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**COVER STORY:** 

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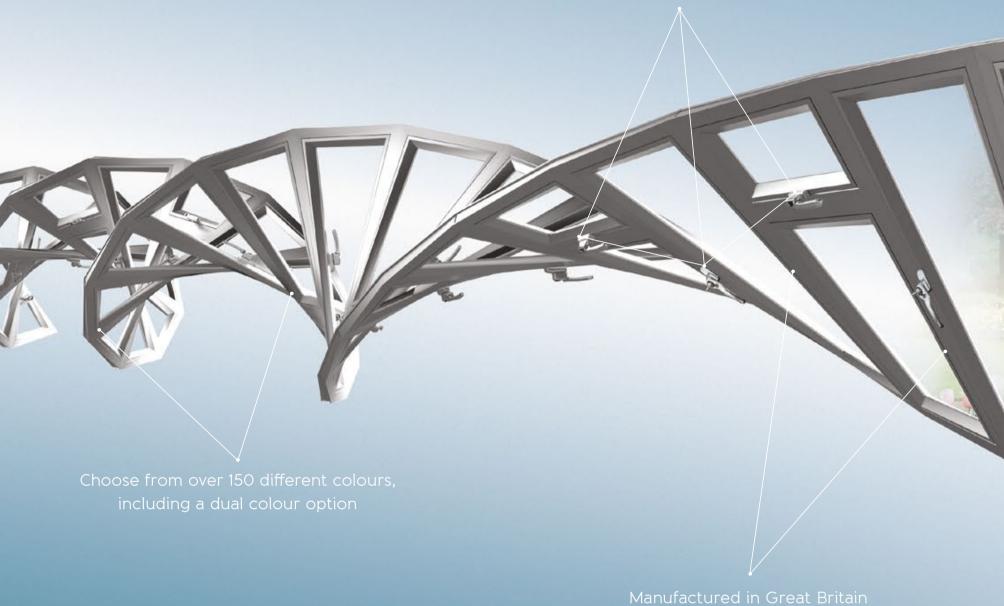
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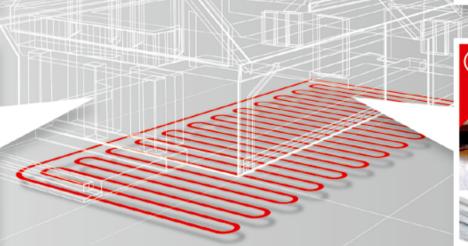














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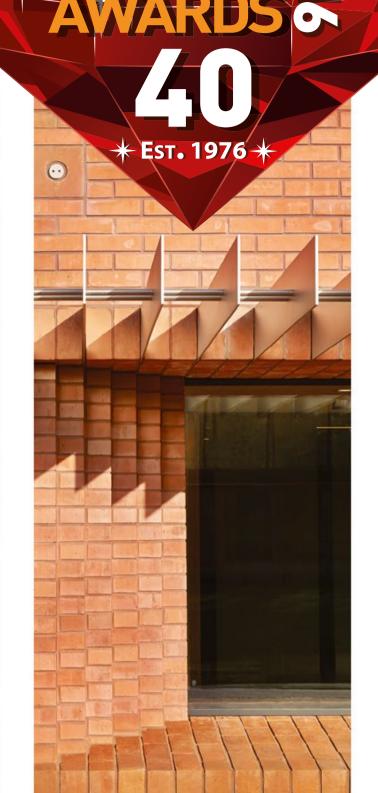
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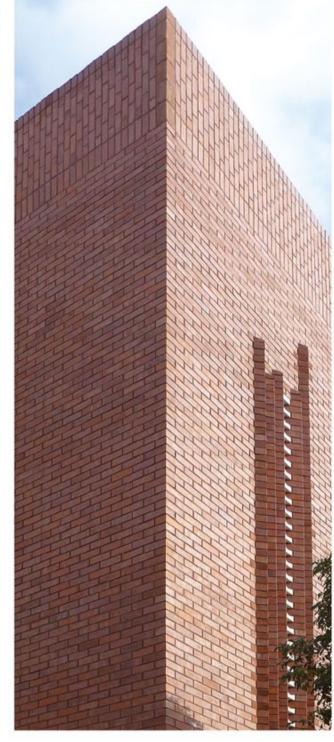
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# The Importance of the Bottom Line

#### Claire Lloyd is the Editor of Homebuilding & Renovating

uild a home for £100k' it's quite a statement we've made on the cover this month, isn't it. I'll hold my hands up — there is no magic formula or onesize-fits-all solution to building a new, individual home on a tight budget. If there was, I for one would be bottling it rather than editing this magazine. After all, there are elements of a self-build project that will always remain just beyond your control — the weather, for instance. Plus, you can never predict with 100 per cent certainty what you might face when you break ground; there are as many different plots as there are self-builders. What's

more, self-build is all about creating some-

thing which is uniquely

your family, and not another run-of-the-mill, off-the-shelf property, churned out by the likes of big housebuilders (no doubt, to a formula).

What this issue of the magazine can arm you with, however, is the sage advice of other self-builders who have trodden this path and successfully built

new homes on a shoestring. We bring together their words of wisdom within our special report, starting on page 91.

We've also thrown in top tips and advice from seasoned self-build experts who spend their days advising clients on not just how to establish a build budget, but how to build the very best home they can for the budget they have.

Elsewhere in this issue, we showcase a run-down cottage transformed into a stylish home, thanks to a £25,000 renovation (page 124). It's again proof that creating an individual home is not just the reserve of those with endless pockets, but achievable on more modest budgets, too.

If you are just about to embark on a project, or are in the midst of one for that matter, then a trip to one of the Homebuilding & Renovating Shows, held across the country, is an invaluable dayout for sourcing materials and services under one roof, and gaining advice from a range of independent experts. (The next Show is being held at Sandown Park, Surrey, on 25-26 July.) The National Show, held at the NEC in Birmingham this April, welcomed over 35,000 'people with projects' — so you'll be in good company!

facebook.com/homebuildingandrenovating homebuilding@centaurmedia.com



# Contributors



#### **DAVID HILTON**

David is an expert in sustainable building and energy efficiency and is training centre sales manager at HRP Ltd. He explores the efficiency of air-source heat pumps on page 62



**CHRIS REEVES** 

A construction solicitor and chartered building consultant, Chris also acts as a specialist mediator in construction disputes. See page 83 for his feature on taking care when seeking free informal advice



#### **NEIL TURNER**

Neil is a director of Durham and London-based architectural practice Howarth Litchfield Partnership and specialises in residential design. He provides his top tips for hiring an architect on page 56





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fantastic. From the operation of the blind itself to the choice of fabrics and materials, you will be spoilt for choice for your window treatment. Here are some of the options available:

#### BLACKOUT BLINDS

With a reflective back coating, these blinds integrate into any Velux roof window for a tight, lightproof seal that will ensure a good night's sleep or peaceful daytime nap.

#### DUO BLACKOUT BLINDS

A blackout blind and pleated blind in one, the duo option provides total blackout as well as softly diffused daylight.

#### BLACKOUT ENERGY BLINDS

These pleated blinds offer total blackout and have the added bonus of insulation properties of up to 26 per cent.

#### • ROMAN BLINDS

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#### ROLLER BLINDS

These blinds are ideal for rooms where you want privacy, such as a bathroom, and have the ability to diffuse natural light.

• **FLYING PLEATED BLINDS** Create original, colourful light effects in a room to complement your roof scheme with this flexible blind design.

#### AWNING BLINDS

These are external blinds best suited to offering heat protection from the sun's rays before they hit your windowpane.

#### ROLLER SHUTTERS

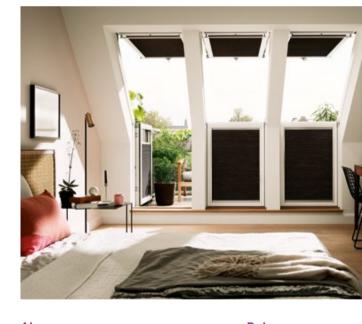
Offering additional sound insulation against rain and hail, these external shutters keep out light, prevent overheating and provide extra security for your windows.

#### CHILDREN'S BLINDS

The new Star Wars and Velux Galactic Night collection is available in four designs, and the Disney and Velux Dream collection comes in 12 designs, from Mickey and Minnie Mouse to Planes and Winnie the Pooh. Each is easy to install, made without harmful chemicals and designed to create optimal sleeping conditions thanks to its blackout design.

Velux offers free delivery on all blinds, as well as a three-year guarantee. To view the full range, order online, or discover which blinds can be manually, electronically or solar powered, visit <u>veluxshop.co.uk</u>.





Above: Elegant Style Blackout energy blinds in Black 1047, from £91.20

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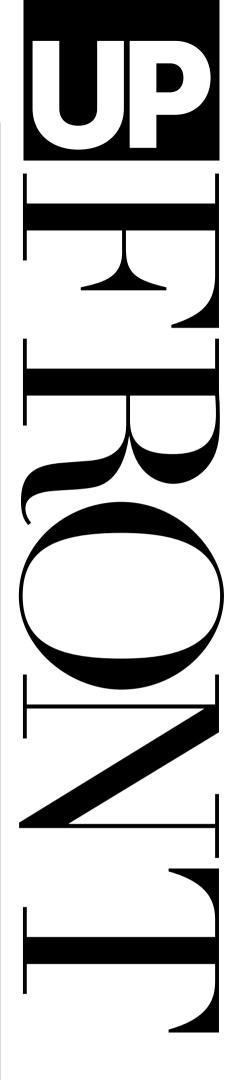
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Former Editor Jason Orme shares his tips as he remodels a 1960s home **P.47** 

#### A DIGITAL REVOLUTION

What new technology could mean for the future of the building industry **P.51** 



#### **ADVERTORIAL**

# A New Plasterboard That Supports 15kg From a Single Screw

ith fast moving trends, busy lifestyles and differing tastes all in one household, it's inevitable that needs and design aspirations change over time. By upgrading your plasterboard at the start of your project, you can ensure your home will suit you and your family for a lifetime.

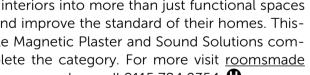
Gyproc Habito has a reinforced core and is five times stronger than standard plasterboard products. Its super strength supports 15kg of weight from a single no. 10 woodscrew, without the need for drills or specialist fixings. Whether you're fixing shelves, curtain poles, picture hooks or even TVs into place, you can simply screw straight into the wall surface, giving you more freedom to have your home just the way you want it.

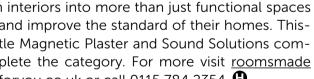
With fixing being this easy, changing your room around is no longer a hassle; you can change your fittings and relocate items for a new room layout as often as you like. (All that's left is a small screw hole which is easy to fill and repair.) It is also inevitable that walls will be subjected to a bit of wear and tear, particularly in family homes, but Gyproc Habito has a great resistance to these everyday knocks thanks to its strength and durability.

"People want a flexible home and living space and that's exactly what Gyproc Habito offers," says Paul Howard, British Gypsum's Innovation Manager. "It makes it quicker and easier to attach anything from picture hooks to televisions to the wall, meaning homeowners can get more creative in their homes. It's also extremely hardwearing, so it's the perfect choice for a family home."

Gyproc Habito is part of the 'Rooms Made For You' range from British Gypsum. The ethos of the range is to enable homeowners to transform interiors into more than just functional spaces

> and improve the standard of their homes. Thistle Magnetic Plaster and Sound Solutions complete the category. For more visit roomsmade <u>foryou.co.uk</u> or call 0115 784 2354. **(1)**













**Interior Schemes Made Easy** The strength of British Gypsum's Gyproc Habito means fittings such as TVs and shelves can be installed - and later moved - with ease







#### THE LATEST

# Poll Reveals MPs in Favour of Planning Application Fee Increase

Three in five MPs (61 per cent) agree that planning application fees should increase, with 47 per cent saying that they should increase with stronger guarantees on planning performance, according to a poll of 150 MPs commissioned by the British Property Federation.

The performance of the planning process has come under fire recently, with the Government addressing the problem of underresourcing by proposing to allow local authorities to outsource the processing of planning applications, and reward well-performing local authorities by allowing them to increase planning fees by an inflationary increase. Watch this space...

#### **DATE FOR THE DIARY: The**

ultimate day out for anyone undertaking a self-build, renovation or extension, the Homebuilding & Renovating Show is heading to Sandown Park in Surrey from 25-26 June. You will be able to attend seminars and masterclasses on a range of topics, book 15-minute free consultations with experts in the advice centre, and discover the latest products from the 220+ exhibitors. To book your tickets in advance, visit surrey. homebuildingshow.co.uk

#### Court of Appeal Frees Self-builders From Onerous s106 Planning Payments

Self-builders are set to save thousands of pounds, thanks to the latest decision on the unpopular Section 106 (s106) Planning Obligations, introduced to require developers to pay towards the cost of local council infrastructure projects to offset the impact of their development.

In a long-running saga, on 11 May this year the Court of Appeal Civil Division reversed last year's High Court decision to remove the exemption from \$106 Planning Obligation payments for small sites.

That decision has been reversed with immediate effect and the Government is expected to update its guidance accordingly.

The exemption, first introduced by Minister for Housing and Planning, Brandon Lewis MP, on 28 November 2014, frees self-builders from the s106 Planning Obligation payments that would have required them to divert £10,000s from their new home budget into a payment towards roads, schools, affordable housing and other projects.

#### **NaCSBA** Campaign

NaCSBA (National Custom and Self Build Association) campaigned for the exemption on the grounds that the payments were disproportionate to the impact of small developments, especially single self-build homes, and failed to recognise the exceptional costs of developing a small site.

The exemption, applied to sites in England of 10 new homes or less (five in

designated rural areas), was welcomed by self-builders and small housebuilders alike. Some local authorities, however, disagreed with the exemption and on 31 July 2015, the judge in a High Court case brought by two neighbouring authorities, Reading and West Berkshire, found the exemption unlawful. It was quashed just eight months after its introduction, leaving many self-builders in indefinite limbo. The High Court Judge ruling clearly contradicted the intentions of Government and its stated commitment to boost housebuilding, help smaller local housebuilders and double the size of the self-build sector to 20,000 homes a year by 2020.

#### **Victory for Self-builders**

NaCSBA immediately launched a campaign for the reintroduction of the exemption and in August 2015, the Department for Communities and Local Government was granted leave to appeal.

"NaCSBA welcomes the Court of Appeal ruling," says Chair, Michael Holmes. "This exemption, together with the existing exemption from the Community Infrastructure Levy (CIL), brings us one step closer to NaCBSA's stated aim to make a high-quality, sustainable, affordable individual home an option for the many and not just the few."

However, he warns: "Despite this victory for those who want to build their own home, it is still possible that the original appellants may seek leave to appeal to the Supreme Court."

**)** 

#### **OUT AND ABOUT**

# BUILDING ONTHE BUILT': THE IMPORTANCE OF OLD BUILDINGS



A great proportion of building work is on old, existing buildings"

Architect Jonathan Tuckey explains why he's keen to raise the profile of transforming old buildings — and why he created an exhibition and series of talks on this very topic



JONATHAN TUCKEY
Jonathan is director of awardwinning London-based practice
Jonathan Tuckey Design. He is also
one of the UK's leading advocates for
transforming old buildings and has
taught extensively on the subject

rchitects and homeowners alike have been reinventing old buildings for centuries. However, it seems there's been a growing focus on new dwellings in recent times, with everyone after a *Grand Designs*-style new build. Keen to restore this balance, architect Jonathan Tuckey – whose architectural practice carries out many remodelling and radical transformations of old buildings for new uses – hopes to revolutionise the world of renovating historic homes by opening up discussions on the subject. His exhibition 'Building on the Built', held in May, aimed to create





JONATHAN TUCKEY DESIGN; DIRK LINDNER





#### Inside the Exhibition

The backdrop to the 'Building on the Built' talks and exhibition, held in London in May, was an array of models, sketches, drawings and photographs of previous work by Jonathan Tuckey Design, whose work is primarily focused on the renovation and transformation of existing buildings (such as this Grade II-listed cottage, centre, transformed for modern living thanks to a glazed extension designed by Tuckey in collaboration with Eastabrook Architects)

an ongoing conversation about the opportunities and challenges of architectural interventions within existing structures. The programme of talks explored the many forms of working with existing buildings, with industry leaders coming together to share opinions with each other, and with members of the trade and general public in attendance.

"It's a subject I've always been passionate about, and at the practice we surround ourselves with people interested in this," says Jonathan. "As a practice, we chose to specialise in changing existing buildings, and a lot of the projects we've worked on are of historic significance or listed, and so the subjects covered in 'Building on the Built' were conversations that happen in our office on a daily basis.

"After putting the word out to fellow architects and artists, everyone wanted to be involved. The breakfast talks and evening discussions were held over a two-week period across from the Kings Cross Gasholders development in London; we were kindly allowed to use the space opposite.

"This is a very interesting place in itself as it is also a working construction site — here, we were already building on a building, which is the whole point of the talks in the first place, with the old and the new mixed together in a living, thriving part of the city.

"The backdrop of the discussions was 15 years of projects of ours which were showcased to illustrate the theme, with models, drawings, sketches and photos of completed buildings we've worked on. It's all about building new things within old structures."

So why discuss this topic in 2016? "As a subject I've come to find that it's not that well written about — there's not a big focus in the media as people mostly discuss new structures. In fact, a great proportion of building work is this type of work, on old, existing buildings. For us, 'Building on the Built' was a small way of redressing that balance and making people more aware of the importance of this type of architecture — work that starts with something on the page already.

"It has always been in our minds that this was something we'd like to curate, whether it was showcasing our work or other people's, and we would like to do more of these talks and certainly think this is something that will happen again. I think it's necessary to address these historic, important and valid buildings which surround us, and not just focus on the new. These structures make up the fabric of our architectural landscape and we should look more on improving them than just building new things all the time."

NEW PROJECT

#### "YOU CAN'T UNDERESTIMATE HOW NICE IT IS TO CHOOSE EVERYTHING FOR YOURSELF"

Elizabeth Francis and her partner Paul Walker are busy working on their renovation and extension project...

"We'd been looking for 18 months or so at properties with easy access to Liverpool," begins Elizabeth Francis, who, along with her partner Paul, is mid-way through the renovation and extension of their 1920s semi-detached home. "I found this property on Rightmove.co.uk; it was just a twominute walk from the train station and 10 minutes from the countryside. It took a while to complete, however, as the house had been through probate. There had also been structural movement due to a leaked drain caused by a tree root 20 years ago, meaning we had to have additional surveys and engineers out. The previous owner had carried out the necessary external work, but the internal work hadn't been done, so the door frames were out of line and upstairs it felt like you were walking downhill.

"From the outset, we knew we wanted to gut the property and make more of the space. After being told the existing garage would need replacing, we decided that as well as an internal renovation we would add a side and rear extension, making way for a new garage with the back of this extending across the rear. We stripped the property back to the brickwork, moved door frames, knocked down internal walls and removed the back of the house to make way for the steel beam and new extension.

"We did all the ripping out and prep work ourselves — Paul's career as an engineer has been really beneficial," she says. "He's also done some smaller renovation projects himself and has been the driving force behind the project. We then had contractors in to dig the foundations and lay the brickwork for the extension, and had a roofer, plumber and electrician on site, too.

"I'd always dreamed of having a big kitchen and the rear extension will allow for a large kitchen/living/dining space. The dining area in the extension will have a vaulted ceiling with Velux rooflights, and both French and sliding doors," she adds. "Upstairs there was a brick wall with no joists underneath or supporting wall below and as a result, the floor was beginning to dip. We removed this and replaced it with a stud wall. The house was originally four bedrooms; however, we took some space from the largest bedroom to make room for an en suite. We then moved door frames so the smallest bedroom is now part of the large bedroom, creating a luxury master suite with en suite and dressing room. While the house is now three bedrooms, we could convert it back to four if we wanted to.

"Externally, the house is rendered to the front and the garage will be rendered to match, while to the rear we have tried to match the brick with the existing as much as possible in terms of colour. We've also used similar roof tiles on the extension to match the rest of the house," she adds.

Fortunately, Paul's parents (his father Graham is pictured with Elizabeth on site, right) live close by, providing them with a place to live while their project is underway. "We can work on the house and then close the doors at the end of the day and go away to a warm, finished home and not have to worry. It's been a real help," says Elizabeth.

"Currently, we're at the stage where all of the main structural work is finished and we're now at the point where we're moving the work inside and carrying out first-fix plumbing, wiring and about to start plaster-boarding. I'd like to move in by the end of July — but I'm quite optimistic," she adds.

