY Whether you're planning a conversion, renovation, extension or self-build project, you will need comprehensive protection for the new works, existing structure and the rest of the site. For more information, call 0345 230 9873 or visit selfbuildzone.com.

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VIEWPOINTS:

In a new series, we take one aspect of the self-build process and ask two experts to share their opinions on the topic — arming you with as much information as possible when you come to make your decision



Tim Pullen

Tim Pullen is an expert in sustainable building methods and energy efficiency in residential homes. He is also the author of *Simply Sustainable Homes*.

IS TRIPLE GLAZING ALWAYS NECESSARY?

Triple glazing will reduce your energy bills and make your home warmer, safer and quieter. That is the perceived wisdom, but is it true, asks Tim Pullen

It is a fact that triple glazing allows less heat to leave the house than double glazing. But that is like saying that three chocolate éclairs are always better than two — and while often that is true, there is a point where enough is enough. For example, we can calculate that 300mm of mineral wool loft insulation will give a U value of $0.15\text{W/m}^2\text{K}$ — which is Passivhaus standard. We can also calculate that at 1,000mm thick there is no further measurable improvement in the insulation.

A line of latitude through the UK will pick up countries like Germany, Canada and Russia, where average winter temperatures will be well below zero. The UK, however, has a warmer climate, with an average winter temperature of 7°C . We don't need or want to build our houses to rules that are a good idea in countries with more extreme temperatures.

The Cost/Benefit Argument

Let's think of a five-bed, three-bath 250m^2 house. At Building Regulations standard, with an outdoor design temperature of -2°C and double-glazed windows, the house will have a peak heat load of 12.67kW and need $12,668\text{kWh}$ of heat to keep it warm. If we install triple-glazed windows the peak load drops to 11.75kW and space heating energy consumption to $11,746\text{kWh}$. That is an annual saving of 922kWh — a saving of around £50 per year if it's supplied by a gas boiler.

Triple glazing still costs around 30% more than double. For this house, the cost — to include bifold and other doors — is likely to be around £7,460 for double glazing and around £10,600 for triple glazing (standard white PVCu windows

and doors — the difference could be much greater for better quality frames). This is a difference of £3,140, which will take 62 years to recover.

The Sound Insulation Argument

Triple glazing's impact on sound insulation is, at best, a hit-and-miss affair. Good sound insulation is a consequence of only two things: the type of glass and the gap between the internal and external layer. Soundproofing windows will use laminated glass, making the glass more flexible and more able to absorb sound. It also needs a gap of at least 100mm between internal and external panes. So the best sound insulation comes with secondary double glazing using acoustic glass. Triple glazing using standard glass will stop as much noise getting out as it does getting in and could turn the room into something of an echo chamber.

Is it all About Efficiency?

There is an argument that sacrificing everything on the altar of energy efficiency is missing the sustainability aspect. Ultimately energy efficiency has two impacts: it reduces running costs and reduces CO_2 emissions. Double glazing, in the UK, is sufficiently effective in reducing running costs. Triple glazing increases the CO_2 embodied in the windows by around 40% — it will vary a little with the coatings on the glass and the frames. As PVCu and aluminium are so difficult to recycle, the sustainability argument would go that double glazing in a timber frame meets the enough-is-enough rule. The design life of a house is typically 60 to 80 years so it is entirely possible that the extra CO_2 embodied in triple-glazed windows will not be recovered before the house is demolished.

Is More Better?

Bear in mind that in a reasonably well-insulated house only about 12% of the heat escapes through double-glazed windows. Yes, there is a strong argument for installing triple glazing on the north-facing elevations of a well-insulated house built in the Scottish Highlands. But this obsession that more is always better is merely the expectation of marketers trying to compel us to spend our hard-earned money on things we didn't know we wanted and certainly don't need. With the obvious exception of chocolate éclairs!

TRIPLE GLAZING



Mark Siddall

Mark Siddall is an award-winning architect, author, educator, a leading Passivhaus designer and the creator of the three-part online documentary series at passivhaussecrets.co.uk.

THE SMART CHOICE

Triple glazing need not cost more upfront, and there are ways of reducing costs to ensure the benefits outweigh the outlay, says architect Mark Siddall

Window design, and the specification of the right glazing systems, are vital components of good design in houses. You can only spend your money once, so you need to make the most of it. That's why making informed, intelligent decisions in the right sequence is so important — it allows you to tap into all the benefits of triple glazing at little or no additional capital cost.

Before we go any further, you should appreciate that your windows will typically cost less than 5% of your total budget. Saving 20% on your windows will save just 1% on the total cost of construction.

Conversely, a like-for-like area of triple glazing will cost more than double glazing, so could add 1% to the total cost of your house — but it doesn't need to be that way. The fact is that there are better opportunities to save money without compromising comfort or quality.

For instance, the cost of your external walls can be 30% or more of your total budget. If you rationalise the shape of your house, say reducing the wall area by 20%, then you can save 5% on your build cost (if not more, due to the associated savings you'll make on your foundations and roof).

How to Avoid Overspending

Suddenly a little extra spend on your glazing doesn't seem like such a big cost, but there are also ways to avoid overspending when it comes to specifying your windows.

Firstly, make sure you have optimised your windows. Because window area is typically more expensive than wall area, sizing your glazing for daylight rather than passive solar heat gains can allow you to reinvest a proportion of the saved money into triple-glazed windows without increasing energy demand.

The more complex the window frame, the greater the fabrication cost, the higher the heat loss, the worse the daylight

and the lower the passive solar gains. In order to keep costs down, choose simple window frames and avoid excessive mullions and transoms.

Along these lines, seemingly little decisions can have a big impact. Choosing a fixed window rather than an operable window can maximise daylight, reduce heat loss and cut costs by 30%. But don't get carried away. Make sure you have at least one operable window in each room for ventilation. Remember, your design is only as strong as the weakest link. The heat loss from a typical window frame is over twice that of good triple glazing. That's why the best triple-glazed windows use insulated frames. Ideally, they also use sustainable (FSC-approved) timber frames so they minimise embodied energy and lock up embodied carbon.

What are the Benefits?

Making triple glazing affordable is all about making smart, strategic design decisions as outlined above. Once specified, you'll reap multiple benefits. Triple glazing can prevent radiant discomfort, cold downdrafts and ponds of cold air next to your feet by ensuring the average surface temperature does not fall more than 4°C below room temperature on the coldest day of the year (the typical U value required in northern England and Scotland is <0.9W/m²K).

Triple glazing offers a meaningful improvement in summer comfort, too. The solar heat gain coefficient (g-value) for a well-specified triple-glazed window is about 20% less than double glazing. Using the design process I've described above, analysis shows that the move to triple glazing can reduce annual overheating risk by 386 hours (16 days) in Aberdeen, and by 1,059 hours (44 days) in Gatwick.

Smart design choices can result in a 35% reduction in heat loss compared to double glazing as well. You may no longer need radiators under windows, and the peak load of the heating system is reduced. In a self-build, for instance, this means a smaller heating system, smaller (or completely omitted) radiators, shorter pipes, smaller pumps and reduced labour for installation.

In Aberdeen this can result in an annual energy saving of 15kWh/m² and 10kWh/m² for Gatwick. For a 200m² house this saves £80-£120 per year. (Bear in mind that 15kWh/m² is equivalent to the entire annual space heating demand of a Passivhaus — saving £2,000-£3,000 over 25 years.)

If you follow the strategy I've outlined on this page, you can specify triple glazing at little or no additional capital cost and still tap into all the benefits it has to offer — and make your house more comfortable and more enjoyable in each and every way. **H**

THE LATEST

KITCHEN HOBS

Choosing a kitchen hob often comes down to which fuel source you prefer to cook with, but with a wide variety in prices and features to consider, Nick Robbins explores the key decisions

When it comes to choosing a hob, by far the most important choice will be what fuel source it will run on. It used to be a relatively simple choice between gas and electric, but the advent of induction hobs has muddied the waters somewhat. No longer seen as the preserve of the high-end kitchen, induction hobs have tumbled in price in recent years.

Induction hobs are different to gas or electric hobs in that they cook via electrical induction rather than thermal conduction. Instead of a naked flame (gas) or a heated element (electric), an induction hob effectively turns the pot or pan into the cooker through a process of electromagnetic induction. This doesn't generate heat directly, but instead creates a constantly changing magnetic field that, because of the resistance of the kitchenware on top of it (which has to have a magnetic bottom), creates heat in the pan.

There are numerous benefits to this cooking method: as there is no naked flame (or risk of leaving the gas on), induction hobs are safer to use; they're also easier to clean as the hob itself only gets as hot as the pan on top of it; and they are more efficient than gas and ceramic electric models, with 84% energy transfer compared to around 74%*.

You may need to buy new cookware for use with an induction hob. A flat-bottomed wok may be a requirement, too; or you could consider specifying a separate wok burner, a dual-fuel model (more on which later) or a model with a wok recess.

Induction hobs are still, however, more expensive than the other options — though prices have dropped

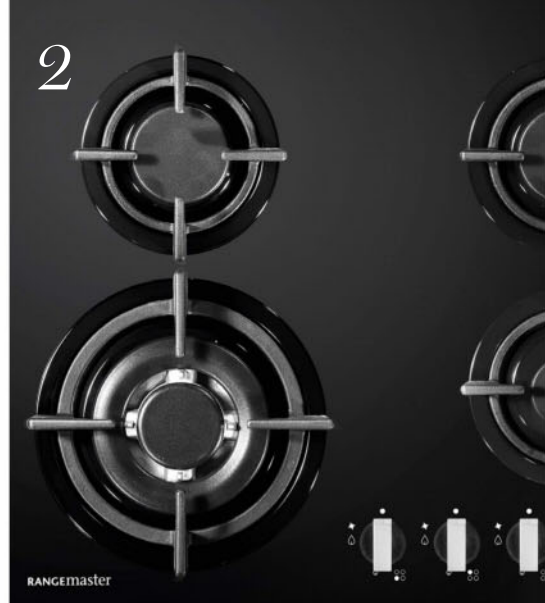
in recent years. Electricity is still a more expensive fuel source than gas, too, so even though an induction hob is more cost-effective than an electric hob, it's markedly more expensive over the course of a year, with *Which?* finding that the average energy cost for a gas cooker is just £17 a year and around the £40 mark for an electric, electric induction or dual-fuel cooker.

Gas hobs then have the marked advantage of being cheaper to run and cheaper to buy, and some cooks would never think of cooking without gas thanks to the instant heat control given by the flame and the ability to gauge heat by eye (something not possible without a flame). Many modern gas hobs also offer safety features like childproof knobs, which mean that the gas supply can't be turned on accidentally by young, prying hands. They are more fiddly to clean, however, and residual heat is stored in the pan stands after the burners have been turned off, which can be a safety concern. If you are off-mains gas, there are gas hobs that can be converted to run off LPG, but make sure this is possible before you buy.

There is the option to choose a dual-fuel hob too, which mixes a number of gas burners along with induction heating zones. This provides the best of both worlds, but will require an electrician and a Gas Safe fitter or engineer to install.

When it comes to the kitchen layout, hobs should be positioned away from windows and doors and it's recommended that you keep a distance of 650mm (electric) and 750mm (gas) between a hob and an extractor. It's a good idea to ensure there's clear workspace either side, too. **H**

* FIGURES FROM CDAEU



1 **Smeg SIM662DW**

The SIM662DW induction hob from Smeg features MultiZone technology – pans can be placed anywhere on the hob, where the size and perimeter of the pan is detected and heated accordingly. It's available for £999 and more information can be found at smeguk.com.

2 **Rangemaster**

This gas on glass hob has four burners (a five-burner version is available) and features a flame supervision device, cast iron pan supports and rotary controls. It's available from Rangemaster (rangemaster.co.uk) for £219.

3 **V-Zug**

V-Zug (vzug.com) has introduced a four-burner gas hob with a multi-slider for controlling the individual cooking zones. It can be top-mounted or fitted flush and also features simmer, keep warm and melt functions (RRP: £2,150+ VAT).

4 **Miele KM6381**

This Miele induction hob with bevelled glass edges features a panoramic layout, with all four cooking areas in a row. The KM6381 from Miele (miele.co.uk) retails for £2,175.

5 **Ikea Livslåga**

The Livslåga from Ikea is a four-burner gas hob that features cast iron pan supports. There are two 2kW burners, one 1kW burner and a 3.5kW burner, while the hob is supplied with both traditional and modern-style knobs. It costs £130 – head to ikea.com for more information.

6 **Gorenje IQ634USC**

The Gorenje IQ634USC induction hob has four heating zones with touch control. It also has four IQ features, including IQsteam, which allows for steam cooking with minimal water. More information and pricing at gorenje.co.uk.

7 **CDA HNG741OFR**

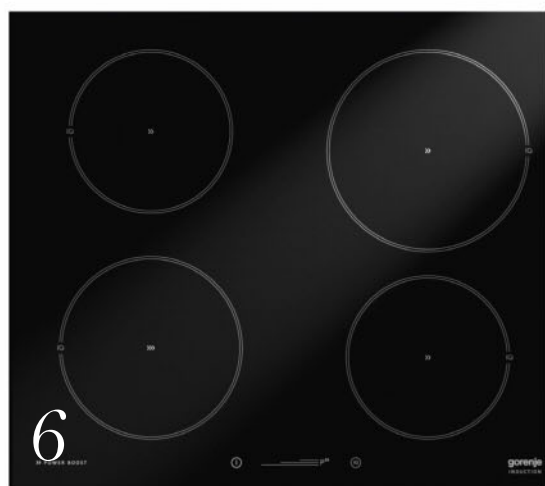
CDA's HNG741OFR dual-fuel hob has four nine-power induction zones with overflow and overheat detection, and one wok burner with cast iron pan support. It retails for £690 (cda.eu).

8 **Caple C824C**

Caple's black glass ceramic hob has four plates, operated by touch controls and a keep warm setting. It can be flush mounted for a minimalist finish and costs £497 (caple.co.uk).

9 **Matrix MHC20FR**

The frameless MHC20FR (RRP: £190) from Matrix (matrixappliances.co.uk) is a ceramic hob made from shatterproof safety glass. It features overflow and overheat detection and residual heat indicators.



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GETTING THE MOST FROM SOLAR THERMAL

Solar thermal is still a viable way of generating cheap renewable energy, says Tim Pullen



Tim Pullen

Tim is *Homebuilding & Renovating's* expert in sustainable building and energy efficiency. He is the author of *Simply Sustainable Homes*.

Solar thermal is a close cousin to solar photovoltaic (PV) technology. Both convert sunlight into useful energy; PV converts it to electricity while solar thermal (as the name perhaps suggests) converts it to heat. Not so long ago solar thermal was the leading solar technology. It was affordable, readily available and made a direct contribution to the heating bill.

The introduction of Feed-in Tariffs (FiTs) in 2008 hugely incentivised solar PV with a tariff of over 40p/kWh. The effect was to make PV more attractive and the massive take-up of that technology served to increase efficiency and drive down the purchase price. But solar thermal remains and still does a useful job.

What Does it Look Like?

There are two types of collector: flat plate (SHOWN OVER-LEAF) and evacuated tube. A flat plate collector is an insulated box with pipes running through it, covered by a flat glass or polycarbonate plate. These can be used for roof integration (where they are mounted in the roof in place of the roof covering) as well as roof mounting, where they are mounted on top of the roof covering.

An evacuated tube is a glass tube carrying a vacuum, similar to a Thermos flask. They come in various diameters – from 65mm to 100mm, the larger ones generally being more efficient – and also have a pipe running down the middle with fluid in it to collect the heat and carry it to the hot water store. The tube system can only be mounted above the roof and is more fragile than a flat plate.

There are lots of figures on the relative efficiencies of the two types. Manufacturers of each can prove conclusively that their product is more efficient than the alternative. Evacuated tube products are a bit more expensive and in some situations, notably when the roof ➤

“It remains a robust, simple, reliable technology that will provide useful energy for a very long time”

is not directly south-facing, more efficient. Flat plate collectors are a bit cheaper but not so efficient when they are not south-facing. There are in-roof mounted systems that look very similar to rooflights and others, from the likes of Sonnenkraft, that can be mounted horizontally on a flat roof or vertically on a wall.

How Does it Work?

