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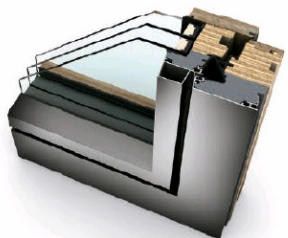
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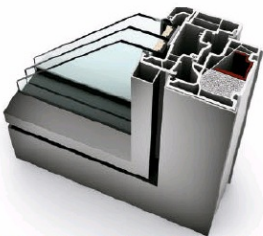
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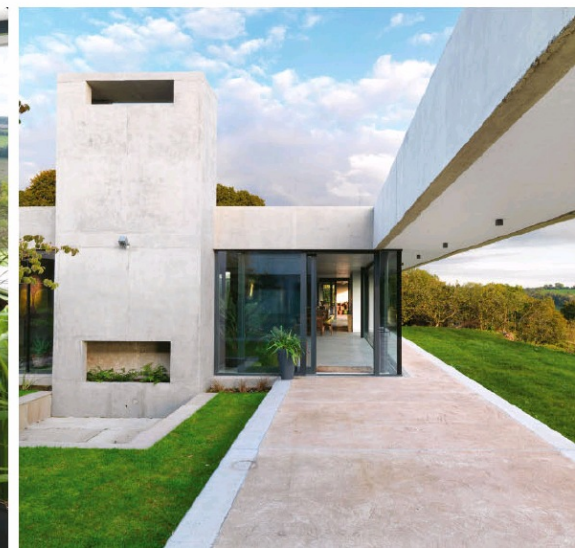
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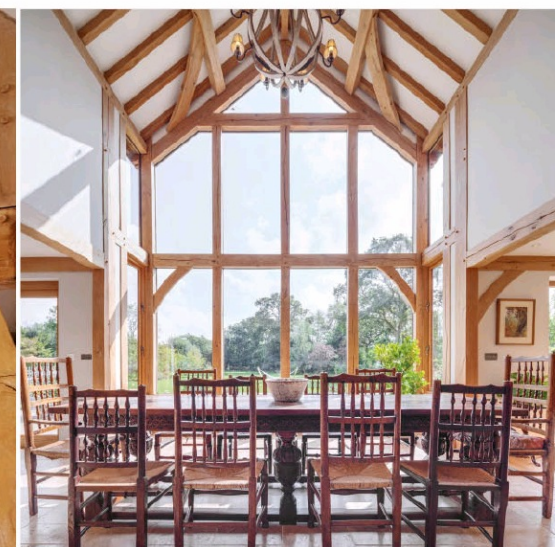
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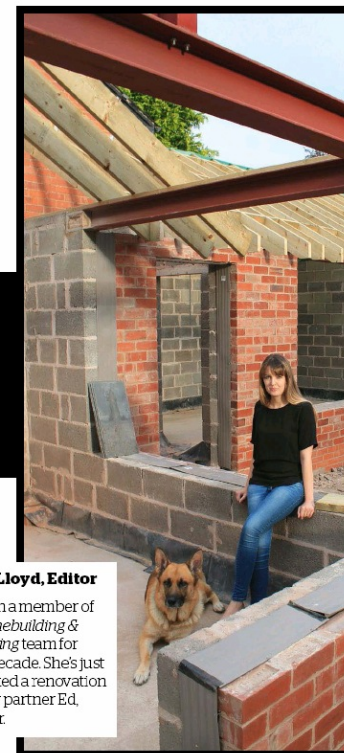
EDITOR'S LETTER

June 2018

Regardless of the scale of your project – from planning a new bathroom to building a new home – or budget, one of the main aims of this magazine is to help build your knowledge and confidence when taking on a project – and in doing so, to hopefully help make the journey a little smoother. (Let's be honest here, while the end result is almost invariably worth it, even on the most well-oiled builds there may still be countless decisions to be made, dust and upheaval to contend with, unexpected costs which eat into your contingency, and precious few moments for downtime – hobbies, what hobbies?)

With this in mind, each month we follow a group of experts 'on site' – including TV presenter and designer Charlie Luxton – as they embark on their own projects (page 91). They share the reality of living through a build while also passing on their lessons learnt and professional advice. We follow one reader's build each issue, too. If you'd like to share your experience of being on site, we'd love to hear from you (homebuilding@futurenet.com).

This month, we're also launching The Daily Telegraph Homebuilding & Renovating Awards for 2018 (page 22), which celebrate the best self-build, conversion, extension and renovation projects across the UK. There are 10 categories to enter and the Overall Winner will win £1,000. You have until 25 May to enter. Good luck! 



Claire Lloyd, Editor

has been a member of the *Homebuilding & Renovating* team for over a decade. She's just completed a renovation 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 what you really need to know before extending your home (page 144).



Allison Wall is *Homebuilding & Renovating's* Chief Sub Editor. At the moment, she's renovating a 1970s house in north Worcestershire.

IMAGES: ROBERT MATTYCHES

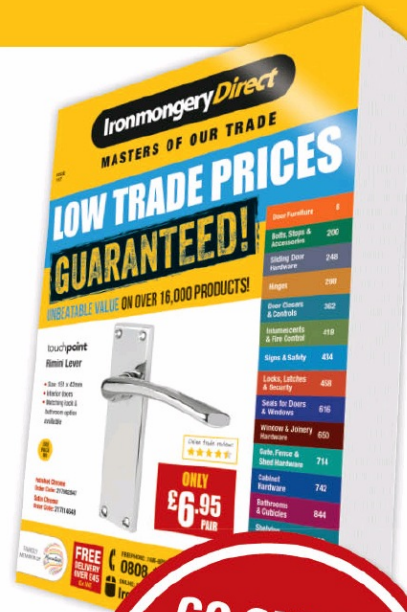
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THE EXPERTS

June 2018



Sally Tagg
Planning consultant Sally Tagg is MD of Foxley Tagg Ltd. She also advises the Ministry of Housing, 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 has just finished 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. He also presents a radio show on *Fix Radio*.



Ken Dijkstra
Ken, a former planning officer, is a planning consultant and owner of Dijkstra Planning LLP. He is also the author of *The Planning Game*.



Allan Cortfield
Allan runs Allan Cortfield 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*.



Neil Mohr
Neil is a technology expert and is the editor of *Linux Format* magazine. Read his piece on the latest smart home options for every budget on page 133.



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 about his own self-build project on page 93.



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. Read his green news column on page 21.

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Homebuilding & RENOVATING SHOW

Meet the Experts in Person

Want a free 15-minute consultation with one of our experts (on page 13)? Meet them at The Advice Centre at the Surrey Homebuilding & Renovating Show, from 30 June to 1 July 2018, and London Homebuilding & Renovating Show, from 21 to 23 September 2018.*

homebuildingshow.co.uk

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The trend for parquet flooring, laid in herringbone and chevron patterns, in period and contemporary projects alike, is set to stay in 2018, if the new collections from flooring companies are anything to go by. Pictured (ABOVE) is the Neutro 45° Chevron engineered oak wood flooring, which costs £69.54/m² from Havwoods (havwoods.co.uk).

Boost for Barn Converters

Self-builders in rural areas will be given more options to convert agricultural buildings into family homes, as a result of changes to Permitted Development rights that came into force in April this year.

The changes mean that up to five new homes, each no larger than 100m², can be created from existing agricultural buildings on a farm, rather than the three previously allowed. The changes also allow:

- up to three larger homes with a maximum size of 165m²
- a mix of both sizes, up to five houses, of which no more than three can be larger homes.

The government is also giving applicants an extra year to convert further agricultural storage and distribution buildings into new homes.

Council First for Self-build Mortgages

Self-builders wanting to buy a home at Graven Hill in Bicester, the UK's largest self and custom build site, can apply for an accessible mortgage under a pilot scheme launched by Cherwell District Council (cherwell.gov.uk). Under the scheme, believed to be a UK first, the council will indemnify up to 20% of each mortgage.

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Vive La Renovation

If you've ever harboured an ambition to take on a renovation on the other side of the English Channel, things could be set to become easier with the launch of a new lottery, set to breathe new life into a French funding programme that supports owners renovating historic French properties.

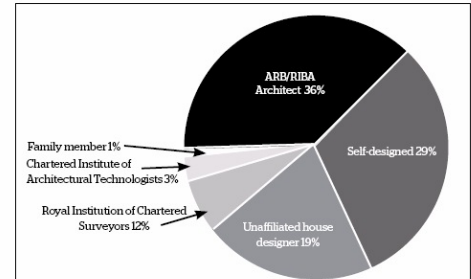
Agreed in February, the new French Heritage Lotto will fund grants to those helping to preserve France's architectural heritage.

British buyers are by far the keenest to undertake renovation works to a property. Sixty five per cent of them are willing to do work beyond simple redecorating such as putting in a new kitchen or bathroom, according to French property website FrenchEntree (frenchentree.com).

For those looking for additional accommodation with a property, such as a gîte, the majority (55%) are willing to do restoration or conversion work, while 30% of British people enquiring about a châteaux are not shy about taking on a 'labour of love'.

"The new lottery funding is set to drive up interest in restoring France's historic ruins, building a national campaign to preserve France's grand architectural past. As a result, we're expecting a significant rise in interest in French ruins and homes in need of restoration over the coming months," says Fleur Buckley, property services manager at FrenchEntree.

Pictured ABOVE and RIGHT is a ruined château in Normandy, which is on the market for €270,000.



HOW SELF-BUILDERS DESIGN THEIR HOME

According to new research*, almost one-third of self-builders design their own homes without the help of a design professional – and those that go it alone are far more likely to build a traditional-style home and to manage their own project than other self-builders. What's more, self-designers also build bigger homes than other self-builders, while spending the smallest amount per m².



QUOTE OF THE ISSUE:

"I'm the restaurateur and the architect is the chef. As the restaurateur I have to think about the ultimate use of the project."

Roger Zogolovitch on building a home, page 79




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 End of terrace plot with two parking spaces, available freehold.



Long Lane, Barnet: 0.10 acres
 Rectangular end of terrace plot with vegetation, available freehold.

NEWS

June 2018

Plots Open up for London Self-builders

Pockets of unused public sector land in London are set to be freed up for small-scale housebuilding, under a Mayor of London initiative to encourage more homes to be built in the capital. As part of the scheme, self and custom builders are being encouraged to submit proposals for some of the smallest sites available in the city (see LEFT).

Already, 10 new Transport for London sites in the capital have been earmarked for small builders, with two of the sites aimed at community-led housing groups.

For more information, visit london.gov.uk/what-we-do/housing-and-land/land-and-developments.small-sites. Government property. Public sector land available nationally can be found at the Government Property Finder epims.orgc.gov.uk/government-property-finder.

GREEN NEWS

Combined Heat & Power Boilers: The Future?



David Hilton

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

Large combined heat and power (CHP), or Cogeneration, units use hydrogen fuel cell technology to generate heat and electricity at the same time. They've been around for a while but the cost and design details have been hard to justify in self-build and renovation projects. But that could be set to change in the coming years.

In Europe, a major initiative, aimed at ensuring the European residential micro CHP sector moves to mass market, is underway: the PACE project (Pathway to a Competitive European Fuel cell micro-Cogeneration market). The project will deploy over 2,500

micro CHP units in 11 European countries by 2021. Previous grant schemes have seen over 1,500 units installed in Germany and over 200,000 units in Japan.

Viessmann is part of a consortium of manufacturers participating in the PACE project, and together with Panasonic, they have developed the world's first mass-produced fuel cell boiler, the Vitocal 300-P, which, the manufacturers claim, is as affordable as a heat pump. PACE grants and incentives have allowed manufacturers to lower retail costs by up to 45%, which will help to eliminate the early adopter financial penalty.

The Viessmann Vitocal 300-P has a PEM (polymer electrolyte membrane) fuel cell, which converts gas to hydrogen for its energy source. The unit also has a peak load boiler and hot water cylinder all neatly packaged into a single visual unit (shown ABOVE). The electric generator produces up to around 15kWh of electricity per day, which owners can



use in their homes. Homeowners can also claim the relevant Feed-in Tariff payment, as the unit is also Micro-generation Certification Scheme (MCS) certified.

The Vitocal 300-P unit has a constant thermal output of 1kW per hour, which is enough to meet the heat demand of the average modern two-to-three-bed family home because the unit is designed to run for around 20 hours per day. There is also a built-in gas condensing boiler for times of higher demand in the home.

Indications are that the mid to long-term future of heating in the UK will be significantly based on hydrogen, and fuel cell technology will certainly complement that further. I certainly expect to see a lot more of this type of product in the next few years. **6**

The Daily Telegraph Homebuilding & RENOVATING AWARDS 2018

Enter The Daily Telegraph Homebuilding & Renovating Awards 2018

We'd love to see your finished project in Britain's premier awards scheme for self-builders and renovators

Have you recently completed a self-build, renovation, remodelling, conversion or extension project? If so, we'd love to hear from you, as we launch The Daily Telegraph Homebuilding & Renovating Awards for 2018. For over two decades, our Awards scheme has sought out Britain's top projects.

This is the perfect opportunity to showcase your new home, as well as showing others starting out what they can achieve. You'll also gain recognition for your designers, builders and suppliers into the bargain.

The 10 categories (on page 25) highlight the broad range of projects we're keen to see — from simple, well-designed extensions to barn conversions, eco homes and self-builds of any style or size.

Entering your project takes 10 minutes and best of all, it's free. We can't wait to see the photos and hear all about your project. Good luck! **H**



Winning Ideas

Charles Denton (right) and his wife Pennie won last year's World's Most Amazing Home category, while Adam and Billi Street won Best Custom Build for their scheme in London (below left).



HOW TO ENTER YOUR PROJECT

Entering your project in this year's Awards is free — and easy to do. Here's how:

- Complete the online entry form at homebuilding.co.uk/awards and upload your floorplans and photographs. (We need to see at least one photograph of the exterior of your home, and a handful of the main interior spaces.)
- Or, print off the online entry form at homebuilding.co.uk/awards, or use the form on page 27, and send it to The Daily Telegraph Homebuilding & Renovating Awards, 2 Sugar Brook Court, Aston Road, Bromsgrove, B60 3EX, along with photographs and floorplans.
- The deadline for online and postal entries is 25 May 2018.
- Shortlisted projects will be visited in person. (You must allow for you and your home to be photographed and appear in the magazine and online. Some winners will also gain coverage in *The Daily Telegraph*.)
- Your home needs to be finished (or very near completion) in order to qualify for the competition.

Last Year's Overall Winner

Clare Williamson and Oscar Baldry (below) converted and extended a derelict newsagents in Shropshire — creating a truly energy-efficient and characterful home for just £35,000.



TOP PRIZE

This year's Overall Winner — chosen from the 10 category winners — will win a cash prize of £1,000.

CATEGORIES

- BEST CONTEMPORARY-STYLE SELF-BUILD
- BEST TRADITIONAL-STYLE SELF-BUILD
- BEST EXTENSION
- BEST RENOVATION
- BEST CONVERSION
- BEST GREEN HOME
- BEST CUSTOM BUILD
- BEST INTERNATIONAL HOME
- SPIRIT OF SELF-BUILD
- BEST SELF-BUILD STARTER HOME



THE JUDGES



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



Darren Bray is an architect with award-winning PAD Studio in Hampshire. He also lectures at the University of Reading's new School of Architecture.



Jason Orme is the Editorial Director of Homebuilding & Renovating and an experienced self-builder. He has just finished extending and remodelling his family home.



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.



Neil Turner is an architect and director at Howard Litchfield Partnership, and specialises in residential design.

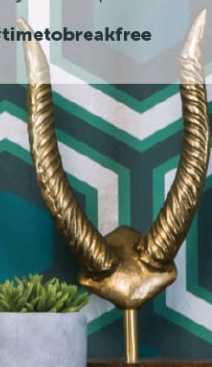


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THE CATEGORIES

BEST CONTEMPORARY -STYLE SELF-BUILD

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BEST TRADITIONAL -STYLE SELF-BUILD

Is your home built in a period style, perhaps using natural materials and demonstrating fine craftsmanship?



Sponsored by Clearview From the heart of Shropshire, Clearview Stoves has been designing and manufacturing exceptional woodburning stoves since 1987. Our stoves are a joy to use, clean-burning and easy to maintain with a wonderful view of dancing flames behind crystal clear glass. Our unique design provides excellent controllability and are so efficient, frequent cleaning is unnecessary.

BEST CUSTOM BUILD

This category is open to custom build schemes that have been built or are in the process of being built.



Sponsored by Hanse Haus Hanse Haus is a premium supplier of turnkey, pre-manufactured, high-efficiency homes. Founded in 1929, it now erects some 400 homes annually Europe-wide and has been active in the UK since 2006. Hanse Haus offers bespoke, timber-frame homes and is a certified builder of the remarkable Passivhaus.

BEST GREEN HOMES

We are seeking self-builds built to the very highest sustainable standards.



Sponsored by Plotfinder.net The UK's leading land and renovating finding service from Homebuilding & Renovating, with access to more than 17,000 plots and renovation opportunities. The online service also includes email alerts based on a subscriber's search criteria, and free tickets to Homebuilding & Renovating Shows worth up to £192.

BEST RENOVATION

Has a previously unloved home been saved through restoration, or imaginatively remodelled and/or renovated?



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BEST CONVERSION

A category for the very best homes created from barns, schools, churches and other buildings not originally built as homes.



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SPIRIT OF SELF-BUILD

Does your project embody the pioneering spirit of self-build? Perhaps it's a home delivered against all the odds, or one that represents exceptional value for money, or a new home that has significantly improved the lives of its occupants.



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BEST INTERNATIONAL HOUSE

Judges are looking for the very best self-build or renovation project across the globe (including the UK).



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BEST EXTENSION

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ENTRY FORM

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The Daily Telegraph Homebuilding & Renovating Awards, 2 Sugar Brook Court, Aston Road, Bromsgrove, B60 3EX.
THE DEADLINE FOR ENTRIES IS 25 MAY 2018. You may use a photocopy of this form. Your project must be completed by the time judging takes place at the end of May, and should have been completed within the past three years. By entering, you agree to potential publicity in *The Daily Telegraph* and *Homebuilding & Renovating* magazine.

NAME OF ENTRANT

ADDRESS

EMAIL TEL. NO:

NUMBER IN FAMILY AND AGES

Size of property (internal area) in m². Please provide the area of any garages separately. Please also state the number of bedrooms and the number of storeys:

Which best describes your property? (please tick):

- ☐ New build
- ☐ Conversion
- ☐ Remodel and/or renovation of an existing house
- ☐ Extension of an existing house

Which category/ies are you entering? (please tick):

- ☐ Best contemporary-style self-build
- ☐ Best traditional-style self-build
- ☐ Best extension
- ☐ Best renovation
- ☐ Best conversion
- ☐ Best custom build
- ☐ Best green home
- ☐ Best international home
- ☐ Spirit of self-build
- ☐ Best self-build starter home

Name of the owner and address of property (if different from above):

Date when work commenced:

Date occupied/completed:

What was the cost of the building plot/house?
(please provide an estimate if already owned)

What was the cost of the project?

What is the current/estimated value of the property?

Please provide the name of the designer or architect:
(if applicable)

What makes your project special?
(you may provide additional information to support your entry)

If your project is shortlisted we will contact you and may request further information. The initial round of judging is based entirely on the details on this form, and more importantly, the images of the outside and inside of your house that you provide with your entry.

These images do not need to be of professional quality but in order to portray your home in the best way these should be comprehensive and, if possible, taken on a bright day with a well-lit interior.

Rules of entry: 1. The competition is open free of charge to anyone aged over 18 (including architectural practices) except for employees of The Telegraph plc and Future Publishing and their families. 2. The closing date for entries is 25 May 2018. 3. Responsibility cannot be accepted for entries lost, damaged or delayed in transit. 4. Photocopied entry forms will be accepted. 5. No cash alternatives will be offered in lieu of prizes that may be offered. 6. We cannot guarantee the return of entries including drawings and photographs. 7. Details of entrants and their projects (not including specific location details) may be published in The Daily Telegraph and Homebuilding and Renovating in print and online at the discretion of the editors and may be used in publicity material (including publicity material used by the sponsor). 8. The judges' decision will be final and unchallengeable. No correspondence will be entered into. 9. The judges reserve the right not to award winners in any category if entries do not reach the required standard. 10. Unsuccessful entrants may not necessarily be contacted or have their entry returned. 11. In addition to these rules, standard Telegraph rules apply and are available on request from: The Daily Telegraph, 111 Buckingham Palace Road, London SW1W 0DT. 12. You are advised to keep a photocopy of this form for your own information.

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☐ I agree to be bound by the rules of entry. Signed Date



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OPINION

June 2018

Isn't it Time We Turned Our Backs on Developer Homes?

With stories in the press of developer homes proving unfit for purpose, why, asks architect Paul Testa, aren't more of us self-building?



This piece was formulated on a recent train journey — as we sped towards the destination, I'd seen yet another depressing large housebuilder development loom on the horizon. The houses out of the window looked mean-spirited with tiny windows and no acknowledgement of orientation or context. The 'place' they inhabited was un-designed and clearly unloved.

The laws regarding the sale of land enable the stranglehold that the large housebuilders have on the market. Land intended for housing can be sold at the value of 'hope' — its value should it become housing — rather than its current use value. This keeps the housebuilders in control and also goes a long way to explain such high prices to the consumer.

I read recently that housing can be described as 'part commodity, part product'. The obsession in this country with house prices and with eking maximum profit out of plots of land suggests the commodity aspect is alive and kicking.

However, the development of the product itself has been left behind. No other product so central to our comfort, health and wellbeing has seen so little development, innovation or even refinement over the last 50 years than the developer home.

The UK housing market behaves so differently to almost any other; whereas elsewhere we're savvy consumers looking out for the best new phone, television or car, the new housing market leaves us with little choice and therefore, it appears, little aspiration beyond what the housebuilders churn out year in, year out.

Building Regulations haven't driven innovation either in this market. They are, of course, the minimum standards we should be building to, and they aren't moving quickly enough to push change — certainly when it comes to comfort and health. They must be better and get there quicker than the current rate of change. But when internet speed is a higher priority than energy performance among homebuyers, perhaps consumers aren't so bothered either?

You would think the quality of delivery and build would have been slowly improving year on year as housebuilders

perfect this basic product that has innovated — and therefore changed — at a glacial pace. This appears to be the opposite of reality, with repeated stories in the press of poor build quality and serious faults rendering some new homes unfit for habitation or sometimes plainly unsafe.

This all begs the question: why don't more people self-build? The biggest obstacle we come across time and time again is land. This goes back to the earlier issues with housing as commodity. Land suitable for housing is so expensive and those single plots that do become available, particularly in cities and towns, are often as expensive as land with an existing house on them.

This is why we end up looking at so many green belt homes where clients are hoping beyond hope that they can turn their low cost piece of land into somewhere they can eventually build a home. If land was less of a barrier, the

other perceived risks of self-build would be less onerous and I think we'd see many more self-builders.

The biggest thing that could be done to increase self-build take up is a change to the law on land sales. Even giving local authorities the powers to purchase land at current use rates would ensure a supply of lower cost housing land into the

market. This could be used to increase the rate of council house building but could also be released to self-builders at a more reasonable rate. This diversification of the market might even encourage housebuilders to up their own game.

Architects also have more of a role to play than they, perhaps, acknowledge. Self-build is generally seen as requiring high-end, bespoke design, but what if we started to develop simple, energy-efficient, customisable and highly refined house types that potential clients could access at a reasonable cost and could build easily and with minimal risk. How might this change the housebuilding landscape? 

Paul Testa

Paul Testa is an architect and university lecturer. He is an advocate of low energy design and the Passivhaus standard.

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PORTFOLIO

June 2018

Whatever your plans, take inspiration from these readers' homes



IMAGE: SIMON MAXWELL

- 32** A charming oak frame self-build
- 44** A radical extension and remodel in the Cotswolds
- 58** A new timber frame home in the style of a barn conversion
- 68** A listed terraced house transformed for modern living
- 79** A striking coastal home
- 88** A bungalow transformed into a two-storey, New England-style home

GOOD NEIGHBOURS

Jo and John Hawes' journey to build a high-spec, low-maintenance home in their former garden led them to building on an adjacent plot and renovating a listed property too

The Rear Elevation

The south-facing rear elevation has been designed to maximise views of the garden, and fields and the Black Mountains beyond. 'While the front elevation is quietly vernacular, in proportion, scale, mass and detail - a requisite of such a sensitive location in a conservation area surrounded by listed properties - the rear elevation has taken on a more contemporary appearance,' says Merry Albright of Border Oak, which built the superstructure. 'The stepped rear gable not only reinvents the concept of a traditional overhanging jetty but also includes a first floor balcony and extensive floor-to-ceiling glazing.'

The homeowners

Jo and John Hawes

Project Traditional-style oak frame self-build

Location Herefordshire

Size 200m²

Build time Nine months (this house only; six years for the entire project)

Plot cost Already owned

Build cost Approx £430,000

Value £630,000-£700,000

When Jo and John Hawes decided to self-build they took on a building project of Herculean proportions. Not only did they build their own home but they also built the house on the adjacent plot — following the complete renovation of a near-derelict, Grade II-listed property, which stands to the front of this site.

It would be easy to assume that the couple had turned their hand to property development, but this large-scale project was instead a necessary means of securing their ideal plot in a historic Herefordshire village. The piece of land in question once formed part of the one-acre garden to their former home, a six-bed property in which they had lived for over two decades with their children and Jo's mother. However, the listed, 17th-century house had grown too large for the couple and required, like most homes of its age, constant upkeep and maintenance. And so the idea of downsizing in a location they loved — on a village high street but adjacent to open countryside — greatly appealed.

There was a major stumbling block, however — access. Their driveway was sandwiched between their home and the neighbouring property, making visibility limited. In order to make this piece of land a viable building plot they needed to secure a right of way along their neighbour's driveway and across their garden.

Here lay the crux of the matter. Their neighbour had successfully obtained permission for a new house on their own rear garden. When the idea was floated for re-applying for several houses, the Hawes were faced with a big decision — to move on, given the scale of the potential develop-

ment proposed and their dwindling hope of securing access, or to buy the neighbouring listed house, which was in desperate need of restoration, together with the new plot, and then unlock the potential in their own garden in the process. "Our hand was rather forced," says Jo.

A Considered Design Scheme

Given the scale of the project, and the complexity of applying for another home within the curtilage of a listed property in a conservation area, the couple enlisted the aid of oak frame specialist Border Oak to prepare their plans. "Oak frame was a natural choice in this location — we're on the 'black and white trail' in this part of Herefordshire," adds Jo.

Preparing their planning application was a rather lengthy process. "It involved all manner of surveys — a bat survey, flood risk assessment, arboricultural impact assessment...", says Jo. "We had to map and identify every tree and shrub in our existing garden, for instance," adds John, an artist, who sketched each plant as part of the process. (A number of trees were subsequently retained and protected during the build.)

When it came to the design, the couple had strong ideas of what they wanted: their new home would be traditional in appearance, complementing the listed homes to the front, but low maintenance, with light, modern interiors. The resulting design takes the form of a traditional Herefordshire farmhouse which has evolved over time, clad in stone with an exposed oak frame gable. Their application also included revised plans for the adjacent plot; the exterior would instead resemble a weatherboarded barn (and take its cue from an adjacent barn on neighbouring land). And so the narrative of the site was created.

The new homes, constructed in oak frame and SIPs (structural insulated panels), would both be sited a good distance from the listed properties to the front, but still sit within the settlement boundary and retain generous gardens to the rear.

The application was successful, but one condition imposed was the requirement to restore the listed property before work could get underway on the new homes. ➤

The Front Elevation

The house has been designed to emulate a traditional Herefordshire farmhouse. "The more traditional stone-faced section provides the perfect counterbalance to the oak cross wing — not only in perceived 'weight' and solidity — but also in tone and texture," explains Merry Albright of Border Oak. "The locally quarried stone is already softening and weathering in tandem with the oak frame echoing the surroundings."



Local Resources

In addition to using Herefordshire-based Border Oak – who provided the superstructure for both new properties and took on the extensive renovation to the listed timber frame property – the couple were keen to source local materials and trades where possible. The stone used to clad the exterior, for instance, was quarried from the surrounding hills, while their stonemason, Simon Clark, who laid the “beautiful” and extensive stone walling around the property, lives just a couple of miles away. “Using local companies is not only good for the community but helps with easy communication,” says John.

Jo and John’s local connections also meant they could draw on contacts who’d worked on their previous home: “Martyn Rollings, our plumber ‘extraordinaire’, has done all our plumbing work for the last 28 years,” says Jo.

The couple remained living in their existing home for the duration of the work, allowing them to be on site daily, and to care for Jo’s elderly mother – who sadly passed away just before their new home was completed – in comfort. “We worked on site full-time for six years and managed the paperwork,” says John. “It was a steep learning curve, but worth it in the end,” adds Jo.

One sizeable task the couple took on together was finishing the oak frame. “When the frame is erected and steel touches the oak, it leaves a mark; we sanded back the frame ourselves,” explains John. The couple chose to finish the oak exposed throughout the ground floor with the same hardwax oil used for the engineered oak flooring; upstairs, they used lime wax, in order to create a soft, pared-back look in the bedrooms.

High levels of insulation and airtightness, provided by Border Oak’s SIPs encapsulation system, means their new house provides a much more comfortable living environment than their former. What’s more, underfloor heating (installed on both floors) and hot water is provided by a ground source heat pump; three 83m boreholes were drilled in the garden as part of the installation. “We don’t have gas in the village, so we decided to invest in a ground source heat pump,” says Jo. “It’s proved to be excellent and very efficient.”



One of the key highlights of this new house is the spacious master suite. Not only does this room feature far-reaching views of the countryside and the Black Mountains beyond, but provides a first floor balcony.

“In a way, I’m looking forward to a sick day as an excuse to lie in bed and enjoy those views,” smiles John. Behind the bedroom lies a dressing room and en suite, and above, the couple’s office. The eaves space has been put to good use with built-in storage. “It’s good to finally have a home for all manner of paperwork,” says Jo.

The project did come with a further unexpected benefit – the couple were able to choose their neighbours. In fact, Jo’s sister fell in love with the listed property and went on to buy the property.

While Jo and John admit that a self-build and restoration project of this scale was both lengthy and challenging, they have left quite a legacy in their village. Not only have they added two new properties, which nestle comfortably within this historic location, but restored a long-neglected building so important to its character. **1**

The Side Elevation

Part of the kitchen is housed within a single-storey section, which emulates the appearance of a lean-to extension. A courtyard garden has been created between the house and adjacent garage building (not shown), which houses the plant room and artist John’s studio. The clay roof tiles, windows, oak frame and lime render were provided as part of Border Oak’s package.



The Kitchen

The Mereway kitchen was designed and installed by Classic Kitchens. The modern pastel colour, bank of built-in appliances and white Corian worktops lend a contemporary feel to the traditional in-frame design. The couple admit they were torn between granite and a solid surface when choosing their worktops. They opted for Corian, as they were attracted to the idea that the sink could be moulded from the material. However, they say, they need to be careful not to mark the surface.



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The Living Room

The width of the room means that supporting oak posts dissect the space, but they do lend character. The couple opted for a LPG fire as a low-maintenance solution (no chimney sweeping or log gathering required here); their only disappointment, however, is the imitation logs. Above the fire, a bespoke piece of art which artist John created, cleverly opens to reveal the TV. 'We don't really like having TVs on show,' says Jo.