"As much as it is stressful and hard work, it's been great to have the opportunity to pick everything from scratch – from where the plug sockets go, to the light fittings – and I think we will really benefit from being able to make all these decisions when we finally move in. You wouldn't get that opportunity if you bought a house that's ready to move into.

"Would I do this again? At the moment, I wouldn't, but equally in the long term – say 15 years or so – we would probably like to build our own house."





IMON PETER







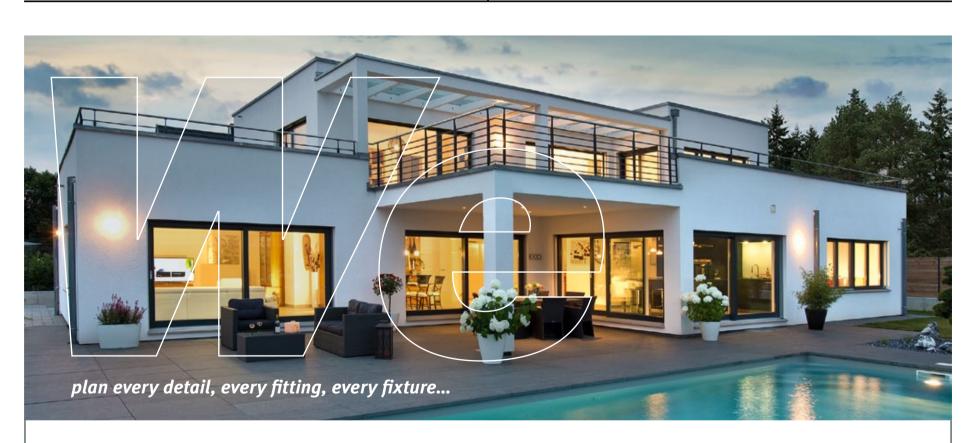




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#### **SHARE YOUR VIEWS**



#### BLOGS

## We catch up with Joe Shimbart, who's building an energy-efficient oak frame house in Hampshire using natural materials.

With the structure of the house complete, my attention has now turned to the electrics and wiring. It was quite some time ago that my builder asked me for an electrical socket plan. A simple enough request, you might think, but I had been dreading this for some time.

It may sound simple to decide where you would like to have sockets. However, in practical terms it is not so easy, and a real challenge to visualise.

Personally I do not watch a lot of television, but it seemed sensible to put in coaxial cabling at a variety of locations should it be required at a later date.

I also spent a lot of time deliberating over the merits of a hardwired network or ethernet, given the recent and ongoing advances of wireless technology. In the end, I opted for Cat 6 cabling as it offered good performance and was only a little more expensive than lower specified options. It can also support significant future upgrades in the speed of the incoming internet connection.

So the shell of the house has been filling up with cables at an alarming rate but this was only the tip of the iceberg. I have missed out one key component of the cabling — the lighting! But that is another story for another day...

For more updates on Joe's project, visit <a href="https://homebuilding.co.uk/blogs">homebuilding.co.uk/blogs</a>

#### LETTERS

#### DEAR EDITOR,

My wife and I are planning to build a rear single-storey extension to our semi-detached house. With planning granted, we're in the process of getting our Building Regulations drawings done, but I have now discovered that I may need to serve notice to my neighbours under the Party Wall Act. I have done some reading on the matter but am still confused as to whether I need to or not.

The extension will not be built up to the boundary line, so that's not an issue, but what I'm unsure about is whether or not we're carrying out work to the party wall as defined by the Party Wall Act.

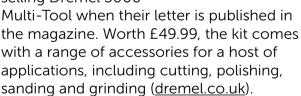
With regards to the foundations I've not yet received my Building Regulations drawings, but I'm guessing the foundations will be pretty standard. With all this in mind, would I need to give notice?

#### Richard Biggar, Macclesfield

HB&R says: This may depend on the proximity of your new foundations to the neighbouring home (even if the foundations do not abut the boundary, you may still need to serve notice under section 6 of the Party Wall Act). Watch this space for our guide to the Party Wall Act in a forthcoming issue.

#### Win a Dremel 3000 Multi-Tool Kit When You Write In!

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#### TOP TWEETS



"Using HMRC statistics 12,500 self build houses were completed in 2015. Up 6% year on year #righttobuildsummit" @nacsba



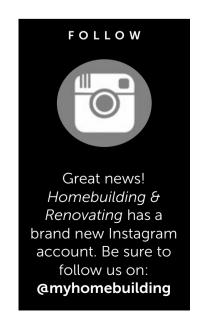
"Self-build initiative and entrepreneurial spirit scoops Cherwell District Council two national accolades"

@senorelbaldi



"Approx 6.1m people currently researching or planning a #selfbuild project, according to @nacsba survey"

@lizmale













#### **TALKING POINTS**



#### Innovative House Gets Rare Permission from Planners

WE CATCH UP WITH ARCHITECT ANDY RAMUS OF AR DESIGN STUDIO (ARDESIGNSTUDIO. CO.UK), WHOSE OPEN COUNTRYSIDE PROJECT HAS JUST BEEN APPROVED



HB&R: Paragraph 55 is a special clause in planning policy that allows homes of exceptional design to be built in open countryside. The clause states that planning consent may be granted if the proposals represent 'exceptional quality or innovative nature of the design'. Congratulations on receiving planning approval under Paragraph 55 for this project — tell us more about the process

Andy Ramus: Ravenstone was our first time tackling a Paragraph 55 house. We'd had a few enquiries in the past but always said no, until a lovely client approached us with a 1.5-acre site which they owned and used to keep horses. They were really committed and willing to pay the upfront fees to try and get the go-ahead. Plus, they were working with planning consultant Rob Hughes, who has made a name for himself as the go-to for Paragraph 55 applications.

Part of the brief for a Paragraph 55 house is that it has to be exceptional and/or innovative. As a practice, exceptional is always something we aim for, but we did struggle with the innovative part as that is very subjective. It all boiled down to creating something that hadn't been done before.

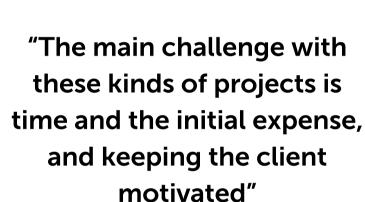
We read through previous Design & Access Statements of approved Paragraph 55 projects to try and find a common thread and it became apparent that the things which stood out were new build methods and houses on land which hadn't been built on before. We did a lot of work with the parish council surrounding various local issues. Then the designs went to the local design review panel, which was made up of various people including architects and artists. Unlike planners, they really understand the design aesthetics and give their professional opinion on the quality of the design. We made several (mostly internal) changes on the back of this and the review panel then gave us a letter of support. There were 10 in total on the planning committee. One was against, one didn't vote and eight said yes.

To be honest, I was surprised we got approval. This is a specialist area which in many cases is virtually impossible to achieve, but now we know we can, it does make us think that we could do it again, and we've now got a further three potential Paragraph 55 projects signed up.

#### How did the design develop?

This will be the last building in the village, up a lane, and from there onwards the landscape





becomes very rural and agricultural with lots of rusty metal barns. The buildings in the village use a distinctive colour of stone and so we proposed a contemporary nod to both materials, with bronze cladding above and a similar colour brick to the neighbouring houses below. We then brought Eckersley O'Callaghan Engineers on board, who were able to develop the idea of the dramatic glass cantilever, which actually has no steel supporting the structure; structural glass instead braces the whole cantilever.

The internal arrangement of rooms will form an upside-down layout with an open plan living/dining/kitchen space on the top floor. Three bedrooms and two bathrooms are downstairs. It is in fact one of the smallest Paragraph 55 houses — usually they're large country houses and typically much bigger than Ravenstone, which is only 180m<sup>2</sup>.

Another part of the brief for Paragraph 55 is that it must enhance the landscape, and so we got landscape designer Mike Ibberton involved from day one and we worked closely to come up with a scheme that both enhanced the site and complemented the house. The result is a body of water (which will be formed from carving a big

groove in the site) and opposite we've designed a bronze and glass garden room looking back on the house which will enjoy the evening sun. A third structure, also made of bronze, will act as a gazebo area and look down the length of the lake.

# This is a tricky area of planning legislation. What were the main challenges, and what should self-builders hoping to achieve planning under this clause be aware of?

It's a hell of a job to achieve — a complete roll of the dice. We charged the client a fixed fee to get the application to planning stage with only a one in six chance of the application being approved. The main challenge is time and the initial expense, and keeping the client motivated while everything is being dealt with. Ravenstone took 18 months just to handle the application, so it was frustrating at times for the client. While we have other projects to keep us busy in the meantime, this is their sole focus and took longer than they thought it would, but as it is so complex it has to go through so many people — it's not a quick process. People need to be aware of this and have that level of commitment to keep spirits up while waiting.

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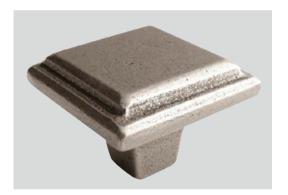
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# SERONT

#### **MATERIALS**



NEW LAUNCH

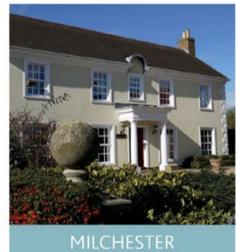
#### HARVEY JONES' LINEAR KITCHEN

The latest Linear kitchen from Harvey Jones is a good example of how to incorporate an island in a large kitchen. In this kitchen diner, the island (with central hob) is positioned so that the chef can enjoy a garden view while cooking. With its distinctive blue hue, the island also provides a strong visual counter-

point to the cream cabinetry. The kitchen also features tall units with essential appliances and a hidden pantry. The sleek lines, concealed hinges and mix of closed and open shelving create a contemporary yet warm and inviting look. Prices for the kitchen start from £18,000. (harveyjones.com)



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We visited the show centre and were able to walk around the houses and get a real feel for the design.

Carol & Andy Whitehouse





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Visit Potton.co.uk/showhomes to find out more

#### **MATERIALS**



#### GRANGE DESIGN'S MGS SINGLE COLUMN BATH SHOWER MIXER TAP

Available exclusively in the UK though Grange Design, the new MB518 single column bath/shower mixer tap, designed by Italian brassware manufacturer MGS, has a contemporary freestanding design manufactured from stainless steel. Available in three spout shapes, the mixer tap features a short penstyle hand shower with braided stainless steel flex hose and laser-cut spray holes. The tap measures 1,021mm high and comes in two finishes: matt or polished. Prices start from £2,683. (mgsbathroomtaps.co.uk)



# REED HARRIS' BARK WOODEFFECT WALL AND FLOOR TILES

With a soft grain and discreet, natural colours, Reed Harris' new Bark range of porcelain wall and floor tiles offers the timeless charm of wooden flooring but without the maintenance. Blending the aesthetics of timber with the practicalities of porcelain, the Bark range of tiles comes in a matt finish and in three contemporary shades of Avana, Nebbia (shown) and Artico. The tiles are available in a range of sizes too, with the smallest tiles measuring 300x75mm and priced at £54.95/m², while the largest measure 1,500x250mm and cost £82.50/m². Two further sizes of 900x225mm and 900x150mm are also an option and cost £64.95/m². (reedharris.co.uk)



# INDIGENOUS' TEXTURAL STONE COLLECTION

Indigenous' new Textural Stone Collection of bespoke stone and marble wall tiles includes seven designs, each offered in seven colours (shown is the pale Fondo tiles with its distinct wave design). The surfaces are handcrafted in Italy in fine limestone or marble, and come in two sizes: 600x600x20mm and 1,200x600x20mm. POA. (indigenous.co.uk)

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#### **MATERIALS**

# PC HENDERSON'S RUSTIC 80 BARN CONVERSION SLIDING DOOR KIT

The Rustic 80 sliding door kit from PC Henderson has been designed specifically for barn conversions and features exposed cast iron-effect black powder-coated steel straps that fasten down the front of the door. The barn door-style hangers run along a flat bar track on smooth nylon-bearing wheels for a smooth, quiet operation and are designed for timber doors weighing up to 80kg. The easy-to-install kits come in 2m- and 3m-wide sizes. POA. (pchenderson.com)





#### CROWN IMPERIAL'S *MIDSOMER KITCHEN*

Crown Imperial's new modern oak Shaker-style kitchen range, Midsomer, is handpainted and available in 21 colours, as well as a primed finish to decorate in your own paint colour, with stainless steel bar handles for a sleek finish. Designed with open plan living in mind, the Midsomer kitchen also features ample storage, open shelving and mid-height units to create a seamless feel. The kitchen costs from £10,000. (crown-imperial.co.uk)



#### AESTUS' *ARIES MIRROR RADIATOR*

New from Aestus, the contemporarystyle ARIES radiator features oval tubing which frames a full-length vertical mirror, allowing the ARIES to be both practical and pleasing to the eye. The radiator can be finished in either white or anthracite (shown) and provides a high heat output of 1,122W (3,828 Btu/ hr). Prices for the radiator start from £436. (aestus.co.uk)

#### BIFOLD DOORS EXPLAINED



NEIL GINGER Neil Ginger is the CEO at Origin, one of the UK's leading suppliers and manufacturers of bifold doors

# HB&R: What are the pros and cons of bifold doors, compared with French and sliding, for instance? What can they offer homeowners from both a practical and design perspective?

Neil: All three door options offer an enhanced view when compared to windows, but bifold and sliding doors will provide a wider view than French doors, as these usually just comprise two doors. Bifold doors and sliding doors can replace an entire wall of your home with glass, creating an unparalleled widescreen view of your garden.

## What materials are available on the market for bifold doors, and what would you recommend as the best material?

Aluminium doors offer the right combination of strength and weight, allowing for narrow, more aesthetically pleasing frames and better sightlines. They are extremely low maintenance and tend to come with longer guarantees as they are less prone to flexing, expanding and contracting. Timber and PVCu are alternative choices, but these tend to have wider sightlines, which can restrict your view. Timber, however, does offer a pleasing look for traditional properties.

## If you're looking to create an airtight home, would bifold doors offer enough thermal performance to make them a viable option?

Bifold doors can be incredibly thermally efficient. The best indicators of thermal efficiency are U values. These show the amount of heat lost in watts (W) per square metre of material, so, the lower the number, the better the thermal efficiency. As of 2015, the U values for bifold doors within the UK must be 1.8kW/m² for replacement doors, or 2.0kW/m² for new builds and extensions.

#### How much would a homeowner be looking to pay as a starting price per frame?

The prices for bifold doors can range drastically, from cheaper PVCu systems, to value-for-money

aluminium doors, to ultra-expensive timber options. A high-quality, bespoke aluminium bifold door, glazed and installed, will normally cost around £1,200-£1,500 per door. The overall price of bifold doors will vary depending on the colour, hardware and what glazing is being used — for instance, double or triple glazing.

# Many homeowners worry about bifold doors from a security point of view — how do you ensure you're buying a bifold system that is secure? Are child-friendly doors available too?

As with any external door, you will want to ensure it is as secure as possible. The whole system should conform to PAS 23/24 security standards and have a multi-point locking system on the lead door. Make sure the locking cylinder/barrel is anti-pick, anti-snap, anti-lift and anti-drill, while the hinges should be made of a strong material such as zinc.

Origin's doors also include finger-safe gaskets to prevent trapping, special threshold designs for easy disabled access and strong magnets to hold the doors in place to prevent them from slamming.

#### What sizes do bifold doors come in, and can homeowners buy bespoke?

All systems from Origin are made completely bespoke at our High Wycombe factory. Every part of the door is made with your home in mind, from the size and configuration, to a choice of over 150 colour options. You can also choose your accessory requirements.

The configuration will depend on the size of your opening and the layout of your home, but it is best to always think in odd numbers, so doors can fold/slide in the same direction with a multi-point locking system. Larger individual panels are recommended, as it means there will be less aluminium to obstruct the view, also allowing more light into your home.

## What would homeowners need to consider if they were after a flush threshold for a seamless indoor/outdoor experience?

Thresholds are what the bottom trollies run along, and the trend is to make them as low as possible for aesthetic appeal, but be wary of suppliers stating that their flush or low thresholds are completely weatherproof — they're not. Weather-rated thresholds are always advisable for a set of doors that lead from the interior to exterior (kitchen to



garden, for example). I'd recommend asking your builder to either raise the floor level to create a flush look or drop the track to the level of your floors. For internal doors, a low threshold is perfect as it will not be exposed to the elements.

# What is a typical lead time for bifold doors?

Standard industry lead time is normally six weeks, but nobody wants a hole in their wall for that long, leaving it exposed and often void of insurance. Some bifold door companies, including Origin, can deliver your doors much sooner, even within 48 hours of placing the order, which will really shorten your build schedule.

## **Useful Bifold Door Contacts:**

# **DESIGN DIGEST**

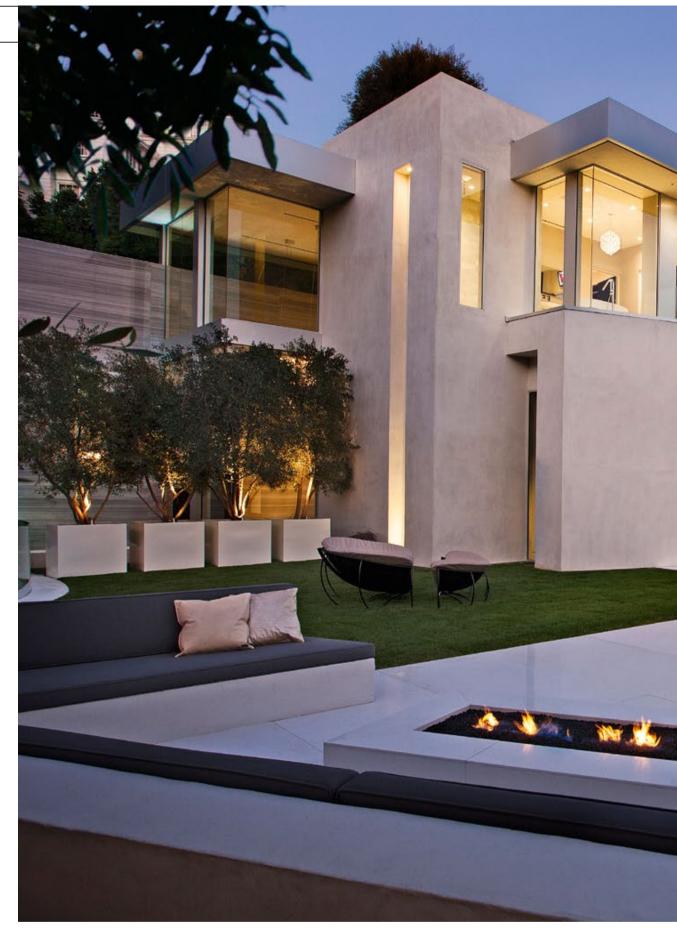
DREAM HOMES FROM ACROSS THE GLOBE

# CITY *HEIGHTS*

This spectacular 1,300m<sup>2</sup> contemporary property overlooking Los Angeles sits on a narrow hillside plot — a challenge overcome by elevating most of the flat outdoor areas on caissons, creating the illusion of the home floating above the city below.

The narrowness of the plot has resulted in a grand hallway, with focal point spiral staircase, that acts as a spine for all the main rooms. The hallway also allows for high ceilings with abundant natural light and oversized windows/doors that open to the outdoors. The neutral material palette comprises primarily grey and cream stone, metals and glass; grey striated marble walls have been specified to emphasise the length of the main corridor.

Along the southern, city-facing façade, the polished white-coloured stone from the interior is carried outside to form an expansive deck. Beyond the deck, a long infinity lap pool frames the view and contains a seemingly floating fire feature which adds to the drama.













**>>** 



# Quality Windows.





# BEFORE & AFTER

# A home in Lancashire is doubled in size



SDA ARCHITECTURE



SIMON LEWIS-PIERPOINT Simon Lewis-Pierpoint is director at practice SDA Architecture (sdaarchitecture.co.uk)

he clients were after a forever home with a view to semi-retiring, but the 1920s bungalow they had bought in Wigan, Lancashire, suffered from a poor internal layout with a rabbit warren of rooms. With a young family, they were after more space.

The house is located in green belt, with a strict local authority allowance of 200m<sup>3</sup> on extensions to existing homes. In order to achieve the space the clients wanted, we chose to do all the work we could under Permitted Development first, and then we applied for planning permission for other areas, such as the front extension and new roof with raised ridge height and dormer windows.

The result is a house that has actually doubled in size. There's a sense of arrival in the hall with a double-height atrium and viewing gallery above, and double doors leading into a dining room with a large picture window opening out to the garden. The new design is all about accessing the outdoors and entertaining friends and family.

The material palette for the exterior was taken from the landscape, with a slate roof, western red cedar cladding, slate cladding, render, stone and slate sills, and new glazing from Internorm. You can also still see a hint of the existing brickwork.