All solar thermal panels work on the same principle: light passing through glass is refracted, changing its wave length and essentially trapping it and producing heat. The heat is captured in a fluid (generally a 50/50 water/glycol mix) and conveyed to a hot water cylinder. The cylinder needs to be bigger than the normal 80-litre copper cylinder – typically 200 to 350 litres – as the system needs to store as much heat as possible while the sun shines. In fact, solar panels don't actually need 'sunshine', as in a hot sunny day. As long as there is light they will produce heat, but obviously more light means more heat.

As well as the collector there are valves, a pump and a control system that detects when heat is needed and is available. It then switches the pump on and controls how much heat is produced. This is generally mounted in the attic or close to the collectors.

Are There Any Incentives?

Solar thermal qualifies for the Renewable Heat Incentive (RHI) with a rate of 20.06p/kWh. A typical system producing around 2,000kWh per year will therefore produce around £400 per year for sev-

en years — close to meeting the cost of the system, which is what it is intended to do.

But to qualify for the RHI, the solar thermal system can only be used to meet domestic hot water demands, not space heating or for heating swimming pools.

Do Panels Need Planning Consent?

Legislation around solar panels on domestic properties changed in 2008 so that, in most cases, installation now falls under Permitted Development and does not require planning consent. There are exceptions to this, notably in conservation areas and on, or near, listed buildings. If there is any doubt then it is wise to speak to the local authority.

How Much Does a System Cost?

Solar panel technology has not changed in any major way in 35 years and so there has not been much change in price; prices have dropped by maybe 20% in the past five years (solar PV, on the other hand, has more than halved in price). A typical 4m² flat panel installed on-roof, including a 200-litre tank, all labour, peripheral parts, control systems and VAT at 5% will cost from £2,500 to £4,000, depending on the quality of the system and ease of installation. On a new build, scaffold is already in place and roof tiles are not yet on so installation will be easy and prices could dip below £2,500.

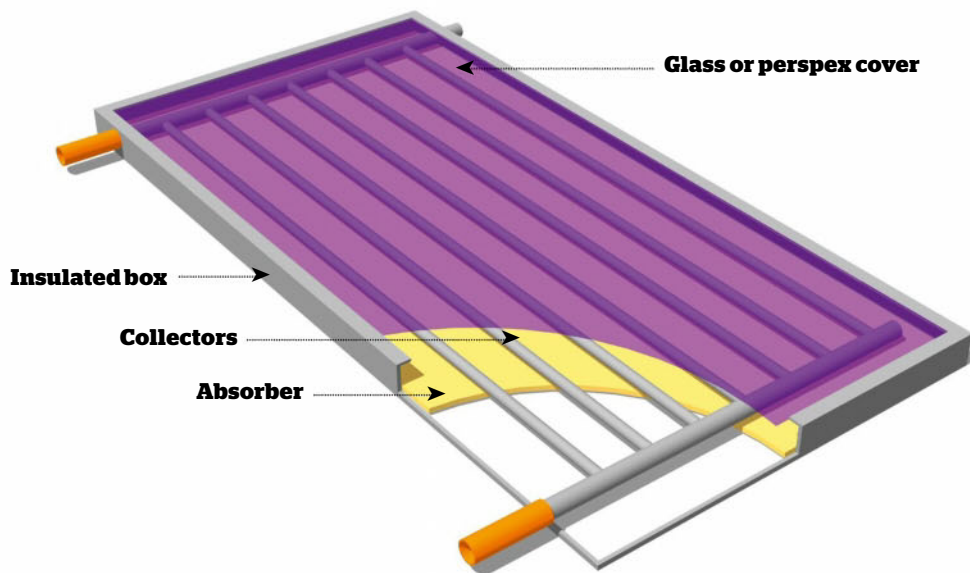
In terms of value, a system of that size will produce around 2,000kWh of hot water each year. The life of the system will be in excess of 30 years, a minimum of 60,000kWh total production.

Running and maintenance costs of solar panels are usually trivial — less than £10 per year. Assuming an installed cost of £3,500 the unit cost of production will be around 5.8p/kWh, before RHI.

What Do You Need?

A 4m² flat plate (being two panels) or 18 to 24 tube (varying with the type of tubes) array on a south-facing roof elevation with an inclination of 22° would be ideal for a solar thermal array for a typical house with four people living in it — but there is a degree of flexibility. An evacuated tube array could be as much as 45° east or west of south and still

“Installation no longer requires planning permission, although there are exceptions”



MAKING THE MOST OF SOLAR THERMAL PANELS



Martyn Bridges

Martyn Bridges, director of technical communication and product management at Worcester Bosch Group (worcester-bosch.co.uk), answers some common questions about installing solar thermal panels

Q *How do I get the right sized installation for my home?*

A Location does make a difference, so you will have to consider the orientation of the roof and the roof pitch to obtain the best performance from the collectors. It is always best to get advice on what will suit your home and, importantly, your hot water needs to make sure you get the best system for you. The average household could see a reduction of around £65 on their annual fuel bills and around 325kg/CO₂, according to the Energy Saving Trust.

Q *What new developments are we seeing in solar thermal panels?*

A Worcester's Solar-Lito flat panel range features a full sheet absorber, which provides optimum surface area to make the most of the UV energy available. These models now have a blue Physical Vapour Deposition (PVD) coating, which increases the absorption rate of the collector and reduces the emissivity. The attractive blue finish of the PVD coating

combined with an aluminium frame enhances the overall look of the panels, too.

For those wanting a more unobtrusive look, there are 'in-roof' panels that have the look of a roof window, to blend the solar technology into the building design.

Q *Do I need special controls?*

A Installing solar thermal technology in combination with the right controls can help you take even more advantage of the energy and monetary savings offered by high-efficiency products. 'Weather compensating' controls, for example, will automatically adjust the boiler's output according to the current external temperature, so it is operating at its most efficient.

If you add an ISM1 Intelligent Solar Module during the installation of a Greenstar CDI System Boiler and Greenskies Solar system, you can optimise your hot water production and take full advantage of as much solar gain as possible, as the boiler's input will be reduced in favour of solar wherever possible.

be reasonably efficient. A flat plate array can be mounted east-west, with one panel on the east elevation and two on the west to achieve the same output as a south-facing array.

But what is actually needed will vary with what it is to be used for, and the issue is RHI. A house built, or renovated, to a bit better thermal efficiency than current Building Regulations requirements could have its whole space heating and domestic hot water demands met with just a solar thermal system for eight or nine months of the year. A house built to Passivhaus standard could do the same for 12 months, but they would not qualify for RHI.

The rule of thumb for a swimming pool is that a solar thermal array covering 50% of the surface area of the pool will heat an outdoor pool for six months of the year and an indoor pool for more than nine months (how much more depends of the construction of the pool room). But, remember, this does not qualify for RHI.

Is Solar Thermal Worth the Investment?

There is a body of opinion that maintains that solar thermal is a dead technology. The drop in PV prices, brought about by government incentives, means that it is cheaper

to produce hot water using PV than solar thermal. This could be true if RHI did not exist. But it does, and right now it virtually pays for the system in seven years, meaning that the actual unit cost of energy from solar thermal is below 2p/kWh. RHI will be dropped, probably within the next two years, which may then kill the technology.

Until then it remains a robust, simple, reliable technology that will provide useful energy for a very long time. Certainly, if the system is used in a way that qualifies for RHI, it is still worth considering. **H**



FURTHER CONTACTS

Barilla Solar barillasolar.co.uk

Greenmatch greenmatch.co.uk

Greenshop Solar greenshopsolar.co.uk

Nu-Heat nu-heat.co.uk

Vaillant vaillant.co.uk

Viessmann viessmann.co.uk

Warm the Sole warmthesole.co.uk

Worcester Bosch worcester-bosch.co.uk

MAKE YOUR ENERGY WORK FOR YOU

Efficient energy systems are a must have for any housebuilding or renovation project, as we all strive to seek ways of saving money and investing in systems that will stand the test of time

One way of achieving cost saving and energy efficiency objectives is to invest in a renewable heat system, such as heat pumps, which support new builds, renovations and properties in off-grid situations, giving a viable and efficient alternative to mains gas, oil and LPG.

Get a Return on your Investment

With the government making a pledge to support and encourage the installation of such systems, developers and installers are well placed to deliver knowledgeable and efficient systems and guide homeowners through the Renewable Heat Incentive (RHI) programme.

The RHI scheme helps homeowners invest in renewable energy systems by assessing how energy efficient their home is after installation and calculating a series of monthly payments, which in many cases can offset the cost of the system and, indeed, deliver a small profit. There are many calculators online, similar to the NIBE Energy Calculator, that can help you assess your return on investment.

Significant Efficiencies

Efficient throughout the seasons, renewable energy systems can reduce carbon emissions attributed to homes, and with a ground source heat pump generating an efficiency of between 400% and 500%, compared to a traditional boiler, which operates at 90% efficiency, benefits are reaped within a relatively short time span.

Warmth from the Earth and Sun

Homeowners are not limited to just one renewable energy option; systems can

be tailor-made to suit requirements and available resources to create a system that balances the needs of the homeowner and the demands of the property and its surroundings.

One such property that enjoys the juxtaposition of both a ground source heat pump and solar thermal collectors is Cowper House Farm — an installation which saw NIBE products installed by HT Energy, a NIBE VIP Installer.

Integrated and in Control

A ground source heat pump was used to take full advantage of the rural situation of the development, with one acre of land surrounding the property providing the perfect scenario for the boreholes required to generate the energy. A NIBE 12kW F1145 heat pump was installed along with two solar collector panels (NIBE FP215P) to the garage of the property. Together they deliver heat to the home via an underfloor heating system and the solar panels generate enough power to provide all the required hot water during the summer months, with the heat pump providing support and energy during the winter months. All are operated using the same integrated controls unit.

Phil Hurley, managing director at NIBE Energy Systems, said: "This type of dual generation system can provide a unique and efficient solution that can reduce annual energy costs to a very low level. Typically, this sort of combination can reduce energy bills up to two thirds when compared with an oil installation — a superb saving over other more traditional energy heating and hot water solutions. Efficient on their own, they can also be uti-



lised with other energy efficient products such as windows and insulation, right through to creating homes that adopt the Passivhaus ethos.”

Knowledge is Power

As developers and homeowners continue to seek ways of investing in technology to futureproof homes, renewable energy continues to grow in popularity due to the significant return on investment and carbon emission efficiencies that such systems can deliver. And, with suppliers such as NIBE having a network of installers that have been trained by NIBE themselves, homeowners and developers can be assured of knowledgeable and efficient installations that support the future energy targets of the UK.

About NIBE

By harvesting the power from nature, NIBE provides you with the perfect indoor climate. Its products can cool, heat, ventilate and supply your home with hot water — all with minimal impact on the environment. NIBE Energy Systems Ltd (a subsidiary of NIBE Climate Solutions) is a leading European manufacturer in the heating sector. The company is committed



to sustainable construction and specialises in providing high-tech energy-saving solutions for heating, ventilation, cooling and heat recovery. It offers energy for life when it comes to renewable heating solutions, from ground source, air source and exhaust air heat pumps to biomass, solar thermal packages and whole-house ventilation. NIBE also delivers training courses across the UK, aimed at providing installers with all the knowledge and expertise needed to carry out efficient, start-to-finish installations. For more information, visit nibe.co.uk. **H**

Energy-Saving Solutions

As homeowners seek ways to futureproof their homes, NIBE can offer renewable energy solutions that reduce annual energy costs to very low levels. For example, a dual generation system, such as a ground source heat pump and solar thermal panels, can reduce energy bills up to two thirds when compared with an oil installation.



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PROJECT ADVICE

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Project Manage Your Way to Success

Project management covers everything from managing relations with the neighbours to clearing up the site ready for the next subcontractor. Experienced self-builder Mark Brinkley explains how to get this crucial part of your project right



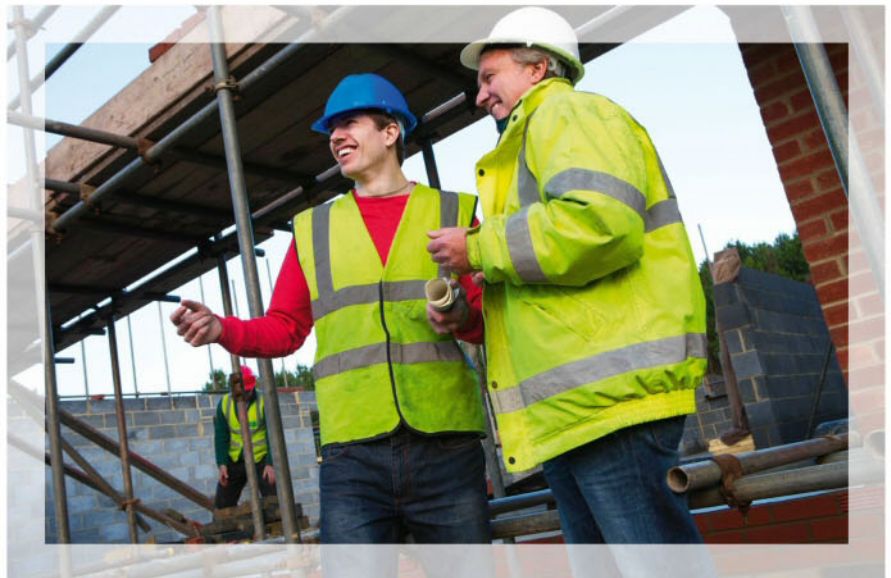
Mark Brinkley

Mark is the author of the ever-popular *Housebuilder's Bible* and an experienced builder. He's just started another self-build.

Anyone can write a 'to-do' list, but enacting it, which involves constantly updating it and adapting it as events on site unfold, and then staying on top of it — that is quite another matter. If you can do this, it marks you out as a project manager. You don't need special tools, you don't need to know what a Gantt chart is and you don't have to be familiar with Excel (although it helps), but you do need to be organised and precise. And you do need to know how and when to communicate.

In truth, project management is what most general builders spend their time doing and, in truth, they are not usually very good at it. They get by and they know enough to muddle through but excellence is rare and communication is often curt or missing altogether. People turn up on days you don't expect them or more often than not don't turn up when you do expect them. It's a hard game to manage well.

Can you avoid the pitfalls of project management altogether? One way is to arrange your build in the traditional way. That is: appoint an architect or designer at the outset, get them to



not only design the job and deal with the red tape, but also to hire a builder on a fixed-price contract — invariably a JCT contract — which the architect then oversees. It is, however, a relatively expensive option which many self-builders shy away from. However, even if you choose to go down this route, it still doesn't get you away from your responsibilities as a client. At every twist and turn of the build, there are decisions to be made and many of these have to be reached to a deadline. The good client — and every successful building project needs a good client — has to be on the ball, interested and decisive. In short, the skills of a project manager come in handy here as well.

For project management is a catch-all term which covers just about every

human endeavour you can think of. There is nothing unusual about the building trade in this respect, but something as complex and time-consuming as a new house build requires an awful lot of project management.

Most self-builders don't build using an architect to supervise, and many dispense with a main contractor as well. To do this, they have to know a little bit about how project management works in the building trade.

As a rule of thumb, around one hour in every six or seven spent on a building project is needed to manage the process efficiently. That could be issuing instructions, buying materials, or just clearing up after subcontractors. This in essence is the work that the main contractor does. Typically a main ►

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DAMP PROBLEMS?

contractor will add something like 15-20% to the cost of labour and materials in order to manage the process smoothly. You could pay an individual to undertake this work for you independently. However they are unlikely to want to assume the responsibility of undertaking the contract for a fixed price as well. Such an arrangement is likely to add another 20-50% to the basic build costs, representing the risk premium for such arrangements. Consequently, lots of self-builders choose to become their own project managers, often without realising just how much work is involved.

It is an area I have been witnessing and writing about for over 20 years and more recently I have been acting as a near full-time project manager on my own self-build. So just what do you need to know?

Management With a Broom

One of the weaknesses of hiring subcontractors to undertake the bulk of a building job is that there are many actions required that don't fit easily into the standard subcontractor job descriptions. Tasks such as keeping the site tidy, stacking and storing materials, site security, taking in deliveries and temporary weatherproofing all fall on the project manager.

Anything that you've overlooked is unlikely to get done by anyone except you, so you rapidly find yourself building up a tool box of shovels, wheelbarrows, ladders and portable screwdrivers to fix those little in-between jobs to get the site ready for the next set of subcontractors.

It is here that the role of project manager gets conflated with that of being a site janitor, sometimes referred to as 'management with a broom'. Be aware that running a building site requires lots of hours spent on site. If you can't be there, then make sure that there is someone covering for you.