The Master Suite

The couple lime waxed the oak on the first floor themselves; the wax provides a pared-back finish. The master suite enjoys views over the garden and access to the balcony. This room also features a generous en suite (above), dressing area and office.



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The ground floor plan shows a large Living room on the left, a Dining area at the top right, a Kitchen below the Dining area, a Hall in the center, and a Utility room at the bottom right. The plan includes various architectural details like doors, windows, and built-in furniture.

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Rooflight Trends

While its core offering remains aluminium bi-folding and sliding doors, Alpine Aluminium is seeing a rising demand in its premium rooflight and roof lantern products.



THREE-PART EXTENSION

*Lydia Robinson and Lawrence Grigg have added three
separate extensions in contrasting styles to completely
transform this 1950s Cotswold home*



The Tiled Pavilion

Lydia and Lawrence chose an extra wide tile (tile and a half) to give the extension more curvature and a softer, more natural feel. Over time, they expect the aesthetic qualities of the building to change. "The tiles will weather and all four sides will do this differently. Hopefully you'll start to see the different patinas come out," Lawrence says.



"We tried to take two Cotswold vernacular ideas and combine them in a contemporary way"

When Lydia Robinson first saw the 1950s Arts & Crafts inspired Cotswold home that she and partner Lawrence Grigg would go on to extend and remodel, it was hardly love at first sight.

"It was this tiny two-bed house in the middle of a large plot with an ugly flat-roof garage sitting right in the best part of it," she recalls. "But I could see potential."

The couple had been looking for a home closer to Lydia's parents, and this house, sited on a corner plot in the sought-after village of Chipping Campden – though outside its conservation area – fitted the bill.

Initially Lydia and Lawrence considered knocking the house down and building a replacement dwelling. However, the associated planning risk and the desire to work to an advanced timetable helped them settle on an extensive project that would double the size of the house.

"The build quality of the existing house was really good, even though the position on the plot wasn't quite right," Lydia says.

The scheme, developed by architect Lydia and delivered by project manager Lawrence, involved a complete remodel and reorientation of the two-bed property, which included three extensions: a small front extension to enhance the entrance and create space for a new staircase; a two-storey extension added to the opposite side to create more space on the ground floor and bedrooms above; and a fully tiled contemporary 'pavilion' built to replace the existing garage. This pavilion moves the main social spaces of the house towards the lighter and more private area of the plot.

Once in, Lydia set about gutting the house. "She removed all the practical things, like toilet doors and secondary glazing first," laughs Lawrence, who moved in a month later. The design for the house took just three weeks, with planning approved in February and construction starting in March.

The 'Pavilion' Extension

The tiled pavilion, one of the three extensions, contrasts artfully against the Cotswold stone – and everything else on the street. The idea for a fully tiled extension came from a building that Lydia had seen in nearby Broadway. "The idea is that it



PORTFOLIO

Extension and Remodel

The homeowners

Lydia Robinson and Lawrence Grigg

Location

Chipping Campden, Gloucestershire

Project Extension and remodel

Size 200m²

House cost £505,000

Value £950,000

Build time

Nine months

BEFORE



reads as an outbuilding," Lawrence says. "There's also a lot of hung tile on the façades of outbuildings in this area. We were trying to take these Cotswold vernacular ideas and apply them in a contemporary way."

The resulting pavilion, which houses a large kitchen with breakfast bar, has a hipped roof that features no eaves or guttering (the gutters run along the ground at the perimeter of the building).

Eight different types of tiles were used, all handmade by Keymer (including a couple by Lydia and Lawrence who visited the factory and formed their own tiles while there).

"Ian Matheson, who handmade the tiles, said the transition tiles were more challenging than all the ornate work he's had to do for historical buildings because of the form and the scale of the pieces," comments Lawrence.

The pavilion connects to the main house via a flat roof connector with a full-height slot window. The geometry of the roof is different internally and externally, creating the impression that the full length, full depth cupboards that house the fridge, oven and storage, are sat within the external wall – creating a convincing illusion of space. ➤



The Traditional Extensions

Lydia and Lawrence, through their company Design Storey, are well versed in contemporary extensions, but they also added two matching traditional extensions. "It's the first traditional extension project we've done with a pitched roof and traditional detailing," Lydia admits. "We wanted to replicate the simplicity of the existing form and luckily our stonemason was able to seamlessly join the old and the new. We matched the stone and then added in things like the dormers to give a hint that the extensions weren't part of the original."

Internally the house has been modernised and given a flexible, semi-open plan layout. The main downstairs space comprises a lounge and dining area that opens onto the kitchen. The old kitchen has been converted into a boot room that leads onto what is currently an integral garage, but can be converted into further living space if required. A downstairs toilet and snug have also been created.

Upstairs, the extension, built using structural steel to create the vaulted elements, adds in two new en suite bedrooms, which feature dormers and bespoke triangular windows.

The design is consistent throughout, with cork flooring – inspired by cork tiles found when Lydia stripped the house – used upstairs; and ash, a local wood, featuring

prominently. The original Crittal windows were also retained, though each was taken out, upgraded with double glazing and a powder-coated finish, with two existing windows combined to fill a new window opening on the first floor.

Change of Plans

Soon after work began, the couple bought Mabel's Farmhouse (the renovation is documented on page 99) and moved in while work was still on-going on this house. Luckily the two houses are a short distance apart, and Lawrence was able to be on site to coordinate the trades and ensure the project went smoothly – using his experience to work to an aggressive schedule and with the confidence to design elements of the project in a 'just in time' fashion.

The result is a house that has doubled in size, without overwhelming its plot or appearing out of place among its neighbours – something Lawrence believes can be put down to a simple fact: "Two of the extensions read as being original to the building, leaving the third as a bold and modern statement that appears subservient to the original house," he says. And being so involved in all stages of the fully tiled pavilion has had an unexpected bonus too, according to Lydia: "I now understand a lot more of what happens on the Great Pottery Throwdown!" ¹¹

Cotswold Vernacular

The handmade clay tiles from Keymer are used to allow the pavilion (above) to be read as an outbuilding to the main house. The structure has no eaves or guttering; instead channel drains run along the floor of the extension.

An Extended Kitchen

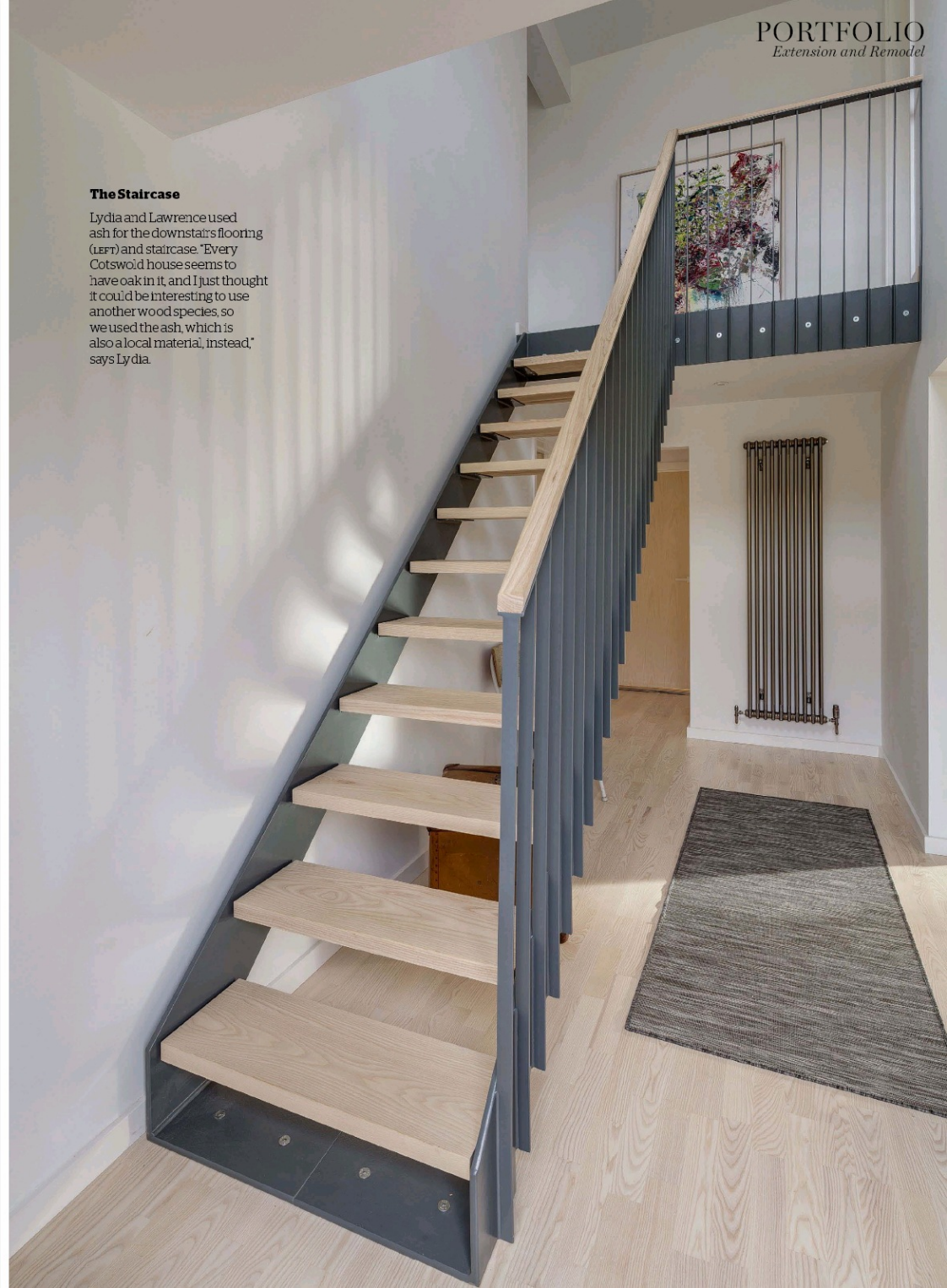
The kitchen is now in the new pavilion extension, with the majority of the glazing on the south side of the structure (top, right) to bring light in and retain privacy away from the road. The old exterior wall of the house is left exposed (right) to zone off the living and kitchen space.





The Staircase

Lydia and Lawrence used ash for the downstairs flooring (left) and staircase. "Every Cotswold house seems to have oak in it, and I just thought it could be interesting to use another wood species, so we used the ash, which is also a local material, instead," says Lydia.



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Dormer Living

The original Crittal windows were upgraded and repurposed in the house.



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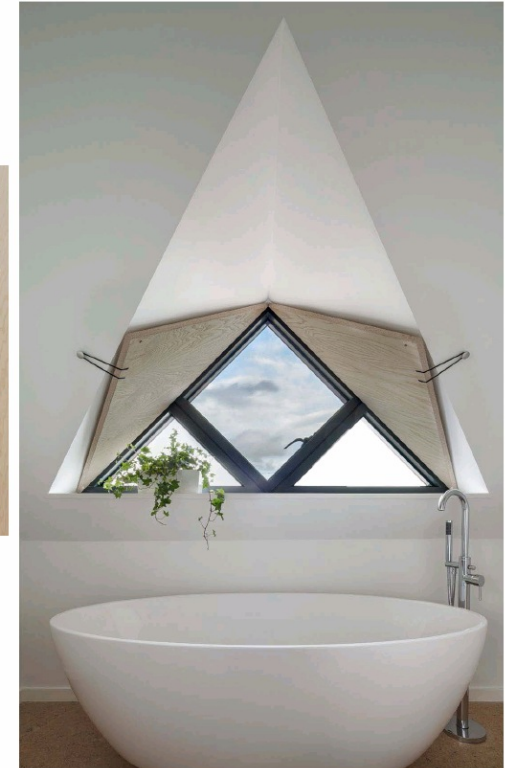


Up to 15% Spring Savings for Projects Secured in April



Master Suite

The master suite is in the extension above what is currently the garage. The triangular glazing was bespoke to comply with Building Regulations on fire egress. The bespoke shutters (above and right) are made of ash.



PROJECT NOTES

Timeline

Purchased Oct 2016

Planning submitted
Nov 2016

Planning granted Feb 2017

Groundworks Mar 2017

Shell and first fix Jul 2017

Second fix Sep 2017

Decoration Oct 2017

Completion Nov 2017

Suppliers

Engineer Mann Williams:
mannwilliams.co.uk

Design and project management: Design
Storey: design-storey.co.uk

Glazing Idealcombi:
idealcombi.com

Tiles Keymer:
keymer.co.uk

Building suppliers

Jewsons: jewson.
co.uk; Cotswold
Building Supplies:
cotswoldbuildingsupplies.
co.uk

Kitchen and furniture

L'una Design:
lunadesign.co.uk

Stonemasonry

Steve Witts

Carpentry

Cotswold Carpentry:
cotswoldcarpentry
campden.co.uk

Plumbing THB Heating:
07809 707468

Electrical MJ Print:
mjpriintd.co.uk

Plasterer B Morris

Plastering

Painting M Dodsworth
Painting

Critical windows

Hawkscroft Ltd:

hawkscroft.com

Cork flooring Cork Floor
Company: corkfloor.co.uk

Wood flooring Kahrs:
kahrs.com

Woodburning stove

Greymetal: greymetal.co.uk

Sanitaryware

Duravit: duravit.co.uk

Custom joinery Calarel

Joinery: calarel.co.uk

Ash panelling

SL Hardwoods:
slhardwoods.co.uk

Metalwork Intech GT
Smith Engineering:
intech-gtsmith-eng.co.uk

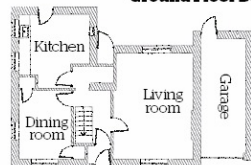
Hedging Readyhedge:
readyhedge.co.uk

Groundworks JRD Hire:
groundworksdiggerhire.
co.uk

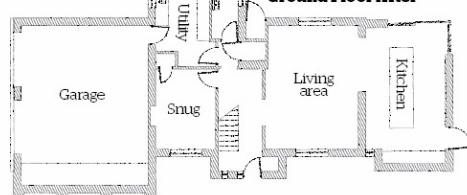
Soft furnishings Skandic
Hus: skandic-hus.co.uk

Artwork Trinity House
trinityhousepaintings.com

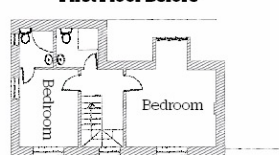
Ground Floor Before



Ground Floor After



First Floor Before



First Floor After



During Work

The old kitchen (above left) is now a utility room, while the new double bedrooms were placed in the two-storey side extension (left).



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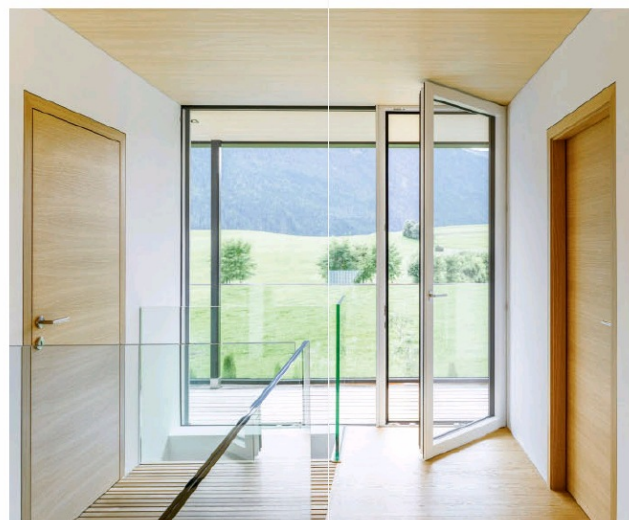
Internorm, the leading window brand in Europe, offers high quality low-energy and Passivhaus window and door systems.

With products offering exceptional technical qualities combined with superior energy, acoustic and security performance, the company's extensive offering includes PVCu, and PVCu/aluminium windows, in addition to timber/aluminium windows.

The PVCu and PVCu/aluminium range, which is available in a wide choice of designs and colour options, have excellent thermal performance with U values up to $0.74\text{W/m}^2\text{K}$. As a result, specifiers can take advantage of a unique window specification that is bespoke according to the performance and aesthetic requirements of the project in hand.

Customers who choose timber/aluminium designs benefit from further environmental credentials, with exceptional U values of up to $0.63\text{W/m}^2\text{K}$, in addition to the aesthetic qualities timber provides. This, combined with exceptional energy performance, makes timber/aluminium ideal for both traditional as well as contemporary projects. The range also offers a choice of either spruce or larch timber interior finishes. The performance of Internorm's timber/aluminium windows is enhanced by an innovative composite construction that incorporates a highly insulating thermal foam.

Additional features unique to Internorm include Fix-O-Round technology, a continuous all-round fixing for the window pane, providing a continuous connection



Window and Door Choice

Internorm's windows and doors (above and opposite) are available with many additional features, including specialist thermal coating, interior finishes for windows can be specified in either aluminium, spruce or larch timber.

for the glazing with the window frame. The benefits are improved stability, thermal insulation and soundproofing, burglary protection and greater durability of the window unit for its entire lifespan.

In addition, a choice of glazing is also available, including SOLAR+ glass, a specialist thermal coating, available on all triple-glazed windows as standard. SOLAR+ triple glazing maximises the potential energy gains provided through solar irradiation. It prevents subsequent heat loss through the window with very low U

values, helping to maintain a comfortable, carbon and energy efficient interior environment that is also cost effective for the homeowner.

Other additional features include I-tec Shading, a specialist self-powered solar blind, which is the perfect option when electricity supply is unavailable. Also part of the I-tec range is I-tec Ventilation, which is the first of its kind in the UK. The I-tec ventilator, which is completely integrated into the new Home Pure KF 500 window system, is equipped with an integrated MVHR (mechanical ventilation heat recovery) system that reduces energy losses to a minimum through the achieved 86 per cent heat recovery. This system ensures that the occupants within a building have a constant supply of fresh air.

For further information on Internorm's products and service, simply visit internorm.com or follow @internormuk on Facebook and Twitter. 

OUT OF THE WOODS

*Josh and Nathalie Cherry battled for years to build a
timber frame house in the style of a contemporary,
cedar-clad barn conversion in their garden*



The Exterior

The new timber frame house was designed to suit both the plot and its conservation area setting on the outskirts of Exeter. Roof slates, horizontal western red cedar cladding and large sections of glazing help to create the impression of a contemporary barn conversion. The Douglas fir porch bracing posts were supplied as part of the Potton package.



The homeowners
Nathalie and Josh Cherry
Project Timber frame self-build
Location Devon
Size 203m² (plus garage)
Plot cost £250,000
Build cost £300,000
Value £700,000
Build time June 2016 – March 2017

When Nathalie and Josh Cherry bought an old cottage in need of renovation, it came with lapsed planning permission to build another house in the garden, but a covenant resulted in a long and unexpected battle. “We intended from the start to reinstate the planning and build in the walled garden, but this was put on hold once we discovered the existence of the covenant,” explains Nathalie. “It actually took over three years before everything was resolved, during which time we refurbished the cottage and moved in.”

The couple and their three children created a cosy, four bedroom home in the cottage and enjoyed the rambling, mature gardens, but were keen to start phase two of their project which involved designing and building a new timber frame house on the site within the walled garden.

Josh is a carpenter who is experienced in building timber frame homes for specialist company Potton, running his own crew. He also grew up in New Zealand, where houses are commonly constructed using timber, so building his own home was the obvious choice. Josh and Nathalie worked with Sean Adams – Potton’s self-build and planning consultant for the South West – to design a bespoke home for the plot, which stands within a conservation area on the outskirts of Exeter, overlooking open fields.

“Josh already had very firm ideas about what he wanted, but we needed Sean’s guidance and expertise to get everything down on paper,” Nathalie explains. “We wanted a two-storey home, facing south, with a kitchen/dining/living space opening onto the garden through bifold doors.”

First floor rooms have been designed within the roof space in a chalet style, to reduce the overall height of the property and prevent overlooking. Externally, the house has been clad in horizontal cedar weatherboarding; the original plan included an integral garage, but this was later changed to a matching detached garage at the request of the planners.

“We’d approached the local council prior to submitting our planning application, and this informal pre-application advice received positive comments from the planners and was agreeable to the neighbours,” says Nathalie. “Detailed planning was finally approved, with conditions about things like protecting tree roots. We then financed the build with a stage payment mortgage.”

A Smooth Build

The family continued living in their cottage during the nine-month build, and the 0.2-acre garden plot was fenced off ready for work to begin. The site already benefitted from separate vehicular access, and the new house has been positioned far back on the plot so that almost all of the garden is to the front, with rooms facing south. “This layout is actually fairly common in New Zealand, where we’ve lived, but also serves to protect tree roots and our neighbours’ privacy,” Nathalie explains.

After some delays, the groundworks were completed by a subcontractor and concrete for the raft foundation was poured – on

“The whole project was a real labour of love for us, and as it was our first self-build we wanted everything to be just right”

the hottest day of the year – to meet the structural engineer’s specific calculations.

Josh and his team then erected the Potton timber frame over a period of three weeks. The roof is finished in Brazilian slates; timber windows are clad externally in hard-wearing aluminium, and the Canadian western red cedar cladding has been coated with a clear UV protection to prevent fading.

“There were a few delays caused by trades and summer holidays, but it was a relatively organised and quick build with no horror stories, and our children really enjoyed watching the house going up,” says Nathalie.

Although Josh and Nathalie had initially planned to build the house for their own occupation they were also open to the idea of selling the property and moving on. “We were amazed by the interest and attention the build received, and in the end we sold to another family at plasterboard stage,” Nathalie explains. “It meant that they could make small changes to the layout, but at that point we had already bought fixtures and fittings, including the kitchen.”

An air source heat pump heats the hot water and is connected to the zoned underfloor heating, which was installed throughout the house. In addition to the timber frame kit, Potton also supplied certain second fix items, with Josh and Nathalie sourcing everything else, from the oak internal doors to sanitaryware.

The finished house won the Best Potton Home 2017 award, as voted by visitors to the company’s website, and its appeal is obvious. “The whole project was a real labour of love for us, and as it was our first self-build we wanted everything to be just right,” says Nathalie.

“After such a long delay at the start we were so happy to finally see the house completed to such a high standard – that’s really all we could have hoped for.”



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PROJECT NOTES

Suppliers

Timber frame kit

Potton: Potton.co.uk

Designer Adams Planning

& Project Services:

adamspps.co.uk

Windows and external doors Janex: janex.co.uk

Builders' merchant

Bradford's Building Supplies:

bradford's.co.uk

Kitchen Ralph Winter:

ralphwinter.co.uk

Internal doors

Jewson: Jewson.co.uk

Sanitaryware Total

Plumbing Supplies:

totalplumbing.co.uk;

Roper Rhodes:

roperrhodes.co.uk;

Vitra: vitra.com;

Ideal Standard: ideal-standard.co.uk;

Bristan: bristan.com

Electrics RT Electrical:

rtelectrical.co.uk

Bedrooms

The first floor hosts five double bedrooms, complete with built-in wardrobes – the master of also has en suite.

Digital shower Mira

Showers: mirashowers.co.uk

Electric gates and garage door

The Westcountry Group:

westcountrygaragedoors.net

Carpets Sowton Carpet

Mills: sowtonmill.com

Roofing and scaffolding

RC Scaffolding & Roofing:

recontracting.co.uk

Air source heat pump

Mitsubishi Ecodan: heating.

mitsubishielectric.co.uk

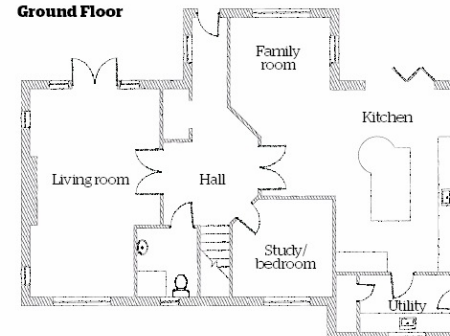
Bathroom floor and wall tiles Tileflair: tileflair.co.uk



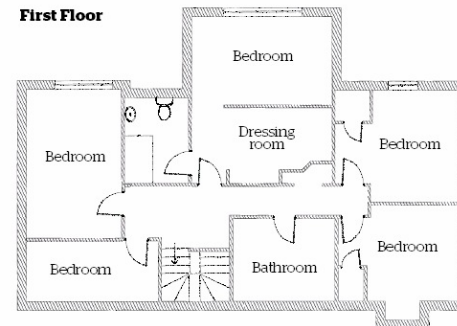
The Floorplan

The house has been arranged with modern family living in mind. A large kitchen/dining/family space acts as the hub of the home, with a separate living space for quieter occasions. Five bedrooms on the first floor all benefit from built-in storage, while a sixth bedroom doubles up as a study on the ground floor.

Ground Floor



First Floor



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From getting the foundations accurate to the order of building the structure, and the type of packages involved, Debbie Jeffery explains what to consider when building a timber frame home

From the outside it's impossible to tell a timber frame house from a masonry one, because the external cladding is unaffected by the choice of internal walls. With timber frame, the outer decorative 'skin' is finished in the same way as a block house, using bricks, stone, timber cladding or render. A timber frame design is an engineered solution, which means that a timber engineer will need to prove that the structure is capable of bearing the imposed loads.

Unlike a block wall, which is built one block at a time, timber panels are lightweight and easy to manufacture, and the system lends itself to being prefabricated off site. Factory-manufactured timber frames guarantee high levels of accuracy and quality. This significantly simplifies on-site construction, which can often take just a few weeks, depending on size, site and weather conditions. Timber frames require accurate, level foundations with only a few millimetres of tolerance, compared to brick and block walls, which can accommodate greater discrepancies by varying the depth of the mortar beds.

Experienced carpenter and timber frame erector, Josh Cherry, says: "The most common failing when building timber frame homes is that the groundworkers can leave a plot in a mess, which makes putting up a frame extremely difficult. When the frame arrives we need space to lay out all of the components, and it's also helpful to provide a good area of hardstanding all around the house. A lot of scaffolding firms insist on a minimum 2m-wide strip of hardstanding, and this makes everyone's life easier because it keeps the mud down."

"We turn up with a large telescopic forklift – a telehandler – and it's nice to have enough space to move the machine around comfortably. We don't tend to bother with cranes anymore, because the telehandlers are so powerful, but having no overhead obstructions such as overhanging branches is an added bonus," Josh continues.

During construction, the frame is built storey by storey, and exterior wall panels are nailed together. Roofs are constructed in timber and supported on the structural timber frame, internal loadbearing timber wall panels and party wall frames. Internal trades can start work as soon as the shell is weathertight. "The order of work is sole plate, ground floor panels, floor joists, first floor decking, first

The Knowledge BUILDING WITH TIMBER FRAME



floor panels and roof structure," says Josh.

"If the house is a box shape then you can actually build the roof on the ground and lift it up later on if you choose, but there has to be enough space for this. Often the panels will arrive fully insulated, but pre-glazed panels are less popular due to the chance of breakages, with most people ordering their windows separately. There's such a variety of packages and kits that it's worth really doing some research about what's provided."

In most cases the internal walls of a timber frame house are stud partitions, insulated and finished in plasterboard. As the entire inside of the house is formed by a wooden frame, the installation of internal services and insulation is straightforward, with fewer 'wet' trades involved.

Putting up a timber frame is best handled by the experts, and preferably someone familiar with the chosen system. The UK Timber Frame Association (uktfa.com) and STA (structuraltimber.co.uk) can provide contact details for their member companies. Most timber frame suppliers insist that their own people, or a builder recommended by them, erect the frame, and to do otherwise may affect the warranty. Some of the larger manufacturers have teams on their permanent staff, but most employ subcontractors as they are needed. ④

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OFFICE TO HOME

Mike and Rebecca Fairhurst have transformed a Grade II-listed collection of run-down offices into a family home, complete with a striking contemporary extension, carefully restoring period features along the way

Bringing in the Light

The old scullery at the rear of the house and the office kitchenette have been knocked through to create space for a family kitchen diner. The side-return extension has only added an extra five feet to the room, but makes all the difference. The narrow glazed section that runs up and along the join between the old and new sections of the house, combined with the bank of rooflights above the units, ensures light pours into the previously dark space.

Blending Old With New

The flat-roofed side-return extension has been clad in zinc, with a balcony above leading off from one of the first floor bedrooms.



The homeowners

Mike and Rebecca Fairhurst

Location Macclesfield, Cheshire

The project Renovation and extension of a terraced house

Build time January 2017 - April 2017

Size 200m²

Property cost £200,000

Build cost £145,000

This was the only exciting thing we had seen since selling our last house," observes Mike Fairhurst of the listed Victorian terraced house he and wife Rebecca, along with their three children, now call home. "It had been used as offices for the past 52 years — there were literally just offices on all three floors. There was a tiny office kitchen on the first floor and ladies and gents loos on the ground floor — along with a huge old photocopier and green nylon carpet everywhere, plus walls of melamine-coated shelving."

Mike, a building contractor (whose two sons, Lloyd and Elliot, both work for the family business) and Rebecca had finished their last project, the renovation of a 1970s property, seven years previously. Despite vowing to never live in a period house or carry out another renovation again, they sold the house and put in an offer on this building, successfully applying for a change of use early in the process.

Mike and Rebecca made the brave decision to live in the house while work was carried out. "It was a bit too much really, with three children," admits Mike. "But it was important for us to live in the house in order to understand how we needed it to work. We carried out the work on a room-by-room basis, moving around the house, although we made getting a family bathroom in a priority."

Another priority was to update the electrics. "The wiring was all lead," explains

Mike, "and there was even a cellar fire at one point. One of the most costly elements of the project ended up being the rewire."

Despite the neglect that the house had seen over the years, there were plenty of original features remaining, although many of them were in need of restoration or hidden behind modern alterations.

Converting the Offices into a Home

The ground floor, previously consisting of four rooms used as offices and storage, has been completely remodelled. "The main problem was the lack of natural light," explains Mike, who employed architect Chris Rodgers of Guy Taylor Associates to come up with the plans for the remodel and ground floor extension. "Considering the house is nearly two centuries old, the layout plan was completely different to one that a family of the 21st century would enjoy. We had to find a way to open up the ground floor to generate a modern way of life.

"Our brief for the kitchen was to connect the old scullery and office kitchenette to bring as much light as possible into the rear of the house." To do this, the wall between the scullery and kitchen was partially removed, leaving the fireplace that previously served the kitchen in place, yet opening it up on the scullery side to create a double-sided chimney breast that now forms a room divide. A side-return extension has also been added, filling in the space between the neighbouring property ➤

"This is my favourite of all the houses we have restored over the years"



Reconfigured Spaces

The wall that once separated the kitchen from the single-storey scullery has mostly been removed, leaving only the chimney breast, which has been opened up on both sides to form a room divide (OPPOSITE).



The New Kitchen Diner

The main objective of the kitchen extension was to bring in more natural light. The glazing that sits between the old house and the new extension, combined with the long rooflights and bifold doors, ensured this brief was met. The sash window at the end of the run of units (ABOVE) had to be retained in line with planning stipulations and now acts as an internal feature. The kitchen units and worktop are melamine-faced; the island worktop is Silestone.

and the Fairhursts' to create an open family space containing the kitchen diner and a newly formed relaxed living area.