The clients very much wanted to reinvent the bungalow and the house is such a success that it went on to win Wigan's 2015 Urban Design Award.



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# **DIARY OF A SELF-BUILD**



# The Race to Secure Our Plot

WE FOLLOW SERIAL SELF-BUILDER DAVID SNELL
AS HE EMBARKS ON HIS FOURTEENTH PROJECT
— SHARING HIS TIPS ALONG THE WAY

n last month's column, I explained how, after just two days of plot hunting with my wife Linda, we had found not one but two adjacent plots of land for sale in Berry Hill in the Forest of Dean, Gloucestershire. We offered to buy both plots from the vendor — with a view to building our next self-build on one, and selling the other.

With the offer on the plots accepted, we entered the familiar period of frenetic anxiety, which many people experience at this stage of buying a plot. Would it all go smoothly? Would we be trumped or gazumped? What could we do to ensure that things went our way?

For starters, we built up a relationship with the vendors — a lovely couple who we'll be pleased to call neighbours. We made it clear to them that we intend to live in the new house closest to theirs but that we'd be selling off the other plot.

#### TWEAKING THE EXISTING PLANS

We then went to see Kevin Cooper, who'd drawn up the original plans, to talk about making a few changes to the design. We felt that the two identical, mirror image houses that had been accepted by the planners didn't chime with the diverse nature of the other houses, cottages and bungalows in the area. I also felt that they were

too intrusive on the street scene and that, if at least one of the houses presented a gable end to the road, this would be alleviated.

When we were living in self-build number 11, some 10 years ago, I'd dreamed of a smaller house as a last home, which would basically be a one bedroom bungalow with two further guest bedrooms upstairs. I got out my pencil and drew what we wanted on the same footprint of the approved house on plot one, and once Kevin had drawn it up, I went into Forest of Dean District Council and discussed it with the planners. They seemed thrilled as it negated many of the reservations that they'd originally held.

Meanwhile, word about the plots was slipping out. The agent telephoned me again to ask my intentions. Standing on the plot one day, I saw at least two local builder's vans drive slowly past. I spoke to James Warry, my solicitor, and asked him to move as quickly as possible.

I have no doubt that, had they been there, Les and Pat, the vendors, would have had lots

### **Below: Intrusive Mining Survey**

Following the purchase of the plots, David commissioned Wilson Associates to carry out the intrusive mining survey. Luckily the drilling rig hit bedrock at 2m which meant they were in the clear



# **DIARY OF A SELF-BUILD**

# "We intend to build a home on one plot and sell off the other plot"

of people knocking on their door. However, they had been on holiday in Ireland and Les had been taken to hospital over there. Pat rang to tell me that she'd arranged for the documents to be sent to them and that their daughter would be bringing them back signed. We exchanged just before Les was shipped back to Gloucester hospital where he recovered and was sent home a couple of weeks later. The plots were ours!

As soon as we knew that we had exchanged contracts, we commissioned Timothy Coe of Wilson Associates to carry out the intrusive mining survey. He had previously carried out the non-intrusive mining survey which was required in order to get planning, and he'd told me that he didn't think we had anything to worry about. Nevertheless, we'd taken a chance on him being right, and he was. The drilling rig 'refused' at 2m, which meant that it had hit bedrock and we were in the clear.

I made a fresh planning application and attached a copy of the report to it. The existing planning permission had required the carrying out of the mining survey prior to any commencement of work and I didn't want that condition repeated on any new consent. If possible, I was going to make sure that there weren't any 'prior to commencement' conditions, as these can hold up a start on site by up to two months.

I also approached the service suppliers. There is no gas in the area, but there is a line of three-phase electricity poles across the forest to the rear of the plot and a transformer on a pole. There is also a single-phase line of electricity running slightly closer to the plot and across the front of the adjoining cottages to a pole on the other side of the road.

I spoke with Andrew Haywood of Western Power Distribution and we arranged to meet on site. When we did, he said that one possibility was a road dig but that would be quite expensive. He offered to investigate the possibility of bringing the service from the pole at the rear and underground beneath the forest land to the back of the plot. This would need the consent of the Forestry Commission but Andrew felt that this would be forthcoming.

At the same time, I had a conversation with Severn Trent Water, who advised me that there was a water mains across the forest land at the rear, close to the line of the electricity poles. The quotation for the electricity came back



## **Above: Inspecting the Services**

After David contacted the service suppliers in the area, Western Power Distribution arrived to assess how to get electricity to the plots

as £1,439.88 for each plot and £641.36 for the water for each, inclusive of infrastructure charges (there are no mains sewage drains available in this area). Both services followed the same route and we should be able to put them on either side of a single trench.

#### A SOLUTION FOR THE SECOND PLOT

I'd sent the plans for both houses off to Estimators Limited to be priced up. They'd come back with a figure of £105,000 for the labour and materials for our new home.

Interestingly, Bruce Bendall, my builder friend from the area, approached me to inform me that he and his wife Kathy would like to buy the second plot, but they'd have to sell their home first. Would we wait?

Back in the 1980s, Linda and I built our ninth self-build on a plot of land that we'd exchanged in return for building the vendor a house on one part of his garden. It had worked well, although we'd had to build the vendor's house first, so that he could move into it before we knocked down his old one for us to build on its plot. Could Bruce and I come to a similar arrangement?

I spoke to my solicitor who produced a contract for Bruce and Kathy whereby they'd buy the land in exchange for building our home. In the end it didn't work out because Bruce wasn't registered for VAT. So we agreed to sell the plot to them for £115,000 and, in return, Bruce agreed to sign a contract to build our new home, contiguously with his own, for the total of the labour element in the document from Estimators Limited. We will each now reclaim the VAT element on eligible materials, as individual self-builders.

Next month: David receives planning permission for the alterations, and work starts on site

**>>** 



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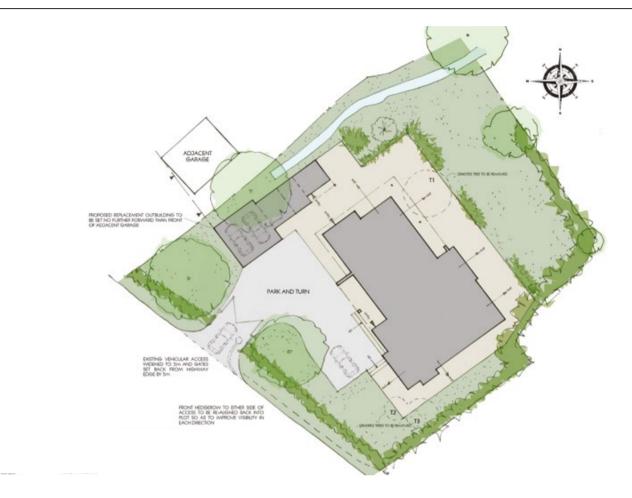


# **DIARY OF A REMODEL**



# The Trouble with Planning

IN HIS NEW COLUMN, FORMER *HB&R* EDITOR **JASON ORME** SHARES HIS WORDS OF WISDOM AS HE EMBARKS ON THE RENOVATION AND MAJOR REMODEL OF HIS 1960S HOME



s I mentioned in last month's column, my wife Sarah and I can't be accused of rushing into our project, as we find ourselves some 18 months into the renovation and extension of our 1960s house in the Staffordshire countryside and yet to start on site. No guns blazing — all corners definitely left uncut. During my 12 years as Editor of this magazine I've seen hundreds of projects threatened and many more never reach their full potential due to a misplaced desire to shorten and scrimp on the design process, and so we were determined to make sure that this, our family home for the foreseeable

"Planning is unpredictable — often relying on personalities and emotion"

#### **Planning Permission Drawings**

Designer Pete Tonks produced handdrawn plans of the proposed house and plot to submit to Jason's local planners — presentation is an important part of the planning application

future, would be everything we wanted - at least within the scope of our budget.

In terms of planning permission, this was a difficult one to weigh up. There was a part of me that had a very gung-ho attitude. After all, this was the terminal ugly duckling house in a prominent position in a Conservation Area within a historic village. What could we actually do that wouldn't preserve or enhance the house? Surely any right-minded planning officer would welcome even the most basic of improvements?

On the other hand, there were the planning officers. I've heard all too many stories over the years of simpleton planning officers refusing to grant approval for something



# A DESIGN FOR LIFE

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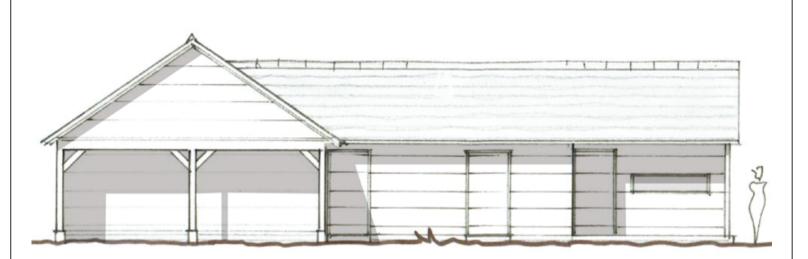








# **DIARY OF A REMODEL**



that stands up in design terms without any discourse to reason. Sure, it could be reversed on appeal, but even so, planning is unpredictable — all too often relying on personalities and emotion.

With that in mind, my first designer (I have used three in total to come up with the final design) Pete Tonks and I used the planning permission 'rulebook'. One of Pete's many strengths is his ability to produce some beautiful hand-drawn plans of the scheme, which I'm convinced make a difference (presentation being an important part of an application). We engaged with the local authority for formal pre-application advice, which came back with broad support for the modern scheme but a few rather left-field recommendations: including the re-siting of some garaging to be set back further from

# "I was expecting to have to deliver a Churchillian speech to win the backing of angry locals"

the road and, somewhat surprisingly, a bat survey. I managed to argue against this on the basis that the only building we were demolishing was a large flat roof garage. (The planning officer seemed somewhat apologetic and suggested they tend to 'put them in' as a matter of course, so if you're in a similar position it's worth questioning.)

Pre-app advice considered, Pete and I produced a full heritage statement, photographing and documenting the varied approach to new development in the village, concentrating particularly on the

#### The New Outbuilding

Following pre-application advice, it was recommended that the replacement outbuilding (above) sit slightly further back from the road. The outbuilding will house the garaging, biomass boiler, store and studio

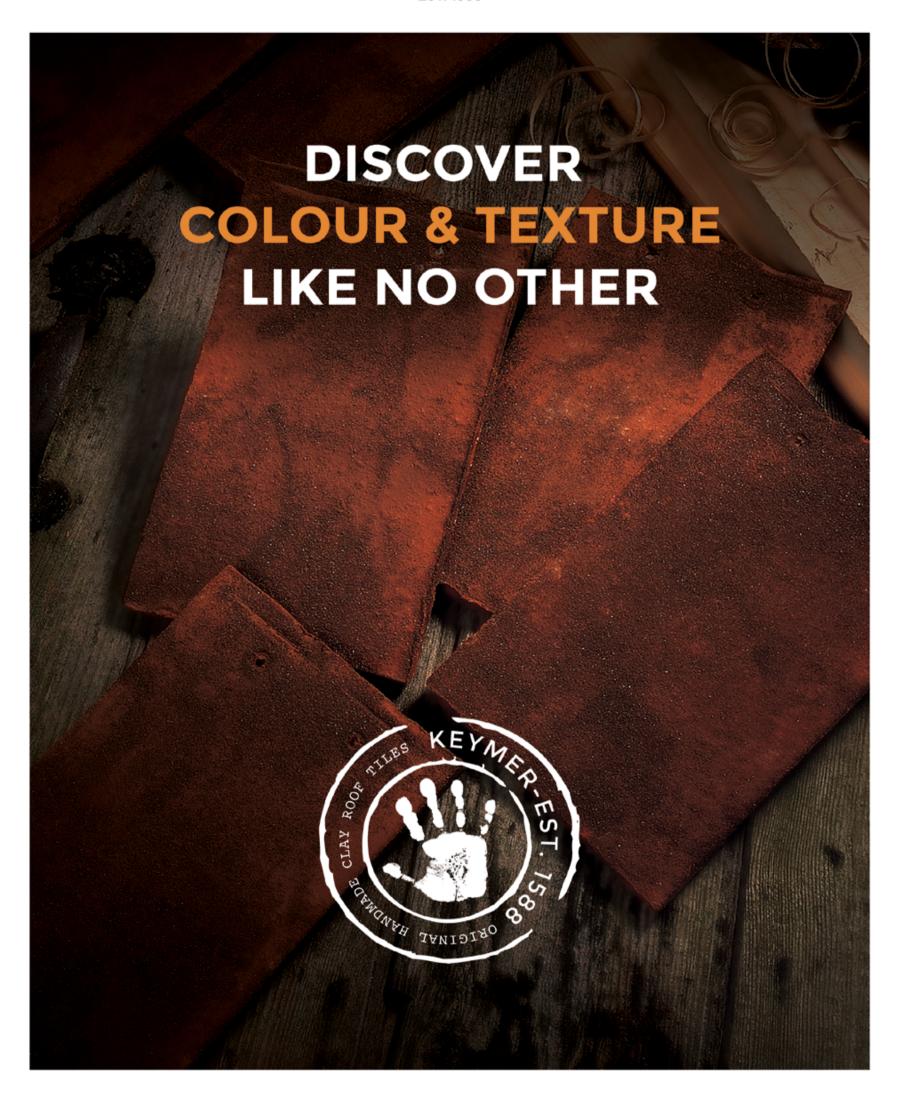
use of materials. Our mission was to create a modern home which was contextualised by the use of traditional, hopefully locally sourced materials. The house is on the southern edge of the Peak District but the village itself is a typical Staffordshire village dominated by iron-heavy red bricks — and of course the famous Staffordshire blues. I wanted to have my cake and eat it, and we eventually opted for a mix of light sandstone drystone-effect walling with a hidden mortar, handmade bricks and timber cladding. All high-quality, natural materials.

I had even presented our scheme to the local parish council. In my head I was expecting to have to deliver a Churchillian speech to win the backing of a throng of angry locals: the reality was two bemused local councillors who seemed pleasantly surprised anyone had bothered but couldn't quite work out why. It was all over in five minutes and they 'permitted' the application. I genuinely wanted to explain to the community what we were doing but, as with many things in life, your own life is largely only of interest to yourself.

Eight weeks later, planning permission was granted with no objections, just two conditions: a foundation detail for the new outbuilding, as it was near a tree, and full details on the external materials before commencement. On reflection, it is wise to play by the rulebook.

• Next month: Going out to tender





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# **MATERIAL MATTERS**



# The Digital Revolution in Housing has Arrived

**BUILDING INSIGHT FROM INDUSTRY INSIDER ANNETTE FORSTER** 



n the automotive industry, a digital approach known as 'model management' allows consumers to spend time using online configuration tools to build their new car, choosing the model and features which reflect their lifestyle and driver experience. In housing, building standards and regulations are complex and difficult to understand, vary depending on where the house is built and when planning consent is granted, and not many people know how their house compares to the latest thinking of what good looks like in construction terms.

There is also significant evidence to suggest that buildings do not perform as well when completed as anticipated when they were first designed. We usually struggle to communicate the intended energy performance for the design from the earliest stages, and we don't communicate back from the site what is and what is not buildable.

There is now talk of a 'digital revolution in housing' that is seeing the introduction of new techniques and efficient processes that will positively influence how the construction industry is seen and how it operates. BIM (Building Information Management) is slowly emerging as the key driver for

the digital shift as it helps in collating materials, objects and process information, and uses this data to provide better visualisation and communication, and to improve the design and building process.

Let's imagine for a moment that you design a house with the help of your architect using BIM. Not only will this include the visualisation of the project in 3D CAD but BIM will assist in every stage of the project. The framework enables each team (architect, contractors, structural engineers, etc) to work in an open and collaborative way with data audit points between each release. Duplication of effort, breakdowns in communication and an unforeseen lack of building information can often lead to wasted time, materials and cost in both the building and operational functionality of a project.

With BIM, however, each team creates its own model based upon a pre-agreed series of common data points and outcomes, meaning a greater collaborative involvement from the beginning. This becomes the single model (known as the 'federated' model), which acts as the working bible with adaptations and revisions made during the process of construction — including any last-minute changes on site, which should be minimised anyway if the

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# **MATERIAL MATTERS**



BIM process is followed. This means that a project is 'built as designed'. It also means that the homeowner is left with a manual, or blueprint, for future facility management which accurately represents the finished project 'as built', and which will make future maintenance easier and more economical.

This model calculates thermal performance, projected running costs, performs daylight analysis and many other calculations. It will highlight any potential or real clashes within the federated model prior to construction, resulting in zero reworking. In addition to giving all involved a comprehensive digital plan to build and maintain, there are also GeoBIM technologies which mean that weather data, ecology simulation, and flooding simulation from real data are also available at the design stage.

When construction starts, products can be delivered to site as needed in quantities accurately estimated through the digitalisation of the supply chain. So to complete the dream, by using BIM and digitally connecting our supply chains, we will be able to build houses and design homes with enough customisation built in. We will be able to speed up planning processes by transforming data-rich models within sites using gaming technology (for example, using the virtual-reality device Oculus Rift), so that the planners and locals can visualise the project in a 3D virtual-reality model. We will be able to reflect the space, density and potential traffic issues to allow us to construct a site with a greater understanding of the potential risk, constraints, flooding issues and crime. We will be able

"The digitalisation of the construction sector will achieve higher standards and better performance"

to design houses with kerb appeal and using the best materials to ensure energy efficiency, improve 'clash detection' (to spot human error and problems early on in the process), reduce time wastage and reduce construction costs without the risk of running late or going over budget, and without compromising quality. Contractors are provided with a comprehensive and fully accurate brief and design.

The technology for this dream exists now, and some projects are built accordingly. By the end of this year, all public sector projects over £5 million must be run in BIM Level 2 regardless of build type, channel or sector. By 2050, the global population is set to increase by 40 per cent. For any infrastructure to cope with that sort of population increase, more hospitals, schools, roads and homes will inevitably be built. At the same time, by 2050 all new buildings in the UK are set to be carbon neutral. Buildings contribute 40 per cent of global carbon emissions, and energy consumption of domestic buildings alone accounts for approximately 25 per cent. There must be an engineering rigour around the design and installation of the services for our homes. Meeting this target will require a major national drive for building efficiency and operational control — two qualities BIM can help deliver.

The digitalisation of the construction sector means that contractors and custom builders can get better outcomes for homeowners, achieving higher standards and better performance. Independent third party verification such as the Home Quality Mark can also help to give homeowners' reassurance.

Companies like Wienerberger and many others are working relentlessly on achieving collaboration, reducing waste, systemising processes, automating knowledge transfer, embracing and adopting new technologies and making the vision a reality.

For self-builders, this may still be a dream, but having the correct terminology, asking for BIM project delivery or at least having discussions around as-built vs as-designed performance will encourage discussion and help drive innovation in housing.

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# "Make Your Builder Aware of Issues as They Arise"

Builders share their words of wisdom for a successful building project

# One of the most common problems

we encounter is with houses that have had lots of work carried out over the years and are not always to current standards, or they've been 'done up' on a DIY basis, which often results in unforeseen or remedial works being necessary to complete the project — which of course adds to the overall cost.

# Most work involves major upheaval

and many customers don't always appreciate this. While we cover everything anyway, it would certainly make things easier, and safer, if homeowners got the place ready by removing all personal belongings and furniture, where practical, and leaving a clearer workspace.

Be aware that your home is effectively a building site and as such is covered under health and safety rules, so take care. Also make the builder aware of any concerns or issues as they occur — not at the end of the job when it may be too late.

Be clear too that you know exactly what you are getting. Get everything in writing, read your quote carefully and ask for it to be explained if it's not clear — and part with as little money up front as possible.

## More attention has been devoted to

health and safety and there is more regulation to abide by. This is all for the better, but this comes at a cost.

# One essential tip to ensure a project runs smoothly is to maintain good communication with your builder. This is critical — from the initial design and specification through to completion and the final invoice for works. Any variations and unforeseen works should be agreed as the project progresses. Just keep talking to them.