Professional Friends

Unless you are a very experienced builder, you would do well to have

some support from someone who is. However much you can glean from books and articles, there are still aspects of the trade that you cannot know about until you get your hands dirty on site. If you do decide to go ahead without professional support, then prepare for it to take a lot longer, as you are likely to make a number of sub-optimal decisions that will add to costs and time taken. There is a balance to be struck here.

Don't rely on building inspectors or warranty providers. They will carry out basic checks to see that your job meets the Building Regulations, but an awful lot of building work lies outside the

"Lots of self-builders choose to become their own project managers, often without realising just how much work is involved"

scope of the regs and isn't policed by anyone except the client. If you don't know what to expect, then you may well end up being disappointed.

The obvious person to have as a professional friend is the architect who designed the project. However, many architects are somewhat reluctant to fulfil this role – some like to just draw the plans – and the ones that do will make a significant charge.

Another route would be to have someone fulfilling the role of site foreman, someone who is very experienced in the trade who can spot the pitfalls before they happen and can also be

around to lend a hand on the many in-between jobs. Again there is a cost, but often many things simply can't be done by one person so you need to be realistic about this.

Buying Materials

Be aware that many subcontractors work on a labour-only basis and expect you to have purchased all the materials they need and for them to be ready on site at the scheduled hour. This is especially true of two of the critical trades – bricklayers and carpenters. You need to know both the quantities needed and to have an idea of what price you should be paying.

If you haven't a clue, then this would be a useful moment to hire the services of a quantity surveyor who would create a bill of quantities with indicative prices. Also avail yourself of the local merchants and introduce them to the job you are undertaking. Organise credit facilities with several of them so that you can order without having to use a credit card every time you make a purchase.

Record Keeping

It is important to keep on top of the money side of things. If you are working to a budget – you should be – then keep expenses on a spreadsheet, broken down into the relevant cost centres to see how your job is doing against budget.

Another very useful idea is to keep a diary of what happens when, who was on site and any unusual events that might later be of significance. It doesn't have to be very detailed – again I use Excel for this, with one row completed per day.

You also need to keep all paperwork in order to claim VAT back if it's a new build or a conversion that qualifies for reduced or zero-rated VAT. The VAT rules are complex but potentially very beneficial to organised self-builders so you should familiarise yourself with relevant VAT notices and guidance (a good place to start is: homebuilding.co.uk/maximise-your-vat-reclaim). ➤



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You need to keep all the original receipts to make a DIY reclaim, so you must organise your filing.

To-Do Lists

Running a good to-do list is key to every successful project. Some miraculous people do this entirely in their heads, but most of us need to write it down in order not to overlook items. The to-do list needs to be updated frequently, and also to be acted on.

For instance, it is all very well noting down the date the bricklayers plan to start, but you have to keep the bricklayers in the loop by ringing them every so often and letting them know how your schedule looks. Communication with suppliers and subcontractors is absolutely vital.

I start a new worksheet every couple of weeks and copy the previous list onto it before editing it to reflect the changes that have taken place in the meantime. I find it all too easy to overlook items that don't appear to be that easy to resolve, or delay buying decisions until the last moment. Writing the list down adds discipline to the whole process. The list itself is divided between immediate tasks and longer term goals, which include a schedule of works that may be many months ahead. I don't do anything as sophisticated as a Gantt chart, which would indicate a finishing date, but the logic is much the same.

Managing Neighbours

While your project may be the most exciting thing in your life, the chances are your neighbours will not be so delighted and will view major building work on their doorstep as a hassle and inconvenience.

In my view, it is well worth taking time out to chat to neighbours and explain what you are doing and when you plan to do it. They tend to be far more amenable if you can give them confidence that you are managing the process properly so that it will be as quick and painless as possible. Sometimes a contentious planning application can



sour the relationship before you even start on site and nothing you can do will make this better. But most people are realistic and understand that once planning permission has been granted, the building will take place and it's actually also in their interest to get it done amicably.

Depending on how near your neighbours are, you may have to parlay with the Party Wall Act, for instance, which sets out ground rules for the responsibilities on both sides of the fence, and puts forward a mechanism for resolving disputes accordingly.

Budgeting

Have a realistic budget. Decide early on what sort of finish you are going for: the difference between the cheapest and the most expensive is staggering and while we might all want the best, realistically we have to make a lot of sacrifices if we want to stay on a reasonable budget.

The budget must also include a realistic contingency sum at the outset, probably around 15% of your overall budget. A contingency sum may well be spent before the project has even got out of the ground, as this is an area where unpredictable extras are commonplace.

After this stage, the contingency is more manageable and, in general, the

A Hands-on Project

Richard and Jane Gane took the reins with their self-build, not only designing the house, but project managing the build. "We saved about £80,000 by not having an architect, project manager or main contractor and by doing a lot of the work ourselves," explains Richard. "I believe it is possible for any self-builder to design and build their own home – particularly if it is timber framed. This is because the design engineer working for the timber frame company will take your designs and produce the detailed timber frame drawings. Then, I would suggest having the company construct the framework, and then all you have to do is finish it off."

Fortunately for the couple, they were able to dedicate time to working on the project as they were both retired. "One of the real dangers for inexperienced self-builders is knowing where to focus your time and energy (this is where a builder's experience pays off)," adds Richard. "I agonised over a number of details that don't seem very important any more while there may be areas that passed me by that will only manifest themselves in years to come."

better managed the project is, the less likely the contingency sum is going to get used up on unexpected costs.

In such cases, you will almost certainly spend it by upping the specification of the finishes, something that is all too easy to do. Look at it as a reward for spending all that time managing the project. **H**

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BUILDING CLINIC

How to Tackle Uneven Floors

Builder Andy Stevens advises one HB&R reader on how to deal with different floor levels in their Victorian house



Q *I have bought a Victorian cottage that needs modernisation. On the ground floor there are three main rooms where the flooring is at differing heights (25mm or 50mm between rooms). Room one has quarry tiles, probably on top of nothing much. (The tiles are not very evenly laid.) This leads through a large open doorway to room two, where there is a floating floor of reasonable construction. Leading into room three, the floor slants upwards — an incline of about 76mm over 914mm. The floating floor joists must be raised over the rest of the room to this purpose. Room three is a concrete floor.*

Ideally I would like to make the whole floor one level, and perhaps use one type of flooring throughout, but I am looking for a cost-effective way to level things out. Are there any options available to help me here — screed over the floating floor for instance?

A Uneven flooring in Victorian houses is fairly common. Only relatively recently have products such as self-levelling compounds come onto the market. Before this, builders used common materials to try and level floors — sand and cement, or timber.

There are many options to achieve a level floor, obviously depending on your budget. I would guess that your

home's first two floors are original and the concrete floor was an add on when an extension was built.

You don't mention what type of flooring you want to run throughout the property. Let's say you plan to use a solid wood floor or an engineered floor, which is the most common product used in these houses.

The most cost-effective way to level things out would be to take everything up and see what is underneath. If the subfloor is satisfactory, I would tape any joints in the subfloor, PVA it, then use a self-levelling compound. These are generally bought in 25 kilo bags; you need to add a specific amount of water and mix with a paddle or whisk. The better ones (not necessarily the more expensive) contain fibres that help produce a solid base even if it is only a few millimetres thick. Naturally when you pour it, it finds its own level but you can 'play' with it with a trowel to move it around to specific low spots or sloping areas. Done correctly, this would level your floor out and could reduce the slopes. Even if you are left with a small height difference between floors, you could use a cambered threshold with a 'bullnose' that would reduce the height difference.

Another more expensive option is to pull up all the original floorboards and floor joists and make a solid floor to level with the existing one. The stand-

“Better self-levelling compounds contain fibres that help produce a solid base even if it is only a few millimetres thick”

ard way of doing this is as follows:

- Minimum of 100mm of hardcore/type 1/crushed concrete
- Blind with 25mm of sand
- 102mm of concrete
- Minimum of 102mm of sheet insulation
- Minimum of 75mm of screed
- Finished floor covering (tiles, wood floor and so on) to be laid on top.

The introduction of insulation would give you a more efficient subfloor and as a result your boiler wouldn't have to work as hard as before, as the warm air wouldn't escape through the gaps in the old floorboards.

You should allow the screed to dry at a rate of 1mm a day — this is something to remember, especially when laying a wood floor, as excess moisture can cause these floors to 'cup' even with an underlay. **H**



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How to Save Money When Building a Timber Frame Home

Mike Cruickshank shares his best money-saving tips for your timber frame build, from initial brief and design through to ceiling heights, roof and stairs



Mike Cruickshank

Property investor Mike Cruickshank is an expert in timber frame construction, having spent 26 years with one of the UK's leading timber frame manufacturers.

We all want to get the best 'bang for our buck', and as building a house will probably be the biggest expenditure you will ever make, it is crucial you maximise what you get for your well-earned 'buck'.

Regardless of construction system, the design of your house will have a big influence on your build costs. The simpler the design the more cost-effective it will be — there is a reason most of the major housebuilders construct pretty simple 'boxes'. Often these houses are designed to be rectangular or a number of linked rectangles forming the footprint of the house. They also feature simple roof configurations and external finishing materials that are mass produced, resulting in relatively low costs when compared to more bespoke or high-end materials.

Most self-builders rightly aspire to build something a lot more appealing, both in terms of design and finish, which will generally result in increased costs. However, if these costs are carefully controlled, you can minimise the increase and build a home with lots of 'kerb appeal' that you can be proud to call home. When using timber frame construction as your preferred build method, there are several things you can do to save costs without having to compromise on design.

To begin, give your architect or designer as detailed a brief as you can on the house you want them to design for you (assuming you are not selecting a 'standard' or 'slightly altered standard' design on offer from many of the timber frame companies), the floor area, minimum room dimensions, how many bedrooms/bathrooms/en suites and so on. Include photos of houses you like the look of and design features and finishes you would like incorporated. A list of 'must-haves' and another of 'would like to have if the budget allows' will assist the architect. It can be a good idea to sketch something to give to the architect as a starter for 10, either using one of the many free online sketching tools available or by sketching on graph paper.

This process gets you thinking about how you would like your home to work ►

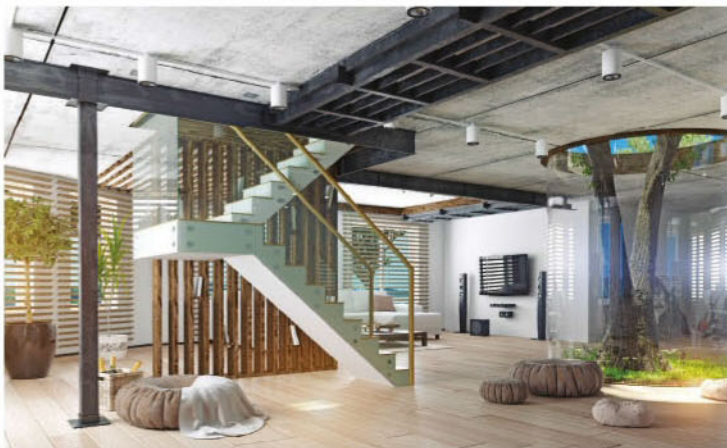
"A lot of expenditure can be saved on roof designs, the simple duo-pitch roof being the most cost-effective"



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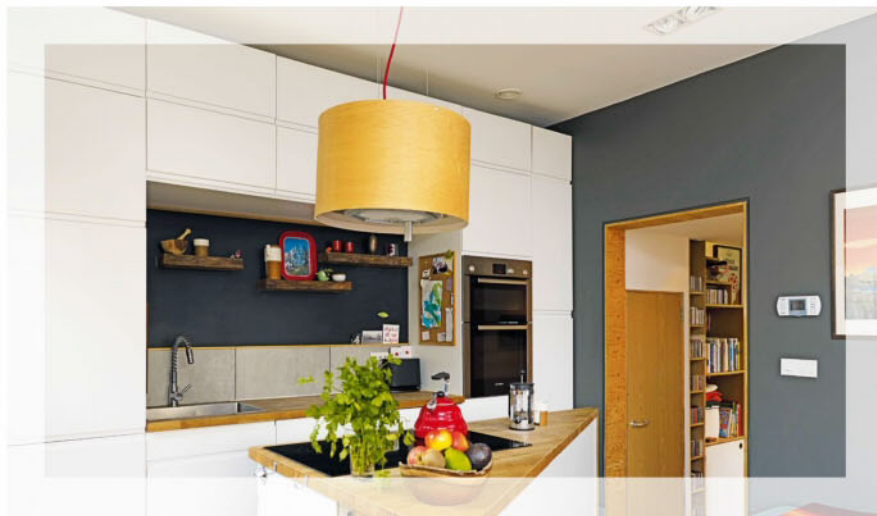
for you, for example, how the various rooms could link. Remember to maximise the benefits of light/solar gain by having the living areas facing as near south as possible. I have lost count of the number of times I have seen designs where the bedrooms are facing south and the living areas face north. The sun is a free source of heating for your home — be sure to use it!

Designing a Cost-Effective Timber Frame Home

Design the house footprint to, ideally, a 600mm 'grid' or, if that is too restrictive, a 300mm 'grid', measured from the inside face of the timber frame external walls. Why, I hear you ask. Well the timber frame studs are at 600mm centres, so you minimise the amount of timber studs and reduce the percentage of 'coldbridging'.

Trusses are fitted at 600mm centres so you also reduce the number of trusses required. Chipboard/plywood/OSB flooring boards are 600/1,200mm wide x 2,400mm long, so you also reduce the number of boards required and the labour costs of cutting to accommodate 'off grid' dimensions and wastage. Plasterboard is 1,200mm wide, so again you reduce the number of boards required, labour and wastage. (It's easy to see why choosing a designer well-versed in designing timber frame homes, or tailoring your design to suit these proportions, can help save money.)

A lot of expenditure can be saved on roof designs, the simple duo-pitch roof being the most cost-effective. The more valleys, hip ends, hidden gutters, different spans/eaves, heights/ridge heights and so on, the more expensive the roof will be. On one-and-a-half storey houses, if dormers/rooflights are positioned to accord with the 600mm 'grid' and are lined up on the front and rear elevations as opposed to 'staggered', the savings in trusses and a simplified design can be considerable. Vaulted ceilings can create fantastic open spaces but come at a price. Using scissor trusses as opposed



A Sub-£100,000 Build

Jason Thawley's house, built for just £90,000, was constructed using a closed panel timber frame. This was a cost-effective choice as the structure went up quickly and most of the £35,000 cost was fixed for this element of the build. Internally, many of the fixtures were designed and built by Jason, including the plywood staircase (built for just £150) and the rooflight in the living area, built using a steel frame and two window panes for £1,700.



to beams/purlins and loose rafters can be a cost-effective way of achieving a vaulted ceiling. Ask your timber frame supplier to advise you.

Instruct your architect or architectural designer to design to ceiling heights that will accommodate standard plasterboard dimensions — typically 2,400/2,700/3,000mm + 5mm. Unnecessary extra costs will result if a ceiling height of, say 2,550mm, is designed, as you'll be paying for 2,700mm sheets of plasterboard, paying labour costs to cut it down 150mm in length and filling up skips with off-

cuts incurring landfill costs. However, if it was designed to be 2,705mm you benefit from an increased ceiling height, no additional labour cost, no need for skips and no landfill costs.

The Joinery

Some timber frame manufacturers can supply external doors and windows as part of their package, be they timber, PVCu, composite or aluminium.

As windows and doors form a large percentage of the building fabric costs, you should look at this element of your build very carefully to ensure that ►



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money is not being wasted or spent on any unnecessary items.

While introducing as much natural daylight into the home as possible is very desirable, this comes at a cost. In simple terms, the larger the area of external doors and windows the higher the cost. If you're on a tight budget, you can minimise costs by keeping the opening sections to a minimum (but remember that openings need to comply with Building Regulations regarding ventilation and fire escape requirements — see page 169). The more bars/panes the windows have, the more it will cost. Do you really need multi-pane windows on all elevations or would you be happy just to have them on the front elevation, for example?

Bifold doors have been increasing in popularity as a way of bringing the garden into the home, but how many days of the year in the UK can they be fully opened up and used? A far more

cost-effective way of achieving a similar result is to fit patio or French doors, perhaps in conjunction with fixed light panes. Fully glazed feature gables are, again, in vogue. They will add considerable costs, as a portal frame (usually formed in steel) will be required to provide structural stability.