"It is a relatively tiny extension at just five feet wide, but it makes all the difference," says Mike.

The old garden wall separating the house from the neighbours has been tanked and raised in order to form the extension wall. Along with one side of the old single-storey scullery, this wall has been clad in zinc for a contemporary finish. All the other walls in the kitchen have also been tanked.

A glazed 'slot' (ABOVE) runs through the extension providing a clear yet unobtrusive margin between the old and new sections of the house. It also brings in some much-needed natural light. A large rooflight, a panel of fixed glazing, sash window and patio doors also combine in the sitting area to introduce more light. "Chris' design has added lots of light — key to our general mindset and wellbeing," says Mike.

Elsewhere on the ground floor, a set of mahogany double doors that the couple

found lying on the floor when they bought the property have been reinstated and now form a flexible divide between the living and dining room.

On the first floor, two double bedrooms and a family bathroom have replaced the office spaces, with a new balcony leading off the second bedroom. The second floor provides a further two bedrooms, one with en suite, and features seven Velux windows which were already in place. "We had to fight to keep the Velux windows on the top floor," says Mike. "They were installed before the house was given its listed status."

"The original floorboards have been cleaned and sanded on the upper storeys, too," says Mike, "and the original fireplaces and mouldings have also been restored."

"This is my favourite of all the houses we have restored over the years," he adds. "It was hard not to be able to get away from the work, but we now have a fully functioning home, allowing us all to be together, enjoy cooking, help with homework, and eat and socialise in the same space." ➤





Character Features

The original mouldings have been painted in order to highlight their intricate details. A set of old mahogany folding double doors now form a flexible divide between the two front reception rooms.

A Grand Entrance

The new oak engineered floors from Tedd Todd (studiotodd.com) are pale in colour in order to ensure the interiors remain light, they sit well alongside the period features, such as the original mouldings.



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Wealth of Character

The floorboards upstairs are all original, as are the fireplaces (above). The first floor houses two bedrooms and a family bathroom (opposite), while the second floor features two further bedrooms and a bathroom.



PORTFOLIO

Listed Extension and Conversion



Original Frontage

All the timber windows are original. Mike and Rebecca had to gain approval to clean and repoint the brickwork due to the listed status of the house.

PROJECT NOTES

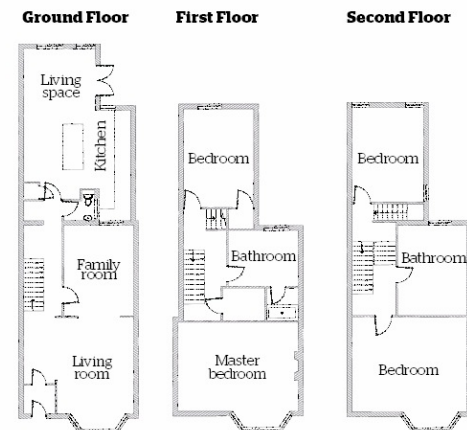
Suppliers

Architect Chris Rodgers
of Guy Taylor Associates:
guytaylorassociates.co.uk
Building contractor Mike
Fairhurst of JM Fairhurst
Limited: jmfairhurst.com
Bricklayers Steve Higgins
of Eden Construction:
07989 042523
Structural engineer
Jonathan Hayes
of STL Projects:
stlprojectsLtd.co.uk

Electricians
Craig Lawlor, CL Electrical:
07809 675006
Plumbing Clive Wilkinson,
Macclesfield Maintenance
Ltd: macclesfield
maintenance.com
**Kitchen design and
installation** Diane
Berry Kitchens:
dianeberrykitchens.co.uk
Bespoke joinery
Pott Shrigley Joinery:
pottshrigley.com

The Floorplan

On the ground floor, the old scullery and kitchenette at the rear have been combined and, along with the side-return extension, now form a large open plan kitchen, dining and seating area. On the first and second floors, the former offices have been converted into bedrooms, with a bathroom created on each floor.





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PORTFOLIO
Contemporary Self-build

NEW WAVE

*Roger Zogolovitch's new house in Dorset
combines his passion for split-level living with
architectural nods to the coastal setting*

Words **Jason Orme**
Photography **Rory Gardiner**



The homeowner
Roger Zogolovitch

The project Contemporary self-build

Location Dorset

Size 221m²

Build cost £745,000

Build time July 13 – July 16

Roger Zogolovitch is a well-known figure in architectural design and building circles. He's a bit of an elder statesman and guiding North Star for many of today's modernist-inspired architects, highly regarded for his impressive design history and, more recently, his insightful and thoughtful approach to the work he has achieved with his independent development company, Solidspace. He's a distinctive character: interesting company, charming and memorable — all the way down to his particular take on clothing.

So it comes as no surprise that when Roger decided to create a new home in the garden of his striking 1930s modernist residence in Poole, his approach took a distinctive turn — not just in the way the home looked, but the way it was built and the materials that went into it.

Let's talk about the design approach first. It's not uncommon for architects to tell HB&R about how they have designed their own home. This is the first time that a leading contemporary architectural designer has decided to ignore his own abilities (and free labour) and take the all-too-sensible view to hire in another architect.

In this case, of course, Roger didn't struggle to find names willing to work with him, and soon reached out to Meredith Bowles (the man behind award-winning Mole Architects and a name regular readers will recall from homes of his we have featured in the past — and others will recognise as a judge on the TV series *House of the Year*). Luckily, what that decision gives us is a chance to learn from an experienced house builder and architect who sat on the client's side of the fence.

"We owned the house for 30 years," begins Roger. "And I had always felt that we had a plot in the garden. The whole estate here was divided up into plots as were many similar

estates in the 1930s. There always was an opportunity and everyone understood that there was a clear gap in our garden where a house normally would be, which we could use for holiday lets and for the extended family when they visit [Roger's son Gus is MD of Rare Space and Unboxed Homes and was London's first custom build enabler].

"The first planning application was made in 1990, I recall, based on a scheme designed by a young David Adjaye (now Sir David, and widely regarded as the UK's leading architect). We looked at a range of options and then looked at other iterations of what the house could be over the next 16 years — which was when we started with Mole Architects in 2010. All the time I was looking at ways in which I felt there would be a requirement for an architecture that would work as an interesting private house but also to respect the setting of the existing building — and not to upstage that," Roger continues.

"The first step in any of these enterprises is for the client — in this case, me — to be able to discuss a clear brief with the architect. The brief will emerge, but it is very important to be able to try to describe that early on. I wanted to get across to Meredith the atmosphere I wanted in the house and also the constraints. I wanted a house that involved itself with the view, a building which has a relationship with our main house but didn't upstage it. Also, importantly, as the scheme went on and it developed, I wanted to utilise split-level living inside.

"The unusual thing here, of course, is that I'm an architect myself," Roger continues. "I understand the technical constraints and therefore I started sketching design concepts, so that in the conversation with the architect it became more of a debate (as opposed to being told what I want). I would encourage others to have that same debate. ➤

"I'm very satisfied that this house has my character and that's critical — and getting your own voice into the design conversation is key"

WATCH THE VIDEO:
For more on Roger's project, head over to homebuilding.co.uk/split-level-living.



Use of Solid Materials

To ensure the house stands the test of time, a considered palette of materials was selected both inside and out. The external façade has been clad in Douglas fir while the inside features concrete, exposed aggregate, birch-faced ply, steel and walnut.

have doors. It being open, the issue of acoustics is critical. I lined the inside of the shell with a neoprene material which makes it absorbent," he explains.

Roger has also given close thought to the specification. "I chose materials that will be enhanced over time. There are a lot of materials used in homebuilding that don't look so good after five, 10 or 20 years. I want this home to be around for a long time. So, therefore, I used solid materials, such as concrete, with an exposed aggregate finish. Inside, solid walnut floors have been used and the light fades the walnut over a period of time so it ages well. Birch-faced ply has been used for the walls — a beautiful material. The balustrading for the staircases has been created using steel finished in an oil, not a paint."

Roger took an equally thoughtful approach to the construction process, hiring in different specialist contractors to deliver the key packages: the concrete element, the timber frame, the cladding, and the internal fit out. The distinctive design was difficult to achieve, confesses Roger — "the curves in particular proved a headache" — and this is reflected in a build time of three years and a build cost of £3,370/m².

The result, however, is a house that, like its owner, is a true one-off. "The sense of peace here is very satisfying. We lead very complex lives with lots of information directed at us. It is very important to have somewhere where you can relax. The height of the building is almost cathedral-like and it gives you a view of the sky which penetrates the house and puts me at peace. This visual connection between inside and the landscape is very beautiful." **H**

Split-Level Design

Roger was keen to separate the private and public spaces. Therefore, while the bedrooms and bathrooms — positioned on the ground floor — have doors, the rest of the house is open, and adopts a split-level design. This allows each zone — eating, living, working — to be situated on a different level. The concept of the design as two upturned boat hulls also allows a large volumetric space internally (left).

Don't be overawed by the relationship. Use the voice that you have in your own work with their voice. I'm very satisfied that this house has my character and that's critical — and getting your own voice into the design conversation is key to that. The easiest way to describe it is as if I was running a restaurant. I'm the restaurateur and the architect is the chef. As the restaurateur I have to think about the ultimate use and oversight of the project."

Adopting this approach meant that Roger naturally had a keen sense of what the home should become and how it should be built. Roger is a passionate advocate of split-level living, and so the design ethos of the house — appropriately called 'The Houseboat' — which is designed to feel like two upturned boat hulls built off a sea wall, allows a large volumetric interior space. The 'sea wall' base is concrete; the 'hull' element is a Douglas fir frame.

"I made a decision early on that there should be an arrangement of rooms with a separation between the private and public spaces. Only the bedrooms and bathrooms



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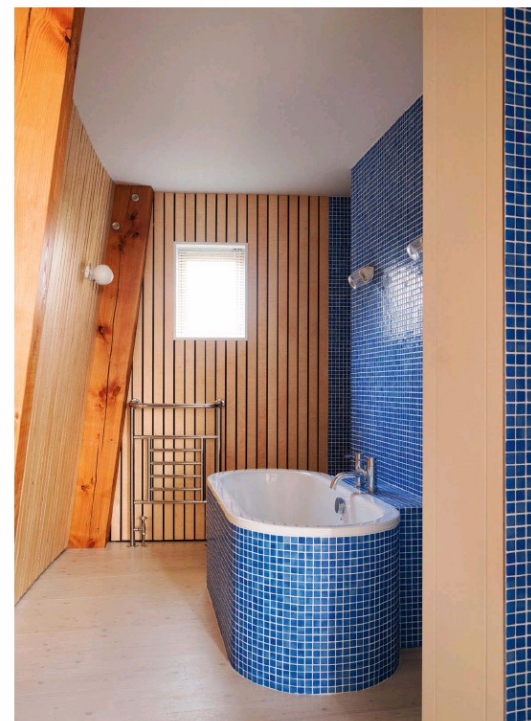
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Nautical Themes

In keeping with the boat concept, the internal walls and colours follow a similar theme. The birch-faced ply nods to the lining of a boat, while white-washed timber cladding the walls and floors of the guest rooms (top left) lend a nautical charm.

PROJECT NOTES

Suppliers

Architect Mole Architects:

molearchitects.co.uk

Executive architect

Rebecca Granger:
rebeccagranger.co.uk

Joinery Haroys:

01202 686236

Metalwork

Fineline Fabrications:
01202 669026

Builders Task Artisan

Builders: 01202 481320;

Tekne: 01202 672121;

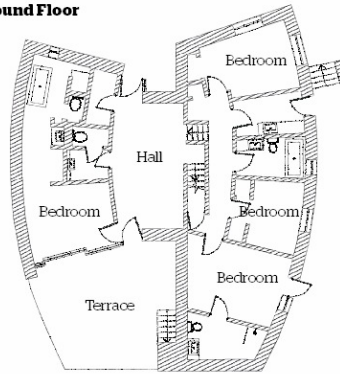
The Timber Frame

Company: 01749 814951

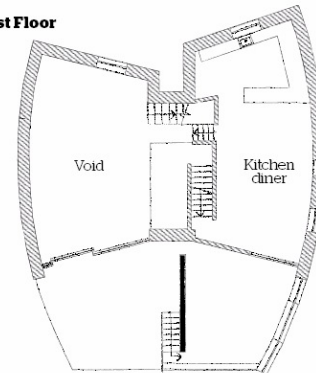
The Floorplan

The more private bedroom accommodation and bathrooms have been positioned on the ground level, while the rest of the house adopts an open plan, split-level approach. Each zone – living, eating, working – is defined and separated by a staircase, and all sit within the open, voluminous ‘hull’ of the building.

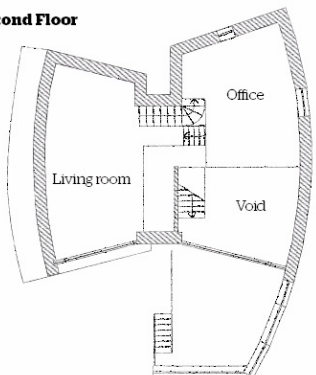
Ground Floor



First Floor



Second Floor



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BEFORE & AFTER NEW ENGLAND TWIST

Architectural designer Tony Holt explains how he helped one client turn their chalet bungalow in Dorset into an impressive family home with an American influence

Photography: c/o Tony Holt Design



BEFORE



AFTER

Existing Property

The existing chalet bungalow sat low on its site and was clad in white render on a brick plinth. The property was noticeably dated and the internal footprint failed to provide enough space to meet the needs of a growing family.

This former chalet bungalow is located on a highly sought-after residential road in Dorset. Our client, who had owned the property for several years, approached us with a challenging brief which included an increase in the habitable floor area from 170m² to around 340m² in order to create a long-term family home, on a budget of just £225,000. During the design phase, we explored the options of a new build or remodelling the existing property. It is always challenging to decide which is more beneficial financially and practically.

In this case, the budget fell short of what would have been required to deliver a new build, and with the decision made to remodel, we set about exploring options to achieve as much of the spatial brief

as possible, while keeping the structural changes to a minimum to avoid any overspend. Fortunately, the main structural elements were in good condition and the existing foundations were checked by a structural engineer to confirm there was capacity to take an additional storey.

The existing ground floor layout comprised large rooms which meant that only minor alterations were required to achieve the spacious family living spaces the homeowner wanted. The general approach and our design proposals included the removal of the existing roof structure and replacing this with an on-site fabricated timber frame solution.

With most of the budget spent on the creation of the first floor storey, containing four large en suite bedrooms and dressing

areas, we wanted to keep the majority of the ground floor layout intact, save for a few alterations — including a new open plan kitchen/dining/family space which stretches across the rear, allowing for large bifold doors to access the mature garden. A small extension has also been added in the north-west corner. The extension projects from the rear elevation and is glazed on two sides to help capture the afternoon sun.

The new roof structure features two gables to the front and rear elevations, joined by a simple duo-pitch roof over the centre of the footprint. The roof design is uncomplicated, which kept the construction simple and easy to set out on site. The gables with ridge lines running front to back help to keep the eaves heights low towards the side boundaries, allowing the design to

sit comfortably against the neighbouring properties. A simple roof canopy over the front door helps to draw your eye to the entrance, and the symmetry of the window arrangement offers a pleasing result.

The existing brickwork on the ground floor was made good and rendered, which was the most cost-effective way of creating a fresh new look. The first floor storey has been clad in lightweight, low-maintenance fibre cement board offering a good contrast in colour and texture, helping to achieve a modern New England style.

Thanks to the new storey and reconfiguration of the existing footprint, the homeowner now benefits from additional living accommodation and an updated exterior, without the hassle of moving — and completed on a budget, too. **6**

Grand Transformation

By adding a new timber frame first floor, the bedroom accommodation has been moved to this level, freeing up space on the ground floor to create the generous family spaces the homeowner was after. Externally, the façade has been updated with a fresh coat of render to the ground floor and fibre cement boarding to the first floor. This, combined with the new pitched roof structure, helps to create a New England feel.



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ON SITE

June 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.

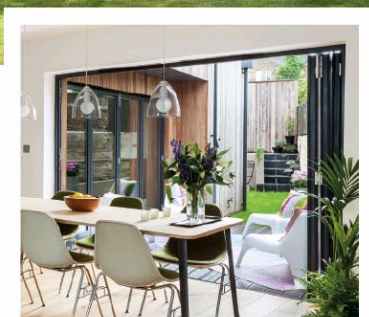


Your Projects

Each issue, we follow one of your projects. This month, Humphrey Berney tackles the restoration of a Grade II-listed Georgian home that he inherited from his great uncle.

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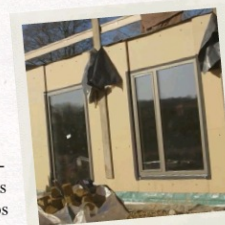
ON SITE DIARY



THE SELF-BUILD

All Sealed Up

The windows of Charlie Luxton's self-build are in and the structure is now watertight — and plenty of thought has gone into the installation



Getting Watertight

Charlie chose triple-glazed windows and doors, and used a layered system of backing and expanding tapes to ensure airtightness.

The windows have arrived, and they have been fitted, which is an enormous step forward as the building is now watertight. This means we can begin the drying out process inside and start first fix of the mechanical ventilation with heat recovery (MVHR) system, electrics and plumbing.

Windows are integral to the performance of a house, and it's an aspect of the build I've had to think carefully about. The key thing about the windows is not only the quality of the unit you specify, but also the way they are installed. Obviously you need to get the quality right, though!

We're using triple-glazed Internorm windows, which have a thermally broken timber-hybrid frame, which means there's a timber sub-structure with an aluminium exterior. This creates a layer of thermal insulation between the timber and the exterior — preventing heat transferring from the inside out, and cold transferring from the outside in.

Even when you have a triple-glazed unit, the frame can still be a thermal weak point, but with a thermally broken frame we can re-

duce the level of heat loss through this area.

The unit we've chosen has an incredibly high thermal performance, too. It has a U value of about 0.7W/m², which is wonderful considering most double-glazed windows will be 1.1-1.2W/m² — this product really is in a different league.

But the window itself is only half the story. A crucial part, and something that if done poorly can negate any of the expected thermal benefits, is the installation. There are quite a few stages to the proper installation of a window, and there are a number of different products that can be used.

I put a lot of thought into how we would install the windows to ensure airtightness. Key to this process has been expanding tape. If

you haven't used this before, it basically begins to expand and fill gaps once the backing paper has been removed and it's stuck in place. On our windows it fills the gaps between the frame and the building with an air and watertight seal. This is why it's so clever — especially when compared to the more traditional mastic products.

Mastic will, inevitably, begin to harden over time. Once that happens, if you get any movement between the window and the building, from wind and weather buffeting, for example, you get microcracks that lead to air and water leakage.

Before this, the first layer we put down was a lining paper on the reveal, and that's what we're bonding

everything to. Next came the expanding tape, and we've also put on another tape product too, which is stuck on the edge of the window frame, covering the entire joint, and is attached to the front face of the breathable wall behind.

We will then bring the external breather membrane over the tape, so we're getting a complete windtightness layer on the exterior of the building, and an airtightness layer on the inside of the building. This stops any wind blowing through the insulation or blowing through the inside of the window frame and driving moisture into the structure of the building. **H**



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Next month:
The 'sunken entrance' staircase takes shape

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THE EXTENSION

Roofing & Windows

Ian Rock's mega extension project has been smooth sailing so far, with the project watertight ahead of schedule, but a problem with his glazing order tests his usual calm

Last month, construction work on our extension passed another milestone. Thanks to the waterproof membrane draped over the skeleton roof structure the building was weathertight (in a tent-like sort of way), apart from occasional blasts of cold air coming through the as yet unframed window orifices.

The next job involved nailing a couple of hundred battens to the rafters ready for hanging the roof tiles. I'd met Anthony, our roofer, (known as 'Gassy' to his mates) some years ago on a loft conversion project. Although temperamentally prone to the occasional mercurial outburst with a penchant for spontaneous roof-level karaoke, he knew his stuff when it came to roofing. It's

not always appreciated how mathematical the roof tiling process can be, requiring intricate calculations to achieve the correct gauging and laps to suit the required pitch and type of covering. I'd chosen Rosemary smooth plain clay tiles to match the existing roof and Anthony set to work cutting and fixing all the lengthy blue battens in place.

Getting the Tiles Right
We'd ordered the tiles a few weeks earlier from local supplier Advance Roofing, after experimenting with samples of varying shades and textures. These 'classic reds' are actually manufactured in three slightly varied hues so it's important that roofers pick from different packs to achieve a pleasing-

ly even effect and avoid the risk of banding. Added to the mix were a few hundred salvaged tiles from the now redundant lean-to utility room roof. Despite the new Rosemarys being nominally identical to their older namesakes, in practice they were a couple of millimetres narrower, which can add up to a sizeable gap over long courses. This is where an experienced roofer's tricks of the trade come in useful.

Our roof design incorporates three skylights (measuring 550 x 780mm). I'd selected Keylite roof windows from Buildbase, which by all accounts were as good as some of the better known brands, at a more competitive price. But when it came to buying lead flashings the best bulk deals were available online, setting us back around £600 in total.

Battened Down

After battening the roof, roofer Anthony fitted the three Keylite roof windows from Buildbase.



When you're running a building project there's a surprising amount of freely available design advice provided by trade bodies and suppliers. Leadwork is a specialist area so I took the precaution of emailing the Lead Sheet Association (leadsheet.co.uk) to take advantage of their free advice service. In particular, I wanted to check how best to join our new side gable roof nestling 200mm below the existing main side gable verges, taking the form of a slightly smaller replica. The response was very helpful, including diagrams showing the required detailing depicting soakers, flashings and a saddle at the ridge.



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Forming the Valleys
Trying to perfectly replicate the roof on the main house has meant that the new valleys on the extension need to be similarly cut and mitred, ruling out simpler alternatives like purpose-made valley tiles or traditional open valleys. This is an area where things have moved on a bit since our house was built some 15 years ago. Mitred valleys are now routinely formed using special 'dry fix' valley GRP troughs underneath, rather than being bedded 'wet' with mortar onto standard flat troughs. The trouble is that the new 'dry' ones have a prominent central lip poking up through the valley, visibly running all the way down the mitred joint. While this might be a worthwhile technical improvement (reducing debris blocking 'hidden valleys' underneath), it clashes visually. This was a classic 'practicality versus aesthetics' dilemma, and to reproduce the existing roof we reverted to 'old school' flat troughs and mortar.

The Window Order
Accounting for a sizeable chunk of the overall budget, there's normally a fair amount of scope for negotiation when ordering windows. Builders' merchants typically quote 30 to 40% off the (inflated) list prices stated in manufacturers' brochures, although some firms won't talk prices at all until you've opened an account. I'd specified traditional timber casements and the window manufacturer offers a suitable 'cottage bar' range with thermal perfor-

mance comfortably exceeding Building Regs. Ideally I wanted the units pre-painted white inside and dark stained outside. So I called the manufacturers to discuss our particular requirements. It turned out the extra cost for ordering 'dual finish' windows was borderline astronomical and would have delayed things by another couple of weeks. To keep within budget we ended up settling for factory white primer; this way at least the inside would be the right colour and I could apply the required external dark finish by hand prior to fitting. To further eke out our budget, it made sense to salvage and redeploy three surplus existing windows (now covered by the extension) and a pair of redundant French doors. For some reason, it's standard practice for large window orders to be submitted via builders' merchants rather than direct to the manufacturer. Perhaps this is because there's so much detail to get right. Our order needed to clearly set out our chosen 'extras' like trickle vents and the design and finish of our chosen handles, and whether we wanted the opening casements positioned to the left or right side of double window units. Plus, we needed longer sills to project sufficiently out from the rendered walls. We also ordered a pair of French doors for the rear bedroom Juliet balcony (inward opening at extra cost) and after a spell of vigorous negotiating, the supplier reluctantly agreed to match prices I'd come



A Day on the Tiles

Roofer Anthony mixes the new Rosemary plain clay tiles with existing tiles reclaimed from the former lean-to utility room.

across online. The order was duly signed and submitted.

Disaster Averted

Five weeks later, and with the arranged delivery date looming, I'd heard nothing. I'd been firing off increasingly urgent emails, chasing up the order but with no reply. Eventually an email arrived advising that delivery would be in another five weeks' time — despite having signed and paid for everything five weeks previously and currently being in my assigned delivery window.

I picked up the phone. The voice at the end of the phone sounded rather sheepish when admitting that the original order hadn't been processed. I immediately saw red. Engulfed by a paroxysm of fury, I made it clear that a delay of this magnitude was totally unaccept-

able because by then our main contractor would be long gone and the scaffolding taken down.

Both merchant and manufacturer denied culpability, blaming each other for not processing the 'signed acceptance form'. I got straight onto the manufacturer, this time getting through to a lady in 'Order Processing' who, thankfully, was businesslike and helpful. She advised that they would pull out all the stops to make amends and get them delivered in two to three weeks.

In the meantime, I made sure the manufacturer played its part keeping up the pressure. Twenty days later the delivery truck trundled up our drive. Disaster averted. **H**

Next month: Problem solving with flashings, flues and solar hot water

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ON SITE DIARY



THE RENOVATION *Frozen!*

The 'Beast from The East' pays a visit to the Grade II-listed Mabel's Farmhouse as Lydia Robinson and Lawrence Grigg face the reality of living with no heating

We couldn't resist the opportunity to vent about the recent visit of the 'Beast from the East' to Mabel's Farmhouse. Having survived a winter without heating and hot water - stoically shivering in front of our tiny coal fire while telling friends and neighbours that this type of experience is 'character building' - the brutal beast arrived. The unprecedentedly cold start to March took us a bit by surprise and we were totally unprepared for the challenges it would bring.

The term airtightness, beloved of Passivhaus designers whose houses boast such high thermal performance and low heat loss that central heating is rarely turned on, is given a slightly new spin by Mabel's current condition. Standing in the lounge, which is triple aspect and punctuated by single-glazed Crittall windows that have warped so much that you can see daylight around the frames, the air feels positively Baltic.

With the air blasting at you from three sides and the coal fire serving only to heat the two foot of space directly in front (and most of its heat being sent up the chimney anyway), it's

hard not to feel a bit, well, chilly! A low point was waking up and finding a snow drift inside the front door - the gap underneath the door is so big, and the house so cold, that the snow had worked its way in and had not melted, creating a large drift in the hallway. From our bedroom window, as we watched the cows from the dairy huddling together to keep warm, we contemplated (more than once) nipping out and joining them!

Of course, we put up with this short-term discomfort because in the long term we know the situation will improve. There are some easy fixes, too. We have found a lovely velvet curtain to hang in front of the front door to take off the chill, a surprisingly cost-effective and simple solution that will increase the level of comfort immeasurably.

Another saving grace is our electric blanket, a fantastic birthday present from the family, that has a great boost function - just what you need to take the edge off a winter's night. We have also just commissioned a couple of pairs of shutters to address the chilly master bedroom. It's amazing how shutters, such a simple and timeless item, can keep the



beast at bay by adding a layer of insulation to the windows and stopping the draughts. Then there is that old favourite - tea! Tea has got us through those dark, chilly days and frankly things would have seemed a lot bleaker without it... not to mention the odd glass of red wine! ☺

**Next month: Listed
building consent arrives**



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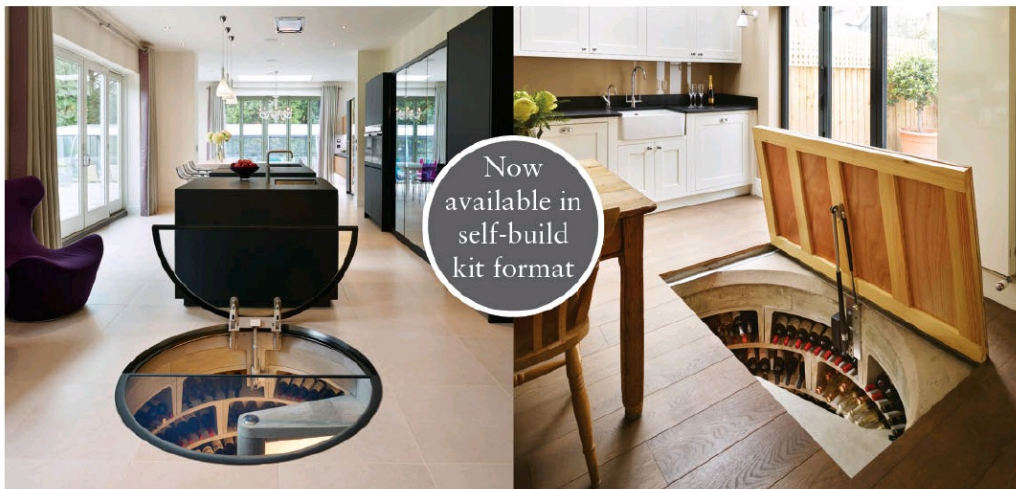
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ON SITE DIARY

YOUR PROJECT

Family Connection

Humphrey Berney splits his time between touring the world with chart-topping group Blake and renovating a Grade II-listed Georgian house that has been in his family since the 18th century



In 2016, Humphrey Berney, an acclaimed classical singer who performs with the award-winning group Blake, inherited a Grade II-listed property from his great uncle. The 11 bedroom Georgian manor had been in the family since the 18th century, with the current property built in 1804 to replace an existing Elizabethan home.

Unfortunately, Humphrey inherited a home in a state of disrepair, with large sections of the house unfit for habitation and structurally unsound. But there was never any thought of passing up the opportunity to not only restore the house to its former glory, but also to transform it into a home fit for his young family. "It's a project that excites and scares me in equal measure," Humphrey admits. "I've inherited it with an emotional connection, and with a responsibility and a passion for it. I want to bring it back to being a house that's full of life and laughter — and that's hopefully not going to fall down."

The latter had been something of a concern. In the 1970s, Humphrey's great uncle had demolished a five-metre section that connected the front and back of the building, ostensibly to

make the home more manageable. He had then left the rear of the building to ruin.

Humphrey was under no illusions that the back of the house would need major repair work. A full structural survey revealed the extent of the damage, and the dire warning that without immediate attention it was liable to collapse. Though Humphrey was able to start work quickly, he was forced to change builders when the original team lacked the skills to work on a building of this age. A new team set about repairing some of that work and then underpinning and re-roofing.

Humphrey had hoped that the front section would need renovating rather than rescuing, but as soon as the builders starting stripping away the plaster and floorboards, larger problems presented themselves. "It's not horrific, but there were some little cracks in the plasterwork and once we'd taken it back, we found two-inch cracks all the way through the brickwork."

"Attempting to modernise the house has also revealed problems: We wanted to



The rear of the house was close to collapse.



An aerial view reveals the full extent of the property.

knock through the existing kitchen and the dining room, but in doing that we've had to do a huge amount of structural work that's required underpinning internally, and that revealed some quite enormous cavities under the house, which made that job five to 10 times bigger than we ever expected."

The overall plan involves building a large atrium to reconnect the house, modernising both sections (which will involve adjusting ceiling heights, rewiring and replumbing) and even converting some of the outbuildings into luxury holiday lets: "You have to diversify with a house like this — it has got to earn its keep," Humphrey says.