- Tony Passmore is a building expert and managing director of Leeds-based firm Passmore Group (01132 015030; passmoregroup.co.uk)
- The Federation of Master Builders (FMB) operates the Find a Builder service to help you source quality contractors near you at <a href="mailto:fmb.org.uk">fmb.org.uk</a>



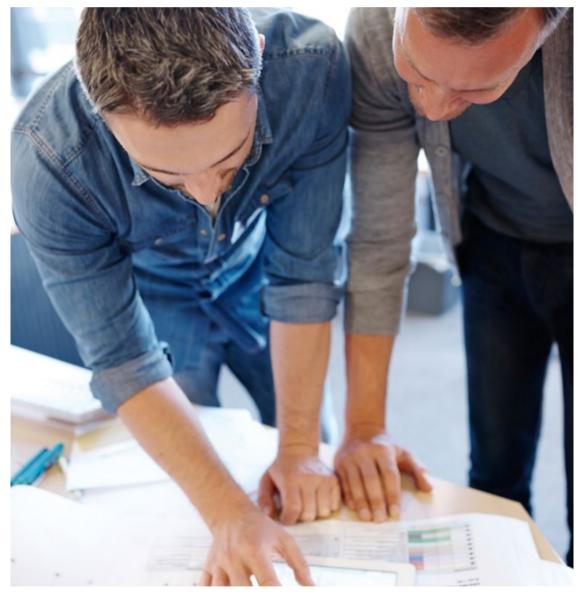
SIMON HYLTON

# 11 Ways to Assess Your Architect

Most architects shine at design, while others also excel at construction detailing or project management. Architect Neil Turner draws on his many years' experience to help you assess this key member of your project team



NEIL TURNER
Neil is a director
of architectural
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reviously in this magazine, I described the mistakes that clients can make and offered guidance on how to avoid some of the common pitfalls (June 2016 issue). This issue, I look at some of the classic errors that architects can sometimes make and advise how you, as the client, can avoid them. The key to success of a homebuilding project, I believe, is the relationship between client and architect. However, the architect has a duty to use their experience to guide the client through the whole design and build process. To assess the skills and experience of your architect, ask yourself the questions which follow over these pages.

Can they project manage?

Architects train for seven years and here lies part of the problem. Their training focuses heavily on the design and not the management and costings of projects. Good design should always be at the top of the agenda; however, without the other skillsets it can all be wasted. So when appointing an architect, check out their design skills, but also his or her ability to project manage and control a build. Look for evidence of actual completed projects by the current practice, not just nice sketches or work which has been done when working for another practice.

Architects are generally enthusiastic souls; we have to be in this profession. However, it's important when a client sets a challenge to be frank and honest in what can be achieved. If the client wants a small discreet extension to match their listed cottage, coming back with a copper and glass free-flowing shape may not be the answer.

Do they give sensible advice?

I always try to advise clients carefully at the outset, once I know their budgets and brief. It's pointless drawing a huge extension if they can't afford it, or promise a ridiculous timescale. However, if you have ideas, pictures and dreams, then share them with your architect, as it will help them understand you as a person. Getting the brief right is vital and the time taken at this stage sets the scene for getting what you want.

Does your architect
favour untested methods?
Architects love to try and
create new ways of building
and joining new materials together.
My profession is always moving
forward to build in new ways.
Unfortunately, that can lead to
failure, too. A house's primary job

is to keep the water out. If it fails in this task, it doesn't matter how beautiful it is, it leaks — it's failed. We can all admire an innovative and clever detail, if it works. Many architects forget that keeping things simple and using tried techniques can still lead to great architecture. When I hear that a material never used for roofing has been installed, I generally think there is a reason why! So ask yourself if you want to be the painful (and expensive) experiment.

Do they skimp on crucial details?

A modern house project will generate a large number of plans, elevations, sections, details, specifications, schedules, mechanical and electrical designs, and structural calculations. All this needs to be fully considered and coordinated. So many times I see packages of information that are simply not thought through in detail, or worse still ignore the harder details. The details on a project that are

still, ignore the harder details. The details on a project that are drawn should be the 'difficult' interfaces. So the more complex the design, the more interfaces, and thus more information is needed for the builder.

As the client, have you invested enough time and money to allow the architect to draw all of this? Unfortunately, many people don't. As a rule, the more complex the design, the more expensive it will be. Lack of information often leads to 'making it up on site', and this can lead to mistakes and arguments later. It also leads to cost increases on site when the builder hasn't priced all the works and the complexity because it wasn't explained fully in the documents.

Is it the client or architect who let costs accelerate? Building a house is exciting, but the responsibility for advising clients on budgets and costs lies with the architect. Of course, a client can ignore this and some do. Architects often get blamed for cost increases, but I find it's clients who accelerate the costs, unless properly advised. It's easy to opt for the sleek-looking shower fitting or the glass cladding when shown it as a sample. However, unless you as the client get cost advice, how do you know if you can afford your design? So make sure your architect produces a cost plan from a quantity surveyor or a builder. If your architect doesn't, then I would be very concerned.

Can your architect manage timescales?

Buildings take time to construct. Even the new methods of dry construction replace the time on site with preplanning, ordering and factory sequences. So getting the timescales right is vital. The whole process of gaining planning permission, tenders, picking the contractor, design and construction should all be planned out. Most architects can do this exercise with some skill, but beware the one that can't.

Are they organised?
If your architect is always late, not organised or forgets things, this might be a clue to the way they work. The old caricature of the bumbling gent with cravat and great vision has no place on a modern building site. Being organised is compatible with talent.

Do they listen to you?

Some architects just don't listen. If you as the client want a layout, colour or material, that is your choice. I will always pass a comment and advise, but when I hear architects saying a certain wall shouldn't have pictures or be used in a certain way, that is rubbish. So if your architect isn't listening — tell them.

Is your architect experienced enough? Most of the great architects emerge well into their 40s and the reason is that they have learnt their trade — it's the value of experience over youth. So beware of young talent that has never built before. Their experience is little greater than the client themselves. I train and use younger architects in my practice and they learn from experienced hands, but not at the client's expense.



TOCK

Where are their strengths?

Not all architects are even. By this, I mean that the talent of different designers varies. Some architects are good at design, others at construction detailing and others on the project management side. Some, but not all, can manage the lot and some simply don't have the magic sparkle. So check and be sure what type you want to employ.

REMEMBER: If you are going to build just once, it is worth making sure it's done correctly. Your architect has a great responsibility and the majority of my colleagues are aware of this. I always advocate the use of an architect. He or she is the only professional who can link design, build, costs and programme so that the overall house is carried from great idea to execution. Yes, architects do charge for this service, but the effort is worth it — if you get the right one.

### MORE ADVICE ONLINE

Read Neil Turner's guide to avoiding the common mistakes made by clients during the design process Visit homebuilding.co.uk/

14-steps-to-a-smooth-design-process





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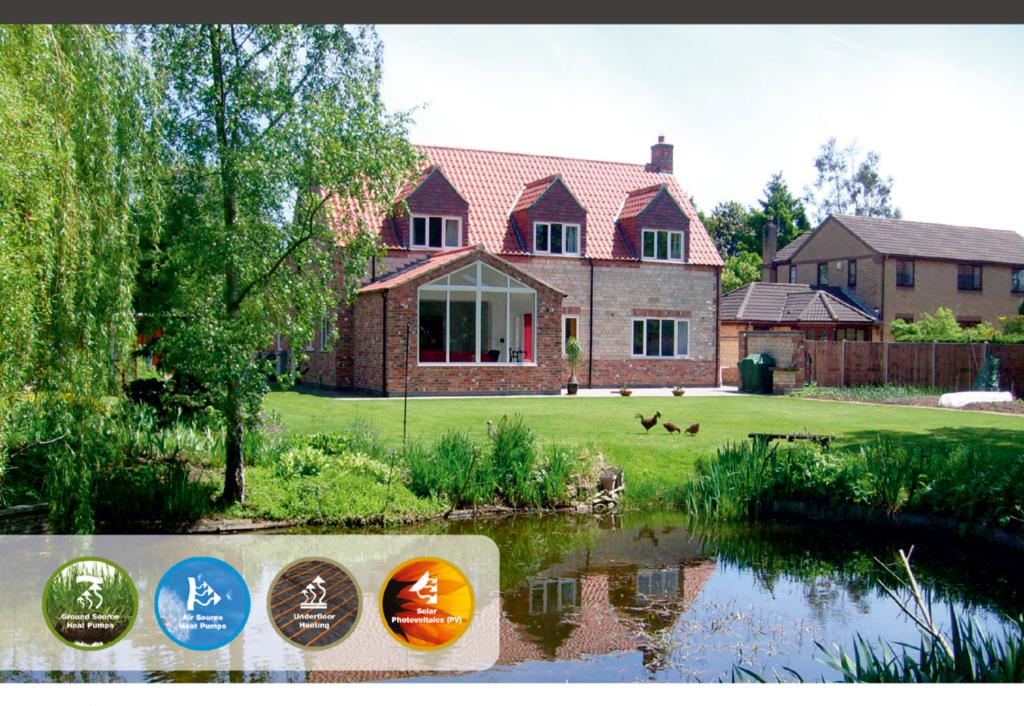
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#### **ADVERTORIAL**

# Heat Pumps: A Beginner's Guide

We've all heard of them, but what are the benefits and what options are available? Heat pump specialist Ice Energy reveals all

eat pumps have long been considered a viable alternative to fossil fuel heating systems, thanks to their efficient, reliable and cost-effective nature. Utilising renewable energy rather than combustible and expensive fossil fuels, heat pumps can provide a total heating and hot water solution for your home which can be distributed via existing radiators, underfloor heating or a combination of both.

#### What are Heat Pumps?

There are two main types of heat pump: ground-source heat pumps and air-source heat pumps. Ground-source heat pumps access stored solar energy from beneath the ground via a series of pipes known as a ground loop. The ground loop is buried within horizontal trenches approximately 1m deep and 50m in length where the ground temperature remains at a constant 10°C to 12°C throughout the year. Heat is passed through the heat pump where it is concentrated to provide a high enough temperature for your heating and domestic hot water requirements. Air-source heat pumps use very similar technology but unlike ground-source heat pumps, they extract heat from the air rather than the ground.

While heat pumps can be easily retrofitted into existing properties, installing them at the build stage, where they can be seamlessly combined with an underfloor heating system to make the most use of available space, is clearly a benefit. Additionally, if you have equipment on site that can be used to dig the ground loop trenches, you could save yourself several thousand pounds and avoid digging again at a later date.

#### What are the Benefits?

As heat pumps generate renewable energy, running costs can be considerably lower than traditional heating systems. While they do use some electricity, this is typically exposed to smaller seasonal price fluctuations than gas or oil prices, for example.

A further benefit of their renewable credentials is that heat pumps also qualify for the Renewable Heat Incentive (RHI). The RHI rewards forward-thinking individuals for adopting renewable energy systems by issuing payments for the renewable heat these systems generate. Tax-free, index-linked payments are issued direct to your bank account on a quarterly basis for seven years enabling you to recoup your investment costs and, in some cases, generate a healthy additional return on top.



# Is a Heat Pump Right for my Home?

Whatever your property type, there is a heat pump solution to fit; it's case of determining the amount of heat required to heat your home and identifying the right size unit to accommodate this. Talking to an experienced specifier, who will design a bespoke solution for your home, is all-important. However, when selecting a company to design your heat pump system, it's important to ensure they carry the correct credentials. Both they and their products must be Microgeneration Certification Scheme (MCS) accredited in order to benefit from the RHI payments — if not, you could miss out on thousands of pounds. Studies have also found that system design is crucial, so selecting a company with a good wealth of experience is vital.

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# Are the Latest Air-Source Heat Pumps Right for Your Home?

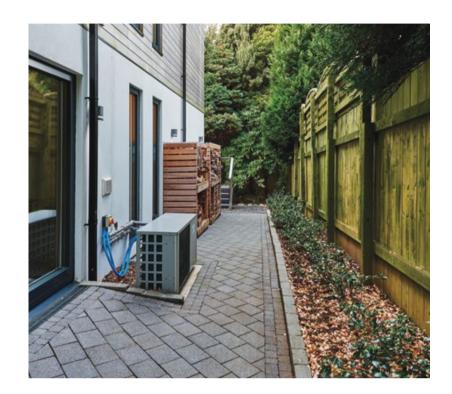




#### **DAVID HILTON**

David is an expert in sustainable building and energy efficiency and is the training centre sales manager at HRP Ltd. He also delivers seminars at the National Self Build and Renovation Centre

- Air-source heat pumps (ASHPs) are being developed to work with the most highly insulated new homes
- Modern ASHPs need specialist design and commissioning in order to achieve maximum efficiency
- Other innovations include thermodynamic systems, smart controls, and different pumps for hot water and space heating



ith the rise in heating fuel prices we have seen a steady increase in the adoption of air-source heat pumps (ASHPs) as an economical alternative to conventional heat sources — currently around 8,000 to 10,000 are installed in domestic

homes in the UK each year. The Renewable Heat Incentive – which see households with qualifying renewables receive payment for a period of seven years – has no doubt helped to bolster take up, too. As with all modern technologies however, ASHPs are not a 'one-size-fits-all' solution and the advances in the technology need to be understood before rushing out and specifying one for your home.

Although the heat pump does physically replace a boiler as the heat source, its operational characteristics are very different and must be accommodated and understood. Keys points to bear in mind include:

- An ASHP does not create heat it simply moves it from one place to another through the vapour compression cycle (or refrigeration process) to make it into a more useable form.
- Traditionally, a compressor will compress gas to achieve a higher temperature the output temperature and the efficiency will depend on the amount of pressure and the type of gas.
- The most popular heat pumps currently use R410, a refrigerant gas that traditionally has an output flow temperature of around 55°C at an efficiency of around 290 per cent (i.e. 1kW of electricity creates 2.9kW of heat; the comparable ratio for ground-source heat pumps is more like 4, so for every 1kW of electricity, 4kW is generated).
- The ASHP gets its energy from the surrounding air, so as the ambient temperature drops, so does the efficiency. The bigger the difference between the outside air (the source temperature) and the target temperature (either the indoor room temperature or domestic hot water), the lower the efficiency. It is therefore key

to have a good understanding of the heat load of the property and the performance characteristics of the heat pump.

ASHP technology has developed in recent years (which can arguably make the task of specifying even more complex). Here, we explore some of the latest options currently available.

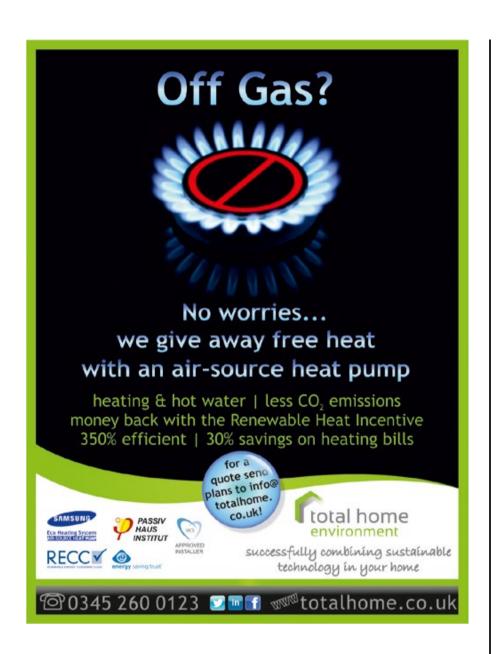
#### Where to Start

In a boiler-fired central heating system we would expect to have a difference of around 50°C between the target room temperature and the water flow temperature. Therefore, if the room temperature is set at 20°C, we would expect the flow temperature to be at over 70°C on traditional radiators. This is fine in a boiler-fired central heating system, but most heat pumps cannot get to those flow temperatures. It is essential to design and specify the system correctly and assuming that the insulation, airtightness and emitters (underfloor heating or radiators) of the property are optimised, we can then look at the ASHP options available.

First, determine if the unit will be providing space heating and/or domestic hot water (DHW). Space heating will usually require a flow temperature of around 35°C to 45°C. DHW will, however, require an absolute minimum flow temperature of 55°C. On properties that meet recent and current Building Regulations most ASHPs can do both, but on higher performance properties the space-heating load will be very low and could be almost the same as, or less than, the DHW demand.

#### A Solution to Heating and Hot Water?

As property efficiency improves, so does the requirement for better ASHP design and operation. The unit also needs to accommodate the changing seasons, so many modern ASHPs have the ability to modulate their output to match the heat load. They either use a variable speed compressor (known as an inverter compressor) or a series of two, or sometimes three, compressors that can ramp up or down as the demand varies.







#### **ADVICE** THE LATEST AIR-SOURCE HEAT PUMPS









Another solution is to use two heat pumps: one that is optimised for the space heating and another for DHW. The DHW heat pump typically uses a different refrigerant (R134a) that can produce higher flow temperatures but conversely also requires a higher source temperature (above 4°C) to be efficient. It tends to be lot smaller than a space heating heat pump and usually built into the hot water cylinder. It draws its air either from the room it is in or from the exhaust waste heat of a ducted mechanical ventilation system — hence the collective term 'exhaust heat pump' or 'micro heat pump'. Examples currently available include Earth Save Products' Ecocent, Joule's Heat Bank and Ariston's Nuos.

If you do not have a ducted ventilation system and don't want to draw heat from inside the property, you could consider a different type of 'micro' heat pump — a thermodynamic system for instance. Thermodynamic systems have suffered from mixed reviews (perhaps because they were introduced as 'solar panels that work at night'...) but the technology is sound. It is in effect an R134a air-source heat pump with an outdoor panel evaporator, and if it is designed and applied correctly there is no reason why it should not work efficiently. The outdoor panel contains refrigerant and relies on ambient temperature and solar incidence as a heat source. The panel is often mounted on a roof but can be wall-mounted or fixed to any structural element of the building. Do bear in mind, though, that it needs good exposure to sunlight

#### **Energy-Efficient Projects Using ASHPs**

Clockwise from top left: A 4kW Earth Save ASHP was installed in this energy-efficient home on the Isle of Man; Heating is rarely used in this contemporary self-build in Surrey — the house, which has an EPC A rating, is heated with a Terra Therma ASHP; £14,000 of the total £200,000 build budget for this oak frame home in an off-mains gas area was allocated to underfloor heating and an ASHP; This award-winning home in Oxfordshire features an Ecocent hot water system and mechanical ventilation heat recovery system, as well as an ASHP

and moving air, so it should not be tucked away behind the garage or shed. In colder areas or where there is heavy snow, the design constraints will be significantly more. This technology can be used quite successfully for hot water preparation as a separate system from the space-heating unit.

The advantages of using the two heat pumps is that each unit is specifically optimised for the required flow temperature and there is no priority system that causes the space heating circuit to 'cool' while the DHW is being reheated. It has the added advantage that the outdoor space-heating unit will not run during the warmer months when you are perhaps sitting outside close to the unit. The micro heat pump only draws about 400W

clockwise from top left; jeremy philips, jeremy philips c/o fmb, simon maxwell, adrian james architects

#### **ADVICE** THE LATEST AIR-SOURCE HEAT PUMPS

(watts) of electricity, and produces around 1,500W of heat, so if you have photovoltaic panels fitted to the property, the micro heat pump will also be optimised to use the on-house generation and possibly heat your water for free.

#### **Higher Temperature Heat Pumps**

In order to achieve higher temperatures, some manufacturers have built the two different refrigerant systems (R410a and R134a) into one heat pump in a 'cascade' system that can create flow temperatures of up to 80°C. The Daikin Altherma high temperature heat pump is one such example. These systems are designed for hot water preparation and should not be used as a high temperature boiler replacement unless the lower efficiency has been carefully calculated to make absolutely certain that it is the best option for the property.

In the pursuit of higher temperatures and better efficiencies there are also a number of other new technological advancements that are worth noting. Compressors have been developed that effectively allow the compressed vapour to be re-injected into the compressor to enhance the temperature. These systems are capable of getting flow temperatures of around 65°C and have the ability to modulate through the inverter compressor technology. The advantage of this system is that it reduces the complexity of the heat pump and therefore the cost. The operating pressures put a larger load on the compressor and push the tolerance of the refrigerant — examples include the Dimplex A-class ASHP and Mitsubishi Electric Ecodan.

#### **Refrigerant Gases**

European directives on refrigerant gasses have prohibited the use of products that have any ozone depletion potential (ODP) and there are ever-increasing restrictions on products that have any global warming potential (GWP). It is for this reason that manufacturers of refrigerated heating and cooling appliances have done a lot of research into alternative refrigerant gases with low (or zero) GWP.

R290, or refrigerant quality propane, can achieve a flow temperature of around 65°C at good efficiency, but the units are more expensive as they require two compressors for any type of modulation. Propane is flammable and can combust under extreme pressure, so the ASHP unit should be a monoblock type that is located outside if you do not want to add ventilation airbricks to the property.

CO<sub>2</sub> has been used successfully as a zero GWP refrigerant in commercial heat pumps and Sanyo had mixed success with a domestic-sized CO<sub>2</sub> ASHP, but this was discontinued when Panasonic acquired Sanyo. The CO<sub>2</sub> heat pump operates at extreme pressures and produces high temperatures of around 80°C at high temperature difference between source temperature and target temperature. Due to the operating conditions, it needs to run consistently and not have frequent stop-start cycles.