Another area where you could save money is the staircase — namely, avoiding a complicated design unless it is an integral part of introducing the 'wow factor' internally. The most cost-effective stair is a straight flight closed riser stair. Introducing open risers, exposed timber treads/risers, turners, and quarter/half landings will all add costs, as will a spiral staircase. On one-and-a-half storey houses the stair should ideally be positioned to run parallel with, rather than perpendicular, to the roof trusses. This will reduce the amount of structural elements required to support the roof. Be careful

about your choice of materials, too. A stair where oak is used for all exposed timbers can easily cost four to five times as much as a softwood staircase.

Choosing a Supplier

Fully research which timber frame manufacturers have experience in supplying to the self-build sector and what packages they offer. Some will only supply the structural shell, while others will supply a comprehensive package incorporating everything a joiner would fit (with the exception of kitchen units). This can save you a lot of time and expense in having to quantify, source, order and take delivery of the myriad different materials required.

A good reference is the Structural Timber Association's website (structuraltimber.co.uk); it lists manufacturers that supply to self-builders. Always obtain a minimum of three quotes and carefully compare what has been included and, just as importantly, what has been excluded from their respective quotes. This way, you are comparing 'apples with apples'. Your architect or designer should be able to assist you with this.

One final crucial point: don't compromise on the thermal efficiency and airtightness of the building envelope (floors, walls, roof, windows and external doors). You get one chance to cost-effectively maximise the benefits that a well-insulated, airtight home will provide over its lifetime. With energy costs spiralling, this will always be money well spent. **H**



Off-Site Advantages

Cost-effective elements of this timber frame build from Timber Innovations, in Market Bosworth, Leicestershire, include off-site manufacture of the wall panels and roof — reducing the time needed to get to dry shell stage. "The hilltop location gave us challenges with access and windy conditions. But with the off-site panel and cassette components, overall progress was pretty slick," says Ian MacCarthy, business development manager.



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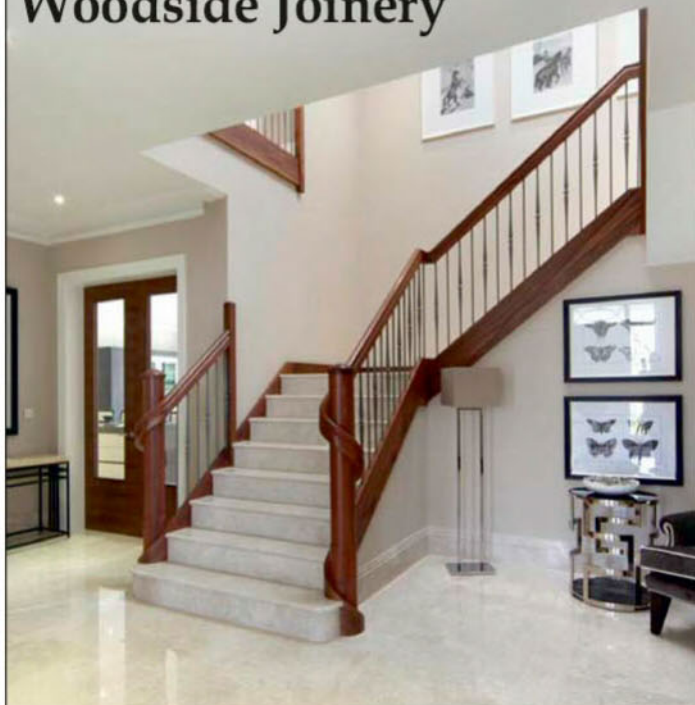
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Replacing Old Staircases

Sometimes removing an old staircase is a better option than restoring it; our guide shows you how to tackle the most common tasks associated with this project



Most renovators are keen to work around their staircase, rather than making their staircase work around their desired layout, fearing that to relocate the staircase will be a bigger job than it is worth. And in some cases they might well be right. However, there are times when a new layout or extension project will just not make sense without moving the existing staircase from its original location. “Extensions, rearrangement of living spaces, modern living in an older property, changing the flow of traffic throughout the house and opening up the ground floor for open plan living,” are the main reasons for relocating or replacing a staircase, according to Richard McLane, design director at specialist Bisca.

In other cases, the staircase design or configuration might not be best suited to the new interior scheme, in which case a replacement staircase is a

good option. Alternatively, the existing staircase may simply be beyond repair.

The good news for anyone considering undertaking a staircase relocation or replacement is that it is really not as complicated or costly a project as you might have thought.

Removing a Staircase

The implications of removing your staircase will very much depend on its design and structure, and the way in which it was originally installed. In other words, some staircases provide more in the way of structural support to the upper floor than others. For this reason, it is always best to consult an expert before steaming ahead and ripping out the staircase, something which, in itself, is not necessarily a skilled job. Your builder, surveyor or a structural engineer are among the best sources of advice. Alternatively, if you are using a specialist staircase company for your new staircase, they will be ➤

THE BUILDING REGULATIONS

The Building Regulations surrounding staircases are fairly complex, so do consult building control before installing a new flight. There are a few general rules to bear in mind:

- The total rise (vertical distance between steps) should be between 150mm and 220mm
- The going (the horizontal distance between the face of the first and last risers) must be between 220mm and 300mm
- The angle of the staircase should not exceed 42°
- There must be a minimum of 2,000mm headroom at every stage while going up the staircase
- Handrail height should be between 900mm and 1,000mm
- A 100mm diameter sphere cannot pass through any openings.

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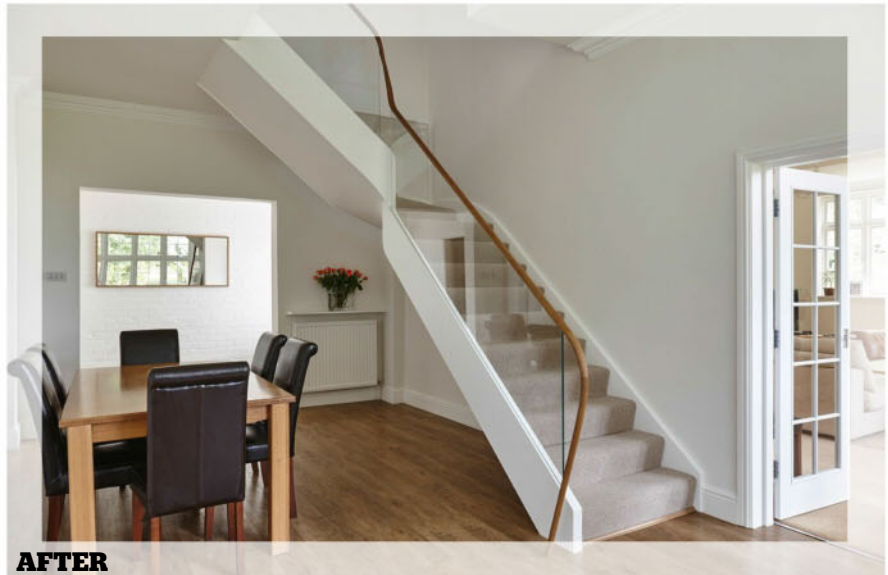
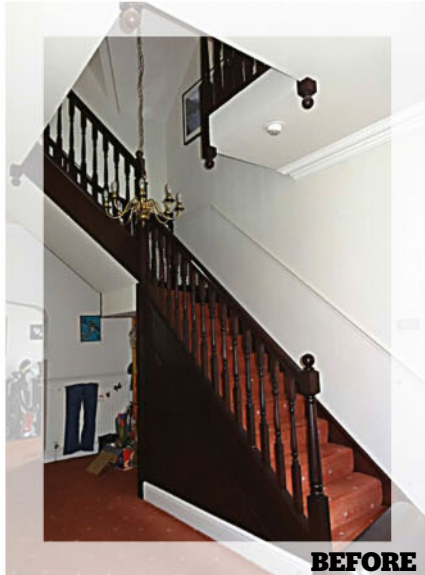
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able to advise you. “A staircase specialist will automatically consider the requirements for structural calculations on a case by case basis,” explains Bisca’s Richard McLane.

Is it Load-Bearing?

In many instances, and often in the case of simple, straight timber flights, the staircase is not actually providing any structural support within the house and will not be holding up the ceiling. It is the strings of the staircase, or wall fixings, that keep the staircase in place, with the flight itself simply bridging the gap between floors.

Of course there are occasions where the staircase will be providing some form of element of structural support. For example, some spiral or elliptical staircases feature a central pillar that will take some of the weight of the floor above, while some solid, heavy staircases or contemporary designs may incorporate an element of structural support in their design. In this case, props would need to be put in place before the staircase is removed.

“Support may be required where there are winder treads at the top of the flight, or where the hole in the floor is not rectangular,” adds John Staves of The Institution of Structural Engineers. “A straight flight would typically sit within a hole in the floor which has beams

or walls along all edges to form a rectangular slot. So care still needs to be taken with assessing how the existing opening is supported. Where the stairs provides an element of support, it may be necessary to use Acrows or similar props to temporarily support the floor before a remedial structure can be installed.”

Once the staircase has been taken out, you will be left with an opening in the floor above that will need to be dealt with. “In the process of removing a staircase you may need to alter or replace timber floor joists unless you are constructing a new floor deck entirely,” advises Ollie Allen, a multi-award-winning carpentry expert and furniture designer.

It isn’t unusual to find that the opening has been made using timber trimmers around where the floor joists end. To bridge the new gap, new joists of the same depth as those surrounding the opening will need to be put into place. The floor can then be boarded and finished before the new ceiling is created to the floor below.

In the case of contemporary staircases, or perhaps a cantilevered design, there will be many additional considerations. “The state of the walls and the position of the staircase dictates the type of underlying (hidden) supporting structure required,” says Richard McLane of Bisca.

A Contemporary Replacement

Staircase specialists Bisca (bisca.com) were asked to replace this old chunky angled staircase in order to open up the under-stairs area. The new staircase lightens up the room downstairs and landing space upstairs while providing a more contemporary look.

Relocating a New Staircase

The schedule for the creation of a new staircase will depend entirely on the type of staircase you have decided on. However, it is common for a new opening to be created on the first floor, unless you’re planning on forming a new landing or mezzanine level. Creating a new opening in an existing first floor is a job which once again benefits from the input of your builder, structural engineer and/or staircase specialist. “Most qualified builders will be able to assess the floor structure and accurately support the new and existing floors in the relocation process,” says Ollie Allen.

In most cases, the joists that have been cut around the opening will need to be double trimmed. This effectively means bolting additional joists onto the sides of the joists surrounding the new opening. While the new opening is being created and during its reinforcement, props will need to be put into place. **H**



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STYLE YOUR HOME WITH CEDRAL

The exterior of your home is an important aspect of any project, giving you the opportunity to create that wow factor. One way of achieving this is with Cedral fibre cement cladding

Cedral recently contributed to a standout home in Worcester, which sits within the grounds of an existing property. The visually striking new home spans approximately 257m² and has been built within the picturesque grounds of a home in Hanley Castle. The homeowners chose Cedral Click to create an eye-catching exterior to the two-storey property that was both aesthetically pleasing and unique in style. Over 120m² of Cedral Click in Grey was installed in a horizontal design across the first storey of the home to perfectly complement the traditional brick exterior of the ground floor.

Inside, the five bedroom home features modern interiors. Throughout the build, it was essential that the home reflected the design of the main house, while also staying in keeping with the surrounding location. Keen to build on the plot for a number of years, the homeowners' daughter took on the project to create her dream

home once planning permission had been secured. A key factor of the new property was ensuring it required minimal upkeep, and materials that supported this aim had to be sourced as part of the project. Cedral Click offered the perfect solution due to its low-maintenance properties.

The fibre cement cladding played a key role in the property's aesthetic as the owner wanted to ensure the exterior had a unified appearance. To help achieve this, other materials such as the rafter ends were colour matched to the grey of Cedral Click. The result is a smart and elegant finish, with the homeowner delighted that they had created their dream home.

With a minimum life expectancy of at least 50 years, Cedral is an alternative to traditional cladding materials, offering protection against rot, attack from insects and the external elements including rain and sunlight. Cedral is available in Cedral Click and Cedral Lap. For more information, visit cedralsidings.com. 



Key Role for Cladding

The homeowners of this self-build in Worcester specified Cedral Click for the cladding (ABOVE), for its aesthetic qualities as well as its ease of maintenance. The fibre cement cladding has a minimum life expectancy of at least 50 years.



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16 STEPS TO BUILDING YOUR HOME

STEP 6: ROOF COVERING

David Snell breaks down the stages of a typical brick and block self-build. This month, the various roof covering options are discussed



David Snell

The author of *Building Your Own Home*, David is a serial self-builder and has been building homes for 50 years. He has just finished building his fourteenth home.

After explaining roof construction last issue, the next stage in our step-by-step guide is choosing and fitting the roof covering. The self-builder is faced with several choices of roof covering, all requiring a different approach.

Interlocking Tiles and Pantiles

Interlocking tiles and pantiles are undoubtedly the most cost-effective roof covering, from both the labour and materials aspects. The coverage rate is approximately 10 to the square metre, and a single roofer can lay around 3m² in one hour – this is including all the ancillary bits and bobs and allowing for getting them up onto the roof, setting up the tiles and gauging them.

Concrete interlocking tiles are available in a variety of colours and profiles. They are light and have a low porosity, which means that they don't increase in weight in wet conditions. They can also be laid at low pitches – down to 20° in certain circumstances.

These tiles are laid with a single lap – one tile overlaps the tile directly below it – in straight lines, with the downward grooved edge of one tile overlapping the upward grooved edge of the next in line. The joints in each course are not normally staggered, but you can achieve this by using cut tiles at the verges.

Interlocking clay tiles behave in a similar fashion to their concrete counterparts, but they can absorb water and this factor

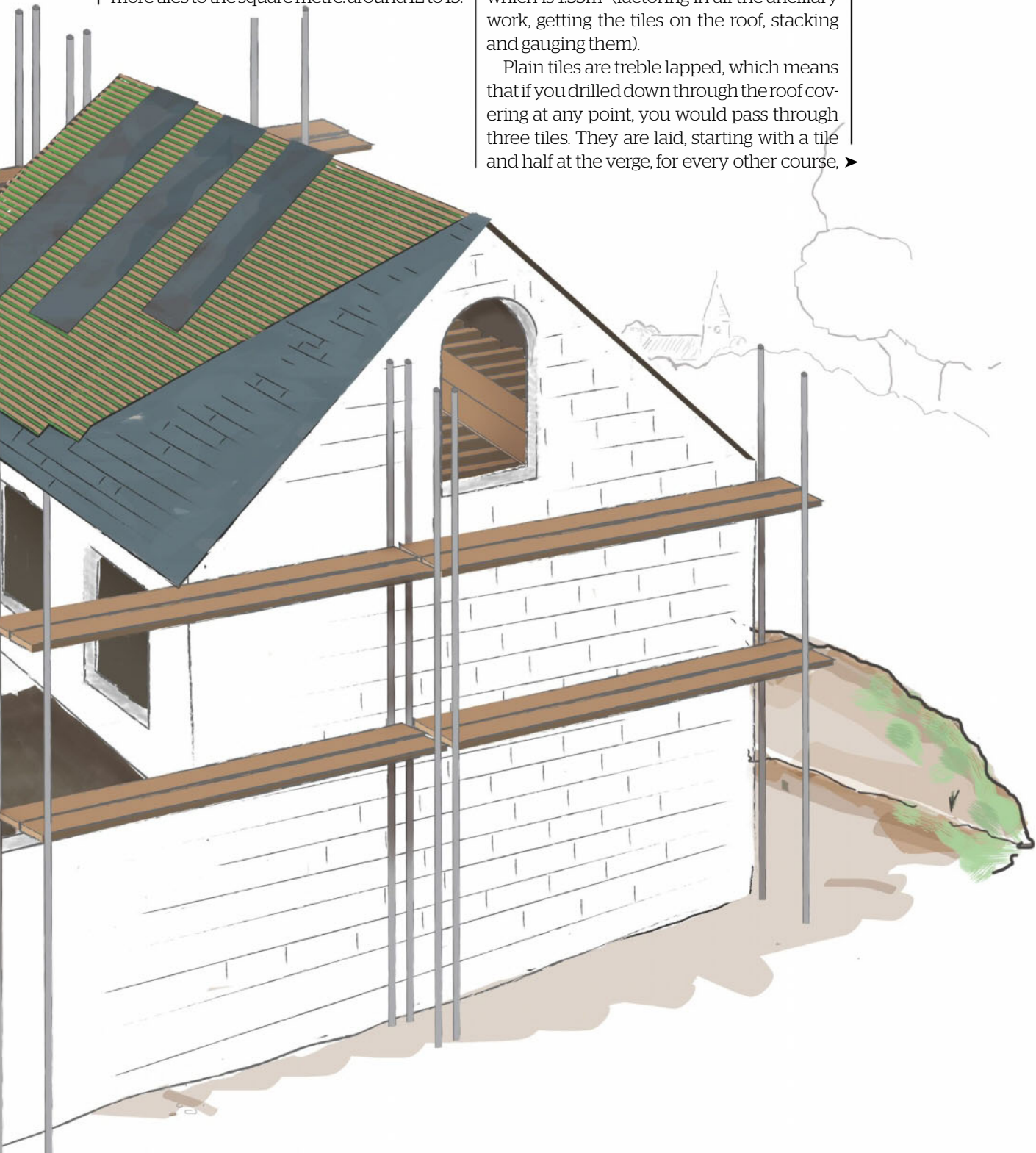


may have to be taken into account with the roof structure. As clay pantiles don't have a grooved edge, they are laid with the downward roll of one tile, fitting over the upward roll of its neighbour. They require slightly more tiles to the square metre: around 12 to 15.