Project managing the work from afar, while also performing and recording with Blake, and preparing to welcome a second child, has tested novice renovator Humphrey, but both he and the conservation officer are delighted with the work so far: "I would feel like I've cheated the building if I did a half-hearted job on it," he admits. "My wife says I seem to love this place more than anything else! It's an obsession, and hopefully one that I won't resent in the future because it's bankrupted me!"

"It's a project that excites and scares me in equal measure"



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THE BRIEF

June 2018

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BEHIND THE DESIGN

MEASURED SURVEYS EXPLAINED

In the first of a new design series, architect Neil Turner explains the importance of a measured survey and why you need one before taking on a building project

Whether you are designing a new house on a plot or considering a renovation, a measured survey is essential in revealing all the information available. But what is a measured survey and why is it so useful for a building project?

While an empty garden plot might appear completely flat, leading you to believe you should design a house suited to a level site, in reality, the garden may fall away to a steep gradient. A measured survey will not only show this, but will also record all the physical objects on the land including trees, manholes, and services.

In the case of existing properties, I am often asked to initially review the property and give a quick assessment of the owner's ideas on an extension or conversion. My advice is always the same: 'Let's get the house surveyed first.'

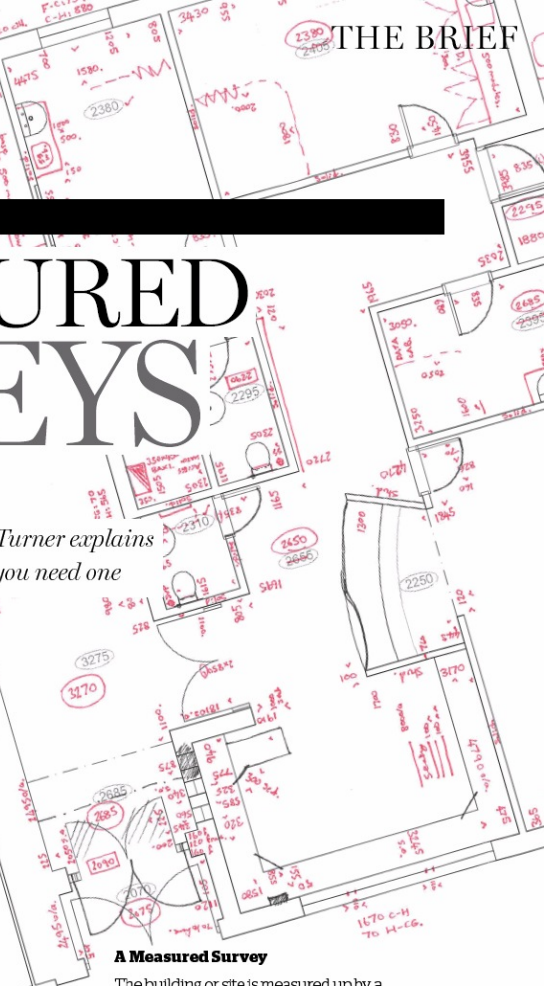
Don't confuse a measured survey with a building survey either. A building survey is a report on the physical condition, repair and state of the building. A measured survey is a detailed and accurate drawing of the current size of the building or plot, including plans and elevations.

The process of measuring a building or site used to require a tape measure, pen and paper — and on small jobs this is still (in my opinion) the best way. However, things have developed and now laser measures and full computer digital surveys are usually preferred.

Their Value When Working with Existing Homes

The surveyor or architect goes around every room measuring all the spaces, joining them together to form a houseplan. This plan reveals the thickness of the walls. Chimneys, windows, doors and staircases are then added, along with radiators and internal features. The elevations include exterior features too, meaning the plans and elevations can be read together.

Technology now means that complicated shapes can



A Measured Survey

The building or site is measured up by a professional and translated into an in-depth plan showing each and every detail.

be modelled; the latest 3D drawing packages can even be used when working on older buildings. However, on domestic projects, 2D surveys are still more than sufficient.

Accurate drawings allow the designer to understand and 'read' the building. Structural walls can be determined by looking at their thickness and clues to the original layouts can also be gleaned, helping to build up a knowledge of the history of the building.

Plots and Measured Surveys

On a plot, seeing accurate levels and falls allow the architect or designer to come up with a solution perfectly suited to the gradients of the site. Without this information the designer has to guess and this can only lead to problems when the build goes on site. It may be that a split-level design is required or site alterations are needed to mould the site to the shape of the required design.



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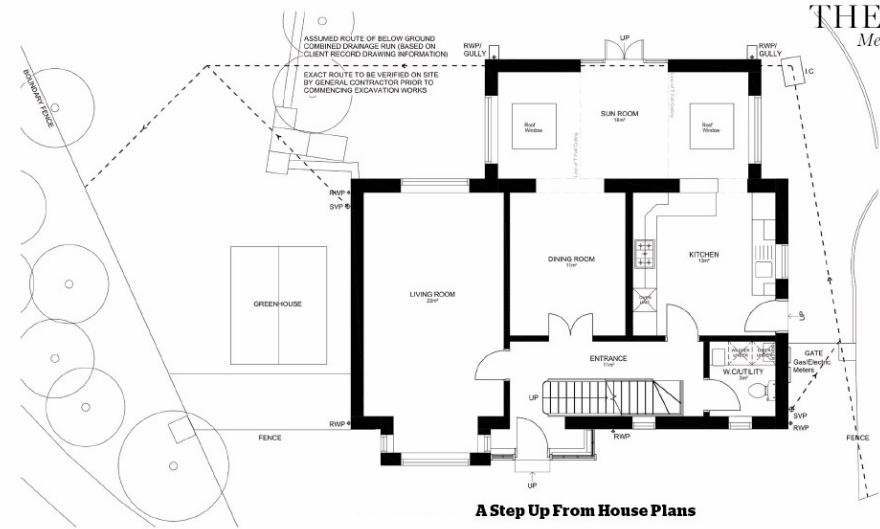
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A Step Up From House Plans

Original houseplans are not always accurate enough to work from – a measured survey prevents hidden surprises and costs.

The biggest costs on site tend to be the groundworks, foundations and drainage, so it is vital that the architect, quantity surveyor and builder have calculated this before starting – and agreed the building costs. A measured survey helps prevent any disputes and hidden costs creeping in.

On a large plot, having the trees positioned correctly on plan means it is possible to work out the best position for the new house, based on its proximity to the existing trees and their roots. This also allows you to plan ahead for future planting.

Is a Measured Survey Essential?

Many clients ask me if this is really essential. With an existing house, the plans and elevations will usually be required for a planning application anyway so it makes sense to have them produced accurately at the outset. In addition, your architect will be able to make far better progress with up-to-date and accurate plans when creating the existing and proposed information. These drawings will be useful through the whole build process for suppliers and subcontractors to measure and design their elements, too.

Some clients pass across copies of old drawings and ask if this saves the bother of a survey. If these drawings are manual then they can help inform and allow some initial sketching to take place, but they can't be made into a CAD file and invariably you can't rely on the old drawings being accurate. So again, the advice is to get the measured survey. There is never a circumstance where it is not helpful to have one.

Who Produces a Measured Survey?

I have always undertaken the survey myself throughout my career and I insist on my staff undertaking the surveys or being present when it's being carried out. You can learn so much by walking around the building, room-by-room, absorbing the information. It is a skill to undertake a survey and architects should be taught how to complete one

properly. (With the advent of specialist survey companies, I have seen less interest from younger architects.) What's more, a survey is not something that could be undertaken by a client trying their hand for the first time.

Specialist survey companies are particularly useful on larger properties and site surveys. They have the latest measuring equipment and are able to create the same 3D work now being used on many commercial projects. If you are using a survey company you need to be very clear on your requirements, timescales and outputs. I would also advise that your architect is better placed to negotiate with these companies as they 'speak the language'.

What Will it Cost?

Measured surveys cost from a few hundred pounds on a small terraced house, up to £1,500 on a detached house and more for larger period buildings. As each building varies in terms of its site, gardens, storeys, height and complexity, so does the time taken to measure, draw and check the survey.

In summary, like most things in life, preparation always pays off. It's best to start a project with a full measured set of drawings. Get them produced by your architect or a specialist surveyor company and you are heading in the right direction. Designs and decisions can be made with confidence, knowing the base line drawings are correct. There is enough that can go wrong on a building project without starting out with inaccurate information. **H**

Next month: Natasha Brinsmead advises how best to design a new bathroom



Neil Turner

Architect Neil Turner is director at Howarth Litchfield Partnership and specialises in residential design. He is also a judge for The Daily Telegraph Homebuilding & Renovating Awards

THE BRIEF
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FIVE-MINUTE GUIDE TO

STORING YOUR ELECTRICITY

Is the time right to start storing the energy produced by your renewable technology system? Sustainability expert Tim Pullen does the maths

The idea of storing the electricity produced by your solar PV (photovoltaic) array or wind turbine has gained quite a bit of traction in recent years, driven mainly by the falling FIT (Feed-in Tariff) rate – now less than 4p/kWh, but once as high as 50.67p/kWh* – and the rising price of grid electricity. Selling surplus electricity to the grid will bring in around 5p/kWh but the electricity we buy from the grid will cost around 15p/kWh. So it would seem to make sense to store that electricity on site for use, and buy less from the grid.

Types of Battery

If we think about battery storage systems we probably think of lead-acid batteries, like we have in the car. There are still a few of those about but most systems on the market use lithium-ion batteries. There is at least one manufacturer of salt-water batteries – the Aquion range from Bluesky Energy – which has obvious advantages in terms of disposal and sustainability but has not yet achieved the market dominance of lithium.

The reason for choosing lithium is its longevity. A battery's life is measured by the number of cycles – charges and discharges – it can endure before its capacity drops. Lead-acid batteries are in the 2,000 to 3,000 range and lithium-ion are in the 6,000 to 10,000 range. So if you are concerned about sustainability then you will go for the saltwater battery, if not then you will opt for the lithium-ion.

Beyond this, there are two different types of battery systems: DC (direct current) systems and AC (alternating current) systems. DC systems connect to the PV array, which means an additional inverter is not needed. AC systems connect to the PV array via the electricity meter. In this case an additional inverter is needed to convert DC electricity produced by the PV array into AC electricity which is usable in the house. Unless there is a particular need for a DC system, AC would be the default option.

How do They Work?

The point of a battery storage system is to store electricity produced by the PV array during the day for use in the evening. If you work at home or spend most of the day at home, then the probability is that most of what is produced can be used during the day and a battery system would be largely redundant. If not, then you need a system that will use as much electricity as possible in the house, then charge the batteries, and finally, export any excess to the grid.

This grid connection option also provides the possibility of charging the battery on cheap, overnight grid electricity if the battery has been run down through the evening. In this sense, how the battery works is to do with its control system.

As a note of caution, it is reported that the permission of the grid operator is increasingly needed to enable battery systems to be connected to the grid and some suppliers are reporting around a 50% rejection rate. A 4kW PV array can be connected to the grid without the consent of the grid operator. If a 4kW battery system is installed there is a theoretical potential to export 8kW, which needs permission. Check this with your supplier/installer, who may need to complete a G100 application form.

Does the Storage Capacity Matter? Floorstanding battery systems for domestic applications are broadly comparable in size to a washing machine. Wall-mounted ones, like the Tesla Powerwall, are slimline but are similar in width and height. The Moixa Smart Battery, meanwhile, measures just 50cm x 30cm x 20cm – around the size of a small suitcase.

More important, perhaps, is the electrical size. This is measured in kWh storage capacity and will range from 4kWh for the Powervault G200 to 14kWh for the Tesla Powerwall. However, a battery must not be fully discharged so the 'total' capacity might be 14kW but the usable capacity is 13.5kW. What you need will depend on how much electricity

"A good battery storage system will give independence for eight months of the year"



A photograph of a modern, single-story house with a gabled roof. The house features large windows and a mix of brick and white siding. The front yard is green and well-maintained.

A photograph of a traditional stone building with a large, modern glass extension. The extension has a flat roof with several solar panels installed. The building is set against a clear blue sky.

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5.76	6,000	34,560	£4,300	12p	5 years	Lithium
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8	10,000	80,000	£8,700	11p	10 years	Lithium
MOIXA 3KW (2KW VERSION ALSO AVAILABLE)						
2.4	10,000	24,000	£3,450	14p	10 years**	Lithium

THE WARRANTY kWh IS A GOOD GUIDE TO COST EFFECTIVENESS BUT ONLY AROUND 2500 kWh WILL BE PUT THROUGH THE BATTERY FROM A DOMESTIC SCALE PV ARRAY. IF THE BATTERY IS CHARGED WITH CHEAP OR BRIGHTER ELECTRICITY, IT'S ONLY LIKELY TO INCREASE TO AROUND 3500 kWh. "ANYONE CONSIDERING TO SIGN UP TO AN ON-GRID PV SYSTEM SHOULD ALWAYS CHECK THE LOCAL SUPPLY OF ELECTRICITY. A LOW-COST SUPPLY OF 10-12p/kWh CAN BE USED TO CHARGE THE BATTERY AND THEN USED TO POWER THE HOUSE AT A HIGHER RATE OF 15-20p/kWh."

Another measure is the discharge capacity, which is the maximum the battery can put out at any one time. The Powerwall, for instance, can discharge a maximum 1.6kW, which is not enough to run a kettle. The Tesla Powerwall will put out 5kW — enough to keep a small family ticking over. Again, it is a matter of how much you want to spend, the Powerwall being nearly half the price of the Powerwall.

The real-term value of a battery system is difficult to calculate as there are so many variables, not least of which is the way grid electricity prices will change over the next 10 years. But if we take a line through the storage capacity, the number of cycles available in the warranty period and the installed cost of the system, then we arrive at the unit costs shown in the table above. Bear in mind that the price does not include installation costs or VAT, which is 5% if the battery is installed at the same time as the PV array, but 20% as a retrofit.

We also have to bear in mind that the PV array is likely to last 20 years or more, and the battery system is only warranted for 10 years, although it is likely to last longer than that. **H**



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

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5 TERRACED HOUSE PROBLEMS SOLVED

Terraced houses make perfect modern homes — once you overcome their design flaws, says Natasha Brinsmead



The terraced house has become something of a British icon over the years, from elegant crescents of stuccoed Georgian terraces to the rows of Victorian terraces present up and down the UK.

The recent decade or so has seen a huge surge in the popularity of terraced houses, with their solid construction and original features appealing to first-time buyers and young families alike, as well as to empty-nesters downsizing. This rise in popularity has been reflected by a steady increase in their value, meaning their average price has risen faster than any other house type in the past decade*.

With the majority of these houses being built during the 18th and 19th centuries, their layouts rarely suit modern lifestyles and so a degree of reworking and tweaking is often required in order to mould them to our 21st-century expectations.

While layouts and quirks vary from house to house, there are certain typical features that modern homeowners are usually keen to change, while still retaining the character associated with this style of housing. Here we look at the top five design problems associated with terrace homes and how to overcome them.

The Design Dilemma: Ground Floor Bathrooms

Perhaps the most impractical of all the layout issues common to terraced houses, a ground floor bathroom is not only hard to live with, but will also deter future buyers if not dealt with.

A large number of pre-20th century houses were not built with any bathrooms at all, relying instead on an outside WC (hello bedpans) and a tin tub in front of an open fire. This meant that when bathrooms became more commonplace in the home (which wasn't up until the 1950s and even the 1960s in 'working-class' terraced houses) they were generally tacked on to the end of the kitchen within a single-skin brick-work extension. Alternatively, the old coal store or outside WC would be transformed into a bathroom, leading off the kitchen.

There are several ways in which to navigate this problem, some simpler and less costly than others. Take the time to research the 'ceiling price' of houses on your street and assess whether the price you will pay for the work will be worth it.

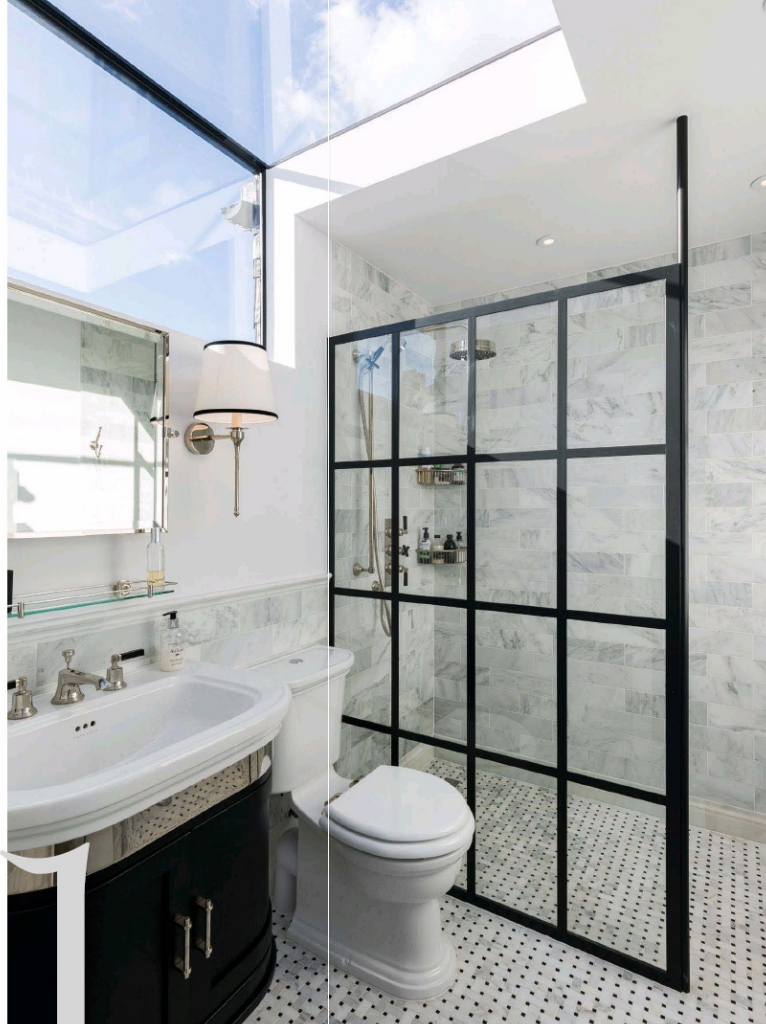
If you are considering a single-storey extension as part of the renovation, bear in mind that building a two-storey extension instead is actually a cost-effective method of gaining extra space — 20% cheaper to build per m² than a single-storey extension. This is because the groundworks and roofing costs are basically halved — in other words,

you would need these for your single-storey extension anyway and you are only paying extra for the less expensive 'middle bits'. This solution means that not only will you be able to avoid sacrificing a bedroom in the name of your new bathroom, but will also provide the opportunity for increasing landing space and possibly adding an additional bedroom, too. It will also allow you to bring in some extra natural light onto the landing space.

The next option is to consider turning one of your bedrooms (preferably the one over the kitchen or bathroom below to keep the plumbing simple and cost-effective, particularly when connecting to the soil pipe) into your new bathroom. You could potentially make up for the loss of a bedroom through a loft conversion — you might even have space for an en suite up there, too.

A less expensive option is to steal space from each of the largest two bedrooms in order to create a new bathroom. While there is no minimum size requirement for a bathroom, at least 4.5m² provides a comfortable space.

Finally, you may just have to accept that you are going to lose a bedroom in order to gain a first floor bathroom. In the case of small box rooms this is not usually too much of a sacrifice, but do consider future buyers. Most would prioritise an upstairs bathroom over a tiny bedroom, but if you are renovating with the rental market in mind, consider simply installing a WC instead.



Bathroom Solution

Within this terraced house (above), a loft conversion by Design Squared Ltd (design-2.co.uk) has allowed an extra bedroom, while the new bathroom has been located on a split level. Planning restrictions concerning overlooking required a clever window arrangement.

Open Spaces

Within this Victorian terrace (top right), the kitchen has been combined with the rear reception room and extended to the back and side by Design Squared Ltd.



The Design Dilemma: No Natural Light in the Centre of the House

The Georgians, Victorians and Edwardians had different ideas to us when it came to what made the ideal home. While we crave natural light and open, sociable spaces, our 18th and 19th-century ancestors favoured smaller rooms with specific purposes — the 'morning room' and parlour, for example. The living room was kept separate for receiving guests and the kitchen was just a necessity tucked away out of sight.

Today we want something closer to what our Medieval ancestors might have had (albeit with modern home comforts). Medieval homes had one room in which the inhabitants cooked, ate, socialised and slept, and while we may now prefer to keep our sleeping quarters separate, this is not far off the 21st-century love of open plan family spaces.

In the case of traditional terraced houses, the layouts usually comprise a front reception room (often the original 'parlour'), a middle room, which often would have featured a range for cooking, and a back room, intended as a scullery or kitchen. This layout commonly results in a middle room that suffers from a lack of natural light, however, either due to having just one small window or sometimes none at all, sandwiched between the two other rooms.

There are many ways to remodel a space like this — the route you choose should reflect not only your budget, but also your lifestyle and how much disruption you are willing to endure.

The easiest, and often cheapest, solution, is to replace the window in the middle room with a set of French doors or bifolds — which provides extra light and creates a link to your exterior spaces.

The second simplest solution is to remove the wall separating the front and middle rooms — either fully or partially. This creates the potential for an open plan living dining space which is flooded with light thanks to the window at the front of the house. "If you don't want everything open plan, you could consider installing a sliding glass door or French doors between the spaces to create a more flexible arrangement. We recently used Crittal-style windows in a project to zone the space," says Jo Dyson of Mae House Design (maehousedesign.com). Some people prefer to use this front room as a kitchen diner, tucking away the living room at the rear of the house.

Last, but not least, you could do as hundreds of other renovators are currently choosing to do and merge the centre room with the existing kitchen. This is one of the most popular renovation projects, creating the open, convivial family space everyone is after. Combined with a side-return extension (see p. 118) this results in a large, light space with the potential for rooflights and swathes of glazing. It also overcomes the problem of the small kitchens associated with terraced houses. ➤

MOVING THE BATHROOM: A CASE STUDY

"When we renovated our house we knew we would have to relocate the bathroom from the cold, uninsulated 1960s extension on the ground floor to the first — in order to stop the daily trek through the cold house to the shower and back," says architect Dan Stewart.

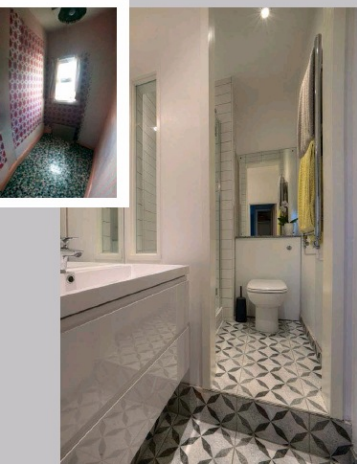
"Our first port of call was a local plumber who, in addition to upgrading our boiler and central heating system, installed new pipe-work to feed our new bath, shower, basins and toilets, and installed the new drainage. The work involved was extensive, and involved lifting all of the floorboards and removing all of the plaster to the external and internal walls.

"Planning the bathroom layout is key, as well as bearing in mind drainage. We consult-

ed with our local building control department and agreed the best solution was to raise the floor level. A single step up into the bathroom permitted greater freedom when positioning our sanitaryware.

"A long, narrow first floor room, once used for storage, was sacrificed and split into two en suites, one for each bedroom. Through careful planning of drainage pipes sitting 'back to back', we maximised the use of each en suite, fitting a shower bath with toilet and basin in one, and a shower with toilet and basin in the other (left).

"Careful planning is key, as well as ensuring the new bathroom is tested and used a little before removing your old one," concludes Dan.



OPPOSITE PAGE: IMAGE CREDIT: CLOUTIERSE FROM TOP LEFT. ABOVE: DESIGN SQUARED LTD. THIS HOUSE WAS RENOVATED BY DESIGN SQUARED LTD. (DESIGN-2.CO.UK) AND BEFORE RENOVATION. LEFT: DAN STEWART, ARCHITECT. RIGHT: DAN STEWART, ARCHITECT. PHOTOGRAPHY: JAMES PHILLIPS

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Open Staircase

Removing the wall that once separated the centre reception room from the hallway is a good solution to a small, dark entrance.

The Design Dilemma: Lack of Entrance Hall

While the ideal hallway provides a grand space in which to welcome guests, shed coats and shoes, and acts as a central circulation space, the majority of terraced homes will not have prioritised the hallway.

Most terraced homes have little more than a narrow, dark passageway when it comes to the hall — or no hallway at all.

But there are several ways in which to navigate the problem — get rid of the hallway entirely or try to enhance the space.

The latter option is the least disruptive, relying on methods that pull natural light into the space, such as partially glazed doors, fanlights or well-placed sun tubes, as well as clever decorating techniques and nifty storage ideas.

If, however, you feel that a separate hallway holds no benefit to the overall layout of your home, it might be best to consider getting rid of it.

Removing a wall separating the hallway from the front reception room is one option, but do consider how it will expose the living room to the elements when the door is opened. Partial stud walls and glazed-room dividers are both good options here.

If your main entrance is going to open directly into this front room, reconsider what you use the space for — an exterior door that opens into a kitchen diner is preferable to one that opens into a living room.

“I am all for getting rid of narrow hallways where possible... I like to open this space up”

Removing the wall separating the stairwell from the middle reception room often makes more sense. It removes the claustrophobic feel of the hallway and increases the sense of space and light.

If the wall is structural it will need supporting above, and you will need to consider how the staircase string will be finished on the now exposed side of the staircase.

“I am all for getting rid of narrow hallways where possible,” says Jo Dyson. “Especially when they are located next to living rooms — I like to open this space right up.” ➤



Side-Return Extension

The owners of this terraced house wanted a large open space, zoned into kitchen, dining and sitting areas – a glazed side-return extension, designed by Design Squared Ltd, has allowed for this.

The Design Dilemma: The Kitchen is Tiny

Small, narrow kitchens or poky, single-skin brickwork add-ons are commonplace in Victorian and Edwardian terraced houses. With large, open ‘hub-of-the-home’ kitchens now topping most homeowners’ wishlists, kitchen extensions are hugely commonplace. The most popular way of creating bigger kitchens in terraced homes is through the side-return extension.

A side-return extension involves building out into the narrow space that runs between the rear kitchen and the neighbouring property in order to create a larger space – usually adding around 1-2m. You might consider also extending out into the garden a little, too.

A side-return extension also works well when combined with the removal of the wall between the middle dining room and the kitchen space, allowing for one large, open plan kitchen diner.

The most common method of creating a side-return extension is detailed below:

- A new wall is built either directly on the boundary of yours and your neighbour's land, or just on your side of the boundary
- A roof is added to this new space – often featuring a bank of rooflights, a large roof lantern or in some cases, fully glazed.
- The wall of the existing kitchen is then either completely removed, or partially de-

PLANNING PERMISSION FOR SIDE-RETURN EXTENSIONS

You may not need to seek planning permission for a ground floor side-return extension. Providing the extension is only single storey, no higher than 4m and no wider than half the width of the original house, it will fall under Permitted Development rights.

However, you also need to be aware that the maximum eaves height of an extension that is within 2m of the boundary is 3m – likely for most side-return extensions. If this is not the case, then you will need to apply for planning. Of course, if the house is listed or in a conservation area you will also need to speak to the conservation officer.

You will still have to comply with Building Regulations though, and the Party Wall Act (opposite) in the case of extensions that involve the creation of a new boundary wall. Speak to your local council's planning department for clarification.

molished – a steel beam or frame is usually required to support this new opening. “It goes without saying that a structural engineer will be needed,” says design expert Jo Dyson of Mae House Design. “You are removing a structural wall and need to support the house above.”

● A new floor is usually required to level out the differing heights of the spaces – or a split-level design may be created.

A fairly simple extension of this kind can be expected to cost from around £20,000, not including the new kitchen.

Providing there are no unforeseen structural complications, expect it to take around 10 weeks for structural work to be completed by a professional building firm. ➤

Flexible Family Spaces

Within this extension from Mae House Design, not only has a side-return extension added to the kitchen space (below), but the entire ground floor layout has been opened up, including the entrance hall.

WHAT YOU NEED TO KNOW ABOUT PARTY WALLS

The Party Wall Act will apply to any extension or building work that involves a wall shared with neighbours. It will also apply to excavations within 3m of an adjacent property where new foundations will be deeper than those next door.

Before work can commence, a notice will be served to your neighbours – you will usually need to involve the services of a party wall surveyor who will oversee the process. ‘Share your plans with your neighbours in person,’ adds Jo Dyson. ‘Talk them through your design so you can discuss any concerns in person and hopefully agree to use an approved surveyor.’

What's more, loft conversions may bring to light other problems with party walls. ‘Victorian terraces have party walls constructed of solid masonry, but sometimes to save money these were built in very thin 115mm single width brickwork,’ says chartered surveyor Ian Rock. ‘One way to check this is to look at the firebreak party wall in the loft that separates you from next door; if you can only see bricks laid lengthways (stretchers) without any brick ends (headers) visible, then this wall is likely to be a thin party wall.’

Party walls in lofts were sometimes omitted altogether, which apart from anything else, can allow smells from next door into your loft and house. Where party walls are missing, it's advisable to have a new one constructed.



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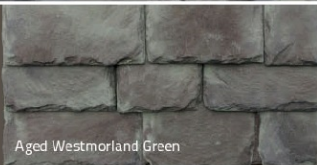


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Absorbing Outbuildings

External storage or WCs can either be dispensed with to make way for a kitchen extension or updated and incorporated into the design.

The Design Dilemma: Disused Rear Outbuildings

Older terraced houses often had outside WCs and/or coal stores — usually attached to the rear of the house. While these can provide useful storage during a renovation project, they can also provide one of the most cost-effective ways of gaining extra kitchen or utility space.

The simplest option is to knock through into these spaces in order to absorb them into the new kitchen. That said, this does not offer much scope for reconfiguring a narrow galley-style room, unless combined with a side-return extension.

As they are usually constructed from little more than single-skin brickwork — outbuildings were rarely designed for living in and so weren't designed to stay particularly warm and dry. As such, it is worth considering knocking them down and using the space where they once stood as part of your extension. This space can often be the ideal location for a new utility or bootroom, downstairs cloakroom or playroom/study — and is a good spot to fit new back door.

Bear in mind that if you plan on incorporating these old buildings into your home, you will need to establish whether they're structurally sound. You will probably need to install a new floor too, having first dug adequate foundations. A damp-proof course will also need to be put in and drainage considered, depending on what you plan to use the space for.

As the walls will probably be single skin, you will need to think about insulation. This is usually added internally, between



timber battens, before the walls are boarded and plastered.

A new roof may also be required, as well as new windows and doors — these single-storey extensions are the ideal spot for rooflights and runs of patio doors.

Finally, the electricians will need to be updated and heating installed — it is likely in most renovations and extension projects that electrical and plumbing work will be taking place anyway. ^②



SPOTLIGHT ON...

Boundary Treatments

Whether you opt for a hedge, fence or wall, getting your boundary treatment right on a new build or renovation project can pay unexpected dividends, says Mark Brinkley



Native Hedging

A native hedge provides a boundary in keeping with this rural self-build by Welsh Oak Frame on the Surrey/Hampshire border.

IMAGE: NICHOLAS VARELEY © WELSH OAK FRAME; STEVE LAMKE/FIELD

PROJECT ADVICE

Boundary Treatments



Gabion Walls

This self-build in Perthshire, designed and constructed by Hanse Haus, features gabion walls (cages filled with stone), which act as retaining walls but are also visually interesting and soften the new build.