#### **Options for Highly Insulated Homes**

Mitsubishi Electric has introduced a 4kW CO<sub>2</sub> ASHP that is designed to tackle the needs of the highly insulated new build home; it matches the hot water requirements while still meeting the lower heating demand at an efficiency of 300 per cent.

The monoblock ASHP is plumbed to a bespoke thermal store that stores the water at around 70°C. Hot water is then delivered through an indirect heat exchanger at around 65°C, which eliminates the need for periodic legionella sanitation. Currently there is only a 4kW unit available, but it seems logical that there will be larger capacity units to follow in the future. With a 4kW unit it is fairly easy to balance the hot water demand and the space-heating load. If the space-heating load increases but the hot water demand stays the same, it will require special design awareness to make sure that the efficiency is maintained. This technology is certainly one to watch for the future.

#### Why Smart Controls are a Good Idea

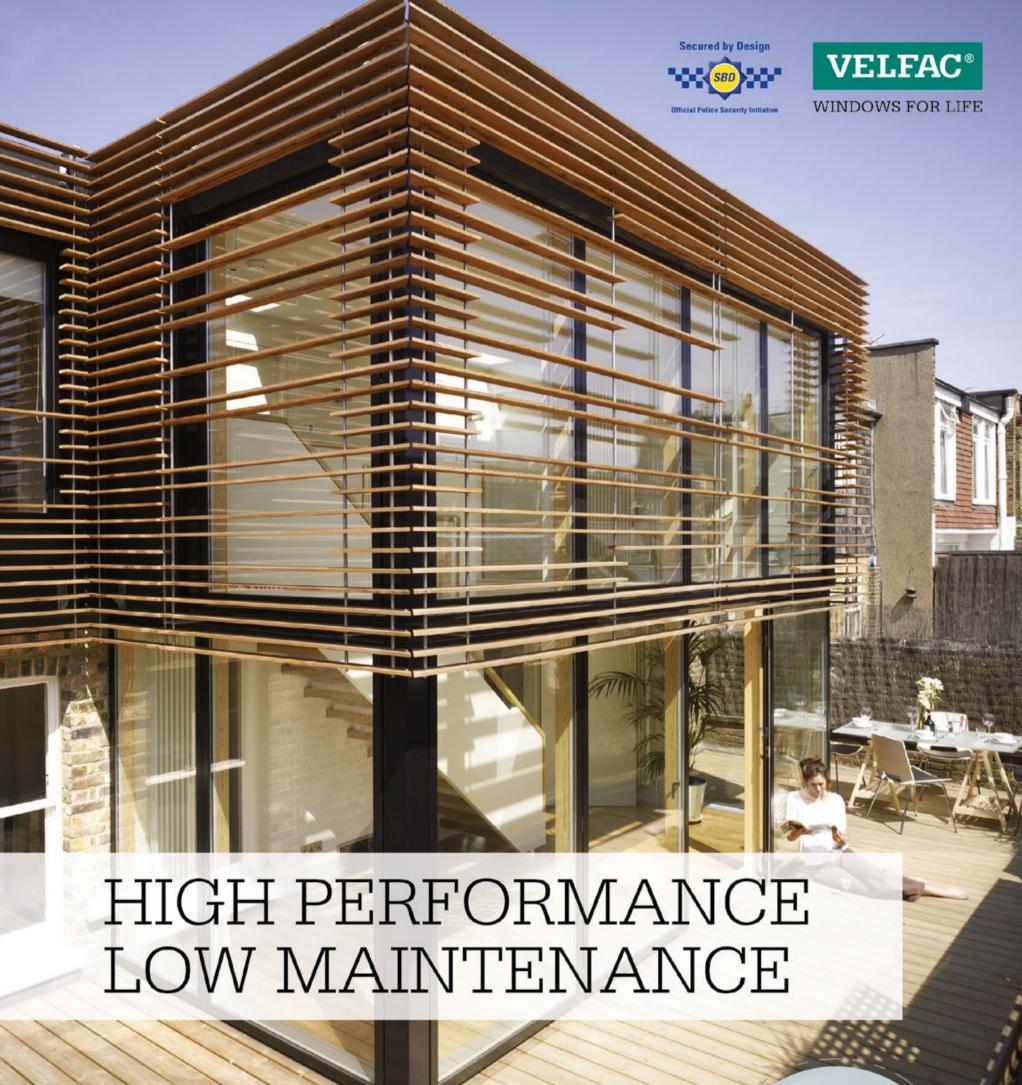
Modern ASHP heating systems require specialist design and commissioning to achieve and maintain efficiency. In the age of the 'app' and smart controls, these systems can easily be tampered with, resulting in lower efficiency and high running costs. Some manufacturers have, however, developed controls that can be monitored and maintained remotely. This functionality is especially useful in second homes and rental properties, as well as for those occupants with a healthy fear of technology, as the systems can be reset and adjusted without someone coming out to the property. In the event of a breakdown, the system can be checked, faults diagnosed and the correct spares sourced before incurring the expense of going to site. The engineering accessibility is often an after-sales add-on product, so check costs and requirements before ordering.

In the absence of full remote control and monitoring it is still worth trying to at least find a controller that stores the operating data on a memory card so that it can be accessed for analysis and perhaps new settings emailed to you for upload. A smart controller for the whole house is also an option, but these controllers will usually only monitor and store the room setting and hot water data and so will not have any information on the commissioning settings or fault codes from the heat pump.

If you are considering installing an ASHP, make sure you know as much detail as you can about your property performance and your lifestyle requirements so that the appropriate products can be specified to optimise your home. If your installer doesn't have the products you need, then find another installer.

### **USEFUL CONTACTS**

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n a country where urban plots are in relatively short supply, brownfield sites and garden plots are among the only options available for self-builders hoping to create new homes in towns and cities. This inevitably means many projects are built on tight, restricted sites — which can not only throw up design challenges, but create some head-scratching before the build goes on (restricted access and limited space for storage of materials may be issues). For existing homes, particularly those in the capital, limited outdoor space can also mean that extending a property is just not viable. If you want additional space for a growing family, for instance, then you may just have to get creative with your approach.

Sites where space is at a premium need not, however, mean that homeowners have to succumb to simple designs. Architects are rising to the challenge, creating exciting homes which successfully tackle the issues posed (as the houses over these pages go to show).

Here we offer some design solutions for building a new home or improving an existing house on a small plot.

## Focus on the Internal Layout

"The first thing to remember with small plots is that chances are it's not as small as you think it is," explains Meredith Bowles, director of Mole Architects. "Consider that a typical Victorian terraced house is only 4m wide — if your plot is 4m wide then you can in theory build a house on it, even if from the outset it looks too small.

It's not until the spaces are there that you appreciate how much room you've actually got. Consider too that people with existing homes, not necessarily small homes either, always want to get a greater feeling of space and do so by opening the house up to the outdoors. Adopt the same approach with small plots, whether that be through a roof terrace or a courtyard."

Small plots do not necessarily mean you can't have that large open plan kitchen diner you've always dreamt about. By focusing attention to the floorplan, and through careful planning, there are numerous ways of increasing the feeling of space in your home, even if the space you're working with is modest.

"An open plan living arrangement is a good design idea for making smaller spaces feel larger," says architect Darren Bray, director of PAD Studio. "By cutting down on circulation areas you gain more space in the room. If you have corridors then glaze them to borrow light from other rooms. Another alternative is to use the courtyard scenario as a way of linking rooms, as opposed to a corridor."

Be careful to balance the accommodation you're creating too. "You don't want to make the property too 'top heavy' by cramming in more bedrooms than you have space for, or equally too many rooms on the ground floor and for the upper floors to be out of sync," says Brendan Tracey of Phillips Tracey Architects.

"Make sure too that the spaces you create are flexible enough to meet multiple needs, for instance a study could also be a music room, a guest bedroom or a utility/store," says Darren Bray.



## **Maximising Daylight**

"Getting natural light in is probably the most important thing when designing a home on a small plot — especially light from above, to make the house feel larger and more open," says Meredith. "A rooflight will let in fives times the amount of daylight as a window, as windows are typically compromised by what's around it, be it trees or neighbouring houses. Rooflights, however, offer clear sky."

Carefully placed glazing can work hard to brighten the interiors too, says Brendan: "With our Lansdowne Gardens project (p.71), from the street the property appears single storey but upon entry you walk into a double-height hallway with full-height glazed wall in the stairwell with a rooflight above. Immediately you feel like you're somewhere very bright and spacious, even though it's not a big space at all. Open treads on the stairs also help to create the illusion of space and allow light to flow through. It's these design details that can make all the difference. A word of caution, however — think about where you're putting glazing, as this can be problematic in terms of privacy and overlooking."

## **Basement Levels**

On tight sites in urban areas where extending to the side, front or rear isn't an option, or for self-builds where the height of the new building is restricted, digging down is often one of the best solutions.

When planning for a basement, it's important to consider whether the new space will serve as primary or secondary accommodation. While a basement might be perfect for cinema rooms, utility/plant/storage areas or indeed bedrooms (rooms which do not typically require as much daylight as your primary living spaces), unless you are planning to introduce a device such as a sunken courtyard or lightwell, then basements are not well suited for use as a kitchen diner or living area. In this case, it may be best to work with your architect on creating an 'upside-down' living arrangement — prioritising the rooms which need most natural light on the floor(s) above.

Although basements are often a good solution for increasing the footprint of an existing home, the luxury of added space comes at an expense, with digging a new basement and underpinning costing around £2,000-£3,000/ $m^2$ . If you choose to introduce lightwells or external access points this will increase the costs further, but it is best to consult with your architect, quantity surveyor and/or contractor in order to gauge a more accurate idea of what the likely costs are, based on your chosen design, location and access. Be aware, too, that factors such as a high water table, the need to divert drains and difficult ground conditions – clay, sand, marsh, etc – will also impact on costs.

#### **Utilising the Roof Space**

Much like digging down, creating space in the roof is another solution for increasing accommodation in your existing home. In some instances, you can carry out the conversion under Permitted Development (without the need for planning permission).



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#### **ADVICE** BIG IDEAS FOR SMALL URBAN PLOTS

If your existing loft provides sufficient head height, and is constructed using attic roof trusses rather than web-shaped fink roof trusses (although there are solutions such as Telebeam to aid in the latter instance) then a conversion might be possible on a relatively modest budget. "As a guide, for a loft conversion, expect to pay £1,150 to £1,450/m², plus VAT, for the finished project," says *Homebuilding's* Michael Holmes. Things start to get a little more expensive if you need to replace hipped roofs with gables, or increase the ridge height of the property and raise the roof.

If you are building a new home, designing in rooms in the roof might just provide the space you require when planning puts restrictions on the ridge height. Alternatively, a flat roof may provide valuable space without impacting on neighbouring homes.

# 1: A LOW-PROFILE HOME

"One trick for creating amenity space with tight sites is to build below ground and then add a courtyard or garden above, which is what we did with our Lansdowne Gardens project in London," says Brendan Tracey of Phillips Tracey Architects. This new home was built on a tight urban plot in central London, utilising a single-storey design to the street, with a basement underneath to maximise on available space. "We built on every inch of the site and put the garden on top of the master bedroom situated at basement level. When you go underground you get that amenity space back, which helps a lot for family homes," he continues.

The low-profile design was very much created with the sensitive site in mind — being in a Conservation Area, surrounded by listed buildings. Sitting behind brick boundary walls (bottom right), the house appears single storey from the street, with the basement housing a master suite, plant/utility, and guest accommodation/study, and the lower ground courtyard (top right). Carefully orientated glazing which avoids overlooking has then been positioned in the principal rooms in order to increase the amount of natural daylight in the house and create the feeling of open space.

"To achieve the space the client needed, we pushed right out to the boundaries to the retaining walls. This resulted in a complex (and expensive) battle over Party Wall agreements, but it was necessary in order to maximise on the accommodation space, given the size of the plot," says Brendan. "We pushed to put the piled foundations on the boundary to gain an extra  $10\text{m}^2$  of accommodation, but when you multiply that by the value of space in London it's well worth it — every  $\text{m}^2$  is money so it was a no brainer.

"When dealing with constrained sites the most important thing you can do is speak with your neighbours. If you know very well that what you're planning to create could be contentious and people don't know what you're doing then they will immediately think the worst. Neighbours are so important as they can make things difficult when it comes to obtaining planning permission, so get them on side early on. If you're fortunate enough to get planning then you still need to deal with them regarding other elements such as right to light, party walls, etc, so it pays to be on good terms with them. "Services is another thing to think about," continues Brendan.

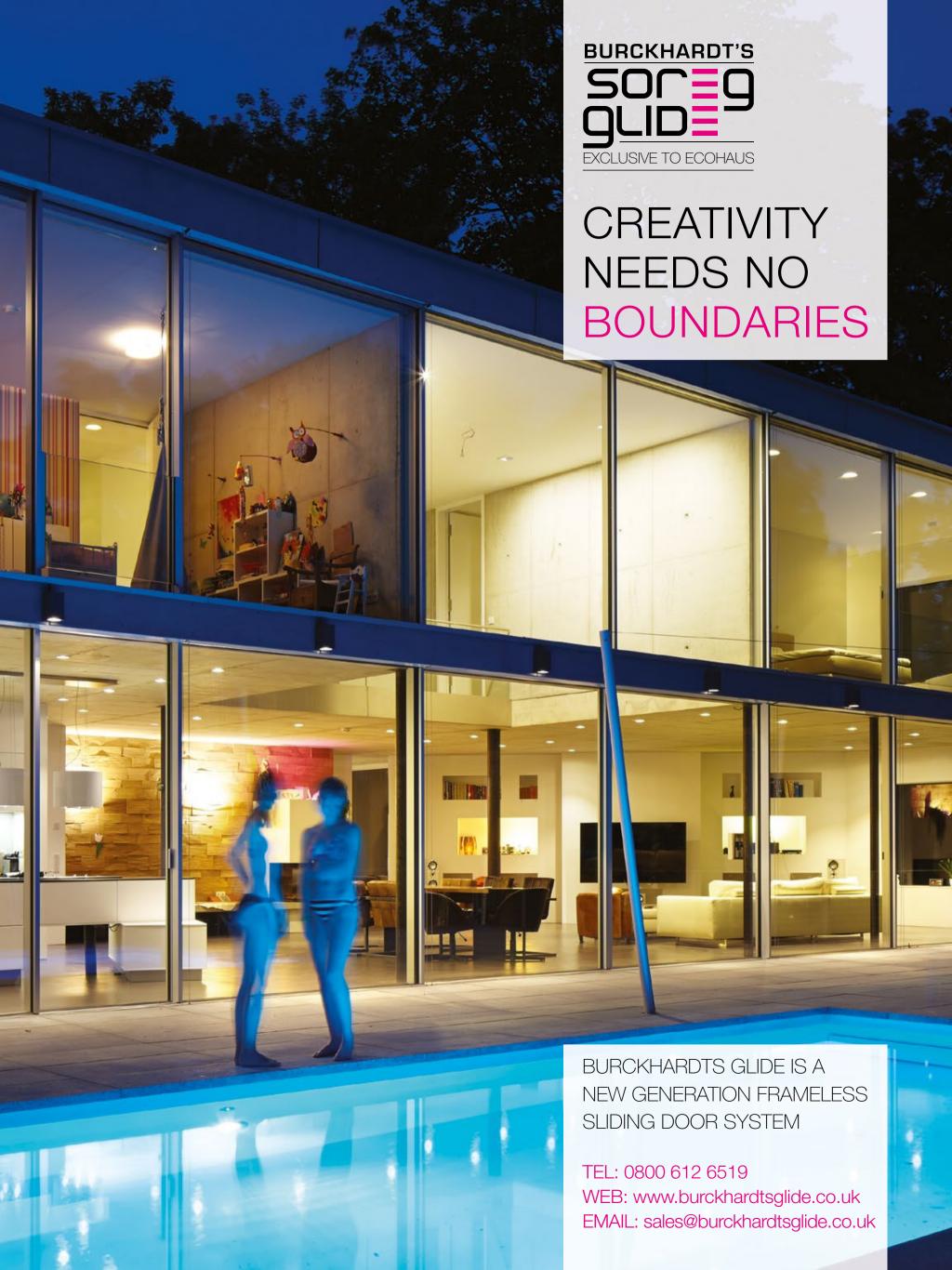




JACK HOBHOUSE C/O PHILLIPS TRACEY ARCHI'

"If you're building a basement and the basement sits lower than the main sewage then you have to force things up using a pump. Here, we dug a pit for the big vessel with a pump inside and ran this in the smaller lightwell of the property.

"It's important to consider the logistics of how to go about the works too," he says. "With this project the whole site was under excavation so there was no room for builders to keep their stuff — at one time we had to close the footpath, so think carefully about the methodology of how to go about building it and the feasibility."



### **ADVICE** BIG IDEAS FOR SMALL URBAN PLOTS



### 2: A MULTI-STOREY HOME

"The clients had owned two of the three garages that sat on the site in Arsenal, London, and toyed with the possibility of building a house here," says Meredith Bowles on Mole Architects. "They bought out the third garage and came to us with a view to building something to a tight budget which made a design statement.

"Gaining planning on a tight urban site is one of the many constraints facing this sort of project, and this site was in a Conservation Area too — it sat on a corner plot at the end of a Victorian terrace to one side and the back of another Victorian terrace to the other. There was an opportunity here to do something more interesting. The first design we did was a three-storey flat roofed tower but the planners were having none of it. We went back in with a new design, which, while still three storeys as we made use of the attic space, introduced a half basement to gain extra accommodation and a pitched roof similar to that of the neighbouring terraces."

With the site so close to the neighbouring houses, overlooking on the rear south-facing elevation was an issue, so Mole Architects had to devise a way of pulling in natural light — achieved by a recess at the rear, which was a real driver for the rest of the house.

"To get the amount of accommodation for a decent size dwelling, we had to dig down half a level," says Meredith. "As a rule, if the floor is more than 4.5m above the ground then you can't have an open staircase, and instead have to settle for a closed cubicle-like

### **ARCHITECTS' TOP TIPS**



### DARREN BRAY (padstudio.co.uk)

Boundary issues and Party Wall agreements are the most common problems with small plots. My advice is that if you're building on a tight site, allow enough room for scaffolding in order to complete the external finishes on the building.

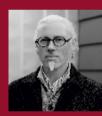
Another point to make is ensuring you have access for materials and contractors. I'd recommend taking a contractor out to visit the site at the outset before any work starts, as they will be able to let you know if you can build on it or not.



### BRENDAN TRACEY (phillipstracey.co.uk)

If you're intending to carry out an extension on a tight site, it's worth doing a background check to see what the neighbouring properties have done — you'll not only get a sense of what is favoured by the planners but you'll get an idea of what you do and don't like, and what can be

achieved with the space available.



#### MEREDITH BOWLES (molearchitects.com)

Cost is a key factor to consider. Small complicated buildings are generally going to be more expensive than larger buildings. Corners and junctions of buildings work out more expensive when you don't have as much wall and roof space in between them, and so on a cost per

m² basis smaller homes are likely to cost more. The chances are if you're battling with a tight site then you're dealing with a complicated building, and these are always going to be more expensive than a simple house on a simple site. Urban areas, where tight sites are most common, are also harder from a planning perspective, with Party Wall Awards, and two sets of foundations (yours and those of your neighbour) to deal with.

stair, which can take up precious floor space. So, if you can get away from having that and have the stairs open to the rooms, you can in fact not only gain a lot of space but also create the illusion of a more open space, which we did here. On this project, being such a small site we could only go up and down, as we couldn't extend out, so everything is now on a half level, with scissor-style stairs taking you from room to room through the house — maximising the sense of space as well as actual space.

"The cost is another important thing to note with tight sites," continues Meredith. "With this project the client was working to a tight budget but looking for a way to make what could be a simple building more exciting. Rather than the alternative option of having painted render, because other buildings in the area had painted brick façades we decided we could introduce some colour and opted for a Marley Eternit fibre cement cladding which acts as a rainscreen. The recessed gaps between the boards then add depth and interest to the property."





### 3: CREATING OUTDOOR SPACE

"We wanted to buy a house in Sheffield and the end-terrace property we chose had a large driveway to one side, which had once contained two other terraced houses. These were condemned and demolished in the 1970s, but we hoped to get planning consent to build something else on the land," says Tom Hunt, who with wife Emily commissioned Halliday Clarke Architects to help them build a new three-storey home (the ground floor of which includes an office space for Tom's media products business) on a tight 140m² corner plot of land next door to their previous home in the city centre.