Plain Tiles

Plain tiles are much more time-consuming to lay as they require around 60 tiles to the square metre. As a consequence, one man can usually lay around 80 tiles in one hour, which is 1.33m^2 (factoring in all the ancillary work, getting the tiles on the roof, stacking and gauging them).

Plain tiles are treble lapped, which means that if you drilled down through the roof covering at any point, you would pass through three tiles. They are laid, starting with a tile and half at the verge, for every other course, ➤





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in order to stagger the vertical joints. Concrete plain tiles come in a variety of colours and textures, some of which mimic clay tiles. They are cheaper than plain clay tiles and they do not absorb water, which means that they don't increase their weight in wet conditions. Clay plain tiles, as well as being more expensive, do increase their weight when wet. Again, the roof structure may have to take this into account.

Most plain tiles require a minimum pitch of around 35°, but they are versatile and can also be used for tile hanging and cladding.

Slate

Natural slates are basically split metamorphic rock. The most expensive, and some say the best, come from Wales, but their price and lack of availability have led to a large import market from as far afield as Spain, China and Brazil. Look for uniformity in thickness when considering purchase as well as consistency in colour and texture.

Slates can go down as low as 15° pitch, although at these low pitches, it is advisable to lay a double underfelt. Slates can also be used vertically as a cladding. Reclaimed slates are sometimes available but there is a greater wastage factor and some may have to be re-drilled.

Manmade slates are available but they never look better or as good as the real thing. There are also plenty of companies making slate lookalike tiles that are laid, single lap, in the same way as an interlocking tile, albeit with extra clips.

The standard slate size is 250mm x 500mm, although others can be found, with the smaller ones more popular in the north. The slates are also supplied in slate and half

sizes. These are used on alternate courses up the verges in order to stagger the joints. Slates, like plain tiles, are laid treble lapped and coverage is around 20/m².

Stone slates almost deserve a separate category. They are laid in staggered courses in much the same way as metamorphic slates, although they often vary in size and each stone needs to be planned. In some areas they cover the entire roof while in others, they are often laid on the first metre from the eaves and then metamorphic slates take over. They are heavy and expensive to buy and lay. Man-made alternatives that make a good fist of looking realistic are available, but some can still be heavy and expensive. (Try Greys Artstone, which provides GRC 'stone slate' products.)

Covering the Roof

The first job is to lay and bed the undercloak (which is used to support a bed of mortar and to allow mortar adhesion) at the verge, although if you're in a rush to get weather-tight, this can be left until later by not fixing the battens as they approach the verge. It's usual to employ a plastic underfelt support at the eaves. These are shaped to run a little way up the roof and dress down over the fascia in order to drop into the guttering, stopping the felt standing in water.

The valleys also need to be addressed. Whatever the valley method, it is good practice to lay a roll of underfelt down the valley first. The underfelt is then rolled out across the roof, cut and fixed by rough battening. Each layer of underfelt must lap the one below by at least 150mm. Underfelt can also be rolled up, with any hips and hip irons fixed at the lower end of the hip blade. ➤



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There are three main options when creating your roof's valleys: GRP (glass-reinforced plastic), valley tiles, or lead valleys. A GRP valley is a purpose-made system that is fixed into the valley and is then ready to receive the tiles. Battening runs over and into the valley and is stopped to leave a gap.

Valley tiles are specially designed tiles, but they can only be used if the opposing pitches are the same. The battening runs into the valley and meets the battening from the opposing roof plane.

A lead valley requires the batten to be fixed down each side of the run of the valley. The battening runs into the batten running down each edge of the proposed valley. Lead needs to be fixed in sections no longer than 1m, to avoid slump, dressed down onto the lay board, and up and over the batten running into the valley by at least 150mm.

The roofers can now load out the tiles onto the battening. Gauging is necessary with all forms of roof covering, but especially with plain tiles, in order to make sure that full (or as near full as possible) tiles, or slates, are used, thus avoiding little cuts, which not only look bad but are not as effective.

Interlocking tiles always start from the left-hand verge and work towards the valley or next verge. If they can't be gauged to accommodate full tiles then the last tile can be cut to suit. Plain tiles start and finish from a tile and a half at the verge, for every other course, and work towards a valley or the opposing verge. Valley tiles should be laid first and the next tile to each valley tile should always be a whole one. Slates start and finish every other course, to both verges, with a slate and a half and are cut into a valley.

Tiles are fixed to the roof and nailed in courses as appropriate or to the manufacturer's instructions. The greater the risk from exposure, the greater the number of courses that will need nailing. Each slate is nailed twice at every course, usually using copper nails, while ridge tiles need to be bedded with mortar. Hip tiles or bonnets need to be bedded with mortar and pointed up at the end.

The tilers should then point up the verges between the underside of the tiles and the undercloak. If coloured mortar is being used it is quite normal for the verges to be rough pointed in recessed plain mortar and then finished later.

You will need other trades on site during this process too: bricklayers are needed to point in any flashings to chimneys or abutting walls; plumbers are needed to dress down any skirtings to vent pipes and fix cages; plumbers and/or roofers should dress down any flashings or soakers; and the decorators should paint/stain any timber fascias, barge boards or soffits. If PVCu fascia or soffit covers are to be employed, then now is the time to fix them.

The plumbers can now fix the guttering to the decorated fascias, although they may leave the fixing of any downpipes until a later date, especially if the external walling is to be rendered or painted.

Unless you are rendering or painting the walling, there is no reason why the scaffolding cannot come down at this point. Although it might be useful for some trades to have scaffolding there, most can do without it and its removal allows so many other things to be done and it facilitates unhindered access to the house.

Tile Options

Dreadnought Tiles produces a range of products for the self-builder, including these Staffordshire Blue Smoothfaced clay tiles (TOP LEFT) and handmade bronze clay tiles (TOP RIGHT), shown here on a steeply pitched barn conversion.

SELF-BUILD PROJECT PLANNER

However you're getting it built, you'll need to know how a house is constructed. Here is our definitive guide to each stage of the process

Prepare Site

- Groundworkers create site access
- Clear site and strip vegetable soil; stacking material to be retained out of the way
- Set up site hut and equip with drawings and safety equipment
- Set up toilet
- Secure lock-up/lorry container (hired in or purchased) to be positioned
- Water board to bring supply to stopcock on boundary
- Plumber to connect water standpipe
- Surveyor marks out building on cleared site and transfers the lines to profiles well clear of any construction work
- Bring in bricks and blocks and stack clear of future construction
- Set up mixer station close to cement store and sand heap

Foundations/oversite

- Groundworkers excavate foundations
- Wait for approval of building control and warranty inspectors
- Position any reinforcement bars, mesh or cages in the trenches
- Position any

- compressible material or slip membranes required within the trenches
- Lay ducts for services to enter through the foundations
- Arrange foot scaffold if necessary and shutter for any steps in the foundations
- Pour concrete footings and tamp to level
- Obtain approval from building/warranty inspectors to proceed
- Bricklayers build up foundation blockwork to damp-proof course
- Install cranked air vents
- Install drainage exit lintels
- Fill cavities with lean-mix concrete to level with external ground level
- Bed and lay damp-proof courses, linking these with any radon membranes or barriers

Start the Superstructure

- Groundworkers to dig service trenches and lay pipes and ducts to proposed stopcock/meter positions
- Load out concrete floor beams to each bay and position
- Install drainage and vent pipes proud of the oversite
- Infill floor beams

- with blocks
- Lay coursing blocks and position ventilator grilles
- Brush grout
- Arrange for building control/warranty inspection
- Commence building superstructure
- Install templates for future windows and doors, etc.
- First lift of scaffolding required

Superstructure

- Bricklayers continue superstructure brickwork and blockwork, including work on any chimneys
- Install and bed lintels, including fireplace lintels
- Install flue liners as work proceeds
- Build in meter boxes for gas and electricity
- Electrician to install temporary consumer unit within electricity meter box
- Service suppliers to carry out their work to the boundary
- Plumber to reroute water supply to stopcock position
- Electricity providers to install meter and connect
- Second scaffolding lift required
- Arrange crane to lift first floor beams onto each bay and position (if required)

- Position the plasterboard batten clips
- Lay infill blocks
- Brush grout

Superstructure Continued

- Continue building superstructure to wallplate
- Third and then fourth lift of scaffolding required
- Wallplate to be scarfed, bedded and tied down with proprietary wallplate straps
- Warranty inspection sometimes required
- Carpenters to build end trusses as templates
- Continue building up gable ends and chimney
- Additional lifts of scaffolding required at the gable ends
- Plumber to fit lead flashings, trays and skirts to chimney
- Plumber to install vent pipes and flashing skirts as they come through the roof
- Bricklayers to top out and fit chimney pot
- Bricklayers to point chimney flashings

Construct Roof

- Carpenters to sling roof trusses, and trusses to be fixed down to wallplate
- All binders and bracing to be fixed at node points

- Layboards to be fixed to valleys
- Dormers to be constructed at this point
- Fascia and soffit to be fixed together with any necessary ventilation grilles or strips
- Warranty inspection sometimes required
- Any roof tanks must be installed at this point

Roof Covering

- Roofers begin to cut and lay undercloaking to the verges
- Roofers to felt and batten
- Tiles/slates to be laid
- Ridge/hip tiles to be laid and bedded
- Valley tiles to be laid, or fibreglass or lead valleys to be laid
- Plumber to dress down flashings and skirtings
- Decorators to paint/stain fascias, soffits and barges

Exterior & Interior Fittings

- Plumbers to fix guttering
- Window suppliers to fit external joinery
- Plasterers to carry out any external rendering
- Scaffolding to come down
- Plumbers to fit downpipes and

- connect to drainage upstands/gullies
- External decoration
- Carpenters to commence first fix by fitting door linings, building any studwork partitioning and fixing window boards
- Carpenters to fix plasterboard noggins and box in vent pipes
- Plumber and carpenter to liaise with building of any necessary stands in roof
- Carpenter to fix loft trap

First Fix

- Plumbers to lay flooring membrane and insulation, taping all joints and sealing up to the damp-proof course
- Underfloor heating (UFH) loops to be laid and fixed
- All first fix plumbing for hot and cold and waste within floor zones to be laid
- Internal gas pipework installed
- UFH pipework to be brought to manifolds and outlet positions
- Supply and fix company to pump in and lay level floor screed and leave for three days
- Protective hardboard/cardboard to be laid on screed

- Electrician to fix carcass wiring for lighting and power circuits together with all backplates
- Consumer unit/units to be positioned
- Wiring taken to external lighting points
- TV aerial/satellite cables to be installed to required positions
- Internal telephone wiring to be installed to required positions
- Home entertainment/smart systems/alarms to be carcassed

Drainage & External

- Groundworkers to begin digging the trenches for drainage runs
- Trenches backfilled to 150mm with pea shingle
- Drains laid to required falls
- Brick/concrete section manholes constructed, or purpose-made manholes, rodding eyes and gullies set in runs
- Building inspector to approve laid drains
- Drains haunched over with pea shingle
- Drainage trenches backfilled
- Work to connect to main sewer in road to be carried out by approved contractors
- Carpenter to finish

- boxings and noggings ready for plasterer
- Groundworkers to commence driveways and pathways
- Bricklayer to build any fireplaces and hearths
- Gas meter to be installed and connected
- Plumbers and electricians to liaise on all cross bonding and earthing

Ceilings/Dry Lining

- Main staircase to be fitted by the carpenter and protectively covered
- Dryliners/plasterers tack ceilings
- All external and blockwork walls lined with plasterboard on dots and dabs
- All studwork walls and pipe boxings tacked with plasterboard
- All joints and angles filled and scrim taped
- All abutments of differential materials jointed with mesh
- All joinery to be sealed internally and externally with mastic
- Dryliners/plasterers to skim coat all walls and ceilings
- Decorator to paint/treat backs of all skirting and architraves

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Second Fix Carpentry

➤ Carpenters hang internal doors
➤ Skirting and architrave to be fitted by carpenters
➤ Bottom tread of staircase to be fitted, balustrading and handrails to be fitted, as well as linen cupboard shelving
➤ Fit of loft door and ladder
➤ Timber floors to be laid by carpenters or specialists and protected
➤ Ceramic floor tiles to be laid by specialist tilers and protected
➤ Carpenters/specialist suppliers to fit/build built-in bedroom and bathroom furniture
➤ Kitchen units to be fitted

Second Fix

➤ All wiring connected to consumer unit
➤ Boiler to be positioned, plumbed and then wired in
➤ Sink units to be plumbed in, earthed and cross bonded
➤ All sanitaryware to be fitted and plumbed in
➤ Radiators and towel rails to be fitted and plumbed in
➤ Underfloor heating loops

to be connected to manifolds

➤ Electrician to check cross bonding and earthing to all sanitaryware, sinks, radiators, etc.
➤ Boiler to be wired in; control systems and room thermostats to be wired in
➤ Plumber and electrician to attend firing up and commissioning of boiler
➤ All pipework and connections to be flushed through and pressure tested
➤ Central heating to be left on 'test'

Decorating

➤ Worktops, made from the previously taken templates, to be fitted
➤ House to be thoroughly cleaned with all debris and dust removed to outside
➤ Decorators to snag any holes, blemishes or rough patches on walls, making good
➤ Internal timber to be sanded smooth or rubbed down with wire wool
➤ Decorators to paint all walls and ceilings, mist plus two coats of emulsion
➤ Internal timber to be knotted, painted, primed, undercoated and top coat glazed, or internal timber to be two-coat stained
➤ Specialist tilers to fix

ceramic wall tiles to kitchen and utility

➤ Baths to be filled, in order to settle, before tilers fix any wall/splashback tiles
➤ Water meter to be installed

Landscaping

➤ Groundworkers or landscape gardeners to level the ground and prepare
➤ Topsoil from storage to be placed where required, with extra shipped if necessary
➤ Site hut to be removed or re-sited if intended for use as a garden shed
➤ Secure site storage to be sold off or returned to hirers
➤ Groundworkers to complete driveway surface
➤ Patio slabs to be laid
➤ Bricklayers to build any required dwarf/decorative walling
➤ Lawned areas to be levelled ready for seeding or turfed
➤ Approved contractors to complete any bellmouth and kerbing to road

Completion

➤ Whole house to be thoroughly cleaned out
➤ All windows polished and all labels removed from glass and appliances

➤ All polystyrene packing to be removed from cookers
➤ All stabilising bolts to be removed from washing machines/driers
➤ Site toilet and any remaining plant on hire to be off-hired
➤ Readings to be taken on all meters
➤ Central heating switched to 'run'
➤ Telephone company to connect
➤ Contractors to install TV aerials and/or satellite dishes
➤ All trades return to work through items on the snagging list
➤ Carpets to be laid
➤ Local authority to be advised of completion to arrange for council tax valuation
➤ Energy Performance Certificate to be prepared and sent to building control
➤ Building control final inspection and issuing of Completion Certificate
➤ Warranty inspector's final inspection and issuing of warranty
➤ Arrange protective covering for floor surfaces prior to delivery of furniture
➤ Switch self-build site insurance policy to homeowners' policy **H**

CALCULATING YOUR BUILD COSTS

A simple cost estimating guide for people building their own home

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 £900-£1,500/m² (although self-builders can achieve costs of between £300-£3,000/m²).