Almost all building plots have to have marked boundaries. Privacy screening is frequently imposed as a sale condition, and increasingly planners are demanding boundary structures that meet their approval. It can spoil a development to put cheap and thoughtless fencing in place, although it can be very expensive to create good-looking boundaries.

Timber Fencing

The simplest and cheapest way to mark a boundary is to use timber fencing. If the fence is needed to provide privacy from neighbours, it will need to be at least 1.8m high. Requirements will be rather different if you want to keep animals or children enclosed.

If you're not too bothered about privacy or security, the cheapest permanent option is the sawn timber post-and-rail fence. This shouldn't cost more than £15/linear metre supplied and erected, although you can vary the specification upwards by going for mortised joints (rather than the standard nailing) and even riven oak. Another cheapish option is 1.2m-high chestnut palings which, being vertical, are much harder to climb over. They are easily fixed – with posts in every 2m or so – but have a temporary air about them which can be eventually concealed with a hedge. The picket or palisade fence is similar in design to palings but has a more pleasing look.

If you require privacy and security, go for a solid or near solid fence which

extends up to the eyeline. The basic way of doing this is to erect feather-edged or larchlap timber boarding between posts. Material costs for such fencing are as little as £25/m, and supply and fix costs around double this. There are many variations on the theme of boarded fences; you can set the boards horizontally or diagonally, or alternate the boards between the inside and the outside of the fence posts (called hit and miss fencing). You can achieve stunning effects very simply, but the costs naturally escalate.

A good resource to check out is Jackson's Fencing Guide, which covers contemporary fence design as well as more run-of-the-mill solutions. As with many aspects of building, you can spend a little more and change something merely functional into an attractive feature.

Some thought should go into the fence posts. Concrete posts can last indefinitely but look rather harsh. Timber looks great but rots in the ground. The best solution is to use either metal or concrete spurs below ground and to fix the timber posts to them just above ground level.

Metal Fencing

While self-builders may get all too familiar with temporary security fencing during their build, a permanent metal fence is something much less common, especially on rural sites. A metal fence is usually made of galvanised steel which is then powder coated in a choice of colours, though ➤



Timber and Render Boundary

The vertically clad timber of the gate and concrete block wall with RAL coloured render complement the exterior of this Cambridge self-build from Baufriz.



Beech Hedge

Native beech has been planted to form a hedge for this barn conversion; meanwhile, a simple post and rail fence provides a temporary boundary.



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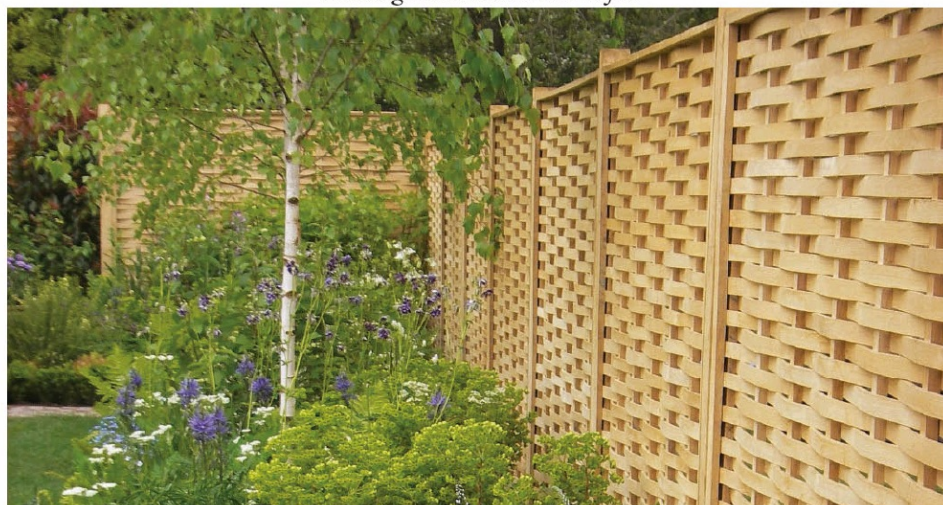
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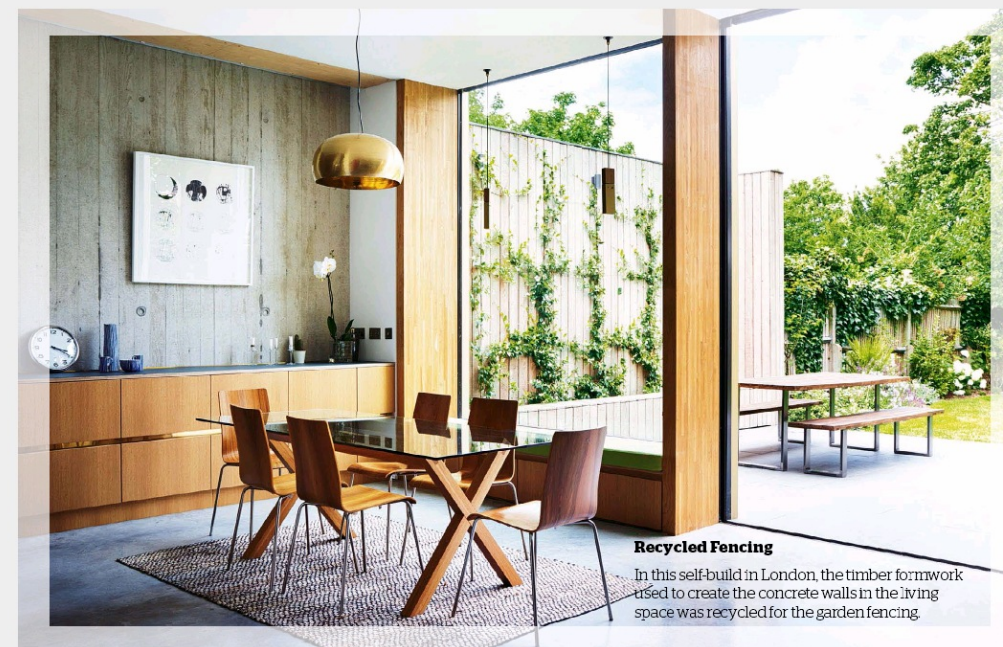


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Recycled Fencing

In this self-build in London, the timber formwork used to create the concrete walls in the living space was recycled for the garden fencing.

black is the most popular option. Metal fencing provides security but not privacy and is therefore often used at the front of houses, especially with metal gates to match.

On larger properties, gates are often a requirement, especially on driveways. The gates can be either timber or metal and the costs start at around £500. If automation is also required, the overall supply and fit prices gallop up into the thousands. Another good resource here is Gates and Fences UK, which illustrates a wide range of options in this area.

Brick and Stone Walls

While timber fencing is getting expensive at around £80/m, you'll look to pay at least five times this amount for a brick boundary wall. If you use a nice brick and build up to

head height, the cost will be around £500/m. A brick boundary wall should not be left as an afterthought: ideally it should be erected along with the main house to combine economies of scale — not to mention getting JCBs into the garden to dig the foundations. A 1.8m-high brick wall is actually a rather vulnerable construction, prone to blowing over in howling gales, and all unsupported walls over a mere 650mm high should be built two brick skins thick (225mm). In exposed locations, a 1.8m-high brick wall should be built 330mm thick.

If you live in a stone belt, you may be required to build a hard boundary in the local stone which is perhaps the most expensive boundary option of all. A stone wall, whether laid dry or set in mortar, is a time-consuming affair and the costs will of course reflect that.

Hedges

Many self-builders are tempted to build a rudimentary fence at the outset and then plant a hedge, with the idea of providing a secure and beautiful boundary to play host to wildflowers, insects and birds. Be careful about specifying a 'quick hedge' such as leylandii. Anything that grows over 2m in height is likely to be considered a nuisance by neighbours, and councils have powers to make people keep their hedges from overpowering other properties. Generally, a 'slow' native hedge will take three to five years to become established. 🌱



Mark Brinkley

Mark is the author of the ever-popular *Housebuilder's Bible* and is an experienced builder.



FURTHER CONTACTS

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AN INSIDER'S GUIDE TO PLANNING SUCCESS



KEEP OFF
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LOCAL
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PLAN

In the second of his new series, planning consultant Ken Dijkman urges self-builders to research the planning conditions that exist in local authorities — and explains why an out-of-date local plan could be a golden opportunity

It is not an exaggeration to say that government planners are obsessed by the desire to see all local authorities have an adopted local plan in place. This is a document that contains all the policies for the planning of the district or borough — and these policies are the guidelines by which local authorities (LAs) refuse and grant planning permission. The government is keen that LAs have an up-to-date adopted plan because it believes that this is the best way to secure the delivery of more houses.

However, in my experience, the adopted local plan is without doubt the greatest threat to the supply of small housing sites and self-build plots. Without wishing to bombard you with jargon, LAs have a requirement (under government policy) to prove they have identified a five-year supply of deliverable housing land in their area. In crude terms, this means they must demonstrate five years' worth of available building land to meet the identified demand.

I won't go into how that housing demand is calculated, but it's complicated and wholly artificial. The local plan exists to allocate sites to meet this five-year land supply and to refuse permission for just about everything else. Local

politicians are also very keen on having their local plan adopted because it gives them the power to refuse planning permission for housing schemes that are not identified in their plan. For the average small building company or self-builder, the adoption of the local plan is fairly disastrous — it usually means that the supply of small schemes and single plots will all but evaporate.

The Impact of Politics on Building Plots

Housebuilding is extremely unpopular with a small minority of highly vocal, local (always homeowners) objectors who magically appear whenever an application is made to build houses anywhere near them. The political influence wielded by this articulate minority is usually hugely disproportionate to their number. As a result, and notwithstanding the enthusiasm expressed nationally, politicians are nervous about new development and see building houses as more of a vote loser than a vote winner.

In effect, local and national politicians prioritise petty local objections, made in self-interest by an affluent minority, over the social and economic catastrophe caused

Improving your home security reduces the chance of you becoming the victim of crime



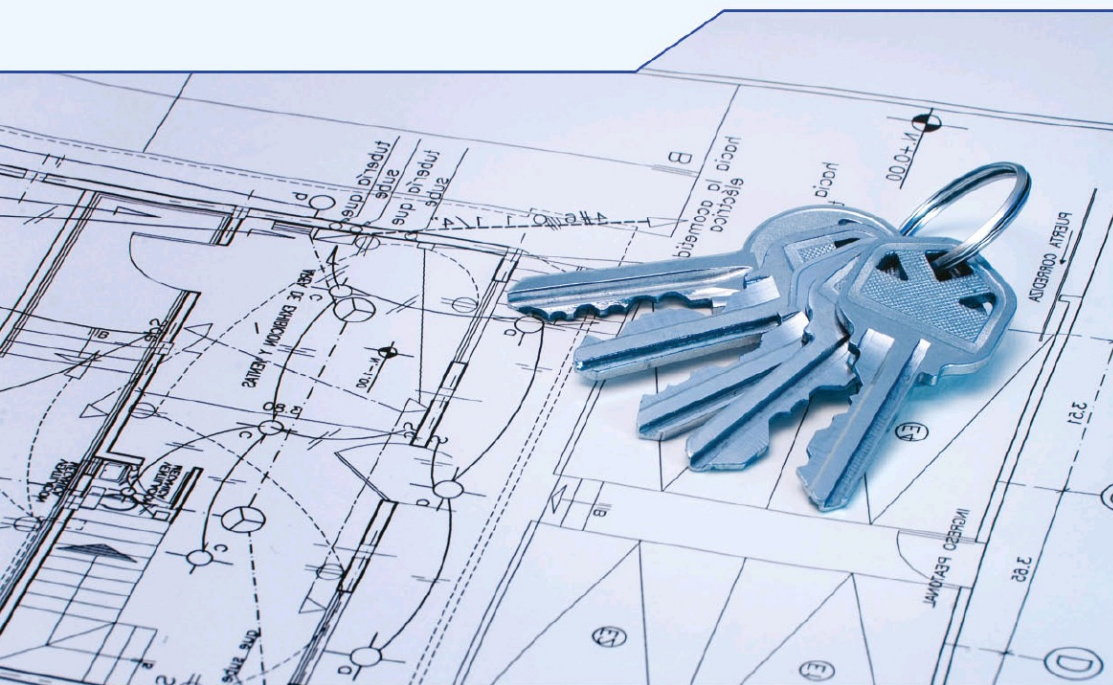
Secured by Design (SBD) is the national police crime prevention initiative, which seeks to design out crime through clever design principles and by working with companies that provide security products like doors, windows and locks, to ensure that their products are secure.

To help you make the right choices to protect your home or business, Secured by Design have put together comprehensive information about security. It is contained in an easy-to-read format on our website: www.securedbydesign.com

We also have a scheme to accredit products that have passed the necessary tests and evaluations to satisfy the police service that they are secure. These products and the standards are all listed on our website and products that have been accredited will have our logo affixed to them to show that they have achieved 'Police Preferred Specification'.

If you are uncertain about claims made by a manufacturer, you can always contact us at: enquiries@police-cpi.co.uk

Or contact the crime prevention officer or designing out crime officer at your local police force.



by extortionate house prices and a severe lack of affordable homes, but I digress.

The reality is that, for political reasons, local plans generally try and deliver the necessary five years of available sites without upsetting the natives. Thus, LAs normally try to achieve this by allocating large housing sites on the edge of as few towns and villages as possible — and making a special effort to prevent any new homes being built near the smaller, wealthier villages.

You will no doubt have seen a small market town or large village in your area hit by successive waves of new housing estates over a period of several years. Once a settlement has been hit with a housing allocation the political damage has been done. It therefore makes political sense to carry on building more houses in that area and concentrate the pain.

This is one of the key reasons why new housing tends to be in the form of large housing estates. It is a straightforward way of LAs controlling the political fallout which arises from building lots of houses. The irony being, of course, that housebuilding is bound to be unpopular when it takes the form of large, intensively developed estates which often rob the character and charm from the places where they are built.

Local plan policies for new housing will include these large allocated sites and normally accept the principle of building new houses within the development boundary of the larger villages and in towns. There is normally a blanket prohibition on building any new houses on greenfield sites that have not been specifically chosen in the plan. So it is becoming increasingly unlikely that small sites for new housing will arise anywhere through the planning process.

Government policies to prevent small groups of new homes being built on greenfield sites on the edge of towns and villages have been in place for the past 20 or 30 years. This is why there are a diminishing number of building plots within the settlement boundaries. Single plots can still be found, but it is ever more competitive and difficult to find them, and they tend to be snapped up before they hit the open market. This all means the self-builder may be restricted to infill plots and redevelopment sites within settlements.

The new Right to Build legislation and requirement on LAs to provide self-build plots has, in my experience, had little impact on the anti-development ethos of local plan policies. These requirements may be found in recently adopted local plans, but they don't give self-build plots a different or special planning status; these houses still need to be built within existing development boundaries or on new allocated sites.

A Window of Opportunity for Self-builders

Where there is no adopted local plan and where the plan is out of date, with no established five-year land supply, there is hope. In these circumstances, opportunities can exist and it is an excellent time to find building plots. This is because, in the absence of the adopted plan, LAs are forced to consider each case on its planning merits as a penalty from the government for not putting a plan in place.

This means that if you make a reasonable planning application the LA must grant it. In areas without a local plan there tends to be an avalanche of applications for all kinds of proposals because there is at least a chance that they might get planning permission. Once the plan is adopted, the door closes.

If you find yourself in the fortunate position of looking for a building plot in an area that does not have a recently adopted local plan, you have a golden, if time-limited, opportunity. Local authorities can be incredibly slow at drafting and consulting on their local plans, so you may have a year or two to take advantage.

If you can find a piece of land on the edge of an existing town or village that is technically acceptable in terms of highways access, flood risk, ecology and landscape impact, you have a sporting chance. LAs are often initially reluctant to grant such permissions as they cling onto their old policies which steer them towards saying no. However, once the LA has accepted that its plan is out of date, it is forced to look at applications constructively and positively and to grant permissions for new houses in perfectly acceptable locations.

If you are looking for a plot, find out what the planning circumstances are in your area. Think laterally about where land might be available for you to put a planning application in for; you have a far higher chance of success under these conditions than where there is an adopted local plan.

The government's oft-stated desire to increase opportunities for housebuilding across all sectors, including self-build, is fatally undermined by their own policies. These policies restrict new housing development outside existing built up areas, unless they are specifically identified within a new local plan. So if you want to build your own home, beware the local plan. **6**



Ken Dijkstra

Ken, a former planning officer, is a planning consultant and owner of Dijkstra Planning LLP. He is also the author of *The Planning Game*.

THE LATEST

DOOR FURNITURE

Given the major decisions facing any self-builder or renovator at all stages of a build, it's easy to see how choosing door furniture could slip down the list. However, the importance of your door handles and knobs should not be underestimated, particularly when it comes to unifying a design scheme. Perhaps like football referees, handles are at their best when they blend into the background — and when they are drawing attention, it's usually for all the wrong reasons!

"No doubt you will have chosen your paint, flooring and furniture to coordinate — so your door furniture and fixtures and fittings should complement those too," begins Sam Bruce of Turnstyle Design.

Material choice will affect the price and durability of your handles as well as the look — you'll typically be choosing between chrome, brass and nickel with a glossy or satin finish, and even glass, porcelain and wood. Installation is within the capabilities of a competent DIYer, but it can also be done by your carpenter or joiner when the doors are hung during the second fix stage.

Your material choice may also be affected by current trends, as Lucy Pascall of Pushka Home says: "For more contemporary tastes, trend-led accessories which incorporate brass, stone, and crystal can optimise the look and feel of a door."

Prices vary hugely: from under £20 per pair to hundreds (if not thousands of pounds), and are available from DIY sheds, specialist retailers and smaller artisans.

Dominick Sandford of IronmongeryDirect, says: "Everybody's requirements are different. For cost-effectiveness, polished chrome is an ideal and inexpensive choice — but regardless of price you can always find elegant solutions."

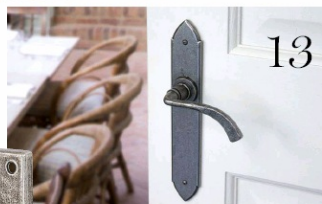
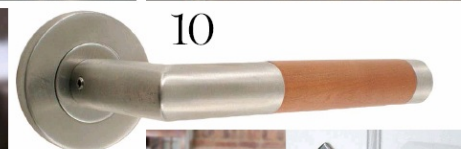
As Dean Stanley of Broughtons says: "Get your handle choice right and it will unite different areas of the building. Get it wrong and it will nag away at you every time you open and close a door." 

Door furniture is often one of the last things considered in a design scheme, but your handles have the capacity to make or break a home's look



USEFUL CONTACTS

A Perry & Co perrytrade.co.uk
B&Q diy.com
Broughtons of Leicester broughtons.com
From The Anvil fromtheanvil.co.uk
Ironmongery Direct ironmongerydirect.com
Pushka Home pushkahome.com
PushPull pushpull.co.uk
Screwfix screwfix.com
Turnstyle Design turnstyledesigns.com



THE BRIEF

3 Dark Grey Ceramic Knob
 The Dark Grey Ceramic knob from Pushka Home (£25) features a hardwearing ceramic knob, which has been hand-painted.

4 B&Q Satin Iridium Effect
 This brass latch handle from B&Q is available in a satin iridium-effect finish (£22) that is well suited to complement a contemporary design.

5 Petal Glass Door Knobs
 Broughtons offers these petal designed glass mortice door knobs with a reeder face fixed rose for £39 a pair.

6 Avon Lever Handle
 From The Anvil's Avon lever handles take two hours to hand forge. External beeswax, black and pewter finishes can be specified, with prices starting from £51.65 (excl. VAT).

7 PushPull Bronze Pull Handles
 PushPull's range of bronze handles are a luxury touch to a contemporary design scheme. The dipped handle (pictured) is cast from solid bronze and prices start from £11.16.

8 Wire Door Lever by Turnstyle
 The Wire door lever (£147 excl. VAT per pair) from Turnstyle Designs' Industrial range is well suited to a modern industrial interior. It's available in 28 different colourways.

9 Bridge Door Lever by Turnstyle
 The Bridge Door lever (£194.50 excl. VAT per pair) is available in seven different metal finishes to fit into any interior colour scheme.

10 B&Q Satin Silver Effect
 Made from stainless steel and with timber detailing on the handle, these latch handles from B&Q come in silver effect and cost £17 per pair.

11 Horizon Vela
 The Vision Vela from A Perry & Co is a contemporary lever handle on a round rose, available in graphite and polished chrome finish or a polished chrome and satin nickel finish. POA.

12 Smith & Locke Dos Latch Door Handle
 These zinc alloy handles in a polished chrome finish, available from Screwfix for £12.99, come with a one-year guarantee and a free latch set.

13 Gothic Curved Lever Handle
 This curved handle gives a contemporary twist to From The Anvil's Gothic handle. Prices start from £66.20 (excl. VAT).

14 Finesse Durham Door Handle
 Each Finesse Durham handle, sold by IronmongeryDirect (£76.50 excl. VAT) is hand-worked in pewter with square or round roses available.

15 Internal Mortice Knob
 Pushka Home's range of Luxury Internal Mortice Knobs (£40) come with a range of inserts — including walnut (pictured), granite, leather, oak and various colours.

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THE BRIEF

SMART HOME TECH FOR EVERY BUDGET

The world of smart home technology can be a minefield, but which devices actually make your home easier, brighter, warmer and safer, and at what cost? Our expert Neil Mohr shares his thoughts

Everything seems to be 'smart' these days, from cars to coffee makers — but what vision does 'smart home' conjure in your mind? Is it one of a home cinema and a multi-room audio/visual experience? Is it of a house that responds as you wake with lighting, automatic blinds and smart heating? Perhaps it's one that you feel secure in? Is it one you can control with your voice, phone, or both? The truth is, it can be all of this.

The last couple of decades have seen huge changes in the smart home market, the range of options, the cost, the main players and ease of installation. But certainly, one thing hasn't changed — it can be confusing. Over the next few pages we aim to scythe through the smart home jungle to offer solutions for all budgets — starting with bespoke professional install, which will cost in the thousands, and then the off-the-shelf products, which start from £10.

Professional Installation

If you're aiming for a fully integrated smart home, your first port of call should be a smart home installer. Cedia is an international trade organisation that represents the smart home industry and, while it's not a regulatory body (such as the Gas Safe Register), it offers training, education and certification, and maintains a list of registered companies you should strongly consider (at.cedia.co.uk).

You'll find installers that specialise in specific areas such as lighting or home audio/video (AV) and ones that can handle all aspects. Besides their experience, they'll be able to tailor a bespoke, all-in-one home solution that delivers exactly what you require, packaged into a seamless control system. "The professional install industry is about getting various bits of kit that don't work together to work together in a seamless way," says Iain Shaw from Brilliant Lighting.

A professional installer will also be able to leverage commercial solutions that are only really available to the trade — systems such as Control4 for home-wide smart control, Lutron for lighting installations and Kaleidescape for AV and KNX (an industry home-control standard) for modular wiring, signal and control. These standards and products enable a deeper level of integration, slickness in their execution and ultimately, a better end experience than the consumer-grade products on the market. The obvious downside is the extra cost.

It's hard to pin a budget on a professional installation as there's so many options, and even a basic home wired network design and install could cost upwards of £3,000. You'll find a similar cost for a basic AV installation and for a multi-room audio solution. On a pragmatic level, there's little use considering a home-wide smart lighting install that costs much less than £10,000.

ILLUSTRATION: GETTY IMAGES

Smart Heating

At the entry level for home heating control is the Nest Learning Thermostat; it will easily wire into your combi boiler (although you can buy them just for hotwater boilers) combining the bundled Heat Link wireless controller and the Nest thermostat. The Nest system can only handle a single heating zone, so additional units are required for more than one zone, but can help unify your underfloor heating. The entire system can then be controlled via most smartphones (Apple/Android) using the Nest app, and/or can be linked to other smart-home hubs such as Amazon Alexa and Google Home for voice control and beyond.

Hive is well worth mentioning in this space. Spun out of a trial in the UK by British Gas back in 2011, Hive is owned by Centrica and has grown to encompass more than just heating control. The core package is a Nest-style smart thermostat, boiler controller with the addition of a Hive smart-hub bridge, which costs £249. It's the inclusion of the Hive hub that expands its capabilities to cover individual lamp (bulb) control, basic security camera and sensor monitoring, plus plug-in socket control that extends its usefulness.

If you want integrated multi-zone heating control, including individual radiators, take a look at the Honeywell Evohome solution (from £229). This has support for up to 12 individual zones such as radiators and underfloor heating, on top of the default smart thermostat and controls. Honeywell also weaves in a fuller home security offering with panic buttons, contactless door controls, sensors and cameras options with GPRS mobile backup, all controlled via an app.



Heating Solutions

The Nest Learning Thermostat (left) is an entry-level solution that can be controlled from your smartphone (costing £280 including installation or £220 without).



A Contemporary Smart Home

On their four previous self-builds, Jane and Tim Meggitt had installed separate controls for lighting, music, security and so on. "These systems were unbelievably complicated compared to our new integrated system," says Jane, who specified an integrated Loxone system for the couple's contemporary self-build (pictured above) in West Sussex.

"For us, a key benefit is to have one single and affordable smart home system that can be easily controlled at the press of a button inside and outside – at home or abroad – for lighting, music, ventilation, heating, entrance gate access, alarm and so on – hence the Loxone system," she says. "If we go on holiday, we can control everything at the touch of a button as if we were there. It is brilliant; we are totally non-tech but Loxone is very instinctive to use and understand. Our house is totally futureproofed. Loxone can update the software remotely without equipment falling obsolete, as happens in so many cases."

Having just one trade to install the integrated system was another important benefit, adds Jane, who commissioned CW Electrics (cwelectrics.co.uk) to carry out this task.

A Network Infrastructure: A Good Starting Point

The solid core of a smart home is its network infrastructure. While wireless will be a key component, you can't beat a wired infrastructure, more specifically, Cat6(a) ethernet cabling (which is future-proofed, supporting up to 10GB ethernet wired networks). This will allow you to benefit from a private, high-speed wired network (providing you have a good broadband connection to the house) which allows for internet access, file sharing, media streaming, online gaming and much more throughout the home.

Installing a basic wired infrastructure needn't be more complex than asking an electrician to run the cabling through your build. You'll want to think about where ethernet ports would be useful. Start with where broadband enters the house (that's usually where the master phone socket will be). It then makes sense to run cables to the far end and top of the building, from which you can then run wireless routers if required. Additional ethernet sockets would be useful around any AV areas or at least for your main TV, office space and any exterior workshops.

For a modest property with just a couple of ethernet cables, a generic four-port ISP (internet service provider) wireless router will likely suffice. For larger properties or projects with a more complex network infrastructure where you're looking to bring in a range of smart tech devices, and therefore a higher number of ethernet cables and ports, you'll need to invest in an 8-port or 16-port network switch. In this case, it would make sense to consider a centralised network cabinet to route all of this from. Any wireless network routers can then be attached to this internal wired one, expanding your internet access to wireless devices all around your home and into the garden.

In order to deliver complete wireless coverage, the latest technology trend is to add a 'mesh' wireless system such as Google WiFi (single £129, double £229), Netgear Orbi (double BK50 £289) and Linksys Velop (double £249, triple £379). These models utilise multiple router units working in tandem, to cast a wireless 'mesh' across your home for complete coverage, with the capability to add more units to expand coverage.



Going Wireless

The Netgear Orbi (above) offers a flexible 'mesh' network solution which works in tandem with other routers to offer complete wireless coverage throughout your home. The Netgear Orbi BK50 costs £289.

Smart Lighting

If you fancy a smart home lighting system at consumer level, pickings are slim. One of the more widely supported options is the Philips Hue system (right). This ties in with the usual suspects of Amazon Alexa, Google Home and Apple HomeKit.

As with all these consumer units it requires a dedicated proprietary 'hub' that bridges the wireless control of the individual lights to your smartphone or tablet. Using an industry standard called 'ZigBee', the £50 Philips hub promises interoperability with other compatible ZigBee lights – and at £25 to £50 for the individual Hue lamps (i.e. bulbs), you'd hope so.

IKEA has neatly sidestepped the whole issue of 'smart' lighting with its range of TRÅDFRI wireless (Philips Hue and ZigBee compatible) lighting solutions. It doesn't require a smartphone or the like to work, just neat wireless remotes (£8 and £15) and motion sensor (£16) controls. The really smart part is: add in its Smart Gateway (£25) and suddenly the system can be entirely smartphone, Alexa or Apple homekit controlled too, meaning you can control all your TRÅDFRI-compatible bulbs anywhere in the home. At this level, it's a good, affordable solution.

A more complete consumer solution would be LightwaveRF; this provides solutions for smartphone-controlled light switch dimmers, power sockets, radiator valves, thermostats and boiler controls. It ties in directly to Amazon, Google and Apple kits plus additional services such as If This Then That (which opens up basic programming logic for the system). Available through ScrewFix and other suppliers, it utilises standard wiring and plumbing, and is operated by its own wireless hub and smartphone app. A single gang wireless dimmer starts at £33 and a 2-gang wall socket starts at £40.

Although consumer-level smart home offerings are still evolving, and central control at least seems to be stabilising around the core Google, Amazon and Apple home systems, it does generally feel like a fractured ecosystem. Iain Shaw's parting advice is that: "A well-designed, professionally installed solution will be much easier and more fun to use, because you won't be struggling with a whole host of apps – and you'll also be able to manage everything from a single point of control be it a touchscreen, smartphone, iPad or voice."



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An Integrated Home

This new build boasts a whole host of smart devices, from full-home Ultra HD AV Sky HD, Apple TV, Amazon Fire, five audio multi-room streams and Control4 Audio Matrix controlling the video and audio technology, to Doorbird security, Nest Protect, and Control4 intelligent lighting all controlled via Control4 touchscreens around the home with Heatmiser Neo HVAC controls. This complete full-home installation came in at £120,000 and was designed by BrownHen Solutions Ltd.



Multi-Room Audio

When it comes to multi-room audio solutions, there are now a host of options on the market. The key player, however, continues to be Sonos. It was the original company to release a practical multi-room audio solution back in 2002 and has since iterated and improved its offering to a point where its consumer-level speakers remain among the best available on the market. What's more, Sonos is efficient enough to be able to support up to 32 devices.

The beauty of Sonos is its flexibility. Utilising your Android or Apple phone, you'll use the app to connect speakers to your network. You can then assign speakers to rooms, configure

them to be controlled via TV remotes, and assign your favourite streaming services. These include Apple Music, Amazon Music, Google Play Music, Spotify, Deezer, Pandora, Soundcloud — the list goes on. It'll also stream music from a local server or laptop.

There's a range of speaker options from Sonos, too. The core Play:1/3/5 speakers (£149, £249, £499 respectively) are well complemented by the range of dedicated TV audio options available, which include: Playbar (£699) and Playbase (£699) which both offer a two-in-one experience of cinema and sound for your TV with the ability to also stream music; and SUB (£699) that connects to any of your Sonos speakers for a deeper bass without the vibration.