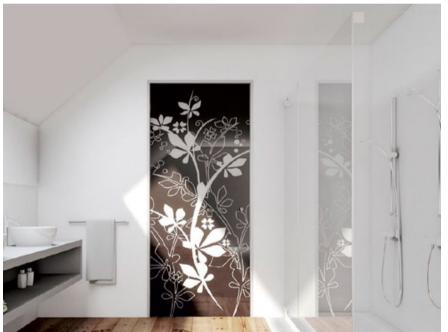
They made clever use of the tight footprint by excavating back into the hillside to form an external yard/bike store, with an upper terrace at first floor level, as well as a further staircase leading up to a roof terrace. The project goes to prove that you don't have to sacrifice external amenity space when building on a tight, urban plot. Built-in balconies to the master bedroom, for instance, also allow for additional break-out spaces from the internal areas. "The plot is exactly the same size as our previous house but by building upwards and backwards the new property is almost twice the size," says Emily.

Party Wall agreements were made easy, as the couple already owned the property next door. The only major upheaval was the need for a flue to be relocated to the rear, allowing the new house to abut the gable end. The new home also proved cost-effective to build, coming in at £139,000, as it was built with a Kingspan TEK Building System [structural insulated panels] that offered slim walls, great eco credentials and a fast build time — the shell of the house was erected in just two weeks. •









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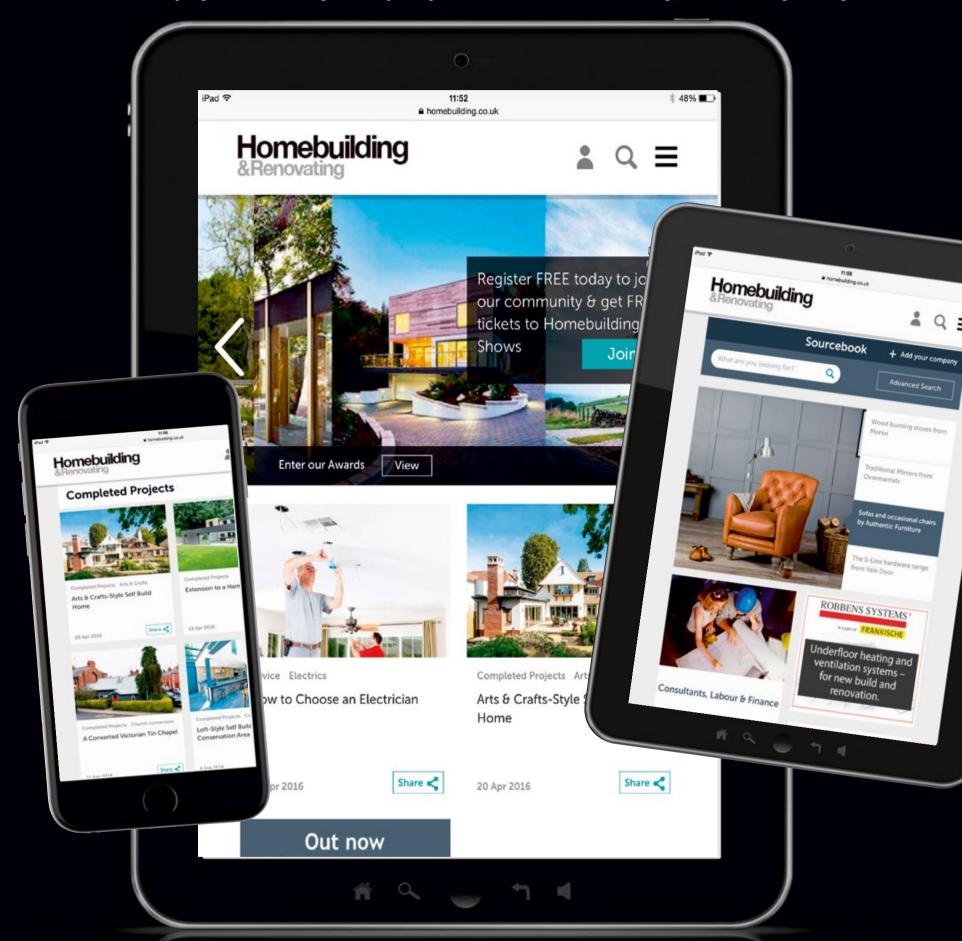


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# How To Make Sense of Different Wall Costs

Trying to choose between timber frame, masonry and SIPs? Comparing the costs of different structural walling systems can be tricky — but it's well worth delving into the figures and finding ways to balance costs with quality, says David Snell



DAVID SNELL
13-time self-builder,
David has been
building homes for
50 years and is the
author of Building
Your Own Home

ne of the major choices facing the self-builder is deciding which structural walling system to use for their new home. In most cases, that will boil down to a choice between three construction methods that compete with each other for viability and effectiveness:

- brick and block (masonry)
- timber frame
- structural insulated panels (SIPs)

With the latter two options, brick, render, timber, etc, may be the cladding of choice.

Of course, many of the companies working within the self-build sector, such as Potton, tend to favour one or two particular systems (in the latter case, timber frame and SIPs). In these cases, the method of building may become a secondary consideration for the self-builder who has chosen to build with one of these companies.

Nevertheless, the choice is still an important one and with conflicting information, the first-time self-builder may, at times, not know which way to turn.

The plain fact of the matter is that each one of these mainstream wall systems all offer different benefits (SIPs, for instance, offer a much faster build time and an airtight structure, while with masonry, both the materials and labour are readily available). Each one can and will achieve, at least, the minimum requirements of the Building Regulations and be capable of exceeding them in terms of structure, longevity, value and thermal efficiency, with nothing more required than a little tinkering. So, the final decision may well come down to cost. And

what are the costs relative to each other? What are the likely costs you can expect per m<sup>2</sup> of walling?

Trying to compare the costs on a likefor-like basis is a bit like comparing a horse with a cow — they've both got four legs and are covered in fur, but that's where the similarities end.

#### **Labour and Materials**

Let's look at the costs for each method. The cost of blockwork (masonry) for the internal skin is easy to establish, although it must also include the cost of insulation to allow for any meaningful comparisons. So one m<sup>2</sup> of blockwork equals 10 blocks at a cost of, say, £10\*, although you could do better. To that, you have to add £12/m<sup>2</sup> for the insulation in order to achieve the minimum U value. Then there are the extras such as mortar and wall ties, which add a further £1.60. And finally there is the labour, which will average around £12.50/m<sup>2</sup> — all of these elements add up to £36.10/m<sup>2</sup>. You could amortise those costs over the whole area of the internal leaf of the cavity walling and be just about right with your answer, because any block, in any position in the home, performing any function within the structure, is going to basically cost the same.

If you try to do the same thing with timber frame or SIPs, you'll come unstuck. And that's because of the 'horse and cow' syndrome. The blockwork prices above don't account for any openings or the lintels and cavity closers that each of those requires. Meanwhile, when one receives a price for a timber frame construction, the price is based on the whole structure and typically includes

the intermediate flooring, the internal partition walling and the roof structure, with all of it being made away from site in a factory and then brought to site for erection.

#### Little Difference in Costs

Of course, the costs of the factory, the design and the delivery are then amortised over the whole package. Sources within the industry have identified the elements within such a package that go to make up the structural walling and, for that same m<sup>2</sup> of walling, they work out at around £72 for timber frame and £82 for SIPs respectively. But to try to work out your probable timber frame or SIPs package cost from those figures would be completely meaningless and a gross distortion of the actual costs and prices. That is because a disproportionate amount of the overall design and manufacturing costs are reflected within the envelope. The known fact, reflected in HB&R's Build Cost Calculator (page 81) and supported by the case histories of readers' experiences, is that there is little difference in the finished costs when measured over the usable floor areas of new homes.

If anything, brick and block is slightly cheaper per m<sup>2</sup> — hardly enough to notice. But brick and block takes longer to build and there are many more uncertainties, not least with workmanship and the unpredictable British weather. Timber frame is in the middle and SIPs is slightly more expensive, but provides greater ability to control airtightness and quality. Cost, then, is not a major factor and other elements such as aesthetics, build times, airtightness, availability of local skills and personal preference comes into play.

### Why it Doesn't Pay to Cut Costs

This is probably one area where it doesn't pay to reduce costs by way of cheapening or lessening the wall structure. Nevertheless, there are always going to be differences in price between various companies working in the timber frame and SIPs fields for instance, and if you are not locked into a contract it pays you to shop around.

Those not needing a package deal or hand-holding service could opt to go to a timber frame or SIPs manufacturer for a supply and erect service only. With brick and block, it is simply a question of negotiating the best deals from suppliers and holding down the labour rate. •





#### SIPs

SIPs panels consist of an insulating core bonded between two structural facings. Built offsite, the panels are very fast to erect on site and achieve good U values and excellent airtightness. While more expensive than timber frame, assessed across the whole project the additional costs are only around 3 to 5 per cent

### **Timber Frame**

Slightly more expensive than masonry and cheaper than SIPs, timber frame offers a swift on-site build (as the panels are manufactured off-site). Shown is an open panel system: insulation and joinery are fitted on site

#### **Brick and Block**

The least expensive of the three structural wall options, brick and block is a building technique that every builder will be familiar with and has the added advantage that masonry materials are available from every builders' merchant







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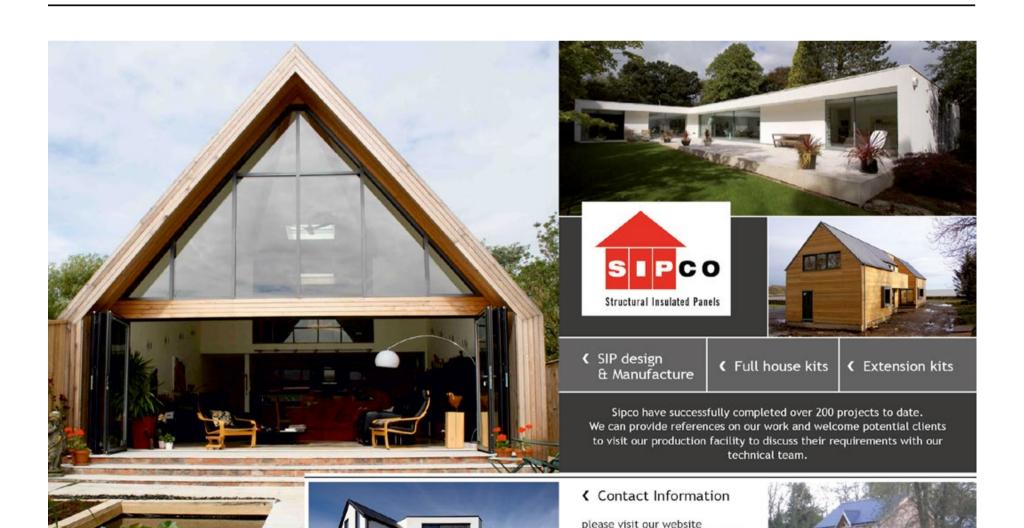
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### The Build Cost Calculator

### A simple cost-estimating guide for people building their own home

ne of the most important aspects when planning your self-build or home renovation/extension project is working out how much it is going to cost.

This figure will depend on the size and shape of the house, the level of your own involvement, where in the country you intend to build, and the materials you're going to use. If you can make even rough decisions about these factors, then you can begin to work out how much it is going to cost.

**BUILD ROUTE A** 

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

reys) and usually varies between £900-£1,500/m<sup>2</sup> (although self-builders achieve costs between £300-£3,000/m<sup>2</sup>).

Renovation costs are more difficult to establish as they involve many variables, but allow at the very least £1,000-£1,300/  $m^2$  for work. This, added to the cost of the plot/house and with a 10-30 per cent contingency, should result in less than the final end value of the house.

The table below, based on information from the Building

**BUILD ROUTE C** 

Cost Information Service (part of RICS, the Royal Institution of Chartered Surveyors), is updated monthly to help you work out a more accurate estimate (note, however, that these figures are for build costs only and do not account for VAT, which is not charged for self-build projects). There is an interactive online version at <a href="https://www.homebuilding.co.uk/calculator">www.homebuilding.co.uk/calculator</a>.

**BUILD ROUTE D** 

#### **HOW TO USE THE TABLE**

- **1.** Identify your build route from the four options; **2.** Identify your expected level of specification: 'standard', 'good' or 'excellent';
- **3.** Identify the estimated size of your finished house (either single or two/more storeys);
- **4.** Choose your location; **5.** Multiply the figure by your house size (the internal floor area).

**BUILD ROUTE B** 

SINGLE STOREY		(DIY + Subbies)			(Subbies)	(Subbies)			(Builder/Subbies)			(Main Contractor)		
		Standard	Good	Excellent	Standard	Good	Excellent	Standard	Good	Excellent	Standard	Good	Excellent	
>90m²	Greater London	1234	1427	1716	1306	1511	1817	1379	1595	1918	1451	1679	2019	
	South-East	1082	1252	1506	1145	1326	1594	1209	1399	1683	1273	1473	1771	
	NW, SW, East & Scotland	984	1139	1370	1042	1206	1450	1099	1273	1531	1157	1340	1611	
	Mids, Yorks, NE & Wales	941	1089	1310	996	1153	1387	1052	1217	1464	1107	1281	1541	
91-160m²	Greater London	1129	1371	1781	1196	1451	1886	1262	1532	1991	1329	1613	2096	
	South-East	991	1202	1562	1049	1272	1654	1108	1343	1746	1166	1414	1838	
	NW, SW, East & Scotland	902	1094	1422	955	1158	1506	1008	1223	1590	1061	1287	1673	
	Mids, Yorks, NE & Wales	862	1046	1360	913	1108	1440	964	1169	1520	1015	1231	1600	
161m²+	Greater London	1006	1319	1655	1065	1397	1752	1124	1475	1850	1183	1552	1947	
	South-East	882	1156	1452	934	1224	1537	986	1293	1622	1038	1361	1708	
	NW, SW, East & Scotland	802	1052	1322	850	1114	1400	897	1176	1477	944	1238	1555	
	Mids, Yorks, NE & Wales	767	1007	1263	812	1066	1337	857	1125	1412	902	1185	1486	
TWO STO	OREY													
90-130m²	Greater London	1187	1373	1687	1257	1454	1786	1327	1535	1885	1397	1616	1985	
	South-East	1041	1204	1480	1103	1275	1567	1164	1346	1654	1225	1417	1741	
	NW, SW, East & Scotland	947	1096	1348	1003	1161	1427	1058	1225	1506	1114	1290	1585	
	Mids, Yorks, NE & Wales	905	1049	1288	959	1110	1363	1012	1172	1439	1065	1234	1515	
131-220m²	Greater London	1000	1210	1535	1058	1282	1625	1117	1353	1716	1176	1424	1806	
	South-East	877	1062	1346	929	1125	1426	980	1187	1505	1032	1250	1584	
	NW, SW, East & Scotland	798	967	1225	844	1023	1297	891	1080	1369	938	1137	1441	
	Mids, Yorks, NE & Wales	763	924	1171	808	978	1240	853	1032	1309	898	1087	1378	
221m²+	Greater London	922	1181	1482	977	1250	1570	1031	1320	1657	1085	1389	1744	
	South-East	810	1035	1301	857	1096	1378	905	1157	1454	953	1218	1531	
	NW, SW, East & Scotland	736	942	1183	780	997	1253	823	1053	1323	866	1108	1392	
	Mids, Yorks, NE & Wales	704	900	1132	746	953	1199	787	1006	1265	829	1059	1332	

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Planning to get some free informal advice from a friend, family member or professional about your homebuilding project? A new court case, reviewed by construction lawyer Chris Reeves, shows why we should all take care



CHRIS REEVES
A construction solicitor
and chartered building
consultant, Chris also acts
as a specialist mediator in
construction disputes

here do we start?" is a common question asked at the Advice Centres at Home-building and Renovating Shows. The answer is usually to seek professional advice on the preparation of plans and possibly project management. The next question is likely to be "how much will that cost?" and the answer is invariably "it depends". Professional fees are a bit like a trip to the dentist — necessary but hopefully not too painful!

What I often perceive as a reluctance to pay professional fees can lead to ad-hoc arrangements with 'friends', who are often willing to help out with some initial work that would otherwise be carried out by a professional. A common example is the preparation of plans and even project management. It is often a feature

of what is intended to be a gratuitous service that something is given in return. But what if your friend lets you down and costs you? Do you have any comeback? Surely not? If the 'client' has not paid the 'professional' for the service then why should the professional be held liable to the client in circumstances where the professional is bound to argue that there is no 'contract'?

Doing various favours for each other is what lay behind the relationship between Mr and Mrs Burgess and Mrs Basia Lejonvarn — a Netherlands-registered architect living in London, who provided free professional advice regarding a landscaping project at the Burgesses' home in London. The Burgesses and Mrs Lejonvarn were friends who did various favours for each other. For example, Mrs Lejonvarn once provided some free graphic design services for Mr Burgesses' business and Mr Burgesses' company had provided Mrs Lejonvarn with some free office space when she was setting up her new practice. There were other 'favours' as Mr Burgess had also lent Mrs Lejonvarn money.

In 2012 the Burgesses obtained a preliminary design and quotation for works to their rear garden from a specialist landscape gardener, including re-levelling of the steep slopes, the formation of terraces and banks supported by railway sleepers, and the creation of paths and lawns. The quote was over £200,000, so it was a hefty project. Mrs Lejonvarn was by this time setting up her own business. She suggested to her friends that the project could be completed within a smaller budget. She began provid-

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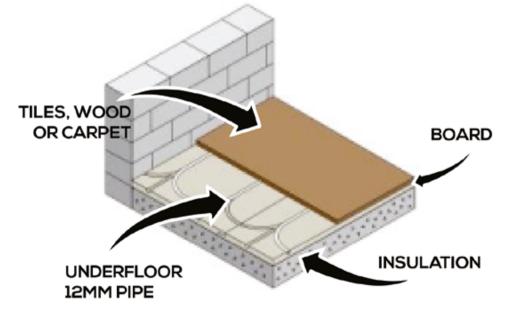
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ing design and project management services for the project, but the parties never discussed a formal contract. Mrs Lejonvarn did not ask for payment, although it was suggested at trial that she planned to charge for detailed design work later in the project, if the project had reached that stage, which sadly it did not. The earthworks and landscaping were completed by the contractor secured by Mrs Lejonvarn, at what was intended to be a cheaper price. So far so good, but did I mention a trial? I come back to that as the Burgesses later sued Mrs Lejonvarn.

As the project progressed, the Burgesses became concerned about its cost and the quality of the work. The friends' relationship deteriorated and the Burgesses engaged a landscape designer to complete the project. The upshot was that the project costs, including remedial works, increased. The Burgesses said it cost them an additional £265,000 and they sent the bill to Mrs Lejonvan — metaphorically speaking, of course.

So back to the trial. The case ended up in the specialist High Court in London that deals with these sorts of claims — the Technology and Construction Court, to be precise. The Judge had to grapple with the question of whether a professional consultant could be legally held to account for professional services performed free of charge for friends. If not, then the claim was on the rocks.

### No Contract in Place, but Still Liable

The Judge decided that Mrs Lejonvan did not have a contract with the Burgesses. For a contract to be in place it needed all the essential ingredients identified by the Judge — they were missing, so there was no contract that the Burgesses could sue on.

So far, so good for those consultants who try to help their friends, but in what the Judge described as a "cautionary tale" he decided that a professional designer can owe a "duty of care" in respect of pure economic loss on a construction project. The Judge also decided that such liability is not restricted to advice given by the professional consultant, but can also cover other services that he or she performs. Mrs Lejonvarn found herself on the wrong side of a claim for £265,000.

Mrs Lejonvan argued that she would never have assumed any legal responsibility to her friends without having agreed a fee in advance and without having professional indemnity insurance in place (which she did not have, although this fact was not known to the Burgesses until quite recently). The Judge referred to her argument as "wishful thinking on her part". The Judge remarked that Mrs Lejonvarn saw this project both as an opportunity to provide professional services for her good friends and to enable her to develop her budding architectural practice. The issue was whether she assumed responsibility for the tasks she was performing, not whether she assumed legal liability. She was well aware that the Burgesses were relying on her to properly perform those services. The trust they placed in her was 'manifest'. The services that Mrs Lejonvarn provided reflected skills that the Burgesses themselves did not possess. Had she not been responsible for project managing and overseeing the project the Burgesses would, instead, have depended on someone else.

The Judge decided that Mrs Lejonvarn should be judged by the standards of a reasonably competent architect and project manager. She had failed in that standard. So, does this case have wide implications for self-build projects — does it extend to 'advice' or 'services' offered for free from your friends, or, for that matter, family? Is this cautionary tale only of concern to landscape architects or does this extend to builders and subcontractors as well? The court emphasised that "this was not a piece of brief ad-hoc advice of the type occasionally proffered by professional people in a less formal context". The case is perhaps unusual in that the person offering help and advice knew that the client was relying on it. If similar reliance is placed on the advice from contractors, architects, surveyors and engineers and the person knows that the client is relying on that advice, then it could be argued that there is assumed responsibility for the tasks being performed — be it a bit of free advice from your builder about the size of the timber joists or the friendly surveyor who checks the contractor's bill before you pay it.