Renovation costs are more difficult to establish as they involve many variables, but allow at the very least £1,000-£1,300/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 RICS, the Royal Institution of Chartered Surveyors), is updated monthly to help you work out a more accurate estimate (note, however, that 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 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	1249	1445	1738	1323	1530	1841	1396	1616	1943	1470	1701	2045
	South-East	1096	1268	1525	1160	1343	1615	1224	1417	1704	1289	1492	1794
	NW, SW, East & Scotland	996	1154	1387	1055	1222	1469	1114	1290	1550	1172	1358	1632
	Mids, Yorks, NE & Wales	953	1103	1326	1009	1168	1404	1065	1233	1482	1121	1298	1560
91-160m ²	Greater London	1144	1388	1804	1211	1470	1910	1279	1552	2016	1346	1633	2122
	South-East	1004	1217	1582	1063	1289	1675	1122	1360	1768	1181	1432	1861
	NW, SW, East & Scotland	913	1108	1441	967	1173	1525	1021	1238	1610	1074	1304	1695
	Mids, Yorks, NE & Wales	873	1060	1377	925	1122	1458	976	1184	1539	1028	1247	1620
161m ² +	Greater London	1019	1336	1676	1079	1415	1775	1138	1493	1873	1198	1572	1972
	South-East	893	1171	1470	946	1240	1557	998	1309	1643	1051	1378	1730
	NW, SW, East & Scotland	813	1066	1339	860	1128	1418	908	1191	1496	956	1254	1575
	Mids, Yorks, NE & Wales	777	1020	1279	822	1080	1354	868	1140	1490	914	1200	1505
TWO STOREY													
90-130m ²	Greater London	1202	1391	1709	1273	1473	1809	1344	1555	1910	1414	1636	2010
	South-East	1055	1220	1499	1117	1291	1587	1179	1363	1675	1241	1435	1763
	NW, SW, East & Scotland	959	1110	1365	1016	1176	1445	1072	1241	1525	1128	1306	1606
	Mids, Yorks, NE & Wales	917	1062	1304	971	1125	1381	1025	1187	1457	1079	1250	1534
131-220m ²	Greater London	1012	1226	1555	1072	1298	1646	1132	1370	1738	1191	1442	1829
	South-East	888	1076	1364	941	1139	1444	993	1202	1524	1045	1266	1604
	NW, SW, East & Scotland	808	979	1241	855	1037	1314	903	1094	1387	950	1152	1460
	Mids, Yorks, NE & Wales	773	936	1186	818	991	1256	864	1046	1326	909	1101	1395
221m ² +	Greater London	934	1196	1501	989	1266	1590	1044	1337	1678	1099	1407	1766
	South-East	820	1048	1318	868	1110	1395	917	1172	1473	965	1233	1550
	NW, SW, East & Scotland	746	954	1199	790	1010	1269	833	1066	1340	877	1123	1410
	Mids, Yorks, NE & Wales	713	912	1146	755	966	1214	797	1019	1281	839	1073	1349

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 represents 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, blockwork partition walls, 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**

THREE COASTAL SELF-BUILDS PRICED

Build cost £2,040/m²

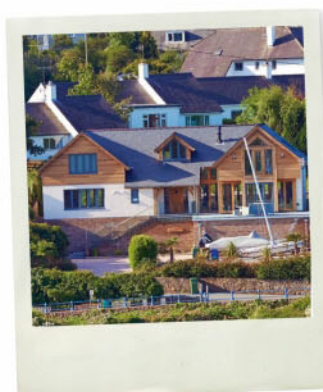
Size 294m²

Location North Wales

Build time 12 months

Peter and Jan Wyslych

worked with Oakwrights to build their ideal holiday home in Wales. The oak frame building has an open-plan ground floor layout, sea views from all the main living areas and benefits from plenty of double-height spaces to give a feeling of space to the property. Externally, a combination of timber cladding, white render and a slate roof have been used to create a classic, yet contemporary design.



Build cost £1,633/m²

Size 98m²

Location Cornwall

Build time 11 months

Paul and Lesley Dadson, after self-building their family home in Taunton, set about building a 98m² holiday home on the Cornwall coast. They chose a highly insulated timber frame construction system to provide an airtight home. The unusual cladding is a grey fibre-cement board from Marley Eternit – the colour chosen to reflect the traditional local roofs and walls and create a sense of material context.



Build cost £1,335/m²

Size 295m²

Location Devon

Build time 11 months

Colin and Anneka Cowan

replaced a dormer bungalow with their new four bedroom home after falling in love with the views and beach access of this plot in Exmouth. Extensive structural steelwork supports large areas of glazing, inset into rendered blockwork walls. The materials were carefully selected to withstand the vagaries of a marine setting.



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REPLACING WINDOWS AND EXTERNAL DOORS A BUILDING REGS GUIDE

While not normally subject to planning permission, this task falls clearly within the Building Regs framework, says building control officer Paul Hymers — who explains what you need to know



Paul Hymers

Paul Hymers is a building control officer and has written eight books on home improvements and building homes.

Windows and external doors are defined under the Building Regulations as 'controlled fittings' and hence replacing them is subject to notice. The Regs regarding replacement cover factors such as energy efficiency, safety, egress in the event of a fire and ventilation, which we'll look at in more detail over these pages.

'Replacement' means replacing the whole frame and not just a sash, a casement or a door leaf. So hanging a new door in an existing frame

or replacing the glass, or indeed the opening casement of a window, is a 'repair' that's not defined as building work and does not require notice.

The replacement window industry is a large sector that boomed in the 1980s but still thrives today as most of the first generation of plastic windows are themselves replaced. The national and regional replacement window companies carrying out this work do so almost exclusively under the Government Competent Person Scheme (CPS) by mem-

bership of either FENSA or CERTASS. Under this system the local authority is notified by email of all their work in their area of jurisdiction and this data populates the authority's property database. It is this database that is checked during a local search when the property is sold or remortgaged, for example.

Using fitters registered under the CPS schemes is only one option; it isn't mandatory. If you prefer to ➤

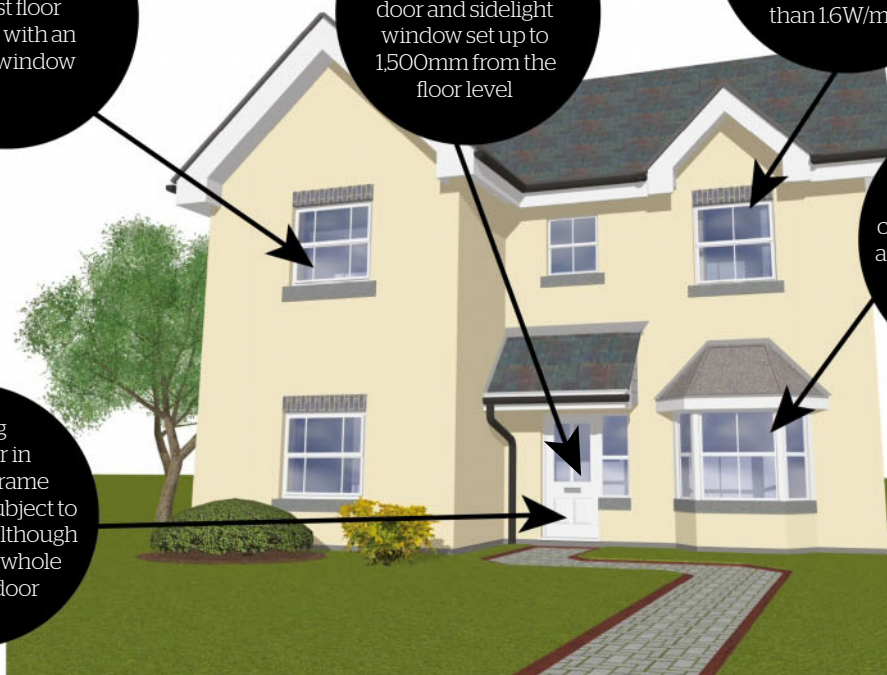
It is good practice to replace any first floor window with an escape window

Safety glazing is required in this glazed door and sidelight window set up to 1500mm from the floor level

Under Building Regs' energy-efficiency standards, the U value for new windows must be no more than 1.6W/m²/K

This is a bay window with a wall underneath, so it is classed as an extension and may need planning permission as well as Building Regs' compliance

Hanging a new door in an existing frame would not be subject to Building Regs, although replacing the whole frame and door would





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Planning Permission

You do not usually need to apply for planning permission for replacing windows and doors similar in appearance. However, there are exceptions, such as properties where your council has made an Article 4 Direction withdrawing Permitted Development rights from your home, and listed buildings where consent is required.

Normally the work is not defined as development but it could be if the new windows project out from the façade of the building, such as bow or oriel windows. It is also worth bearing in mind that a bay window may be regarded as an extension.

fit them yourself, or use a local tradesperson or general builder that isn't registered with FENSA or CERTASS you can, but you'll need to give notice to your building control body. Often a building notice is submitted, but it is safer to submit a full plans application with the window specifications and design requesting prior approval before they are made and fitted. There are only a few requirements that apply to this work, yet it is easy to fall foul of them accidentally. Some, such as an absence of background trickle vents and egress hinges, are easy to retrofit. Others can result in the window being replaced again and the specification changed if it doesn't comply.

Thermal Heat Loss

As 'controlled fittings', windows and external doors are required to provide some thermal insulation to a minimum standard, and hence replacing them means they need to comply with U values set out in the Building Regulations. The amount of heat that can pass through the glass and framework as a whole unit is measured as a U value. Windows should not exceed a U value of 1.6W/m²/k (and have a Win-

dow Energy Rating of Band C or better). For doors, the U value should be no more than 1.8W/m²/k.*

Because meeting these standards would sometimes unacceptably alter the appearance of historic and traditional homes, there are some exemptions from complying with the energy-efficiency standards. Notably, listed buildings, scheduled ancient monuments and also homes in designated conservation areas are exempt if compliance would result in unacceptably altering the character or appearance of the building. There are three more categories for 'special consideration' (meaning higher (worse) U values are allowed):

- Buildings of architectural and historic interest referenced in a local authority's local development plan or framework
- Buildings of architectural and historic interest within national parks, areas of outstanding natural beauty, registered historic parks and gardens, the curtilages of ancient monuments and world heritage sites
- Buildings of traditional construction with permeable hygroscopic fabric that absorbs and permits the

evaporation of moisture.

So there are plenty of exemptions for cases where replacing windows and doors with super-insulating double glazing in PVCu or composite frames would do harm, visually or physically, to the house. In considering these exemptions, of course, building control officers liaise with their conservation and planning colleagues.

Safety Glazing

Safety glazing should be included in any critical area:

- Any glazed area within a window below 800mm from floor level
- Any glazed area within a

Background Ventilation

The trickle ventilation per habitable room should be no worse than those fitted to the original windows or doors for trickle ventilation. The vents should be compared by equivalent area (EA) as this represents the performance of the ventilator and not simply its size. As with all the Building Regulation requirements, compliance with this requirement (Requirement F1) is performance based. Most manufacturers print the EA on their vent products now for this reason.

Night vents (also known as crack vents) that allow

“There are only a few requirements that apply to this work, yet it is easy to fall foul of them”

window that is 300mm or less from a door, such as a sidelight, and up to 1,500mm from floor level

- Within any glazed door, up to 1,500mm from floor level**

Ventilation

There are two types of ventilation to be aware of here:

- Purge ventilation: The opening area of replacement windows or doors for purge ventilation in each room should equal at least one-twentieth (5%) of the floor area of the room. Where you have more than one opening in a room the total free area for purge ventilation is used. Windows that only open less than 15° are not considered suitable for purge ventilation, so they should be discounted from the calculation.

the window to be locked shut when partially open are discouraged as they represent a security risk and often create a draught, meaning they are less likely to be used at night or when the home is vacant.

Fire Safety

There are two aspects to be considered that should not be worse than what existed before:

- Fire spread between properties through 'unprotected areas'. In one or two rare cases, external doors and windows may need to have fire resistance and (in the case of doors) be self-closing or (in the case of windows) be non-opening to limit the risk of fire spreading between adjacent properties.

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The area of walls, doors and windows permitted to have reduced or undetermined fire resistance will depend on how close these elements are to the boundary. These areas are known as 'unprotected areas'.

In addition to timber and aluminium windows and doors, fire-resistant PVCu windows (fitted with fire-resisting glass) and composite doors are also available as test certified products.

● Means of escape in case of fire. Generally speaking, ground floor windows are not required to provide egress, unless they serve an inner habitable room (in other words, one that is only accessible through another room. This does not apply to kitchens, bathrooms or dressing rooms). However, when replacing a first floor window (particularly to a bedroom) the opening

should be sized to provide the same potential for escape as the window it replaces. If the original window that is being replaced was larger than necessary for the purpose of escape, then the new window opening could be reduced down to the minimum as specified in the criteria below. It is, of course, good practice to replace any window to a first floor room with an escape window. The general criteria for egress windows is as follows:

- Neither width and height can be any less than 450mm
- Clear openable area – no less than 0.33m²
- Sill height – the bottom of the openable area should be no more than 1,100mm above the floor area
- Only one window per room is generally required.

When the existing window sill height is too high, a 'built-in' step feature may

be needed to achieve the 1,100mm maximum.

Access to Buildings (Part M)

When replacing the main entrance door to a house that was constructed after 1999, it is important to retain the accessibility of the doorway. It isn't necessary to make the opening wider to meet the current standards on access but the low-level accessible threshold must be maintained. This is to enable people, including those with disabilities, to have continued access to the house.

So compliance, as far as access, means of escape in case of fire, and ventilation go, is about not making things worse. In other words, not reducing the level of compliance in the new windows compared to the old ones. Because of this, it makes sense to either keep

the old ones on site before receiving your completion certificate or at least keep a photo and specification record of them as evidence before they are taken away. Without any evidence of what was there before, the building control officer has to assume the worst and look for the new windows to meet the current standards.

Regularisation Certificates

Local building control authorities receive many retrospective applications for replacement windows and doors when homeowners are selling a property. You could leave it until then to apply for a Regularisation Certificate, but the risk of having to replace windows again that have already been replaced, during a stressful time, means this is seldom a good idea. **H**

Conservation Area

Homes in designated conservation areas are not required to comply with energy-efficiency standards for windows and doors.



IMAGE: ISTOCK

THE BEGINNER'S GUIDE TO SELF-BUILDING

This beginner's guide takes you through the key elements of formulating and starting a self-build project — from organising the finances to making sure you have the right insurance for the work

According to a Building Societies Association survey, one million people would like to build their own home in the next 12 months. Yet there were just shy of 13,000 self-builds completed in the financial year 2016/2017. A shortage of plots and the subsequent rise in price of those that are available explains part of this disconnect, but it is clear that there are people willing and able to self-build, but struggling to take the first step.

The process of self-building is challenging, but like any major life step, it can be made easier by arming yourself with as much information as possible.

Financing Your Build

Getting your finances in order is the first and most im-

portant consideration when it comes to preparing for a self-build. There are no two ways about it: you'll need to ensure that you have access to enough money to complete your build.

First perform a realistic audit of your current financial situation, and then contact lenders to see what you will be able to borrow to fund your project. Mainstream lenders tend to be wary of lending on self-build projects, but there are specialist lenders who will be able to provide a range of options, like BuildStore, and provide tailored mortgage advice.

Self-build mortgages differ from traditional mortgages in that the funds are released in stages (either in arrears, where the money is made available after a stage of the build has been completed; or in advance, when it's released at the start of each build stage).

At this point it's also worth estimating (roughly) your build costs. Typically these are around £1,300/m², but can range from anywhere between under £1,000/m² to over £3,000/m², depending on your build route, desired finish, spec and where in the country you plan to build — the self-build cost calculator

on page 166 will help you establish a rough cost.

Remember, you'll also need to account for the cost of your plot, which will consume a sizeable chunk of your budget and set aside between 10% and 30% of your budget as a contingency. The golden rule is this: build cost, plus plot cost and contingency, should total less than the value of your finished house.

Securing a Plot

Specialist plotfinding services (like plotfinder.net) are incredibly useful here, but they shouldn't stop you from being proactive. Drive around the area you're looking at to spot any potential opportunities, get on the website of local authorities and scan through the planning applications, use Google Earth to identify any potential infill plots or where there might be room to build in existing gardens. Plots will rarely fall into your lap, so you'll often need to be savvy to secure one.