It has most recently added Amazon Alexa support with the Sonos One speaker (£199), offering voice control and the ability to manage other smart devices. The Sonos Connect bundle (£349), meanwhile, attaches to

Turning It Up

SONOS (LEFT) offers a range of audio products which allow homeowners to stream music via WiFi (Sonos speakers can be hard-wired too), and build a network of speakers throughout the house and garden (i.e. multi-room audio). Up to 32 devices can be supported and can be controlled - via an app - to simultaneously play in all rooms or be controlled to play in selected zones. The Google Home (bottom left) also offers multi-room audio and costs £130.

your HiFi and allows you to stream your LPs and CDs to Sonos speakers throughout the house.

Sonos doesn't have the market to itself however, and there are certainly higher-end options but it's at the lower end where all the interest seems to be. The Amazon Echo (£90), Google Home (£130) and new Apple Homepod (£319) all offer multi-room audio with 'smart' extras bolted on. Whether any of those are better for pure audio than the Sonos is highly debatable.



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The Perfect Home Cinema

From its 110-inch screen and Sony 4K projector to the Dolby Atmos surround sound, effective custom lighting and even the red walls with plush furnishings, this home cinema in Wandsworth certainly looks the part. Created by Philharmonic AV Ltd on a budget of £40,000, the homeowners can enjoy movie nights in style.

Home Cinema

There is a lot of snobbery regarding home entertainment installations, but TV technology has advanced so much that any recent HD TV is going to deliver the smart, connected experience most people will be happy with. Devices like the Google Chromecast or its latest 4K (referring to a high-definition resolution of 4,000 pixels) Chromecast Ultra are tiny wireless devices that plug directly into any empty HDMI port in the back of your HD TV, instantly transforming it into a Smart TV. Controlled with your Android or Apple phone or tablet, it can also beam your photos, music and streaming services - think Netflix, Amazon, BBC iPlayer, YouTube, NowTV et al - to your TV.

Google isn't the only streaming show in town. If you like your Apple devices, the versatile Apple TV 4K box (£199 for the 64GB model) delivers the same functions and ties into your existing iTunes account. Meanwhile, Amazon offers its Fire Stick, which ties into Amazon Prime Video and Music accounts.

For a subscription service, Sky TV with Q Multiscreen is an 'out of the box' solution that supports 4K Ultra HD on the main Q box, and Full HD on up to four additional Q mini boxes, all around your home. The main Q box offers all of your traditional Sky programming, the ability to pause and record programmes plus the ability to pause and carry on watching in another room. The wireless Q mini boxes can also work independently, so everyone at home can enjoy their own programmes or pick up recordings from the main Q box. You'll need a base Sky

Big Screen Solutions

Whether you're after devices such as the Google Chromecast (middle) (£30 or £70 for the 4K Ultra) or Amazon Fire Stick (below) (£40 or £70 for Fire TV 4K Ultra) which can be plugged directly into your TV for streaming, or if you're after a subscription service such as Sky TV's Q box (left) with multi-room capacity, there are solutions to suit everyone.

subscription and an additional £12 per month Q subscription. Sky supplies the Sky Q box and a Q mini, with additional Q mini boxes costing £99. If you like to have more control over what you watch and listen to, then you'll need a system to store your content on. The installer's choice is typically a Kaleidescape media streaming solution (from around £5,400) that can store and stream hundreds of DVD or blu-rays. A smart alternative is to choose a NAS (Network Attached Storage) box that's capable of local 4K HDMI playback and network streaming. One option would be the QNAP TS-453mini with 16TB of storage, costing around £985. Utilising the supplied Plex Media Centre software, it can stream locally stored films, TV, music and photos to any device on your network (or over the internet) that supports the Plex app, including most smart TVs, Android, Apple iOS devices and the Google Chromecast. 



Neil Mohr

Neil is a technology expert and editor of *LinuxFormat* magazine.

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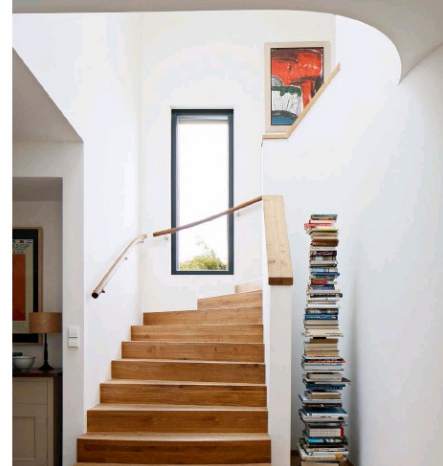
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HOUSE OF THE MONTH

'TREEHOUSE' DESIGNED FOR HEALTHY LIVING

This modern architect-designed house makes the most of its small urban site in East Anglia

This new-build home, the Treehouse, is located on a relatively small backland site in central Cambridge, entirely surrounded by Victorian terraces and their back gardens. Given its sensitive context, the house is designed as a compact box that maximises the distance away from the site boundaries while optimising living space towards the south, providing the homeowners with a sunlit usable outdoor space.

On the ground floor, social spaces such as the dining room and living room are located with access to the south-facing front garden. Service spaces such as the utility, kitchen and pantry are located to the north.

On the first floor, meanwhile, service spaces such as bath/WCs, linen and dressing rooms are located towards the southern façade of the house, with translucent glass windows that are mostly placed above eye level. The bedrooms face towards the north, where overlooking is less of a concern. The south-facing window in the study on the first floor is designed as an oriel window, blocking the view towards the



south and directing it towards the approach to the site. Due to the enclosed nature of the site, windows are carefully placed to provide long uninterrupted vistas, lending an unexpected sense of grandeur to the otherwise spatially efficient house. Timber was chosen as a cladding material for its environmental credentials. The untreated light timber, with its strong horizontal striations, is designed to appear brick-like to complement the buff coloured brick terraces surrounding the house.

Using modern methods of construction, the house was erected in less than three days. Thermal insulation values are roughly double current UK standards; all windows are triple-glazed and only non-chemical materials were used. For more details, contact Baufriz: Camboro Business Park, The Workplace, Oakington Road, Cambridge CB3 0QH, tel: 01223 235632, email enquiries@baufritz.co.uk, website: baufritz.co.uk



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PROJECT ADVICE

June 2018

Everything you need to know to get your building project off to the best start, with practical advice from the leading homebuilding experts



IMAGE COURTESY OF AMERICAN TIMBERS

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25 Things you Need to Know Before Extending

Thinking about an extension project? From fees and contingencies to design tips and planning advice, this essential guide will ensure that you have turned over every stone before you commit to any work



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1 You May Need to Pay a Community Infrastructure Levy

Before building you should establish if you will be liable to pay the Community Infrastructure Levy (CIL). Some councils operate this scheme, and it's applicable to extensions over 100m² in gross internal area (even if they are built under Permitted Development).

However, a self-builder's relief can apply, as Jonathan Durndell of Milton Keynes Architectural, explains: "To benefit from the self-builder's relief the applicant does not have to physically construct the extension themselves but they must intend to live at the property as their main residence for a minimum of three years from completion. It is advisable to check with your local council to establish if any CIL charges are applicable and the route to apply and claim relief before you start construction."

2 Plan Your Kitchen Layout Before You Extend

If you're planning a kitchen extension, you need to have set in stone the position of your units, cookers and white goods so that the electrics, ventilation and plumbing can be planned before works begin. It can be expensive, time-consuming and frustrating to build a new kitchen extension, only to create extra work because your dream kitchen needs waste taps or an extractor fan in a position that can't accommodate them. Consider these practical aspects as early as you can in the process to avoid this headache.

3 Your Build Choices May Affect Your Insurance

"The materials you choose for your extension may have a bearing on your insurance, so it's worth checking this before you build," says Andrew Reardon of ProActive. "High value and theft-attractive items such as zinc or more flammable items will impact on your ability to get insurance and the premium you will pay for it. Flat roofs can also be an issue for household insurers." ➤



IMAGES: NIEL BRIGHTON CO & GARDEN CARE



4 The Location of Sewers Can Impact

If your extension will be built over or in the area of a sewer, you will need to contact your water board before work begins. "The location of sewers needs to be carefully considered," says Jonathan Durnell. "If a shared sewer (one which serves more than one property) is within 3m of your extension, then a 'Build Over Agreement' with your local water authority is likely to be required."

6 Extending Above

While it may seem appealing to extend above a single-storey extension or garage, these structures may not be able to support the load. According to chartered surveyor Ian Rock there is good news, though: "Most extensions built in the last 25 years should have sufficiently deep foundations to accommodate an extra storey at a later date, assuming they complied with Building Regs.

"However, building over garages is rarely a practical proposition without substantial additional support because of their limited loadbearing capacity."

There are options where the old structure isn't up to scratch: underpin existing shallow foundations; strengthen or bypass the existing with a steel frame bedded in new concrete pad footings; or demolish and rebuild. The latter is often the most cost-effective option.

5 Consider Privacy

The glazing choice may have an impact on how private your home is and how exposed you are to glances in from passersby and your neighbours. "With large doors and windows, more of our daily routines are on show than ever before," says Kate Treen of Phantom Screens. One solution would be to consider your boundary treatments, which may need to be adapted to ensure privacy is maintained, while integral screens in your glazing provide privacy without spoiling your view.

8 Chose a Designer Wisely

There are a number of options open to you when designing an extension. These include architects, architectural technicians, specialist designers and package build companies' in-house design teams. You will also find specialist extension design companies.

A good designer will be able to take your brief and come up with solutions you'd not thought of. According to Craig Marston, director of Ke-Design: "Paying for an architectural design service is key to getting the most value out of your project. The number of times clients say: 'We never thought of that', or, on seeing our designs, tell us that we're worth the money is testament to this."

What is most important is that whoever you employ to design your extension understands what you're after, and that you establish a good rapport with them. Look for practices that have designed extensions similar to the one you would like to build and ask for recommendations from friends or people in the area.



9 Understand Part L of the Building Regulations

"Part L of the Building Regulations limits the total area of glazed elements in an extension to a maximum of 25% of the extension's floor area," says Jason Orme, experienced extender and Homebuilding's Editorial Director.

Particularly on small extensions, this poses a problem. A small kitchen extension, perhaps adding 20m² of space, could easily have its allowance taken up by a set of bifold doors - 4m(W) x 1.8m(H) = 7.2m² or 36% of the floor area - and will therefore be rejected by building control.

"There are several ways around this. First of all, you need to deduct the total area of the windows and doors that are being lost as part of the extension from your additional total. If that doesn't get you below 25%, then you'll need to show that the new glazed extension can meet the energy performance standards achieved by a non-glazed extension in other ways. If that still fails, then you'll need to commission a SAP assessment to show that the CO₂ emission rate from your glazed extension would be no greater than the emission from a fully compliant extension of the same size."

10 Rebuilding Might be the Right Option

You will need to ensure that the value created by adding the extension is greater than the build cost for the project to make financial sense. This can be difficult to assess, but it's worth looking at the various resources online to see what similar properties with extensions in your area are worth. There is always a ceiling as to how much value can be added to a property, so you may need to revise your initial plans to ensure the best return on investment.

Remember, it may pay to knock down the existing house and rebuild, if you feel the house is no longer fit for purpose, or it may simply make sense to sell and move.

Craig Marston, director at Ke-Design says: "If the extent of the work is vast, ask yourself if it's worth knocking it down and building a replacement dwelling. Not only does it save 20% VAT, it may also be more cost-effective as you start from a blank canvas, avoiding coming up with costly solutions to design around the existing building."

11 Off-Site Construction May Save You Time

Off-site construction systems, including cross laminated timber (CLT), oak frame, structural insulated panels (SIPs) and timber frame, often work well on extension projects. "SIPs panels, which are precision engineered to a specific design, for example, are delivered ready for immediate erection, which is a real bonus if your site is small or access is limited," says Ian Clay, partner at SIPs@Clay LLP. "Homeowners can often see their new structure up within just a few days, leading to a reduction in programme time." Merry Albright of Border Oak says: "As construction systems such as oak frame are self-supporting you don't need to do costly work to the host house - it can be added against an existing house but have no structural relationship at all."



12

Check You Are Legally Entitled to Extend

Don't assume that if you own a first floor flat that the roof space above it is necessarily in your demise, even if you're the only one who can access it," says Jo Dyson of Mae House Design, who successfully negotiated the demise of her London flat before undertaking a mansard roof/loft extension. "You shouldn't extend into a space you don't own," adds Jo. "If the freeholder owns the loft space, for example, they can charge anything up to £40,000 to transfer it into your demise. If you are planning a loft extension and you don't own the space, approach the freeholder and clarify the situation before any work begins."



Living On Site Can Require Pre-planning

Many people choose to live in their house while the work is done, and this is certainly possible. It will often require the temporary relocation of a kitchen and things will get a lot cosier, but as the main structure of the home will often remain untouched until you come to knock through, disruption can be manageable for those prepared to adjust to a new way of life temporarily. But it could still include plenty of dust, mess and dirt in the house—and it may also slow down the project as builders work around your life.

Consider looking for temporary accommodation: whether a short-term rent, hotel or calling in a favour from the family if you aren't prepared to live with the disruption. Depending on the extent of the work, it could perhaps save you money to live elsewhere.

Consider Access

The available access to your home may have an impact on what work can be done to it. If your site has restricted access (for instance, if you live in a terraced home) you may not be able to use certain construction methods, for example, or agreements may need to be made with neighbours to use their land for storage or for fence panels to be removed.

"You need access not just for the vehicles that will deliver the materials, but also possible room for scaffolding, storage, builders' vans, diggers and skips," says Border Oak's Merry Albright. "Some designs will need to be altered to reflect difficult access provision, and difficult access may mean more cost (lots of smaller deliveries or changing vehicles) or disruption (for example, blocking off parking bays in the street for skips)."



IMAGE: BORDERS OAK; COURTESY: JAMES ARCHITECTS; (TOP), © SHUTTERSTOCK/ALAMY

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Set a Budget and a Contingency

A good first port of call to work out a rough budget is our Extension Build Calculator (available online: homebuilding.co.uk/extension-cost-calculator), which will factor in your build route, geographical location, desired quality of finish and size of the extension to give you a rough idea of the total build cost.

You'll also need to set a healthy contingency to cover any unexpected costs — the start of work on an extension project can uncover problems with the existing house that need addressing, for instance. "Set a budget for the project early on and allow a healthy contingency for those unforeseen extras during construction. Try to plan for the unexpected by setting some money aside, especially when working with older existing buildings," advises Leila Westrope of Roderrick James Architects.

We recommend a contingency of somewhere between 10-20%.

Consider the Impact on Your Boiler

Adding an extension to your home will also add demand to your current hot water system — which may not be able to cope. "Your existing combi boiler is likely to be at its limit for hot water production if it is serving two bathrooms already," says Martyn Bridges from Worcester, Bosch Group — adding more may stretch it beyond its capabilities.

It's advised that you work out what the new extension will need to be heated effectively, and factor in your boiler output, the size of the radiators, hot water cylinder size and the reheat time.

You Could Project Manage Your Extension

"I would always maintain that the best person to oversee an extension that you are proposing to utilise and enjoy is yourself," says project manager (PM) Bob Branscombe. "No one knows the space or the building better than you, and nobody has a greater level of interest in getting it right." Project managing any building project requires high levels of patience, organisation, problem-solving and decision-making skills. If you don't feel confident dealing with the problems associated with a build site, or have the time available, a professional PM, main contractor or package company is a must.

Design in Efficiency

By focusing on the fabric of your new extension, you may be able to far outstrip the U values and airtightness levels specified by the Building Regulations.

"Think about airtightness, thermal and acoustic gains and using renewable technologies and natural building materials," says Leila Westrope of Roderrick James Architects. "Sustainable construction is not just better for the environment but helps reduce running costs!"

However, appending a thermally efficient extension to a poorly insulated home will not make it cheaper to run overnight and you should look to improve the efficiency of the main house while the builders are on site. ➤



IMAGE: NIGEL RUGGERO / O'RICKERICK JAMES ARCHITECTS; O'ARBORETA



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19 Your Home Insurance May not Cover the Work

When extending, don't assume that your household insurance will cover you for the work. It is possible that undertaking an extension project will invalidate your insurance, leaving you at risk if there is a robbery or accident on site.

"Many household policies exclude structural work so make your insurer aware of the planned works," says Andrew Reardon of ProAktive. "Cover can also be affected if you move out during the build. Household policies will have an unoccupancy period of between 30 and 90 days. After that date cover may cease or be heavily restricted. Look for extension insurance, which will cover your home as well as the new works and liabilities."

Don't Forget Building Control

Before any works begin, you will need to submit either a building notice or a full plans application to building control. A building notice will allow work to begin quickly, but you will lack the protection that building control has signed off on the design and you are liable to correct any work that fails to meet Building Regs' standards upon inspection.

Ian Rock suggests that a full plans application is more suitable for most extension projects. "The best advice is to submit a full plans application in advance to building control so they can confirm that the design meets all the required standards before work starts – it will also mean you will have an approved set of plans to work to on site."

20

Solar Gain Can be a Problem

Though bringing more light into a home is often a desired outcome of an extension project, unmanaged light ingress can create problems associated with solar gain.

"Natural light is a popular design element, but unmanaged can create an uncomfortable living environment," says Kate Treen of Phantom Screens, "especially during summer months when glass living spaces become greenhouses, or in low winter sunlight when eye-level glare becomes an issue."

Designers should be aware of this when designing glazing features into an extension and mitigate for the solar gain to avoid the situation where, like poorly designed conservatories, the extra space is usable for only a small part of the year. Screen fabrics can also be used to reduce glare and diffuse light.

21



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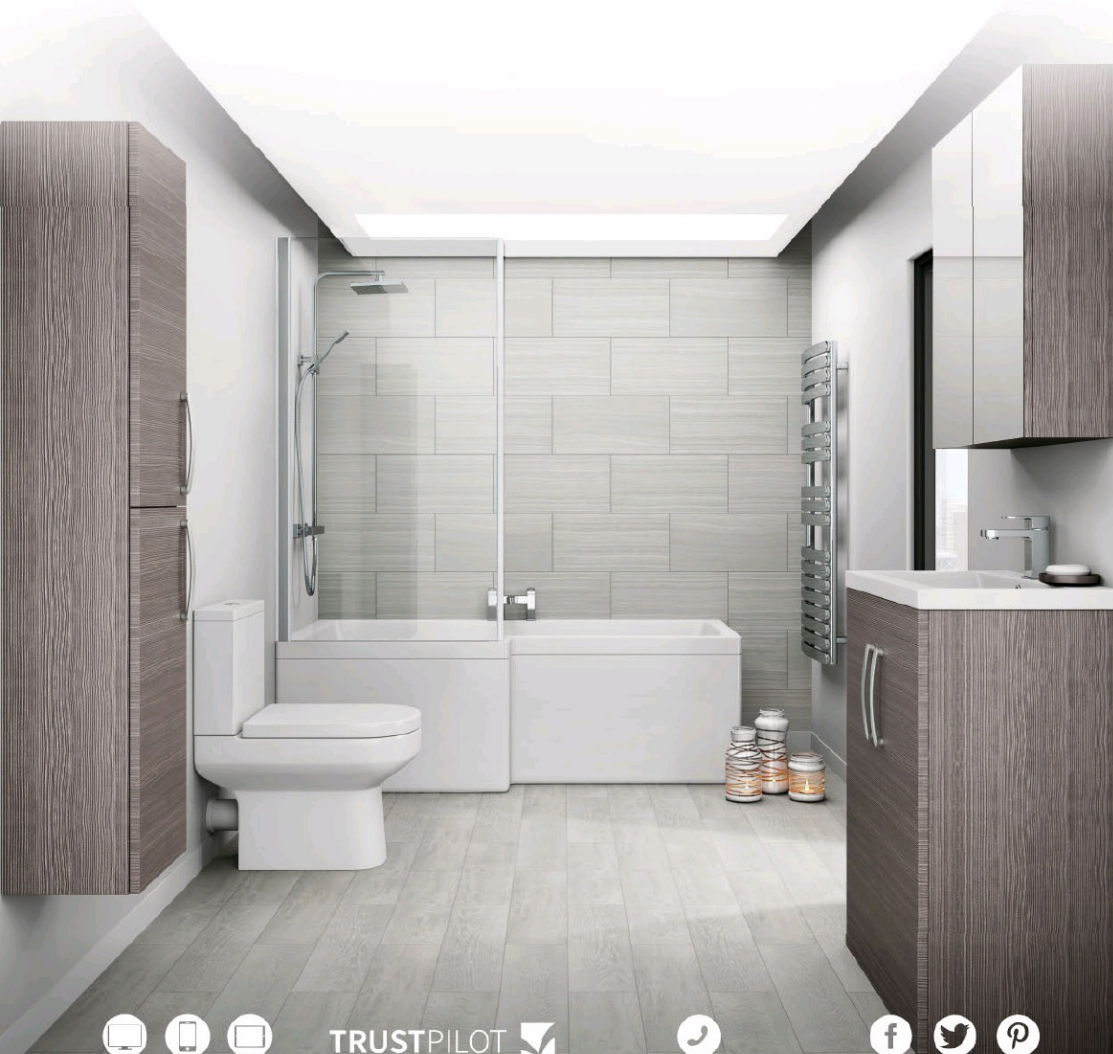
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IDEAS & INSPIRATION

Bigger Isn't Always Better

22

Often extenders get preoccupied with only thinking of the project in terms of square metres, not in terms of what that size is adding to the house. Bigger is not always better when it comes to extensions, and there are often ways of creating the feeling of more space, without adding a large extension.

This is often achieved through clever design, not only of the new space, but also what is already there. "Sometimes lots of additional floor space is not necessary and the property can be made to feel more spacious by using natural light and improving links to outside spaces," advises

Leila Westrope of Roderick James Architects.



Your Trees May Cause a Problem

Removing trees or cutting through their roots as part of your extension project could prove problematic. "Removing trees can have implications for ground conditions (and hence foundation design) due to the reduction in moisture extraction, while cutting through the roots during excavation work could destabilise the tree, with potentially serious consequences," says chartered surveyor Ian Rock. Root growth can also affect any drainage you may be adding in. A 'root barrier' can be included, which is a narrow trench filled with concrete or special rigid plastic sheeting that shields the pipe run from the offending trees.

How to Connect the Old and the New

The success of any extension project will rest on how the new works alongside the existing. There are no hard and fast rules stating, for example, that a contemporary extension can't be appended to a traditional house. You will need to make a decision on whether you want the extension to complement or contrast with the main building. "Any new addition needs to be sympathetic to the old building," says architect Adam Knibb, whose project Hurdle House won Best Contemporary Extension in our Awards last year (see page 22). "Using items like glass to act as a buffer between old and new materials is a superb solution enabling one to touch the other in a light and delicate manner."

IMAGE: CO. JULIUS BAHN/STUDIO CO. PRIME/ROD JAMES ARCHITECTS/GETTY IMAGES

Your Extension Might not Need Planning Permission

23

Permitted Development (PD) rights exist to speed up construction projects and ease the workload on planning departments — and some extension projects fall under PD's remit. Not only will this save on fees, but it will mean that you can get started on site much quicker — so it may be worth designing your extension so it meets the criteria of PD. (Head to planningportal.co.uk to see the full list of PD criteria.)

"Many clients are surprised at how much can be built onto a house under PD," says Jonathan Stackhouse, head of planning at Julius Bahn. Penny Whitlock, director at Julius Bahn, adds: "If you are planning to build an extension under PD, studying the criteria carefully first and applying for a certificate of lawful development from your local authority is vital."

Permitted Development rights do not exist for listed buildings, and are different in conservation areas. Any extension will also still need to apply for Building Regulations' approval.





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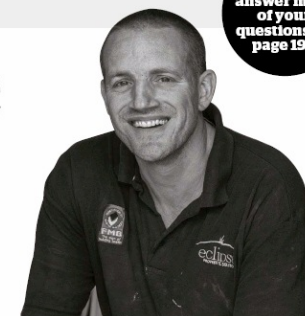
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BUILDING CLINIC

How to Expose Roof Timbers

Builder Andy Stevens advises one reader on what to consider when leaving roof timbers exposed in their loft conversion



Our experts answer more of your questions on page 194

Q *What do we need to consider in order to leave the new roof 'beams' exposed in our loft conversion? We are planning a roof-lift loft conversion and have plans drawn up by an architect, but not yet submitted for planning approval. What structural changes would be needed? How could we insulate? Would this be expensive (we have a limited budget)?*

Peter Penrice, London

A The first thing to consider when raising the ridge height is whether anyone else on your road has. If they have, this usually sets a precedent which means you shouldn't have many issues with your planning application. You'll also need the structural calculations prepared by a structural engineer to be passed by building control before you proceed.

To answer your first question — exposing your new roof timbers wouldn't change anything structurally. However, unless you invest in hardwood, standard modern roof timbers are tanalised (treated) softwood, usually some form of pine. To be honest, they don't look great on their own! And being treated means they have a green tinge to them. Staining is therefore harder and this should be something to consider when you are speaking

to your builders about what look you want to achieve. (They may also need to be treated with fire-retardant paint — it's probably best to consult your local building inspector for their advice.)

Exposed oak would look stunning but costs significantly more. This is especially the case if you hope to expose all your roof rafters (the structural members that extend from the wallplate to ridge to support the roof deck). They are usually 8 inches by 2 inches, so they are pretty sizeable pieces of wood. You should definitely speak with your builder about the cost difference before you start.

You do not specify which roof timbers you hope to expose, but let's assume you do want to expose the rafters. If so, you may need to bear in mind that there may be bolts, nails and so on, on display if you choose to expose the rafters. This may be the case if you need a double trimmer (two rafters bolted together), often introduced around rooflights/windows to strengthen the wood because of the weight of the windows and flashing kits.

The main thing it would change is the insulation. You wouldn't want to see any insulation between the rafters (such as sheet insulation) or any insulation over the timbers themselves (such as foil), as this would ruin the effect. Therefore, the only way you would be able to make sure you achieve the

desired U value levels is to use a high grade foil insulation above the rafters.

Secondly you will need to think about your electrics. You'll need to run cabling for ceiling-mounted fixtures (you can have wireless controls but they are more expensive). Typically, you'll need to cut holes in the rafters and run cabling through for your downlights. Also, downlights need to be 'housed' in plasterboard.

I presume you want to achieve this look throughout the loft conversion. If so, I would advise erecting scaffolding and corrugated iron sheets to completely cover your roof so weather doesn't prevent progress, and the whole roof can be taken off and repitched without any delay. This costs more but means the job won't get delayed and saves your builders sheeting up at the end of the day. With bad weather and no 'tin hat', work would stop.

In summary, exposed roof beams are a nice feature but come at an added cost. There are the electrics to think about as well as the insulation. With the tin hat to consider too, I think a meeting with your builder would be advisable; they will be able to give you an idea of the costs. You would need a final spec of what you are intending to do in order for the Building Regs to be worked out, which would include the type of insulation required to achieve the necessary U values. **H**



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DIY Decision Time

Award-winning builder Andy Stevens explains what tasks to leave alone — and when DIY could be a budget-smart option

Some self-builders and keen DIYers often try to do work on site themselves, as a way of keeping costs down on a building project. There are areas where this is more successful than others — and while taking on some tasks will save money, there are others which could possibly cost you more to put right.

Perhaps the first thing to bear in mind is that tradespeople are professionals who have either been to college and learnt their trade and/or have learned on the job over a long period of time. It's not just a case of picking up a trowel or paint brush, either — you need to consider health and safety as well as the prep work and the schedule of works (when each trade comes in and what they do).

When I look at jobs, I often get asked if there is anything that I can leave to the client to save them money. The main issue here is that most of the work they can do is the more menial, unskilled work — ripping out, removing tiles, digging and so on — and this doesn't actually save much money. And no matter how fit you are, this is hard physical work.

It is also worth speaking to your contractor as you will need to check insurances. If you have an accident, who is

responsible for this? If the back of your house falls down because you took out the wrong wall, whose responsibility is this? I would also strongly advise looking into some health and safety training, as construction work can lead to serious accidents, injuries and illnesses. Even if you're cutting MDF you'll need the right personal protection equipment (PPE) because of the fine particles it gives off. So let's go through all the trades and look at what self-builders and keen DIYers can try.

Groundworks

Most of this is done by machinery these days, but on a few self-builds digging out by hand is required due to budget constraints, lack of access and so on. This is something anyone can try. If you are to do this yourself, make sure you have marked out the site properly as you don't want to dig out and then find you aren't exactly in the right place. Weather conditions need to be taken into account, as well as where the soil/clay and so on is going to get taken away. If it is raining a lot, you have to consider boarding out the sides of footings, as heavy rain can cause the walls of the footings to collapse and fill back up.

If you are digging out an old over-

site, you will definitely need to hire a pneumatic drill or heavy duty breaker, as this can't be done by hand. This is seriously hard work but can be done by most people, even without much experience.

Brick/Block Laying

This trade requires a lot of training and experience. Laying bricks isn't the hardest thing in the world, but setting out, getting your levels, toothing in and so on is far from easy. Like any trade, it's all about prep work. I would strongly advise not trying this unless you are experienced in this field. The 'face work' (brickwork) is there for everyone to see, so it needs to be right.

Structural Work

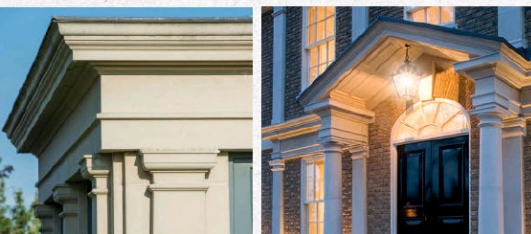
Any structural work (such as installing steels, lintels and beams) definitely needs to be left to the professionals. Even after many years of building work, you always find something you haven't come across before. This is where experience is vital. No matter how tight the budget, my advice is to leave this work to the professionals.

Electrics and Plumbing

These two trades should be left to qualified tradespeople. Even running ►



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a bit of pipework or cable should be left to the experts, as this could leak or cause electrical faults if installed incorrectly. I have been doing this for many years and still don't really touch electrics or plumbing. Each electrician and plumber also has their own ways of setting out and installing so it's best to leave it to them. The worst-case scenario could be a gas leak, mains pressure water pouring out or an electrical shock. These trades spend years at college training for very good reason.

Carpentry

This trade covers many areas of work, from pitching a roof to installing a kitchen, building stud walls and hanging doors. It is very varied and thus there are areas that DIYers can try their hand at. Building a roof and installing a kitchen may be a step too far for someone who is inexperienced, but putting up a stud wall is something which can be tried — in the worst case, it has to come down. Just remember to use the right PPE, and using the right tools will make the task a lot easier as well — a first fix nail gun makes this job so much quicker than using a hammer and nails or even screws with a drill or impact driver.

Fixing skirting boards and architraves is something that can be tried as well. Again, it is vital you have the right tools — a mitre saw, nail gun, a suitable adhesive, coping saw and so on. This is a lot easier on new work as the angles and cuts are generally a lot more uniform and straightforward.

IMAGE: JERRYAY PHILLIPS

"You don't have to pay through the nose, but you do have to put in the effort to do it on a budget"



A Hands-on Build

Jackie and David Oliver took on their eco self-build for a low build cost of just £205,000, including all legal and professional fees. This was achieved through the family's hands-on approach throughout. "Tom, our son, who is a plasterer, did most of the on-site project management, coordinating trades and subcontractors, as well as plastering the entire house," says David. "He also carried out all the first fix joinery and installed our mechanical ventilation heat recovery system. This was a house that we genuinely built ourselves. Jackie and I sourced all the materials as well as labouring on site, while Jackie took care of the paperwork involved in a build — all while still working! You don't have to pay through the nose to have a quality build, but you do have to put in the effort to do it on a budget."