### Could the 'Duty of Care' Ruling Impact Your Project?

Another point that comes out of all this is that builders who become aware of the case may be less likely to get drawn into designing structural parts of the project that they are all too often willing to help out on. This will place more emphasis on the customer making sure there is a professional in place, or at least in the background, that can step in to provide the advice needed — and charge for it! Will this lead to increased cost to the project? Is this not a cost that ought to have been budgeted for from the outset? Oh dear — more questions than answers I am afraid, and we will have to see what impact, if any, this has on the homebuilding and renovating sector.

Speaking as a lawyer, this case also illustrates the importance of putting proper appointment documents with professionals in place. A good professional appointment document will set out the services that are being provided for the agreed fee. The case also serves as a word of caution about making sure that those who give advice are properly insured. If Mrs Lejonvarn is not good for the £265,000 then the free advice did in the end come at a high price for the Burgesses. Is your 'professional' insured? The question is worth asking before committing — after all, it's a great way to get your relationship off on the right foot!

### HOW TO SAFEGUARD YOUR PROJECT

Friends, family or professionals giving 'free' advice or services can still be taken to court for poor advice or work, even when there is no contract in place. In legal terms, they have a 'duty of care' to you.

The ruling could also mean that builders and other professionals may be less willing to help out with informal advice. To protect yourself:

- Consider paying for professional services rather than looking to 'save' money by relying on 'free' advice as this could save you money and trouble in the long run
- Make sure that anyone you get advice from is insured
- Put proper appointment documents and contracts in place with professionals

#### **OPINION**

### Farewell, Our Zero Carbon Future?

Last summer, the Conservative Government scrapped the zero carbon homes policy — a road map which the homebuilding industry had been working to for almost a decade. So, in 2016, just where does this leave the future of our homes, asks Mark Brinkley



Mark Brinkley is the author of *The Homebuilder's Bible* and an experienced builder; he's just bought another plot

hile we have just enjoyed the UK's warmest winter since records began, the political climate seems to have turned a whole lot chillier.

At 63, I am old enough to remember

when springs were very different. Daffodils came out in late March or early April, not in January as they now seem to do. Bluebells bloomed in May, not in the chilly depths of March. You didn't see bumble bees on Christmas Day.

Despite all this apocryphal evidence staring us in the face, there are many people who choose to ignore the obvious explanations for these changes and cling on to a variety of unlikely theories about what is happening. Anything will do as a rationale, as long as it means we can carry on business as usual.

Climate change has become a deeply divisive issue. Those on the right either deny its existence and call it all a left-wing hoax or,

more commonly, say its effects are quite minor and we don't need to spend any money on its prevention. On the other side, there are many 'dark greens' who think that only a wholesale change in the way we organise our affairs will stop runaway climate change and that nothing short of a revolution will save us.

This debate has had a huge impact on how we build. For the past 15 years or so, the buzzword in construction has been sustainability. This boils down to encouraging us to spend a little more while building in order to lessen the impact of our homes on the environment or, to coin a rather clichéd phrase, to 'save the planet'.

Our Building Regulations have been made more stringent, planning permissions have often demanded a variety of environmental upgrades, and we have been offered generous incentives to install low-carbon power sources. The UK has in fact been a leader in sustainable construction and its implementation forms the bedrock of many new build projects in this country.

Scrapping of Code for Sustainable Homes

March 2014

Scrapping of Zero Carbon Homes for 2016 and the Green Deal

**July 2015** 

Latest revisions to FiTs incentives announced

January 2016





Until recently, sustainable construction had widespread political support. Only UKIP and right of the Conservative Party were aligned against what might be called this 'light green' approach. Indeed, 10 years ago the Conservatives were keen to be seen as greener than the Labour party then in power.

But the worm has turned and the 'luke-warmist' tendency has extended its influence. David Cameron has performed a sharp about-turn from his 'hug-a-husky' days back when in opposition, letting us know in 2013 that he thought environmental legislation was nothing more than 'green crap'. Following election victory in May 2015, the Conservative Government has taken the axe to sustainable construction, dismantling many of the green incentives and putting a stop to any notion of ever-tighter regulations or interfering councils. Among the biggest headlines, in July 2015, the zero carbon homes policy, which was to see new homes built from 2016 being carbon neutral, was scrapped.

None of this was in the election manifesto and it was sprung without warning on an unsuspecting industry. At the stroke of a pen, tens of thousands of jobs were destroyed and the future of hundreds of businesses was thrown into doubt.

Close of Zero Carbon Hub March 2016 Before this bonfire of the incentives, we had in place a road map indicating what future changes would take place when. It was far from perfect – in fact it was riddled with inconsistencies – but businesses knew what was coming and could plan accordingly. We were heading for the zero carbon home in 2016.

Their customers, which of course includes every UK self-builder, could decide on their best course of action early on in the planning stages of their projects, exactly when these sort of decisions need to be made. It allowed us to plan ahead, secure in the knowledge that when we came to place our orders there would be support in place. Now, not only have most of the supports been dismantled or weakened, but confidence in the remaining incentives has been shattered. One of the key supports, the Renewable Heat Incentive, which subsides heat pumps and biomass installations, was left intact last summer. But will it survive much longer? No indication has been given.

And a small but significant U-turn on the size of cuts in the Feed-in Tariff (FiTs) for solar PV (photovoltaic) merely adds to the sense that these cutbacks were not thought through. Before the axe was wielded last summer, the PV panel subsidy stood at 12.5p/kWh. It was then cut to just 1.6p/kWh — so small it wouldn't be worth claiming. Then after some consideration and a great deal of lobbying, it was put back up to 4.5p/kWh. If ever you needed an indication that our legislators didn't have a clue what they were doing, this was it. The road map has been well and truly shredded.

It's ironic that this Conservative Government has on the one hand been very supportive of the notion of self-build, putting in place legislation and levers to make self-build more commonplace while, at the same time, it's made the process of self-building much more confusing.  $\bullet$ 







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## How to Build a New Home on a Budget





**HOMES** TRADITIONAL-STYLE SELF-BUILD

## "I Built for £80,000"

Keith Sprintall's self-build story is a lesson in how careful project planning, attention to detail and smart budgeting can pay off

Words: Claire Lloyd Photography: Clive Doyle Styling: Anna Morley







#### THE QUICK READ

- >>> Keith Sprintall has built a 180m2 home for just under £80,000. In addition to the considerable savings made on labour, careful project planning and material specification were key to achieving this build cost
- >>> A bricklayer by trade, Keith built the brick and blockwork walls, but also turned his hand to other trades, undertaking the majority of the work himself, with the aid of his two sons
- ➡ Despite the tight budget, Keith invested in an air-source heat pump, which provides the heating and hot water. Thanks to the Renewable Heat Incentive, his energy bills are just £300 a year

o say Keith Sprintall has an eye for a bargain is a bit of an understatement — this savvy self-builder was positively brimming with sage advice on where to save and where to spend on the day Homebuilding visited. The result of his careful planning and attention to detail is a 180m<sup>2</sup> home, built for just £80,000 — or £79,656.19 to be exact.

Despite the impressive headline figure – which equates to just £444/m² – Keith's self-build journey wasn't all plain sailing. "I paid far too much for the plot," he admits of the small site in a pretty Leicestershire hamlet, which he bought back in May 2007. Fate was to deal him a bit of a blow — the recession swiftly followed, and he knew that the build would have to be realised on a tight budget if he wasn't to fall into negative equity.

Then life became more complicated still. "I sold my property to buy the plot; the plan was always to live in my then-partner's house in a nearby village while we completed the build," continues Keith. When this relationship came to an end just before starting on site, Keith, with an eye on his small build budget, purchased a shed — and made it his home for the duration of the project.

Now, this was not one of those all-singing, all-dancing, latest generation of garden outbuildings — well-insulated, connected up to electricity, hot water, and even WiFi. No, this was quite simply the sort of garden shed you pop down to your local B&Q and part ways with a couple of hundred quid for. A single skin of timber provided the only defence between Keith and the elements, and a camp stove the only means of cooking (and heating) under batterypowered light. Keith's local gym doubled up as his shower facilities.

"I ended up living there for three years throughout the build. I can see why the Victorians would spring clean — mould has a habit of growing on clothes and bedding when a place is cold and damp," says Keith, who persevered with a positive attitude. This was not a quick build either: Keith undertook the majority of the work himself, juggling this with his job as a bricklayer. "When you have to go to work to finance each stage, things can get drawn out — hence the long build time," he says.



### Open Plan Kitchen Diner

Keith specified his new kitchen and granite worktops from B&Q. The reclaimed butler sink, however, was purchased for just £20. The travertine flooring (which has the look of limestone, but is slightly less expensive) sits above underfloor heating, which has been laid throughout the ground floor and is powered by an air-source heat pump





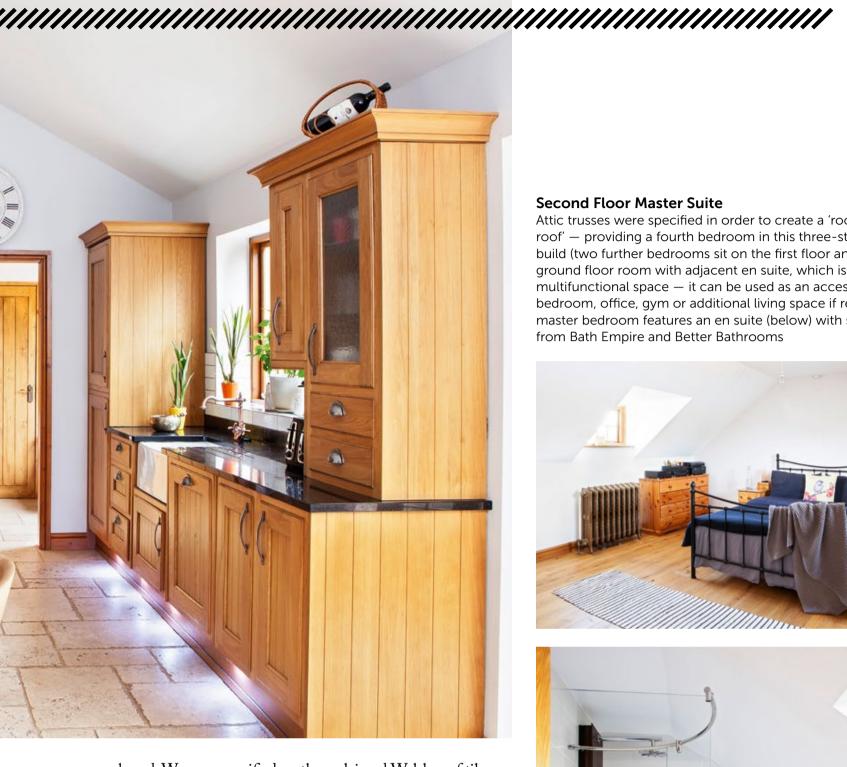
### **Achieving that Impressive Build Cost**

Let's get one thing straight — Keith is a bricklayer by trade, and while this is the first time he's built his own home, after 30+ years on construction sites he's picked up a thing or two about building houses. He made considerable savings on labour by building the masonry walls, and also by trying his hand at other trades — the groundworks, installing the underfloor heating pipework, tiling the bathrooms, fitting the kitchen, the list goes on... His two sons, Leigh and Darren, who now live with him, also played a significant role.

Despite this, Keith called in fellow trades where required. "Hanging doors is a bit of an art form. I installed the architraves, but I could have spent a day hanging one door instead of going out to work — instead, I paid a chippie to hang numerous in that time."

Careful forward planning and problem solving were also key to cost savings. The plot required considerable excavation, both to dig down for the foundations and to create the driveway on this plot which was elevated above the road. Keith could have paid a small fortune in skip hire, but instead he found a local farmer in need of soil and then hired a digger and dumper to move the spoil. "We cleared away over 1,000 tonnes of soil — saving us from hiring 100 skips or around 50 20-tonne grab lorries," he says. "We only hired one skip during the entire build, which I did begrudgingly when we had to make alterations to the drive.

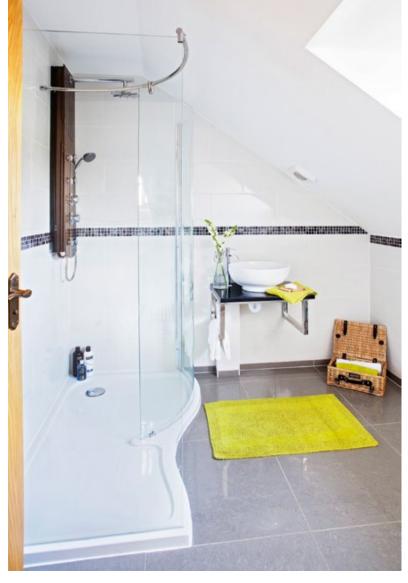
"This is also because nothing went to waste," he continues. "For instance, the left-over oak flooring (which we've fitted upstairs) was used to create the window sills and a door for the understair



### **Second Floor Master Suite**

Attic trusses were specified in order to create a 'room in the roof' - providing a fourth bedroom in this three-storey new build (two further bedrooms sit on the first floor and there is a ground floor room with adjacent en suite, which is a flexible, multifunctional space — it can be used as an accessible bedroom, office, gym or additional living space if required). This master bedroom features an en suite (below) with sanitaryware from Bath Empire and Better Bathrooms





cupboard. We over-specified on the reclaimed Welsh roof tiles, so the remaining tiles were used to build the garden walls."

Another saving made was on scaffold hire; Keith purchased second-hand scaffolding online. "The wrought iron needed a bit of work, and we replaced the boards, which were rotten. However, we sold the scaffolding for the same price we paid for it," he says.

### **Savvy Specification**

Keith's build is also a lesson in clever specification: time was well spent scouring the internet finding the best prices and negotiating with local suppliers (he tried to buy locally where possible). The bricks were among one of his best buys, at £200/1,000 bricks. "The bricks are seconds, but have two creased faces. If one face was chipped or damaged, we could simply use the face that wasn't. I also went direct to the supplier to buy blockwork (rather than going through a merchant) — I paid 64p instead of £1.10 for each block," Keith says.

He found the gutter rise and fall brackets for £2 online. "They can cost around £5-£6, and when you've got 70 to 80 on a building, you can soon see how things add up. The driveway pavers only cost £1,000 too. However, it's not the external face where the cost lies, it's inside," adds Keith. As we pass from room to room on our tour of his new home, he points out the many clever buys. "The door hinges cost £1 each — again, it's a case of persevering online. The bathroom tiles I bought in bulk, so had a good discount. The butler sinks in the scullery and kitchen were £20 each..."

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### HOMES TRADITIONAL-STYLE SELF-BUILD

### The Front Elevation

Keith laid the brickwork and choose a creasedfaced brick and flush pointing (rather than bucket handle, which is common on many building sites) to provide a more traditional look. He also built the porch, which emulates a churchyard lych gate

#### A Green Build

Despite the tight budget, Keith was keen to ensure the building was as energy efficient as possible. The property has been thoroughly insulated (the insulation was another good buy) — so much so that the first floor bedrooms are heated by warm air rising from the underfloor heating on the ground floor.

"I would recommend installing underfloor heating as it provides a really comfortable atmosphere. We only installed it on the ground floor but hedged our bets by installing chunky bathroom radiators and a cast iron decorative Victorian-style radiator to the second floor bedroom. We have found that the upstairs rooms maintain a temperature 2°C lower than the temperature setting for downstairs, which is absolutely perfect for sleeping," says Keith.

An air-source heat pump runs the heating and hot water. The electricity bill for the property has equated to £1,000 a year so far, but Keith receives £700 from the Renewable Heat Incentive (which will be paid for a period of seven years) — meaning energy bills are just £300 per year. He specified a rainwater harvester because it "felt like the right thing to do." It provides water to flush the toilets and for use in the washing machine.

This all provides a warm, comfortable home, which is cheap to run. While Keith has a few jobs left to finish on this new house, he's keen to take on another project. "This house is a stepping stone; I'd love to take on a farm with a couple of outbuildings, or build something really different," he concludes. Watch this space. •





### **KEITH'S TOP TIPS FOR BUILDING ON A BUDGET**

• Knowledge is king — research and reconnoitre. I checked the Yellow Pages and went round all the local builders', electricians' and plumbers' merchants, explained what I was doing and found the ones to do business with — they can be a great source of help.

Pick up catalogues and price lists. You then know what prices you have to beat from DIY stores and online suppliers. Bear in mind that DIY stores do great loss leaders (ie cement), too. Builders' merchants can't compete.

- Buy in bulk, especially from quarries for the likes of sand and stone. Get quotes from the builders' merchants for the different materials you will need and deal with the ones who offer the best price, not just one individual merchant. Also, go to a specialist timber merchant, not the builders' merchants, for timber.
- Go online and persevere keep looking and you will find the right price. This paid dividends for me a few times; in one instance, after two days, I had got my insulation quote down from over £5,500 to £2,658 — a great saving.



### The Project



**Keith Sprintall** Homeowner

#### **HOMEOWNER'S VIEW**

The house was designed around the theme of 'country cottage meets contemporary', with a large open plan kitchen diner and large threepenny bit-shaped French double door leading to a spacious patio.

We also introduced double doors leading to the lounge so that this space could be incorporated into the kitchen diner, or shut off if you so wished to read, watch TV or for privacy, etc. We have found this works brilliantly. Last Christmas we had a family gathering

with both great grandchildren and great grandmother present — we had 24 people seated in the lounge for a saddle of venison for Christmas dinner. The vaulted ceiling around the multi-fuel stove accommodated a 12ft Christmas tree easily.

The house just seems to flow and has a beautiful, serene feel to it — we are more than happy with the ambience. All of the bedrooms have autonomous seclusion if so desired, too.

#### **BUILD COSTS**

Site clearance and removal of soil
£2,400
Groundworks£3,430
Roof£12,030
Windows and doors£7,000
Remainder of watertight shell costs
£10,328.09
Air-source heat pump£4,088
Rainwater harvesting system£1,834
Sewage treatment plant£2,544
Landscaping, paths, garden walls,
driveway, drainage and rainwater goods
£5,200
Internal fit-out£30,802.10
Total£79,656.19

### **PROJECT TIMELINE**

May 07 Plot purchased
Jun 09 Revised planning
permission approved
Oct - Nov 10 Site clearance, trees felled
and groundworks excavated
Nov 10 Foundations completed
May 11 Main superstructure built
May 12 Single-storey element built
and house made watertight
Feb 13 First fix completed
Apr 13 Second fix completed
Jul 13 Occupied house
Aug 14 House complete and
decoration finished
Dec 14 Completion Certificate issued

#### **SUPPLIERS**

<b>Digger and dumper hire</b> ALF plant
Blockwork Interfuse building blocks
interfuseblocks.com
Bricks Charnwood
mbhplc.co.uk/charnwood
General materials Gibbs & Dandy
gibbsanddandy.com
P&R Building Supplies
prbuildingsupplies.co.uk
Travis Perkins travisperkins.co.uk
Roof package and sawn carcassing
Harlow Timber Systemsharlowts.co.uk
Rainwater good and hoppers
Master plastics masterplastics.co.uk
Insulated plasterboard and insulation
A&A insulations
aandainsulationservices.com
aandainsulationservices.com <b>Drywall adhesive</b> Build It Shop
Drywall adhesive Build It Shopbuilditshop.co.uk
Drywall adhesive Build It Shop builditshop.co.uk Electric cables QVS qvsdirect.com
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Builder and bricklayer Keith Sprintall

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broughtons.com
Wrought-iron metal work
Black Country Metalworks
blackcountrymetalworks.co.uk
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#### **ADVICE**

## Designing to Budget

What is the real secret of building cheaply — while maintaining the quality of the design and materials? Seasoned architect Neil Turner explains all



NEIL TURNER
Neil Turner is director at Howarth Litchfield Partnership and specialises in residential designs (howarthlitchfield.com)

reating a new design is always exciting and I love the challenge of a new commission, new clients and fresh ideas. Everybody is different and no two budgets are the same. My first question is always: do you have a budget in mind? Some clients do, and some don't. This applies from the smallest extension to the largest new build house. We can avoid it and put it off, but creating a budget has to be done and the sooner the better. This might seem surprising advice from an architect, rather than a quantity surveyor or an accountant — but unless you have an idea of what you want to spend or can afford, the design process can be a waste of emotional and financial time.