Also, make sure you register with your local authority under the Right to Build (righttobuildportal.org), which requires local authorities in England to keep track of the demand for serviced plots in their area.

Choose a Build Route

The term self-build can be something of a misnomer — you don't have to lay every brick to self-build. A broader definition would see a self-builder as someone who commissions the home they end up living in.

It's important to decide on your build route early in the process as it will have major implications on the costs. The majority of projects are handled by a main contractor/builder or subcontractors project managed by the homeowners. However, you can also choose a turnkey or package supplier, which will handle all aspects of the design and build process, with minimal intervention from you — though this comes at a cost.

Create a Design Brief

Most self-builders will employ the services of a professional when it comes to the design of their house — whether that's an ARB/RIBA-affiliated architect, an architectural designer or an in-house designer at a package company.

Whatever route you choose, you will need to know what your priorities are for your new home and come up with a design brief. "You will need to know that

"It's important to decide on your build route early in the process as it will have major implications on the costs"

you can have a good rapport and are able to get on well together," says Design and Materials' Beverley Pemberton. "A good designer is also a good listener and they will have flair, creativity and experience. Ask to see references and examples of the designer's work, know their track record of planning approvals and that they have a thorough understanding of the planning system."

Make sure, as well, that your designer returns final drawings that are achievable within your budget.

Get Approval

Planning can seem like a complicated beast - lessened somewhat if you find a plot that has planning permission already granted on it perhaps - but it's about understanding the situation within the context of where you want to build.

You should receive an answer within eight weeks of submitting your application, but be sure to keep track of your application.

Receiving approval is not the end of your relationship with the planning officer. All planning permission is granted with conditions attached. These can range from specifying what type of roof materials must be used, to the date the project must start by. Failure to address the conditions will invalidate your consent, making any work done illegal. Conditions must be formally discharged (or satisfied) in writing, usually through a form obtained through your local authority - and with a fee attached, of course.

Bringing Services to Site

You'll need water, electricity and (possibly) gas in your new home, and it is useful to get the former two arranged early in the process - if only so you can factor the connection charges into your cost plan.

You'll also need to submit detailed building drawings for Building Regulations approval (or a Building Warrant in Scotland). Building Regs are national legal standards for design and construction that apply to all new builds. The assessment on whether your build will gain approval can either be carried out by your local authority's building control team, or you can appoint a private approved inspector (read more on how to appoint an inspector overleaf). You may also be able to sort your structural warranty through an approved inspector, which may save some costs.

Going out to Tender

Much like finding a designer, choosing a builder requires plenty of research on your part. Ask your designer, friends, building control, neighbours and anyone else you know who's had building work done for recommendations. Meet and interview as many as you can and ask them to quote on your project based on tender documents that your designer should have helped you prepare.

Sort your Insurance

As soon as contracts are exchanged on your plot, you will need to have insurance - usually a specialist policy

for self-builders. A comprehensive self-build policy is advised and will cover any public liability, building works, employers' liability and personal accident.

Arrange for Services

Getting services to your site (if necessary) can cost between £500 and £10,000, depending on your situation and whether the connection needs to be made across private land (where you'll need to secure a wayleave to grant access

to dig) or public highways (which may involve road digs). Though electricity and gas are not essentials during the build, a water supply is needed early on.

Start Building

Head to page 162 for our self-build schedule so you know exactly what to expect during the build process.

**Turn overleaf for
more on building
inspectors**





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APPOINTING A BUILDING INSPECTOR

Appointing a building inspector is a compulsory part of any self-build. Here, we run through what they do and how you go about getting one for your project

Appointing a building inspector for your self-build project is a legal requirement as per the Building Act 1984. Their job is to ensure that your project adheres to the Building Regulations throughout the build process. Generally this will involve approving plans and then visiting the site at set stages to assess the quality of work being done.

Building Regulations cover health and safety issues to protect people in and around buildings, energy efficiency, access for people with disabilities, security and even communications (as part R now specifies that fibre-optic cable service entry ducts are built into all new homes).

It's important not to get planning permission confused with Building Regs approval. The former is permission from your local authority to build, whereas the latter is a wholly separate process that ensures the new building's compliance with Building Regs.

Who Can You Appoint?

The process of appointing a building inspector, also known as district survey-

ors or building control surveyors, hinges on whether you will use the service offered by your local council and run through Local Authority Building Control (LABC), or choose an approved inspector from the private sector. Approved inspectors are registered with the Construction Industry Council (and must re-register every five years to maintain high standards).

A building inspector appointed through LABC and an approved inspector will carry out the same duties for a self-builder: "Either private or public building inspectors will check plans for compliance when a full plans application [see above for more information] is made, and carry out site inspections when requested to check work on site at various stages," says Paul Hymers, a building control officer.

However, only an inspector from your local authority has powers of enforcement, and an approved inspector must hand the project over to the local authority if there are problems with the project that cannot be resolved informally.

Types of Applications

LABC's head of guidance Dave Ewing explains the difference between a full plans application and a building notice:

"For the majority of applications, building control will check and 'approve' the plans before work starts. This is called a full plans application and includes all drawings, specifications and, where necessary, calculations for structure, thermal performance, water consumption and so on.

"With a building notice route, the application is only 'accepted' subject to meeting the requirements of the Building Regulations. There is a risk with this option that work carried out may need altering or upgrading to meet requirements."

Before Starting on Site

Whether you choose public or private, it pays to contact your building control body early. This will give you an idea of the fees that will be involved, which will depend on several factors, including the size of your project and the number of site visits required. You could also get advice on complex aspects of your scheme. The next stage is to submit your plans, which once approved allows you to obtain quotes, appoint contractors and order materials based on an approved scheme. Any changes made to the scheme that arise during the build process can then be discussed with your appointed building inspector during a site visit.

During the Build

You must inform your chosen inspector when work will begin so they can visit the site. Any further stages the inspector wants to check can be arranged at this point too. "The building control surveyor visits the site to ensure that vital stages are seen before they are covered up, to provide advice and guidance to the person carrying out the

work, to ensure any defective work is put right and to sign off the work for Building Regulations' compliance on completion," says LABC's Anna Thompson. "Generally for a new house the other visits will involve looking at the foundation excavations, the ground floors including damp-proofing or tanking and insulation, the roof structure including any beams and trusses, and the sound and thermal insulation details."

Final Approval

Your building inspector will sign off on your project once the work has been completed. However, you will most likely need to have an air leakage test, as well as, in some cases, acoustic testing, drainage and electrical tests, carried out beforehand. You will also need SAP calculations and an EPC.

If the inspector is happy with these results, you'll be issued with a completion certificate, which proves that the work has been legally undertaken in compliance with the Building Regulations.

This is necessary to sell (and sometimes even to re-mortgage) the property. **H**

ASK THE EXPERTS

Looking for expert advice on your project? Our team of homebuilding experts are here to answer your need-to-know questions. This month, they tackle planning permission for annexes, lighting schemes, kitchen design, issues with flat roofs and oak frame extensions

Want Advice on Your Project?

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Michael Holmes
Michael is HB&R's Head of Content and Product Development. He also chairs NaCSBA (National Custom and Self Build Association).

Q We are hoping to add a 40m² single-storey extension to our timber-framed house. We have seen oak frame extensions and they look great. However, our architect said that they can suffer from movement. Is this true? Do you have any advice regarding building an oak framed extension?

A **MICHAEL HOLMES SAYS:**
You mention in your question that your home was originally constructed of timber frame – is your home a modern timber frame or a traditional oak framed property? You will be aware that modern timber frame homes are usually made from insulated timber frame panels or SIPs (structural insulated panels), and as such

“It is important to have the frame very carefully detailed by a designer who understands the complexities of using oak frame”

are very different from the traditional oak framed 'half-timbered' houses with bays of heavy oak post and beam frames.

Either way, there is no reason not to extend your home using oak frame if that is what you want to achieve. It is a premium solution compared to alternatives, attached with a premium cost, but the visible framework

inside the property adds instant character to a new building or addition that few other building systems offer.

Due to its tendency to move – as the frames are typically made from green oak which is still drying out and has the risk of shrinking – the external envelope, including the doors and windows, are usually separated from the oak frame. This allows the oak to move without affecting the airtightness of the structure or causing damage to the joinery and glazing.

Nonetheless, it is important to have the frame very carefully detailed by a designer who understands the complexities of using oak frame to meet current Building Regulations. (This may be an in-house designer at one of the oak frame companies, or an independent designer experienced in designing in oak frame homes or extensions.) It is also important that the contractor understands these details and follows them carefully on site. For this reason it would be a good idea to use a contractor who has experience of building using oak frame construction.

Another approach to building your oak frame extension is to build using masonry or some other form of construction and to introduce oak only in places where it provides a visual feature – such as beamed 'chambered' ceilings or a beamed vaulted roof with exposed principal trusses and purlins. This makes cost-effective use of oak where it matters most and where you are going to actually be able to see it, while also managing to keep the overall cost down. This route will also mean you're likely to avoid many of the issues attached with a fully oak-framed structure. However, the oak ceilings and roof will of course still move and this may mean that plasterwork and decorating may suffer some damage from the movement and will need to be made good.



Sian Parsons
Sian is one of the senior designers at lighting specialist John Cullen Lighting (johncullenlighting.com).

Q I'm planning the lighting design for my new bedroom and have heard the term kelvin used in relation to the warmth of light. What colour light should I consider for rooms such as this in my house?

ASIAN PARSONS SAYS:
The colour of lighting in the home can really enhance the different spaces, and the kelvin (warmth or coolness of the light bulb) should be an essential element in your choices.

Traditionally we use warmer hues of lighting in a bedroom, with the orange tones of incandescent pendant and lamp light sources being prevalent (you would expect to use around 2,200-2,400k here).

However, when the bedroom leads on to a dressing or bathing space, where brighter, fresher lighting is usually required, it is worth spending some time looking at the balance.

It is perhaps best to consider having a second light source with a 'cooler' tone in the bedroom, such as 2,700k (equivalent to British mid-morning). This could be achieved with new energy-efficient LED downlights highlighting art and washing down curtain fabrics, in conjunction with a layer of lamps/wall lights. You could combine the lighting to create either a brighter or softer atmosphere.

Then when you lead through to the dressing space, the main light source could be around 2,700k so you can really see the difference between black and dark blue shirts on those rushed early mornings.

Do consider having a low-level light source or a lamp in this space as well, which could be left on when you aren't using the room. It can create a comforting glow rather than leaving the expanse in darkness.

When designing lighting for the bathroom it is essential to use cooler tones for a feeling of freshness and cleanliness. Depending on

your decorative style, you could consider going as far as 3,000k (a pure white) to give some oomph to this space. Most LED light sources give you the flexibility of choosing your kelvin, so it is essential to see your light source on before purchasing. Again, decorative wall lights using warmer kelvins/hues can be used to soften the atmosphere for a more relaxing evening softness.

"When designing lighting for the bathroom it is essential to use cooler tones for a feeling of freshness and cleanliness"



Jason Orme
The former Editor of HB&R, Jason is an experienced self-builder and is currently renovating a 1960s home.

Q We are planning to add an annexe on our home for my mother-in-law to come and live with us in her later years. Do we need planning permission for this?

JASON ORME SAYS:
Accommodating elderly parents who need support but want to remain self-sufficient calls for creative thinking. An annexe provides the happy mix of independence and proximity required in those situations. In most cases, it will offer a degree of independent living that gives it the feel of the occupier's own space. For most people, a 'granny annexe' would offer a self-contained bedroom and living room, a bathroom and kitchen area, allowing someone to live in it without needing to use the main house at all.

You will need to apply for planning permission to build a habitable annexe in your garden - as outlined in Class E of the Permitted Development guidelines - but wouldn't need to for something like a shed, summerhouse, or a garage. A good way of thinking about it is that if your garden building, of whatever size and shape, is going to be slept in, it needs planning permission. You can find out more from your local authority or planningportal.co.uk.

Most local authorities are likely to refuse annexes that are clearly going to be converted into a separate dwelling - if they have private gardens, or separate access, say. But many local authorities will gladly approve schemes that match their policies. If in doubt, seek advice from a local planning consultant about whether it will pass.

If, for whatever reason, your application is declined, be very careful if you choose to go ahead anyway. If you decide to sell the house in the future, you'll need to be able to prove that the annexe had planning approval. If you then try to retrospectively apply for permission, or claim that it was covered under Permitted Development, you'll find most appeals consistently rule against approval. ➤



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Ian Rock

Chartered surveyor
Ian Rock MRICS is the
author of eight popular
Haynes House Manuals,
and is a director of
Rightsurvey.co.uk.

Q I have a flat felt roof above my kitchen. The fascia boards are rotten and need replacing. Is it possible to just replace the fascia board without damaging the felt roof?

IAN ROCK SAYS:

A A lot of older flat roofs were poorly built and, as a covering, felt has a short lifespan often lasting only 10 to 15 years – not long if you think how long a house will typically be standing for. If your felt is much older than this then it's probably sensible to have it replaced at the same time as the fascias. While you're at it, it's usually worth improving the insulation, ideally with a new layer of rigid boards laid on top of the exposed deck over a vapour barrier (plastic sheet) before re-felting.

“It's usually worth improving the insulation, ideally with a new layer of rigid boards on top of the exposed deck and vapour barrier before re-felting”

If, however, the felt is in reasonable shape then it depends whether the fascias are fixed over the edges of the roof so the felt is lapped down behind them, which is standard practice. If so, it may be possible to cut (or ideally unscrew) the fixings without damaging the edges of the felt and replace them in PVCu or new treated timber.

If conversely the felt is lapped down over the fascias then trying to extract clout nails or peel off glued edges is very likely to damage the felt. This is one of those things that needs a closer look before giving a definitive answer, I'm afraid.



Harman Singh

Harman is a
designer at
Grand Kitchens
of Birmingham
(grand-kitchens.
co.uk)

Q I'm extending my home to create a new kitchen diner, but I'm struggling to plan the kitchen with so many ideas bouncing around. What fundamentals should I bear in mind?

HARMAN SINGH SAYS:

A The first thing to consider before you start sketching that dream kitchen is setting a budget. Decide how much you want to spend, or give yourself a price range to work with. Then, as you make decisions about appliances, what kind of worktops to install and what type of flooring to use, keep that budget in mind.

Make a list of the things your previous kitchen lacked, or the things you didn't like about it. This list can help you understand what you want to avoid while planning your new kitchen. Everyone uses their kitchen differently, too. Some people spend a lot of time cooking elaborate meals while others use it

as more of a gathering space for family dinners. Some people love to entertain and invite their guests into the kitchen complete with a dining space, while others use it purely as a cooking and storage area. This will inform your decisions on design – referring to your list of things to avoid and knowing how to use the space will determine what you do and don't need. Refer to the kitchen 'work triangle' too. This is the position of your fridge, sink and oven that should form a triangle shape for the most effective work flow. This arrangement makes it easier to cook in your kitchen because you can easily move between appliances as you prepare meals and work in the kitchen. You may want lots of worktop space including an island; however, if you're limited on space and have a galley or U-shaped kitchen perhaps you might need to factor in additional storage so your available worktop space isn't taken up by appliances and so on.

Finally, try to tie it in with the rest of your home. It's okay for your new kitchen to look fresh and updated, but the idea is to make sure the new space fits in with the rest of your home. Use colours, textures and styles that complement other areas of the house so that there is a natural flow between the kitchen and adjoining rooms. **H**



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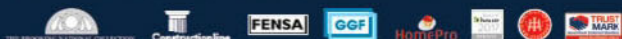
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Teversal Barns Project

Adrian Smith Builders chose Marley Eternit's Lincoln interlocking pantiles for their curves and rustic charm, as well as their ease of installation.

RUSTIC CHARM IN RED

Marley Eternit's Lincoln interlocking pantiles have been used on this conversion to achieve the traditional pantile aesthetic required by local planning



Set in the historic village of Teversal in Nottinghamshire, Dovecote and Teversal Barns is situated within a conservation area, with many listed buildings dating back as far as the 12th century. As a result, traditional red clay pantiles are an important part of the local vernacular, and they are often required for planning approval.

Although the original pantiles were retained when the barns were converted to residential use, over time the historic roofs had fallen into disrepair and Adrian Smith Builders was appointed to complete a full roof refurbishment on both of the barns. With a roof structure that was far from flat, Adrian Smith recommended a new type of pantile that would be easier to install, but still give the traditional curved rustic aesthetic dictated by planning. As a result, the Lincoln interlocking pantile in Rustic Red was chosen for the project.