Plastering

There are many different types of plaster work, which all require different drying times and prep work. Other materials such as PVA, scrim tape, angle beads and so on may need to be used. Again, it's all about setting out and the prep work. You can't just plaster onto a wall — what is the surface and does it need 'scratching' to prep it? Is it just one surface or are there different surfaces that have different drying times? Do you know how to set beading round a window and do you need render beads or skim coat beads?

If you don't mind getting covered in plaster, you can give it a go. Getting the plaster off the hawk without it going all over the floor is the starting point! Again, the worst case is that if you get it wrong, it needs to come off and be done again. But while you might aid

in getting the walls ready for plaster, remember that achieving a good finish takes years to master.

Painting and Decorating

Without a doubt, this is a trade that a lot of people like to try. However, this is not as easy as people think. Again, it's all down to the prep work — filling, rubbing down, caulking, masking off and so on. That said, there isn't much to go wrong compared to other trades. When you start, it doesn't take long to see how professional decorators can achieve such a high standard; their cutting in and roller work takes years of practice. By all means, try your hand at it. Just remember, it's all in the prep.

Roofing

You can save money here by bumping the tiles/felt/batten and other mate- ➤



Hard Work Pays Off

Jason Thawley (right), a product designer, designed and built much of his new home himself to remain within his tiny build budget of £90,000. He demolished the paint store that sat on his tiny urban site in Bristol himself. "Quotes were silly money – like the £5,000 asked for demolishing the paint store – so we just had to find other ways of doing things," he remembers. Jason also saved money by undertaking the new foundations himself, as well as tackling the rest of the build once the timber frame superstructure was erected.

"Quotes were silly money – we had to find other ways of doing things"



rials up for the roofer. Depending on whether it is a flat or pitched roof, there are usually a fair number of materials to go up.

Large pitched roofs need a lot of tiles and it can take considerable manpower to get them up the scaffolding. Don't try and take too many, as this can affect your balance, but this is definitely an area you can help with. Ask the roofer where they want the tiles and how many in each pile.

Landscaping

This is another area you can help with, as there is a lot of hard work here, including digging out, and bringing patio slabs, bricks, sand, cement, timber and other materials round from the front of the house to the rear. This takes many hours so you can save money if you're not afraid of hard work.

Tiling

This is a skill that most people feel they can do. Not much can go wrong usually, apart from taking a few misplaced tiles off the wall/floor.

Whether you are tiling a new room or an old one will make a massive difference to how you tackle the task. New rooms should be level, square

with little prep work required. Older rooms can take a lot of levelling and putting right.

A good place to start is a small area like a splashback in a bathroom or kitchen. Grout lines are key as these need to remain the same (use spacers for this task). You need to decide what size grout lines you want with the tiles you have chosen. There are many different types of tile adhesive these days, depending on your tile and surface. The right tools always make a difference, too. Start somewhere small and see how you get on.

Other Areas to Save Money

There are other tasks which you can do yourself, which aren't necessarily down to a specific trade:

- Ripping out old kitchens and bathrooms can be done as long as you are careful with the plumbing and electrics. Ensure that they are free of asbestos before you start.
- Taking old ceilings down can be done easily enough.
- Another area is cutting insulation (PIR boards, for instance) to fit into the gaps between timbers in studwork (walls, roofs and so on).
- All areas of insulating can be tried

if you are using PIR boards, quilts or rolls. PPE is essential here.

- You could cut and fit plasterboard. Once you have got the hang of this, you could also try tacking the ceiling.
- Scraping off tile adhesive, old paint, removing skirting boards and architraves all can be done with little fuss.
- Taking deliveries and off-loading on site can help.
- Keeping the job tidy doesn't sound like much but is essential. Everyone knows where everything is, there are no trip hazards, and there are nice clear areas for trades to work.

Communication is Key

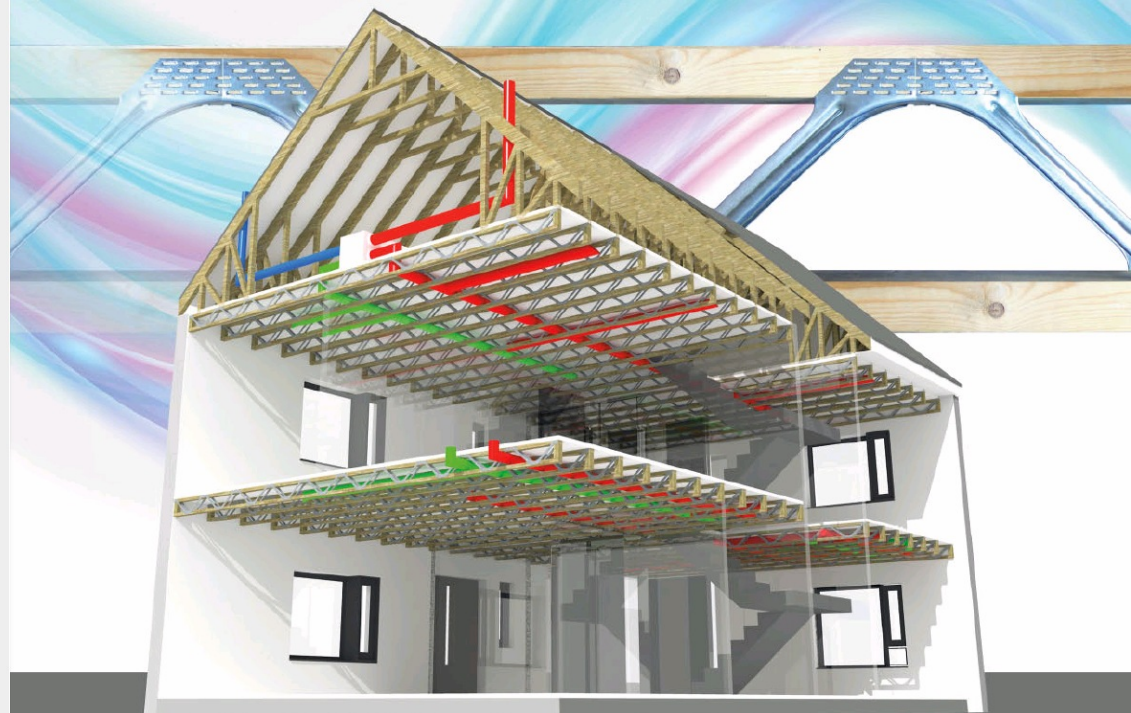
If you do hope to take on some work, be open with your builder from the start and ask where you can help. He will need to schedule this into the works. No builder likes someone looking over their shoulder all the time but explain that you are keen to learn and ask if you can watch for a while.

Be realistic about what you can do and can't do. Nevertheless, there are many areas you can try yourself. This isn't just rewarding but also will save you money on your build. **✎**



Andy Stevens

Andy is a builder and MD of Eclipse Property Solutions. He also presents a show on radio station Fix Radio.



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A Beginner's Guide to ICF

Insulating concrete formwork can offer extenders and self-builders a quick build and an efficient home, but what's involved in this build method? Claire Lloyd investigates

One of the major decisions to be made in any self-build or extension project is how the superstructure will be built. Inevitably, your choice of construction system will come down to numerous factors (the design, your chosen build team, the site... the list goes on) but part of the appeal of self-building is your ability – if you so wish – to influence how your new home or extension will be built. While masonry and timber frame are the most common methods used in the UK, there are a wealth of options, including SIPs (structural insulated panels), oak frame and ICF (insulating concrete formwork).

So, just what is ICF and why opt for this system over what we consider to be more conventional methods? Like masonry, ICF is an on-site method of construction and tends to be used to build the walls only (more on which later). However, this is where the similarities typically end.

As the name suggests, there are two main ingredients: the formwork and concrete. (Although materials such as steel reinforcement (rebar) are often used when building ICF walls.) The formwork, typically made of polystyrene, provides a mould into which ready-mixed concrete is then poured using a concrete pump. Once cured,

the concrete provides a strong, solid core; the formwork is left in place, providing a continuous, insulative layer on both sides. And here lies one of the main attractions of ICF – the ability to create an airtight, energy-efficient home with comparative ease.

The formwork is built up in stages – typically up to 3m – with a concrete pour taking place at each stage. Crucially, the formwork is held in place and aligned with a bracing system, provided by your ICF supplier, prior to the pour. Bracing systems differ from supplier to supplier but often double up as a working platform, and in doing so, remove the need for scaffolding at this stage of the build.

"One of the benefits of ICF is that you do not need to hire scaffolding until you come to install the first floor windows or roof. There are cost savings to be made on plant hire – you don't need a crane when building the walls either, which can be a big saving," says Anthony Quinn of ICF Southern, a regional supplier of international ICF system Nudura.

Once the concrete has cured, work on the next storey can commence. "A typical new home involves two pours," adds Anthony Quinn.

While almost any cladding system can be used with ICF, lightweight solutions such as render, timber cladding and brick slips tend to be more straightforward to install. Render is typically the most cost-effective and popular finish*, and can be directly applied to the formwork (although you'll need to ensure you're using the right render for the task).

It's Not Child's Play but DIY is a Possibility

There are a number of options when it comes to installation, including installing the system yourself, employing a main contractor/builder, or hiring an experienced local or regional ICF contractor recommended by your ICF supplier.

Installing the formwork is sometimes compared to building with giant Lego – the polystyrene blocks are lightweight and easy to handle (especially compared to concrete blocks),

Typical Costs

It's very difficult to generalise and compare the costs of ICF on a like-for-like basis with other construction systems, according to Robin Miller of Beco Wallform. "But assuming a render finish, the cost is typically £80-£100/m²."

Polystyrene or Wood Cement

Not all ICF systems use polystyrene as a formwork. Durisol, for instance, is an ICF formwork created from wood cement or woodcrete (a mix of mineralised wood fibre and cement). The blocks are heavier, which means there's less bracing involved.

and slot together without the need for mortar. Preformed blocks make the task particularly swift.

However, don't let this analogy lull you into thinking that this build system is not without its complexities. Arguably, one of the most critical elements of an ICF build is the concrete pour, and while not commonplace, there is room for error – and a breach, or a concrete 'blow out', can occur. "While Nudura has designed this out of its product, there is always a risk," says Anthony Quinn. "For instance, if a block is damaged on site and a hairline crack develops, it could be difficult to pick up on this during final checks. It is very important to protect the blocks while in storage and store them correctly to reduce any risk of damage." Concrete blow outs needn't be as disastrous as they sound but they do need to be dealt with swiftly and efficiently on site.

There are details which require particular attention, too. "There are many things to know about fixing joinery, pipework and cables, not to mention installing the junction details between walls and roof and internal floors," says builder Mark Brinkley, author of self-build essential *The Housebuilder's Bible*. "To the seasoned ICF builder, these are bread and butter matters no different to what cavity wall builders or timber framers experience, but to someone new to ICF, they can appear to be daunting hurdles to overcome."

For these reasons, UK suppliers tend to offer training courses, typically lasting one to two days, for self-builders and/or their contractors. "Where an approved

ICF contractor is not being used, ICEA members won't supply their product to site unless the self-builder or their chosen contractor has attended their course,"

says Christopher Stride, Chair of the ICEA (Insulating Concrete Formwork Association), the UK's ICF industry body. "We also often find that self-builders will attend these courses just to get a better understanding of the system, even if they intend to use a contractor."

Reputable suppliers will then follow this up with support during installa-

tion. "If the self-builder has installed the system themselves or they are using a contractor who is using ICF for the first time, we'll come to site or send an approved contractor the day prior to the pour to check the work," says Anthony Quinn of ICF Southern. "We'll then return on the day of the pour to ensure all runs smoothly."

For some self-builders and extenders, the opportunity to build the walls themselves, or to gain an understanding of this construction method in order to project manage their build, appeals. Anthony Quinn perhaps best sums it up: "Masonry is skilled work. With ICF, however, you can be semi-skilled."

AN ICF BUILD ON SITE



ICF walls are built up in stages – to around 3m – before a concrete pour (above – note the bracing system). This system is from Nudura, which offers preformed blocks.*

*IMAGES PROVIDED FOR ILLUSTRATIVE PURPOSES. PICTURED HEREIN MAY VARY SLIGHTLY.

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For others – arguably, particularly those building a basement – an experienced ICF contractor is the way forward. A further option, especially for those who like the idea of building with ICF but wish to take a more hands-off approach, is a design and build company such as Revolution Homes. “We’re experienced using Thin-Joint masonry, timber frame, SIPs and ICF, so we aim to help the self-builder choose the right construction system for their project,” says Andrew Edwards of the company.

ICF is a Hybrid Method

Most build systems used today are a hybrid of sorts — oak frame is typically ‘encapsulated’ in a SIPs (structural insulated panel) envelope or similar to meet Building Regs’ standards for thermal performance, while a masonry build with large areas of glazing might feature steel to support the openings.

ICF construction predominantly concerns itself with the external walls (or is used below ground, if building a basement or on a sloping site).

As such, pitched roofs to ICF extensions and homes are typically dealt with in the same way as masonry: with timber trusses or a SIPs roof.

What’s more, the internal walls could be built of ICF (particularly loadbearing walls), studwork or blockwork. “This will depend on the homeowner’s preference and the project, although ICF walls offer superior soundproofing,” says Anthony Quinn. In addition, there’s multiple choices when it comes to first and second floors, which could be built in beam and block, timber or Posi-Joists [web-shaped joists made of steel and timber]. “Posi-Joists tend to be a good option as they readily offer opportunity to introduce services,” adds Quinn.

Tip

Some ICF systems offer fixing points or ‘furring strips’ to which kitchen units, TVs, etc can be fixed. An option which offers more flexibility is a superior-strength plasterboard, such as Fermacell or British Gypsum’s Habito, which can carry the weight of these heavy items. These products are invariably more expensive than standard plasterboard, however.

build, is critical (particularly when dealing with service penetrations, for instance) there are less components, compared to say masonry, to oversee and so a good level of airtightness is arguably easier to achieve.

“Two things that clients typically comment on are, first, the energy efficiency of their home. Second, the comfort, which is perhaps something which people do not fully appreciate

Extending in ICF

ICF is an option for extenders. “Homeowners are often surprised that you can build the shell of a 4m x 5m extension in no more than a week,” says Anthony Quinn of ICF Southern.

Why Build in ICF?

With careful waterproofing (which involves membranes, waterproof concrete, proper drainage, etc), ICF can be used below ground, making it a good solution for self-builders with sloping sites, planning a basement — or for those adding a swimming pool! Homes located within floodplains can particularly benefit.

However, ICF experts agree that one of the major benefits is the thermal performance — provided, in part, by the continuous layer of insulation. While attention to detail, as with any build, is critical (particularly

from the outset,” says Robin Miller of Beco Wallform. “Due to the internal leaf of insulation, the internal wall is almost at room temperature. As such, there is a good, even temperature inside, plus draughts are eliminated. At worst, ICF walls deliver a U value of 0.3 [Building Regs’ standard].”

“If you want a high-performance, solid building, then ICF is a good option,” agrees Andrew Edwards of Revolution Homes.

Another draw for some is the speed of installation, and the ability to construct ICF walls in most conditions — which is not the case with masonry. “The ICF protects the concrete during the placement and curing, enabling construction to continue even in wet and cold conditions,” says Barry Gunson of ICF supplier Amvic. “Only high winds could cause a problem,” adds Christopher Stride of the ICFA.

Why isn’t ICF More Popular?

ICF isn’t a new product — it’s been around for almost half a century — and is commonly used across North America (“The US military even uses ICF for new facilities,” says Christopher Stride). So why isn’t it more prevalent as a construction system in the UK? While self-builders have been instrumental to the growth of the ICF





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industry here, ICF experts agree that winning over big housebuilders and small builders alike, who are well-versed in building in masonry and timber frame, has been a challenge.

"Not having enough builders who are familiar in building in ICF is one of the greatest barriers," adds Andrew Edwards of Revolution Homes.

Shortages in materials such thermal blocks has, in recent years, helped the ICF industry stake a claim, however. "PIR [sheet or rigid board] insula-

tion has gone up considerably in price in the last 12 months and bricks have also been in a short supply," claims Anthony Quinn of ICF Southern. "So more builders are beginning to see the benefit of using ICF."

Attitudes are changing, it seems. "Around 1,000 buildings are constructed in ICF a year in the UK," reports Christopher Stride, the chairman of the ICFA. A recent survey by this magazine also revealed that ICF accounts for 5% of the overall self-build market.*

A SINGLE-STOREY HOME ON AN EXPOSED SITE



Caroline Williams chose ICF to build a home on an exposed site in the Shropshire countryside. "ICF was the obvious choice because it will cope with the exposed situation easily," she says. The Arnic 280 system, plus 65mm EWI panel, used provides a U value of 0.15.



*SELF AND CUSTOMER MARKET REPORT 2017

Choosing an ICF Supplier

You may have decided upon ICF or hope to explore your options in more detail, so where do you find a supplier? The ICFA (Insulating Concrete Formwork Association) is a good place to start; the Association offers a list of members, many of whom are experienced in dealing with self-builders. "UK Finance (formerly the Council of Mortgage Lenders) considers ICF a standard method of construction where one of the ICFA members is used. Plus, our nine members have third party accreditation from the BBA, and companies such as Premier Guarantee and LABC will insure ICF builds where our members are used," says chairman Christopher Stride.

The Association also offers an advice service. "I do receive calls from self-builders looking to choose a supplier. I often recommend that they contact a regional supplier and ask to visit an ICF build locally," continues Stride.

"Also look at the package and the product different suppliers are offering," advises Robin Miller of Beco Wallform. Not all suppliers offer pre-formed blocks; some offer panels that need to be made up into formwork on site. The size of the panels and blocks offered is another variable. So too are the proprietary products which each supplier offers. ④

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“Why We Chose ICF”

Three sets of self-builders reveal why they used ICF on their builds



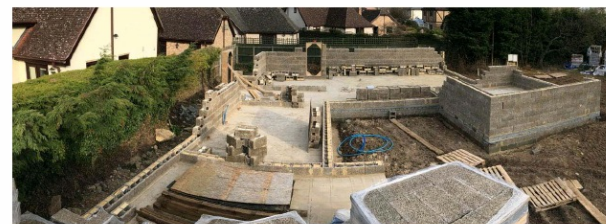
Jim and Sally Spark invested in the fabric of their self-build

It took us four years to get planning so I had plenty of time to research build methods and materials,” says Jim. “The turning point was a chance meeting with expert Mark Brinkley in a coffee queue at a Homebuilding & Renovating Show. I asked him what was the point of spending money on a ground source heat pump and all the excavations that entailed when I could spend a similar amount on ICF and not need the heat pump in the first place. His reply was ‘Congratulations, you have achieved building Karma! It was the best value coffee I’ve ever bought anyone!’

“We left the ICF part of the build to a pro-

fessional company and the walls went up in four weeks. It is the bracing posts that are crucial to ensuring a trouble-free build. Making sure everything was square and flat before the pour meant that there were no issues with bulges in the walls when we boarded out. We did have one breach but having a man in place below the pumping meant we only lost about a barrow full of concrete. By replacing the ICF, and with battens in place the concrete was recycled and the wall finished flat.

“The heating has not been on since the start of March. In the year to date, our total energy cost is £590 – and we’ve made £640 in Feed-in Tariffs.”



Designer Pete Tonks and wife Anoushka Levant-Tonks are building with woodcrete ICF

“Our self-build sits on the edge of a river and is within a floodplain. The chances of flooding are fairly remote. However, I know from my many years of experience that timber frame is not advisable for use within a floodplain. This was initially frustrating as the benefits of off-site manufacturing have always had a particular appeal,” says Pete.

“So we looked at the various options and decided we still wanted to go down the timber frame route but looked at a hybrid build.

I did not want to construct our ground floor using brick and block as this has no appeal to me in terms of design ingenuity. Also, my wife and I are not bricklayers, and we wanted to physically build this place ourselves.”

“This project is about using as many recycled components as is practically possible – 90% of a Durisol block (a woodcrete formwork) is from recycled material, which was a big thing for us.

“We had 18 months of dialogue with Durisol, including a number of meetings at self-build shows and were really impressed with their blocks which are relatively new to



The thermal performance was a draw for Tracy and Charlie Watt

“We first saw ICF over 20 years ago and, like many wannabe self-builders, were taken with the idea of building a house out of polystyrene Lego blocks: fast, lightweight, quiet, airtight and with excellent thermal performance. As ‘hands-on builders’, we love the idea that we can be in control of the walls.”

“We also considered timber frame, which was expensive, and carried out a detailed cost comparison with brick and block as this is the cheapest in terms of materials. ICF stacked up really well when we factored in lower labour costs, not having to install gas, and ancillary costs, like a reduced length of time needed for scaffolding.

“We researched a handful of suppliers, and visited the National Self Build Centre too (above). We narrowed it down to the few that use Neopor blocks which feature graphite to further enhance the insulative properties. We settled on Spanish manufacturer Styrostone, as we had great service from their UK rep and were invited to visit a self-build nearby to see the system in action.”



the UK but have been around for 70+ years.

“They are strong, well-made, accurate and stable and you literally do stack them on top of each other prior to the concrete pour. Sure, there are a number of basics to learn such as coursing start and end points, keeping coursing level as you build upwards, how to accurately measure and cut the blocks, how to set joinery openings into the wall and the formation of Durisol lintels – I imagine we are still learning now.

“We are by no means experts yet, but even in the first few days we have learnt how to get the best out of the system. It really can be a DIY process and has been proven to be around 30% cheaper to construct when compared to brick and block cavity wall construction.”

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STEP 11: SECOND FIX PLUMBING & ELECTRICAL



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.

Experienced self-builder David Snell explains the jobs that need doing as the plumbers and electricians return to site for their second fix work

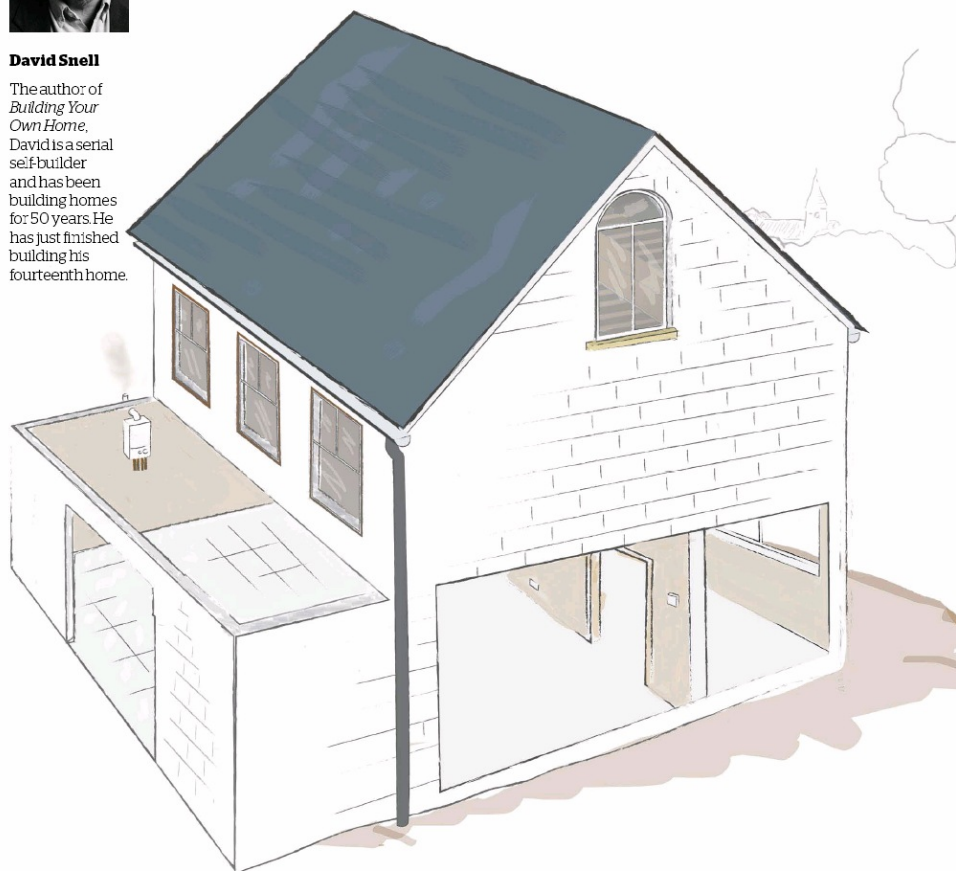


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After focusing on carpentry in the last issue, it's now time to deal with the second fix and finishing work carried out by the plumbers and electricians.

The initial carcassing would have been carried out long before the final finishing, and first and second fix are divided by the operations of many other trades. In most cases, because of the complexity of the initial work, it makes sense that the same person carries out both the first and second fix work. However, things can happen and it is prudent to make sure that all carcassing, wires and pipes are marked in case a different subcontractor or company is employed to finish the work. Any wires or pipes that are to be hidden should also be plotted onto a plan or their positions marked in situ.

Powering Up

The electrician will have marked each one of the wire tails with an indelible marker pen to signal what they are and where they are going. The consumer unit, or units, can now be installed and each one of the wiring tails should be connected to the appropriate section of the board by your qualified electrician.

Next, your electrician can connect all of the faceplates, lights and switches throughout the building and wire in all of the fixed appliances. They should then conduct a bell test on all of the wiring. This should be done before the consumer unit and installation is made live by the final connection with the meter, bypassing and/or replacing any temporary consumer unit within the meter box.

Second Fix Plumbing

The boiler position will have been

established and its installation will be carried out by a qualified plumbing and heating engineer – though the electrician will be in attendance to deal with the wiring of the firing and control systems. These will probably not be finally connected until later, when the boiler is ready to be fired up and tested.

Make sure that your builder is also on hand to see that the flue is properly connected. This can go up and through the roof, ending in a suitable cowl, or it can go through the wall to a balanced flue. In either case, somebody needs to make sure that everything is secure and weathertight.

The various sink units can now be plumbed in, but you'll also need the kitchen fitters or one of your builders there to affix the sink tops to the units. An undermounted sink, once the pipes have been connected by the plumbers, will need to be propped up and supported until any sealant has 'gone off' and the brackets are secure. The wastes will also have to be connected and traps and connections left for appliances such as dishwashers and washing machines.

Sanitaryware may have already been positioned and fitted to facilitate the carpenters completing their second fix. If not, the plumbers will have to position and plumb in all sanitaryware for hot and cold

“Due to the complexity of the initial work, the same plumber and electrician typically carries out both the first and second fix”



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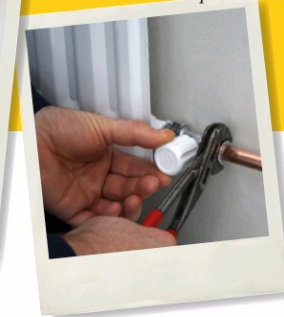
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Connecting the Heating

During second fix, plumbers will hang the radiators in all rooms. Any thermostatic valves can also be installed at this point. With everything in place, the system can be tested. A careful watch needs to be maintained for 24 hours to check for leaks or any problems.

domestic water supply and connect all waste pipes through traps to the drainage exits or vent pipes.

Once again, the electrician joins in this exercise to ensure that all pipes, radiators, sanitaryware and sinks that have an earthed connection (common with copper pipework) are properly earthed and cross bonded. The use of plastic plumbing makes this last task unnecessary in some cases. When you are absolutely sure that there are no leaks, and before any bath panels are fixed, consider packing mineral wool insulation beneath, behind and around the underside of the bath. It'll save money and keep your bath warmer for longer.

Installing the Heating System

The first fix work will have left 'tails' coming up through the floor or out from the walls for the radiators. The carrying brackets for the radiators can now be fixed to the walls and the radiators can be hung before being connected to these tails. In all probability, this is when any thermostatic radiator valves are also fitted.

If you are using a gas-fired system this can be attended to now. Mains gas will require a meter in a meter box, which will have been built in at an earlier stage. A qualified Gas Safe engineer should now run piping from that meter position to the outlet or boiler position and connect it. It will not be turned on until all tests have been carried out and the work has been properly certified.

Where LPG (liquid petroleum gas) is used, the gas tank will be outside the building, either above or below ground. The install and supply company will usually undertake the piping from the tank to a suitable position close to the boiler. A qualified engineer, with the relevant certification, will then undertake the pipework between the suppliers 'on/off' lever and the appliance. Again, this will not be turned on until all necessary checks have been made and certified. The gas tanks are usually provided with a small amount of gas in them, sufficient only for

testing purposes. But once the installation is complete, they will fill the tanks to 85%.

Those using an oil-fired system will have to ensure that the storage tank is suitably and safely positioned outside of the building, in accordance with the regulations, and that this is then filled by their chosen supplier. The heating engineer/plumber will run a copper pipe from the tank to the boiler, affixing it to the wall of the house externally. (If the tank is lower than the boiler position, then a 'tiger loop' will be employed.)

All of the underfloor heating loops will have been brought to a collection point (a manifold), probably in a suitable cupboard. There can be just one of these, but in larger houses they may be split.

The manifolds will now be connected to these heating loops by the plumbers, while the electrician will wire up the various switches, controls and panels and connect these to the circuits to the thermostats in each room or zone.

Testing the Heating System

With everything checked, the plumbers and electricians can now proceed with the firing up and testing of the system. The plumbers will have had the pipework under pressure for some time but, nevertheless, the first firing of the system and the sending around of hot water under mains pressure can reveal leaks and other problems. It can be a worrying time and a careful watch needs to be maintained for 24 hours.

The central heating should be left on test, which may mean that the system is running at a lower temperature than when it is fully running. Don't forget this fact, as many people move in thinking that their central heating is inadequate, only to find out that they have forgotten to take it off test.

As a last job, the extractor fans to each of the wet rooms can be installed and wired in by the electrician and a suitable cowl affixed to the outside vent. 

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 noggins 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/Drylining

- 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



» All roofing insulation to be installed

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 **B**

A BUILDING REGS' GUIDE DESIGNING FOR ACCESS

Part M of the Building Regs has a lot to say about designing new homes for access, and no new build is exempt. In the first of a new series, Paul Hymers explains how this part of the Regs applies to your self-build



Paul Hymers

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

Before 1 October 2015, every new build home simply had the basic visitor standard for accessibility to comply with. Now it's a bit more complicated than that because there are three different 'optional' standards of accessibility contained in the current Part M 2015 edition (requirement M4) for England – and either one of them could be assigned to your project by the planners.

The three categories, from the most basic to the most extensive, are:

Category 1 The visitable standard M4(1)

Category 2 Accessible and adaptable dwellings M4(2)

Category 3 Wheelchair user dwellings M4(3).

The choice about which standard to achieve, as a minimum, is made at the planning stage and typically applied as a condition of your planning permission. The design details will need to be submitted to discharge the condition and checked during the build itself.

So how do local planning authorities decide which standard to apply to your home? Each authority will have adopted a planning policy that suggests how they intend to apply the accessibility standards to new build homes. Some may have set a percentage for each of the three standards, others may have decided to apply one standard across all new homes in their district. If they haven't applied a condition requiring category 2 or 3 you can assume that category 1 applies: the basic visitable standard.

These requirements don't apply to conversions or extensions, or indeed any new homes created by a change of use, as improving accessibility with existing structures, spaces and levels would be challenging – although as the projects on these pages show, making an existing property accessible is certainly achievable. Instead, the regulations on access apply to all new builds, including self-builds – no new build is exempt.

Even with new builds, the land itself can be an obstacle to access. It may be difficult to comply with some categories on steeply sloping sites or those with no front garden at all, for instance. These issues should also be considered along with the policy by the planners.

What's more, the requirements don't simply apply inside – or even at the front door. They begin at the boundary of the development and consider the approach from the street or the parking spaces first of all. This is why you and your architect need to consider them at an early stage of design and planning.

Building Regs Part M
Building Regulations set out minimum standards for the design, construction and alteration of buildings in the UK. Part M: Access covers the access compliance process and provides an overview of the three levels of disability access for all new dwellings.



For a single development, the approach is the garden gate, path and driveway to the main entrance, but it is worth bearing in mind that if your home is part of a larger development (perhaps a custom build site) the access approach standard can be applied from the curtilage of the development and not just your boundary. This can be an issue if the car parking is outside of your plot.

The three levels impose increasing levels of access for wheelchair users and homeowners with limited mobility with each category. Here, we look at what each category looks like.

Category 1: The Visitable Standard

Ideally, access to the house should be ramped, but steps are acceptable where a ramp would be too steep. Three or more steps should have a handrail to one side and each one should be between 75mm and 150mm high. The surfacing shouldn't impede wheelchairs, which rules out deep loose gravel. Resin-bonded gravel, though, would be firm and suitable.

An approach of at least 900mm wide is required, and where that is part of the driveway, the 900mm space needed is alongside the

parked car. A level threshold to the entrance door is essential but if the site doesn't allow it, a 150mm step can be included where it's unavoidable.

Once inside, the hallway should be at least 900mm wide and reduced to no less than 750mm by radiators up to 2m long, so long as your internal doors have a clear width of at least 800mm. Given a wider hallway, door widths can be reduced to 775mm. The clear width of doors means the space between the door stops, not the lining – so the standard 30-inch (around 762mm) door isn't wide enough.

The entrance level of the home will also require a WC and this should include at least 750mm of leg room in front of the pan. Bear this in mind if you plan to include ▶

Sloping Site

Transform Architects turned a 1970s home on a sloping site with poor accessibility (inset) into one (MAIN IMAGE) that met the needs of the homeowner, who uses a wheelchair. Previously, the front door and garage were totally unsuited for wheelchair use, so the architect Martin Bell raised the level of the drive to ensure that the front entrance and garage would be accessible, and created a path with level access from the rear of the house to a new 'man shed'. Internally, all of the ground floor is also wheelchair-friendly.

“The requirements do not simply apply once you are inside your home, or even at the front door”



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An Accessible Barn Conversion

This project from new bold design, for a wheelchair user in Tyneside, was a barn conversion involving major internal and external remodeling, extensions and a new detached garage to make the dwelling fully accessible inside and out. The driveway, paths and patios were resurfaced in permeable, resin-bound gravel and the lawns replaced with astroturf to make the whole site wheelchair accessible. Level access is provided at all door openings, so there is no need for ramps. All the internal doors have been widened to at least 900mm, all the electrical fittings have been re-positioned at lower levels and some appliances have remote-controlled operation. Bathing provision includes a wetroom and a separate bathroom incorporating a spa bath with concealed overhead hoisting. There is a physiotherapy room in a separate building, with a platform lift providing wheelchair access to the floor above for relaxation after therapy sessions.



a pedestal basin or vanity unit or even a radiator in the room. Given a side door opening out into the hall, the cloakroom only needs to be 850mm wide and 1600mm long inside, which would not be enough to get a wheelchair in. Positioning a wheelchair in the open doorway and transferring onto the WC is considered fine for the visitor standard.

We have grown used to the switches and sockets being in the access zone (i.e.

450mm to 1,200mm above floor level), but the consumer unit should now also be at access height.

Category 2: Accessible & Adaptable Dwellings

As the name suggests, this standard looks to create homes that are more accessible throughout and can be easily adapted for improved access in the future.

You could still have steps if a ramp can't be fitted in to the external approach, ➤





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but a level landing at least 1200mm wide and deep needs to occur at the top, partly covered and lit by a daylight sensor or PIR lamp. The entrance door should have a clear width of at least 850mm and have, at minimum, a 300mm nib to the side of the leading edge, to enable a wheelchair user to get close enough to the handle. These reveals internally should be at most 200mm deep for the same reason, and so doors that are fitted to the outer leaf of thick external cavity walls often need to be recessed deeper than normal on the outside.

With this category, all the external doors should meet these dimensions, including those to the garden, balcony, a terrace and even the attached garage, carport,

conservatory or store. If you have a porch or lobby, it needs to be at least 1500mm deep measured between door swings (i.e. opening in opposite directions).

The chance of adding a stair-lift later is included, by having a stair width of at least 850mm (800mm tends to be the industry standard). Bedrooms should have clear access space at least 750mm wide to the window from the door, to one side of the bed and this means considering the bedroom furniture layout at the design stage.

If you have three or more bedrooms, the accessible cloakroom/WC also has to have an accessible shower. Needless to say they are bigger with more manoeuvring space than the visitor stan-

dard requires. This could be the bathroom if a double bedroom is also on this floor, but otherwise the bathroom upstairs still has space requirements for minimum clear access between sanitaryware.

The depth of clear floor space to the side of the bath, for example, is at least

Irrespective of chair stores, general built-in storage space is sized by the number of bedrooms and measured by floor area.

This standard is the only one that requires a wheelchair lift to be installed between floors. These are not stair lifts but through-floor

"For us to live out our days in our own home, houses have to be built to accommodate our changing mobility"

700mm for at least 1100mm along the bath and if you didn't have to provide the level access shower in the cloakroom, now you do in the bathroom.

Category 3: Wheelchair User Dwellings

This aims to create a home that is ready-made for a wheelchair user. Although a level or slightly ramped approach is essential now, separate steps should also be included as an alternative, but overall the floor level should not be more than 300mm above the external ground of approach routes.

In the car parking and drop-off areas, any car ports and garages need at least 2200mm headroom. Every approach and, inside, every hallway and landing, has to be at least 1050mm wide, and every door should have a clear width of at least 850mm between the door stops.

Wheelchair storage and transfer areas are also in the mix, as are places to switch between outdoor buggies and indoor chairs. Charging points are also provided.

lifts that take a standard wheelchair and need a minimum space of 1650mm x 1100mm to fit in and a 1500mm diameter turning circle in front of the space. This circle is worth superimposing to scale over floor plans, because it is widely used to determine whether spaces are accessible or not.

For us to live out our days in our own homes, houses have to be built to accommodate our changing mobility and needs. The kitchen layouts and room space details in Category 3 are well worth looking at even if you don't have to comply with them. While installing ramps, wetrooms and through-floor lifts can be done on a retrofit basis, it isn't always easy to adapt existing buildings and as we look to a future that aims to keep us in our own homes as long as it possibly can, it makes sense to build them with that in mind. ③

Next month:
Thermal efficiency (Part L) explained, including SAP calculations, air pressure testing and EPCs

The Building Regs Explained: What's Coming Next

Over the next few months, this new series will be covering:

- Thermal efficiency; SAP calculations, air pressure testing and EPCs (Part L)
- Connecting to and building near public sewers (Part H)
- Water efficiency design (Part G)
- Sound insulation (Part E)
- Site preparation and resistance to contaminants and moisture (Part C)
- Services commissioning and registering process (Parts J and I)
- Street naming and numbering process (applying for a property name or number)
- Completion Certificates and what needs to be in place to obtain one

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.

Finance 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 can range from anywhere

between under £1,000/m² to over £3,000/m², depending on your build route and level of involvement, desired finish, spec and where in the country you plan to build — our self-build cost calculator at homebuilding.co.uk/ calculator should help.

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.

Secure 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, and 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, who 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.

Whoever you choose, you will need to know that you can have a good rapport and are able to get on well together," says Design and Materials' Beverley Pemberton. "A



Coordinating Deliveries

If you take on the project management yourself, you will need to coordinate deliveries and factor in how they will be securely secured and moved around the site.

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 ensure that they have a thorough understanding of the planning system."

Before approaching a professional, you will need to know what your priorities are for your new home and come up with a brief. 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 permissions are 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.

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.

You may also be able to sort your structural warranty through an approved inspector, which may save some costs.

Go 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 may have helped you to 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. The policy will cover 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 180 for our self-build schedule so you know what to expect during the build process.

Turn over for info on VAT reclaim for self-builders

IMAGE: DAVID SHELL

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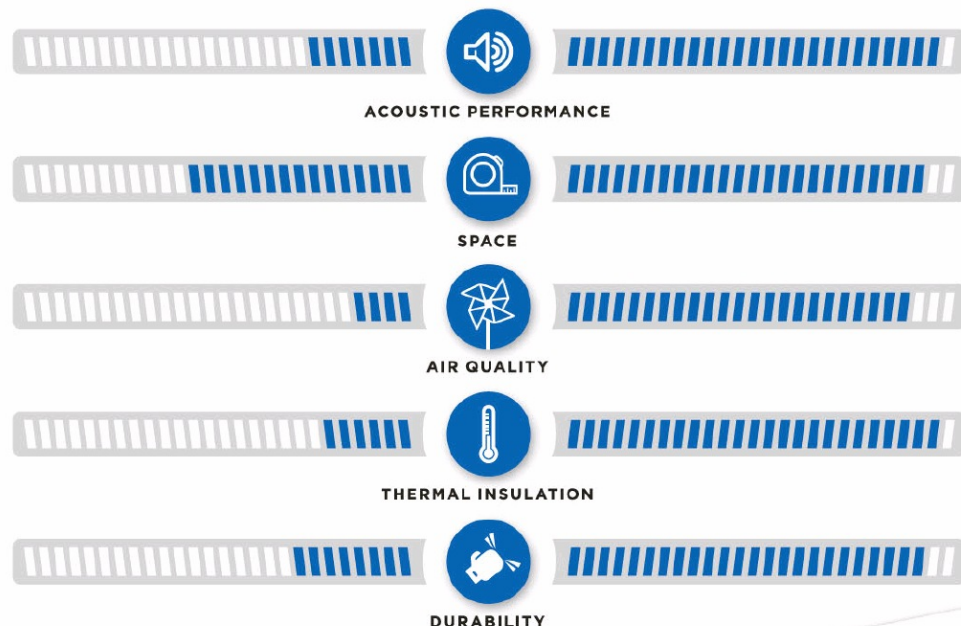
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HOW TO RECLAIM VAT ON A SELF-BUILD

VAT expert Andrew McDonald, a man who knows the VAT431NB refund form inside out, demystifies the often misunderstood process of reclaiming VAT on self-build projects

Value added tax (VAT) could count for 20% of the budget on a self-build project, but it's possible that you could reclaim most of that money back from HMRC once the build is completed. However, there is plenty to remember before you can get back the money due to you. Here, I will focus on what you need to know and how to ensure everything is in place to reclaim the VAT on a new self-build project – achieved through what is known as a VAT431NB form.

Is Your Project Eligible?

To be eligible for VAT reclaim a project has to create a new dwelling in its own right, so the majority of new build projects will fall into this bracket. Extensions, refurbishments and annexes, for example, do not create a new dwelling in their own right, and so are not eligible. (Projects that convert non-residential buildings into new dwellings and renovations that bring a dwelling that has been unoccupied for 10 years back into use can also benefit from a VAT refund.)

The new home must be for you or a family member's use to be eligible under this scheme. (Some planning permissions include conditions or restrictions on use or occupancy, which may mean that the project is not eligible.)

If your project changes in nature during the course of

works (e.g. from an extension to a demolition and new build), then to be eligible you must obtain planning permission confirming this before works continue.

For every self-build, HMRC will request to see valid planning permission, which will include your detailed plans, as well as evidence of completion, usually in the form of a completion certificate, habitation certificate or a valuation office listing letter.

Only one claim is allowed and all relevant documentation and invoices (which we'll come onto) have to be submitted to HMRC within three months of your completion certificate being issued.

What can I Claim for?

You can claim the VAT on all eligible materials ordinarily incorporated in a new dwelling. This includes, but is in no way limited to: concrete, blocks, bricks, insulation, sand, cement, plaster, timber, roofing, stairs, windows, guttering, doors, paint, light fittings, wooden floors, fireplaces and fires, fixed towel rails, mirrors, solar panels, boilers, sewage treatment plants, TV aerials, curtain poles, tiles, bathrooms, kitchen units, worktops, electrical materials and plumbing materials. Even swimming pools and saunas inside the new dwelling are eligible!

Unfortunately not all of the VAT incurred on your project

is recoverable. VAT is not reclaimable on professional fees, equipment hire, consumables, kitchen appliances or carpets.

For new builds, the supply of materials only is always at the standard rate of VAT, which is currently 20% (5% on some energy items). You can recover all of the VAT incurred on eligible materials via the scheme.

The supply of labour only or the joint supply of labour and materials should be at the zero rate for new builds.

Submitting Your Claim

Keep all of your valid VAT invoices as the originals are required by HMRC. Invoices should include the supplier name, their VAT number, invoice date, a description of

the goods supplied and the value of the invoice.

Online purchases usually generate emails confirming orders; these are not valid VAT invoices. You will need to request one at the time of the purchase.

The self-builder is responsible for making a claim when the project is complete. The best way to maximise your VAT repayment is to keep all of your invoices together as you go. It is sometimes convenient to use a friend's or tradesman's trade account for discount and credit. If the invoice is not in your name then make sure that you pay the supplier directly and keep a copy of your bank/card statement to ensure that you can reclaim the VAT. **H**



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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 discuss tackling damp, planning permission for basements, heating systems, and more

Want Advice on Your Project?

Whether you're embarking on a selfbuild, extending your home or simply tackling a DIY task, if you have a query about your project why not ask one of our experts? Email your question to homebuilding@futurenet.com.

You can also visit our website, homebuilding.co.uk, to read the latest advice and to post your question. Or join us on Facebook, Pinterest, YouTube, Twitter (@MyHomebuilding) or Instagram.

Finally, come along for a free 15-minute consultation with an expert at our dedicated Ask the Experts stand – available at our seven Homebuilding & Renovating Shows across the UK (homebuildingshow.co.uk).



How Can I Protect My Timber Frame While it's Being Built?

Q My timber frame has arrived on site but we are expecting a spell of bad weather. Are there any measures we can take to protect the frame while getting it to watertight stage? Will it warp?

Nazir Abbas

A PAUL NEWMAN SAYS: One of the most important parts of a timber frame selfbuild is to get the roof felted, battened and tiled as soon as the frame is erected. Once this is done, the build is essentially waterproof and if the windows have been fitted, then the build is fully waterproof at this point.

Almost all timber building systems are delivered to site with a breathable membrane already fitted to the outside face of the external walls (and our primary product, for instance, now comes with a factory installed internal membrane and insulation lining). The main role of the external membrane is to protect the structure from rain during transport and

construction. The European whitewood used in the structure is remarkably reluctant to take on water once it has been kiln dried – at most, the timber studs and rails will wet up to the first 1-3mm, even after very severe exposure to rain. As such, the weather shouldn't be too much of a concern.

On many buildings some internal walls are sheathed with a board product to assist with structural performance. We use plywood in these locations because it is much more durable than oriented strand board (OSB) which frequently expands and bows when wet. If you're concerned about the elements, then it's worth checking with your timber frame manufacturer. We also use plywood floor decking or high performance coated chipboard in our builds because these products continue to perform should the roofer not manage to get to site on time.



Paul Newman
Paul is the self build director at Potton which specialises in bespoke package builds (potton.co.uk).



Q We're extending above our integral garage – what is the minimum thickness of plasterboard that we should be using for the garage ceiling?

Peter Smithfield

A TIM PULLEN SAYS: This is principally a fire-resistance issue and as such, a fire resistance of at least 30 minutes is needed. That is achieved with single sheets of 12.5mm, fire-rated plasterboard with a plaster finish, or with two sheets of standard 9.5mm plasterboard, again with a plaster finish.



Tim Pullen
Tim is an expert in sustainable building methods and energy efficiency.

How Can I Tackle Damp?

Q My house is built of 18" thick granite with the stonework exposed on the outside. It has always been damp with rain soaking through the old mortar. I don't want to cover the stonework. If I rake and re-point what should I add to the mortar to stop the water ingress, or is there something clear I could just spray on to seal the old mortar?

Sally Lloyd

A IAN ROCK SAYS: As with your house with solid stone walls, there's often more than one cause of damp in older homes. Sometimes damp can become trapped in walls where modern cement-based mortars or renders have been applied. Raking out and re-pointing in a suitable lime mortar should allow damp to evaporate and escape. Check for other possible sources of damp such as high ground

Do I Need Planning for My Basement?

Q I'm looking to add a basement extension to my terraced property. What do I need to consider from a planning perspective and will I need to notify my neighbours of the works? Could their opinion influence the planner's decision?

Mai Yung

A UFUK BAHAR SAYS: Most local planning authorities have treated basement extensions as falling under Permitted Development rights. I would highly advise you to seek a Certificate of Lawfulness to establish whether your basement extension constitutes Permitted Development in the first instance.

However, there are some planning authorities who might decide to use their power to remove Permitted Development rights by making an Article 4 Direction, or if they feel you have already exhausted Permitted Development

rights carrying out other work to the property. Article 4 Directions do not stop development, but if there is one in place, this means that planning permission for a basement extension is required. It is also important to note that while a basement extension might benefit from Permitted Development rights, the associated engineering works might not.

Once you submit a planning application for a basement, the planning officers should only take the objections of your neighbours into account if these objections are material planning considerations, for example, loss of value to property. Noise from construction is not a valid reason to object to a planning application, however.



Ufuk Bahar
Ufuk is the managing director of Urbanist Architecture (UrbanistArchitecture.co.uk).

levels, low floor levels, leaking rainwater pipes, climbing shrubs harbouring damp against the walls etc. It's important to prevent surface water accumulating at the base of the walls and one solution is to excavate a shallow gravel-filled trench to channel water safely away.

Finally, a common problem internally is damp from condensation dribbling down walls and on cold windows, so it's worth considering secondary glazing where you want to retain original windows. Also it's a good idea to fit extractor fans to get rid of moist, humid internal air before it can cause problems.



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



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How Can I Find the Right Tradesperson for the Job?

Q I've been on the hunt for tradespeople for my upcoming project and have already emailed several but none of them have come good. Where is the best place to start for finding people I can trust?

Petra Bond

A CARL MEREDITH SAYS: Whether you are planning a home renovation or a new build, finding the right people to carry out the job is paramount to achieving the results you're after, whereas getting lumbered with inexperienced workers not only means your dreams of that perfect project are in serious jeopardy, but can also leave you extremely stressed, out of time and far beyond your budget. To safeguard your work and sanity, there are some simple measures that shouldn't be overlooked.

Firstly, whether you are considering word of mouth recommendations, local ads or internet search results, double check your options with an approved quality check website.

The Trading Standards website is a good place to find this reassurance, and it also features a handy postcode search facility. The Local Authority Assured Trader Scheme Network (LAATSN) also links together the local authority trading standards schemes; all traders that are listed have to comply with both trading standards legislation and civil law obligations. This means that they cannot use any high-pressure selling tactics, and they must have an effective complaints procedure in place and really deliver when it comes to customer service.

Secondly, you will be surprised how many tradespeople are hired for jobs without giving a quote – meaning the homeowner or project manager has no idea of what the bill will entail. As well as ensuring you have a quote

based on a realistic expectation of the job at hand, it is also a good idea to ask them to let you know ahead of time if the price will change. This is standard practice for good tradespeople, so it shouldn't be an imposition. You have a right to know what your bill will come to, and you should be given the opportunity to approve it before work is done so you don't feel obliged to pay more than expected.

If you have the opportunity, try to speak to or get information from the tradesperson before they arrive, often your instinct will tell you all you need to know about whether they are approachable and you can build a good relationship with them.



Carl Meredith
is the MD of MyJobQuote.co.uk, which provides a comparison of affordable quotes from quality tradespeople.

What Heating System Should I Use?

Q I am renovating a cottage in north Norfolk and would like advice about which heating system to introduce. The four-bed cottage is semi-detached and 150 years old and I will mainly use it at weekends. Should I also opt for underfloor heating (UFH)?

Matthew Gordon

A IAN ROCK SAYS: The choice of heating system needs to be considered in relation to how well insulated and thermally efficient the house is, as well as the required usage based on occupancy.

Unless you go the extra mile or two with the renovation work to bring the property's thermal efficiency close to new build standards then we have to

assume the building won't score above average on energy performance (eg with an EPC or SAP calculation carried out). This tends to rule out heating systems served by renewables such as a heat pump. Although renewables can qualify for financial assistance (such as the Renewable Heat Incentive) they are only really justifiable in houses insulated to high standards.

If occupancy is largely restricted to weekends then this would also mitigate against higher upfront costs for a more efficient system because the savings from day-to-day usage would be reduced if it's only used for two or three days a week.

In locations without a mains gas supply this tends to narrow down the options to oil, electric or LPG. Of these, oil is probably the best option at present, although prices can fluctuate quite dramatically over time. As a rule, electric heating tends to be cheaper to

install but relatively expensive to run, although you could perhaps consider UFH mats for smaller floor areas such as cloakrooms.

Retrofitting wet UFH systems is relatively expensive and disruptive, largely because of the need to insulate cold floors. Whichever system you choose it's certainly worth investing in high-efficiency controls with the latest programmer and thermostats to reduce wasted heat. The choice then is between a stand alone combi boiler or a modern pressurised system with an unvented hot water cylinder. The latter is generally considered more suited to larger three or four bedroom properties. **H**



Ian Rock
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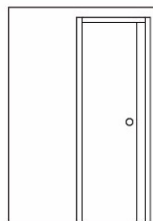
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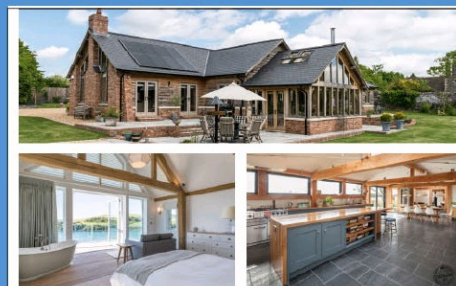
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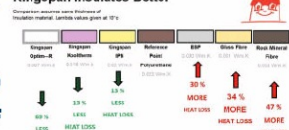


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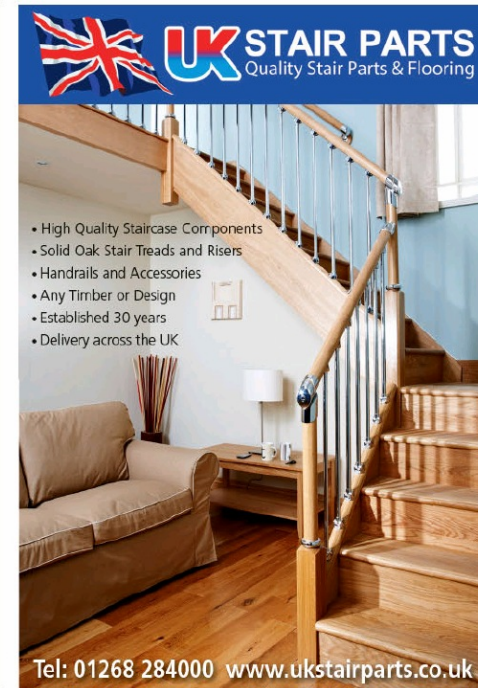



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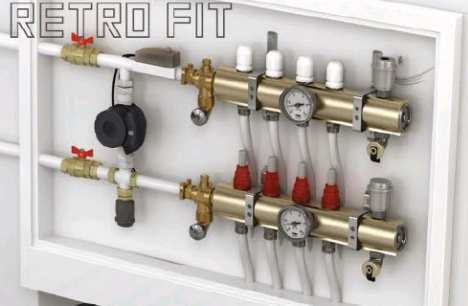
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These 'outstanding' products combine Snickers' unrivalled hallmarks of functionality and comfort with the requirements of the EN471 standard for high visibility warning clothes.

Snickers Workwear - **www.snickersworkwear.co.uk**
info@snickersworkwear.co.uk Helpline: 01484 854788

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The Solid Gear VENT Safety Shoe – Precision Safety and Comfort

Combining a lightweight athletic look with maximum breathability and superb safety features, the new VENT safety shoe is ideal for workers who are constantly on the move.

VENT's upper is made from lightweight mesh combined with Cordura and a TPU reinforcement to ensure real comfort, maximum breathability and enhanced durability.

While the shoe's two midsoles deliver stability, flexibility and optimal energy return for enhanced comfort on your feet, the rubber outsole provides a high level of anti-slip protection.

Solid Gear - the Next Generation of Safety Footwear
www.solidgearfootwear.com Helpline: 01484 854788.

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OSMOUK Post Fix is a strong, easy-to-use, and fast-setting solution that allows users to fix a post in a matter of minutes. Whether you are installing garden posts or sports poles, OSMOUK Post Fix is the ideal product for those who are looking for a cost effective, lightweight alternative to concrete.

OSMOUK Post Fix has been specifically designed for use with wood, vinyl, PVC, steel, concrete, and metal posts. Filling the void between post and hole, this two-part compound ensures the installed post is secure, providing high strength against impacts and shocks. The solution is waterproof, which helps to protect the post against rotting. Users can install posts using OSMOUK Post Fix all year round.

OSMOUK Post Fix has a shelf life of 12 months, if stored in its original package and away from direct sunlight and moisture.

For more information on OSMOUK Post Fix, visit **www.easypostfix.co.uk**, email **sales@osmouk.com** or call +44 (0) 1296 481 220

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info@stoneleafslates.co.uk
www.stoneleafslates.co.uk

MAKITA EXPAND PRESSURE WASHER RANGE



Makita has added two pressure washers to the range which spans the 100 to 140 bar capacities. The new HW1200 and HW1300 models feature a self-priming pump operation which means that they can be used with water supplied from a tank, or water but, simply by immersing a self-suction supply hose (supplied separately) into the water source. The traditional mains water hose supply connection is conveniently located at the front of the washer. These lightweight washers are quiet in operation, double insulated for safety, come complete with a convenient 5m power cord and can be used with water at up to 40°C.

www.makita.co.uk

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www.everbuild.co.uk

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Snickers' new ALLROUND Tool Vest is the ultimate in Tool-Carrying Technology



Versatile and adjustable, the ergonomic design features a wide range of hard-wearing pockets for a variety of tools, fittings and accessories. It's lightweight, hard-wearing, comfortable and easy to keep clean.

It comes with Cordura® 500 reinforced front holster pockets for enhanced durability and easy-access angled rear holster pockets. There's also Cordura® reinforced breast pockets plus a knife fastener, an easy-access padded mobile phone compartment and detachable ID badge.

Snickers Workwear
www.snickersworkwear.co.uk
Info@snickersworkwear.co.uk
Helpline: 01484 854738

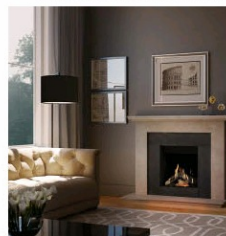
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www.webstersinsulation.com

New DRU Global 55XT BF cavity wall gas fire, an ingenious new fireplace solution for home owners and developers



Now, for homes with no chimney, the new Global 55XT BF cavity wall model is an ingenious way to transform a flat wall into an impressive fireplace, whilst saving valuable floor space. It has an authentic 'camp fire' log set powered by the DRU Global TrueFlame burner, which creates incredibly realistic high and dense flames and a comforting glow. Unlike ordinary chimney-based gas fires, the Global 55XT has a closed combustion system, using air from outside the building for combustion and expelling waste gases through its concentric flue. This results in safe, comfortable and efficient heating. The DRU Global 55XT BF will be available from approved DRU dealers throughout the UK by Spring 2016.

For full details visit www.drufire.com

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Our Best Build Decision...

In the first of a new series where renovators and self-builders share advice, Tracy and Steve Head discuss using an existing annexe as a test bed for their new barn-style home

Our self-build project officially got underway in July 2014, but we had moved into the annexe months before. The plan was to demolish the existing Colt bungalow on site and build a new barn-style home on the footprint. So we needed a place to live while the work took place, but also somewhere to test out our design ideas: the annexe worked perfectly. We fully renovated the annexe before we started the build knowing that it had to be ready before we demolished the house.

The annexe was quite tight with us and our two boys in there, but we made it work.

The boys developed (without realising it!) consideration for others, tidiness, patience and social skills due to having, on average, 10 trades on site per day. It was a simple and clutter-free way of living which we actually quite miss!

A lot of the design choices for the main house were made very early on — after they'd been trialled in the annexe. And we didn't change our mind at all once we'd started because we'd already lived with those choices.

We had to decide on the flooring for the house quickly because it would affect the thickness of the floor levels, and we knew it would also dictate some of the colour choices. We were keen to have a simple colour palette throughout the house, so we installed the flooring in the annexe and tested the colours against it. We could lie in bed and look at the grey and the off-white walls and see how they worked with the flooring. We just didn't feel there was a need to paint 50 different types of off-white on the wall to make a decision.

The annexe really was the guinea pig. Everything that was tested in there — right down to the hardware on the windows — transferred across. We used it, lived with it for 20 months, and knew we loved it.

We knew we wanted to link the annexe back to the main house eventually. So when the architect suggested creating an extra bedroom and shrinking some of the circulation space on the first floor landing in the main house, we could say 'no' because we knew we'd have the annexe for guests. **1**

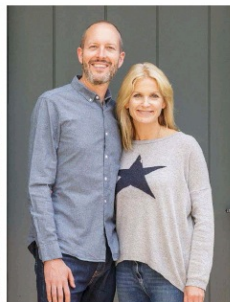
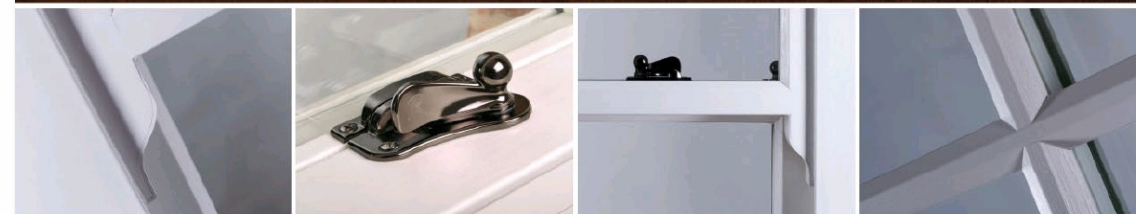


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The Arts & Craft House

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Idealcombi Futura+ side guided window tilted 45° to fit between the triangular fixed lights

Idealcombi Futura+

...has uniform sightlines across opening functions (including inward opening), powder coated or anodized 53 mm external aluminium profile and internal timber frame finished in RAL colours or Clear lacquer.

With u-values from 0.74 W/m²K, the Futura+ and Futura+i (inward opening) are among the most energy efficient window systems with a slim, contemporary look.

Though categorised as a contemporary system, the Futura+ and Futura+i compliments period homes, such as the Arts & Crafts House, elegantly.