Adrian Smith explains: "Teversal is in a conservation area, so roofs are either Welsh slate or traditional red pantiles. However, traditional pantiles are really cumbersome to install, so the Lincoln is a welcome alternative and one we would definitely

use again. We couldn't believe how much quicker and easier to install the tiles were, yet the finished roof still has the beautiful curves and rustic charm of a traditional pantile roof. As the barns are so old, the roofs aren't completely straight but the interlocking tiles followed the shape and contours seamlessly."

The Lincoln interlocking pantile has a completely open gauge that can be adjusted on the roof, providing flexibility without the need for complicated setting out or specialist skills. The back of the tile has been designed to avoid rocking during installation and the deep nibs provide a secure fit. As simple to install as a concrete roof tile, the Lincoln can be used at a minimum roof pitch of just 17.5°.

Compatible with Marley Eternit's Universal Dry Fix systems and Mortar Hip and Ridge fixing kits, the pantiles can also be installed with the manufacturer's one-piece tile clip, SoloFix, saving up to 30% roof clipping time compared to traditional clip fixing. For more information about the Lincoln clay pantile, or to order samples, visit marleyeternit.co.uk/lincoln or call 01283 722588. **H**

Reclaimed Finish

The Lincoln tile is available in Rustic Red, specified for this project, and Natural Red. Both options are available with a wide range of fittings. The Rustic Red creates a premium reclaimed finish suitable for use on properties required to match the local vernacular or subject to local planning conditions. The Natural Red has a smooth, more uniform appearance with clean lines.



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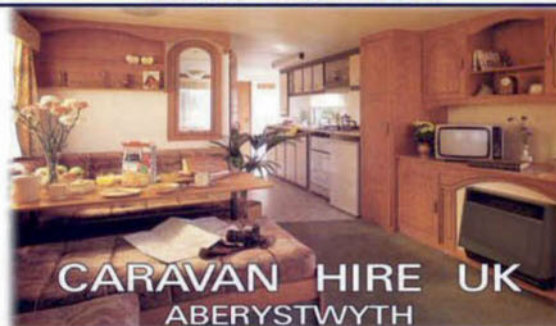
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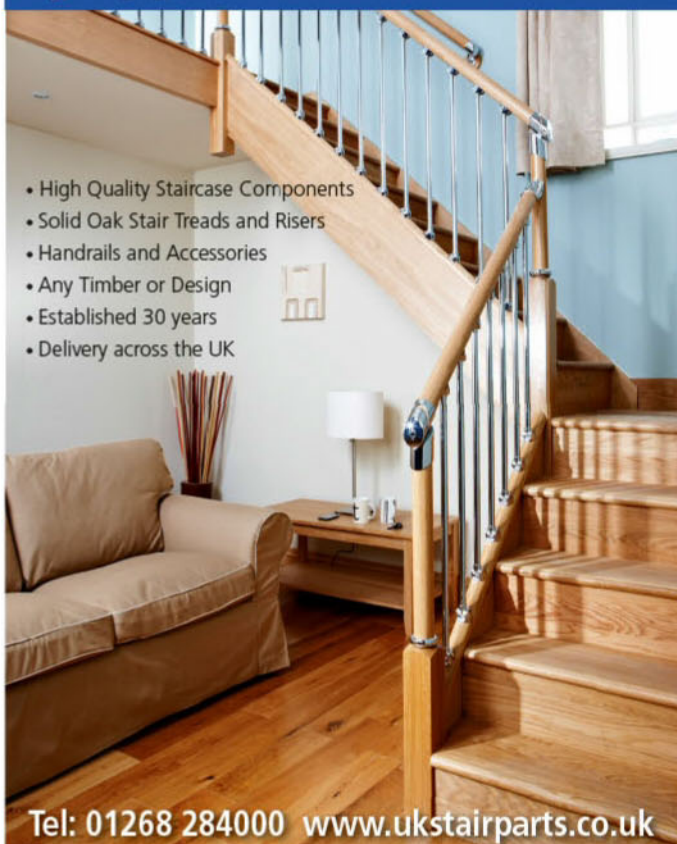


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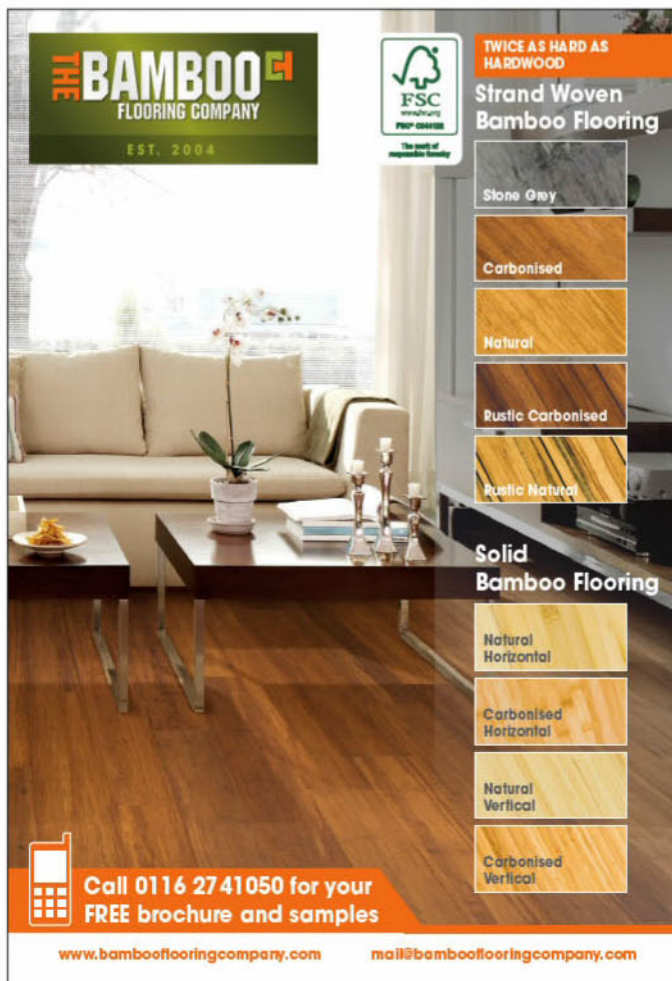
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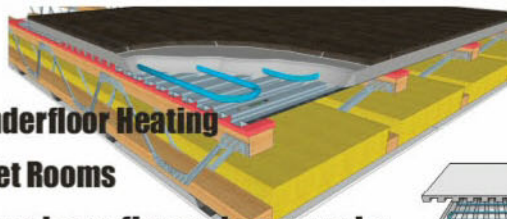
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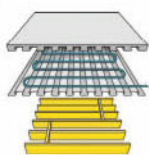
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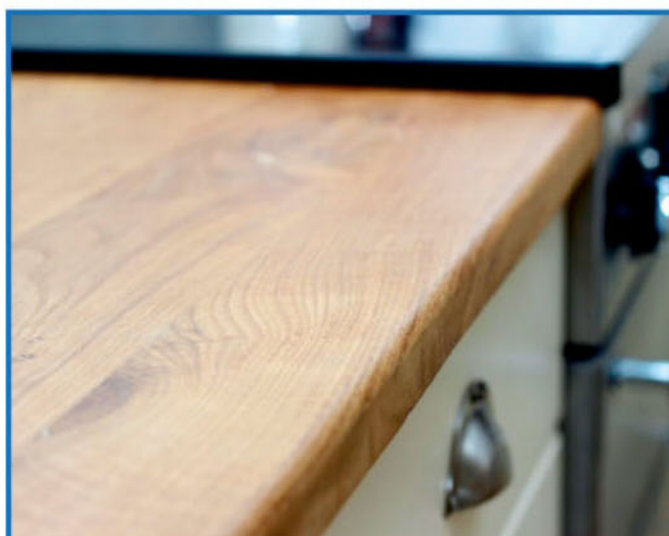
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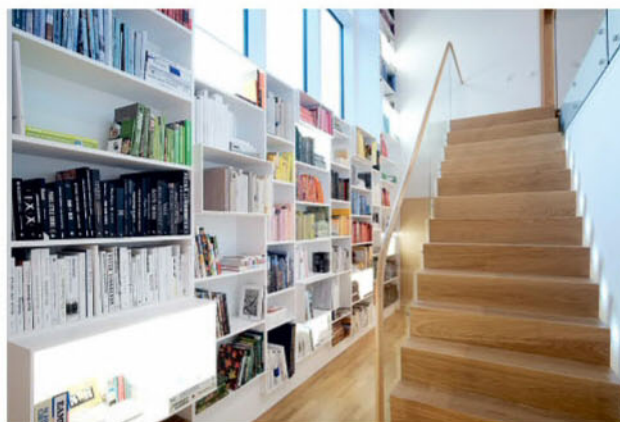
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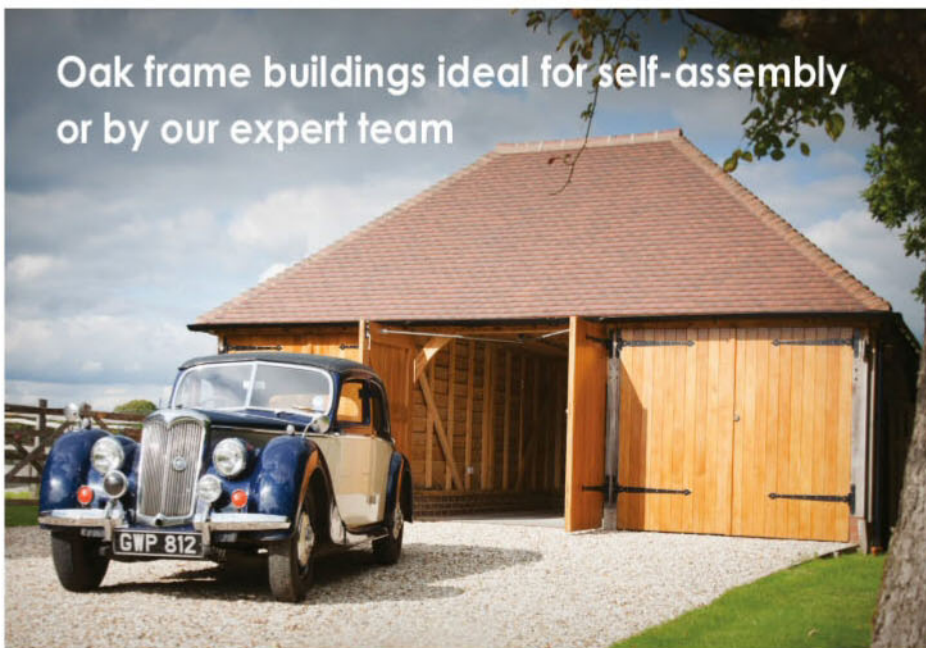
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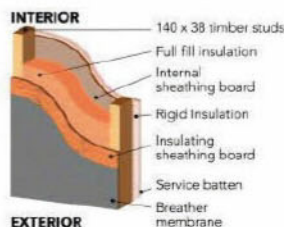
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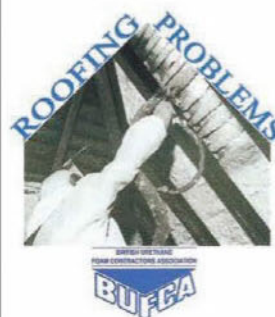
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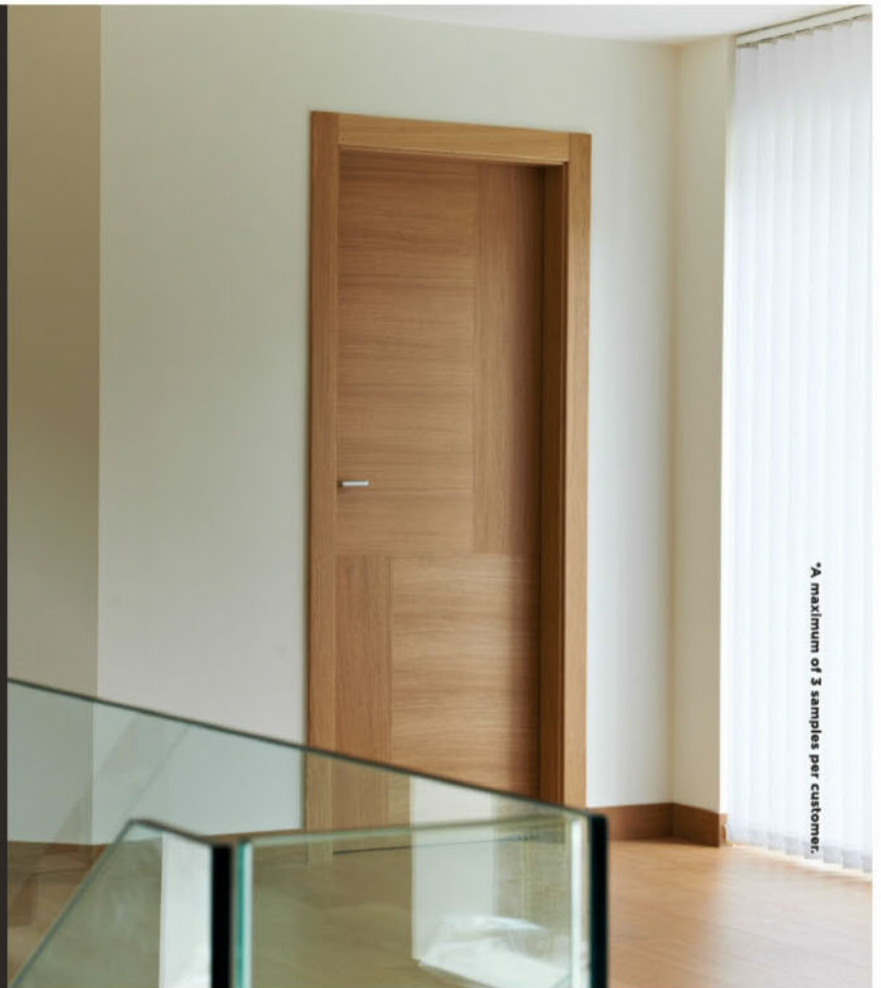
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TALKING POINT



The Kitchen Pod

Architect Ewald Van Der Straeten of practice Bradley Van Der Straeten explains how he created a kitchen pod in his London home

When we moved into the maisonette, which sits on the fourth and fifth floor of a building, the place was made up of a series of rooms feeding into one another and was very boxy. We liked the idea of an open plan space. However, there was a service shaft running up through the building, cutting into the room, so we had to come up with a solution that worked around this.

The concept of the 'kitchen pod' came about after visiting a gallery up north where an installation was faced in one material with a separate material and colour concealed beneath — almost like taking an apple and carving it to reveal a different texture within. To recreate this, we chose a simple palette of three materials: MDF, plyboo and stainless steel. Grey-coloured MDF, which was chosen for its waterproof properties and for being easy to work with, clads the exterior of the pod. (To add interest and hide the radiators within the service duct, the grey MDF features punctured holes to allow heat to escape.) A hybrid of caramelised bamboo and plywood, called 'plyboo', has been used internally for the ceiling, kitchen wall units and floor, so that all three read as one — the material is incredibly strong as well as sustainable. Finally, stainless steel has been used for the kitchen handles.



Cladding

In Ewald's home, 'plyboo' (LEFT) — a hybrid of caramelised bamboo and plywood — has been used to clad the ceiling, walls and floors. MDF clads the exterior of the 'kitchen pod' and has been used for its strength, and waterproof and sustainable properties.

Before introducing the 'pod', the kitchen was a small separate room, which for people who love to socialise and entertain, felt quite isolated from the rest of the living space. The low units with a large open picture window allows the kitchen pod to feel like part of the open plan space, yet helps to zone the cooking section from the living area. While the open nature of the kitchen pod has its social benefits, you need to consider fire safety if you decide to install one yourself. Here, the living room door — which effectively closes off the living area and kitchen from the rest of the house — is a fire door and has been lined with intumescent strips in order to be signed off by Building Regulations.

On projects short on space (and perhaps budget) you need to plan where everything will go early on and be disciplined when working out the minimum you need in your kitchen. If you can't extend then you have to work with the space you have. Here, every inch of space has been maximised, and it paid to have a carpenter who could make the finished result look as bespoke as possible. **H**

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