I try and work out an initial cost from the first briefing meeting so I can see if the description matches the affordability. I use my experience for this exercise. Once we start sketches I always like the client to get a cost plan prepared (rather than a guess) so that they can see what their dreams are going to cost.

Some people prefer a builder to be involved earlier and cost up the sketches. My preferred method is to use a quantity surveyor (QS). The QS will measure the drawings from the earliest sketches to detailed drawings and produce a cost plan. This cost plan becomes the first important clue about the likely cost of your new house or extension project. The QS is independent and will use their experience to fill in the gaps — at the early stages, lots of decisions will not have been made (or thought about), so a good QS can produce a highly effective checklist for decisions.

I have just undertaken a project where a project cost was higher than the original client's budget target. We were then able to alter parts of the design, remove elements and change materials to bring it back to the original target. All of that was done before we approached the planners and applications, which saved the embarrassment (and expense) of going back later for amendments.

Development cost should not be confused with the construction cost. Whatever your budget, always try and assess the costs that sit on top of the construction costs.



These costs can include:

- Professional fees
- VAT
- Planning and Building Regulation fees
- Statutory suppliers gas/water/electricity
- Wayleaves and legals
- Site purchase

It's also important to consider family costs. Once you have created the development cost, where are you going to live and who is going to run this house project? I have had to pay two lots of council tax before, when building a project and living in a rental property, and that cost can be painful. So you also need to consider:

- Rental costs (or the cost of a caravan if living on site)
- Time off work if you are planning on project managing
- Storage of possessions/removals
- Mortgage and borrowing costs

All of the extra family and development costs put pressure on the construction cost and can't be ignored.

So far, I have sounded like a wise (but worrying) old architect, so let's remember that this is exciting and you are undertaking your project because you have ambition and dare to be different. So don't let a modest budget put you off your target or dream. If you want to achieve your dream house on a modest budget, then you simply need to put in more effort. I am often asked if a larger budget results in more success and the answer is that more money opens up more opportunities for ideas to be developed. So if the budget is tighter, then focus hard and you can still create that wonderful piece of architecture.

So how do you build cheaper without compromising quality? Overleaf are my tips on just how to achieve this.

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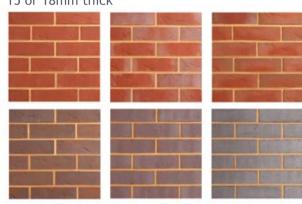
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### 1 Aim for simplicity from the outset

Whether you want a timber-clad, pitched roof cottage or a minimalist box, focus on how you and your designer can achieve this without wasting money or over-detailing the project. When I built my last house, I focused on making sure all the details were simple. Simple should not be confused with looking poor. A simple structure with robust details brings down the cost. Every time you add some complexity or unorthodox building technique then your costs will increase.

### 2Build small

It's obvious, isn't it? If you want to build cheaper then don't make it too big. Too often people won't compromise on the size of a project and actually add more even when they know it can't be afforded. Is it better to build smaller and to a greater quality or build more to a lesser quality? It's a difficult question and one that many clients wrestle with.

**Above** Avoid the temptation to make a combined kitchen, dining and living space too large. As well as increasing costs, an over-large space loses all sense of warmth and interaction. At 40m², this space (designed by Keir Townsend) is small enough to allow the chef to chat to the rest of the family

DOSSIER //



I've advocated smaller builds; another approach might be to build in stages rather than compromise your design. Can you afford to build a certain amount now and come back and build some more later? If you are clever with the design then you can create phases; you don't want to be undoing work between each stage though, because that will waste money.

### 5 Material Choice

A huge cost of all projects is the materials, the quantity and the specification of the materials. A brick can vary from 20p to a £1, a window from a few hundred to thousands of pounds. If your budget is tight, then don't design your concept around a particular material. Always create the design first and then define the specification. If you want a particular material but can't afford it, stick with your ambition and research alternatives — let trade reps help you find the product.

**Below**: It's surprisingly tricky to tell the difference between handmade, machine-made and reclaimed bricks, although costs can vary greatly — a bespoke handmade brick (1) can



## 4 Build the shell and fit out later

The opposite advice to building small is to build big! You can decide to build the outside to the quality and size you want and either compromise on the interiors or simply leave them to be completed at a later stage. On my house (and with many clients) I have come back and completed bathrooms later. The room sits empty (plumbed with soil stack and services). So when you do come back and finish, it is without the stress/worry of budgets. I have had clients who have built beautiful houses and made do with a temporary kitchen - even a pasting table was used! They have then come back years later to finish off. This method works for many, but isn't for clients who want everything completed in one go.

### 6 Limit the range of materials

It's very tempting on modern designs to include lots of materials, and it can look great. However, the more materials, the more likely the costs will increase, partly because there is less economy of scale. If you have one facing material, there is just one delivery and one subcontractor. Once you have more materials, there are more junctions and interfaces and more subcontractors, each with costs and overheads. Even with one material, try not to use too many colours or panels, as this can also increase costs.

### 7Save thousands by reducing wastage

Your architect should design to maximise the use of materials and avoid waste. There is no point having a wall that uses 3.1 panels when a small adjustment could make it three panels — saving 25% of the materials. Once you use the same material everywhere you can reuse off-cuts in other rooms. By reducing the number of materials, avoiding waste and using standard sizes, it's more than possible to save 15% of materials on an overall house worth £100,000.

### Savoid overfussy features'

I have already mentioned the simplicity of the design. If the design is simple then, in the main, the detailing can also be simple. However, creating a modern clean building can also involve some complex detailing. So the challenge for your architect is to create a design that doesn't burn up your budget in over-fussy or unnecessary details. Many a client or architect has tried to introduce a 'feature' into a design that can be designed out or replaced without harming the composition.



## 9 Focus on buying well

The real secret of building cheaply is to buy well. Ask the merchants what is on sale, or offer to buy the display items. Also, if you have one main builder they will be better connected than you and can be a source of great advice. If you are purchasing items direct from the builder, then remember this takes time and effort. The internet can be great for bargains, but only buy because it fits your brief rather than being an impulse purchase that doesn't go with anything.

**Left:** This Chalon kitchen was bought on Gumtree for £2,000, with the renovator selling parts he didn't need on eBay — the profits of which were then used to buy a range cooker

### 10Beware

Once walls become curved or shaped into interesting forms then the labour rates will increase. I am not saying don't put in a curve if you feel that it is essential to the house. However, I've seen designs where everything was sweeping for no reason. The best designs are the ones that have something special or catch you unaware, so if a curved wall is needed think how to do it simply, elegantly and to create maximum effect.

### 11 Aim for the wow'effect

You can still achieve a 'wow' effect on a £100,000 budget by aiming to include one stand-out feature in your design. So if the budget is tight, think hard where and how you can add a single 'wow' effect in your project. It could be a two-storey space, a large window, a hidden seat, an interesting staircase detail or maybe just a colour on one wall to provide contrast.

## 12Go for one quality piece

It applies to the design, the layout, materials and the approach. A simple, elegant, affordable home can still be a thing of quality (and beauty). It doesn't simply mean expensive materials are needed. I have heard it said, 'beauty is due more to harmonious



relationships among the elements of a composition than to the elements themselves'. Limit yourself to one quality piece such as the stove but compensate by not spending money elsewhere. A small budget shouldn't be an excuse for boring.



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**ADVICE** 

# The Art of Building Well on a Shoestring

Discovering former mining in your area, having to tear up your plans on site, coping with miniscule budgets: these six self-builders have overcome these obstacles — and more — to achieve the home of their dreams on a tight budget





nyone looking to take their first step on the housing ladder can take heart from this self-build in Ayreshire, Scotland, which shows what can be done when building on a tiny scale — without sacrificing characterful features or living and storage requirements.

The energy-efficient 40m² home was constructed and erected on an existing plot for just £59,000. The sum includes the construction, delivery and erection of the house, including the foundations (2013 prices). "At the time, Mark (my partner) and I had been looking at how we could get a mortgage and whether we could afford a place of our own, when

I suddenly realised the most obvious answer was to design a scaled-down house," says self-builder Jennifer Hope.

Forward planning meant that the house was prefabricated and erected on the site in just six weeks. The entrance is via a small porch, which doubles up as vital storage space. The kitchen and living area is separated from the bedroom and bathroom by a small circulation area. French doors in the living area open up to the rear courtyard.

"Essentially it's a self-build home for people who don't have time to self-build," says Jennifer, who now runs The Wee House Company (theweehouse company.co.uk) providing similar affordable homes for others.

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### **ADVICE** HOMES FOR UNDER £150,000





### **Opposite: Timber Exterior**

The roof of this tiny timber home, which exceeds current regulations and is eligible for mortgage lending, is constructed from Prelaq Nova, a fully recyclable pre-painted steel that costs around £9/m<sup>2</sup>

### **Above: Living Space**

The house is light-filled, thanks to well-positioned windows (most are traditional-style sashes) and French doors. The walls are lined with painted vertical beaded 9mm MDF board that looks like tongue and groove but is highly insulated and fire-retardant; the flooring is painted chipboard

### Left: Bedroom

The bespoke MDF wardrobes feature built-in bedside tables



irst-time DIY self-builder Richard Baldwin overcame a frustrating series of legal and planning hassles to create this efficient, stylish home near Chesterfield on a remarkable budget of just £68,000. He found his plot via RightMove; it was formed from the garden of a house and split into two. Each plot came with detailed planning permission for a traditional-style brick-clad dormer bungalow.

With an agreed price of £60,000 for the plot, Richard had a tight budget to get the

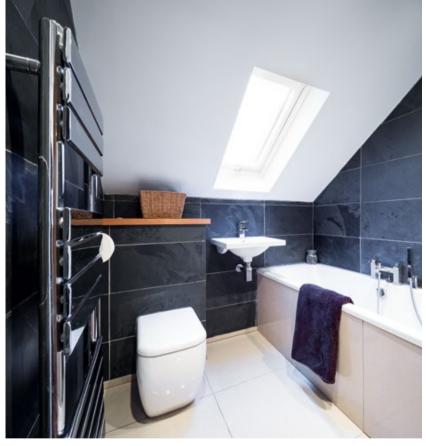
house habitable. Although he was in the building trade, he had no experience of building houses — he'd worked mainly on commercial building projects with a particular focus on drylining. "When you're younger you don't really fear so much, and you don't know what's to come," he says. "You just dive straight in — probably for the best!"

Early dramas threatened to blow his meagre budget out of the water: when he submitted the building drawings for approval, the local authority told him that as the area was subject to historical shal-









low mining, he'd probably have to install piled foundations at a cost that would have scuppered his project before it had even started. After shelling out nearly £1,000 on trial holes to assess the problem, he managed to avoid the need for piling, although he had to go 2m down on one elevation. "There was more," he says. "When I bought the site and saw the plans, I hadn't really given too much consideration to the slope (across the site) and kind of guessed I'd need two 20 tonne lorries to take it all away. I ended up needing 27, which was a real blow."

Things only really moved on when Richard, with the help of a few friends, took on all the work, from pouring the concrete strip foundations to building the insulated concrete formwork (ICF) walls, external brickwork, fitting windows, internal carpentry, plumbing, joinery and decorating. Internally, Richard used a mix of astute shopping and design solutions to come up with a quality look that belies the budget. He built the kitchen himself, using B&Q units, eBay finds and upcycled basic carcasses. The house is also superefficient and heating bills are minimal.

#### Opposite: Corner Site

The site was previously a garden belonging to the next-door neighbour, which proved useful in the early stages for water and power supplies

#### Above: Dining Room

Although the ground floor is largely open plan, Richard constructed an 'extension' to the rear for a separate dining room with tall ceilings. The porcelain tiles are from B&Q

#### Left: First Floor Bathroom

Removing the collar ties in the roof structure (in most cases, they serve no structural purpose) enabled Richard to gain height in the master bedroom and en suite built into the loft

The ICF structure achieves a U value well below 0.15 and an airtightness rating of 5 ("without even really trying," says Richard), and lent itself to this DIY build. There is also a three-zone underfloor heating system run off a simple gas-powered combi boiler, and a mechanical ventilation heat recovery system.

"I've really enjoyed building the house and learned a lot," he says. "The paperwork and legal side of things were hugely difficult, but I got there in the end. The house is amazing and more than I could have hoped for."



Right: Kitchen The kitchen units are from IKEA but the triangular island was designed and built by Jason using wood left over from the build. He also kept the door free from architraves to save money and give an illusion of space. "A door frame sticks out so I created a shadow gap that recesses into the wall," he says

aced with the prospect of demolishing a 60m<sup>2</sup> paint store and building a replacement family home for a tiny budget, many might simply walk away. Not product designer Jason Thawley, who spent £80,000 buying the store with planning permission for a replacement two-bed house on a tight triangular plot in Brighton. That left just £90,000 of the self-build mortgage for the build. Luckily, Jason was confident about using CAD software to design the house. "A lot of what I do is proportion based, so I followed the same principles here. Although I understood the technical detail, I still had to spend hours online researching how to join this bit to that!"

Carrying out much of the practical work – starting with knocking down the store – was also essential. "Quotes were for silly money, like the £5,000 asked for demolishing the paint store, so we just had to find other ways of doing things." To tackle the foundations (challenges included the plot's proximity to the street front, the poor foundations of a Victorian



house behind, and a steep gradient), Jason sat down with a structural engineering friend to thrash out the options.

"We kept going through my drawings to come up with a solution for as little money as possible," he says. "In the end, the design was a reinforced slab foundation." He saved more money by building the new foundations himself, spending £5,000 on the groundworks and foundations rather than an estimated £20,000.

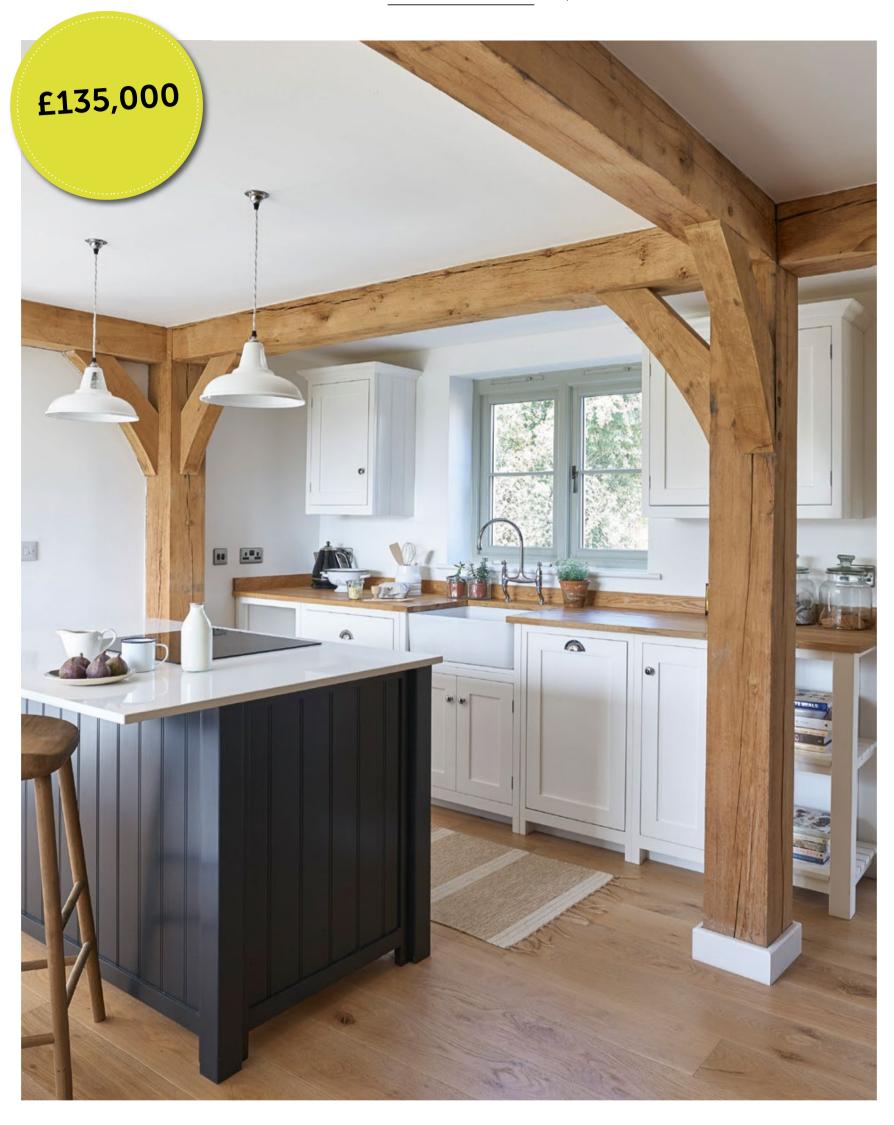
The house was built using a closed-panel timber frame: a cost-effective choice as the structure went up quickly and most of the £35,000 cost was fixed for this element of the build. However, installing underfloor heating and connecting a combi boiler to mains gas for a hefty £9,000 was out of the question. Instead, the highly insulated house has a woodburning stove and mechanical ventilation heat recovery system, with solar thermal panels and an electric tank providing the hot water.

Internally, many of the fixtures were designed and built by Jason, including the plywood staircase (for around £150) and the rooflight in the living area using a steel frame and two window panes (£1,700 instead of £10,000-plus for custom made equivalents).

During the project, Jason threw nothing away, instead creating a 'waste pile' of reusable materials. Leftover plywood from the flat roof deck was even made into the window sills. "It's how I've gone about building things since I was a kid," he says. "In this project I've saved thousands of pounds."

**>** 







REMY PHILLI

implicity of design and an entirely open plan ground floor were two of the most important cost-saving elements of this self-build project in Herefordshire.

"The property is a simple rectangle, with a single roof ridge line and a mini truss running along the ridge — the only other external element is a small oak porch that provides a visual focal point," says Merry Albright of Border Oak, the oak frame company that supplied the initial design for the home and project managed all but the later stages of the build. The structural components – a mix of sparingly used oak frame and structural insulated panels (SIPs) - also allowed the project to benefit from the visual appeal of exposed beams and the insulating properties of the panels, while keeping spend on both materials to a minimum. "SIPs and oak can be expensive materials but using them together creates significant efficiencies. Here, we were able to use less of each material — for example, the oak frame has been pared back to its structural members but as the beams



are all exposed the perception is of high quality," says Merry. The other key decision was configuring the ground floor as a fully open plan space. "The house is small [just under 130m²], so the clients chose not to have any internal walls downstairs, which also saves on door linings and skirting boards," she says. "At the same time, the internal oak posts help to zone the three different 'rooms' of the ground floor." As the kitchen is visible from every point downstairs, the couple chose to in-

#### **Taking The Package Route**

The couple spent £135,000 up to the second-fix stage of this oak frame (provided by Border Oak, <u>borderoak.com</u>) and render self-build. A further £30,000 was spent on extras including internal fitout, decorating, flooring, carpets, kitchen, bathrooms, landscaping and lighting

stall a quality deVol kitchen while saving on an ex-display cooker and dishwasher and oak flooring sourced at a keen £20/ m<sup>2</sup>. To keep costs down further, they took on the lion's share of the work - including the brickwork, exterior landscaping, painting and decorating - and stuck doggedly to their agreed materials and design. "You need to be confident and stick to what you have decided - don't think about limestone flooring or a whirlpool bath if you can't afford them," says Merry. The home has also been designed with energy efficiency in mind. "The client's brief stated that they wanted low running costs: there is no point in building a house on a tight budget if there are high running costs year in, year out," she adds.











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ne of the most important ingredients for a successful self-build on a limited budget is the ability to take on most, if not all, of the on-site work, as this project – which came in for an impressively low £140,000 – shows.

Initially, the owners of this timber-clad 250m² home in the Highlands of Scotland planned to renovate the original property — 200-year-old kennels for working dogs, with later conversions and additions in the 1930s and 1960s to make the building habitable. Plans were drawn up, permission granted and groundworks started, until the discovery of totally unsuitable 50mm foundations installed in the 1930s made demolition and rebuild the only viable option.

What followed was an heroic 10-year self-build project that saw David Barker, with help from his wife Val, take on 90 per cent of the build work, living in a caravan on site for six of those 10 years, and working on the project pretty much every day except for holidays. "I hired in excavators

A Decade-Long Self-build

The owners of this Highlands budget self-build took on most of the building work themselves, after earlier work to renovate and extend the original 200-year-old granite building was abandoned. The new build, now being run by the owners as a bed and breakfast, follows the renovation plans to retain elements of the original property's history and character

to help lay pipes for the ground-source heat pump and to prepare the foundations, roofers to fix the slates, an electrician for the second fix electrics, a heating engineer to complete the heating installation, and willing neighbours to help now and then. Otherwise I did all the building work myself, with help from my wife — I got pretty fit in the process," says David.

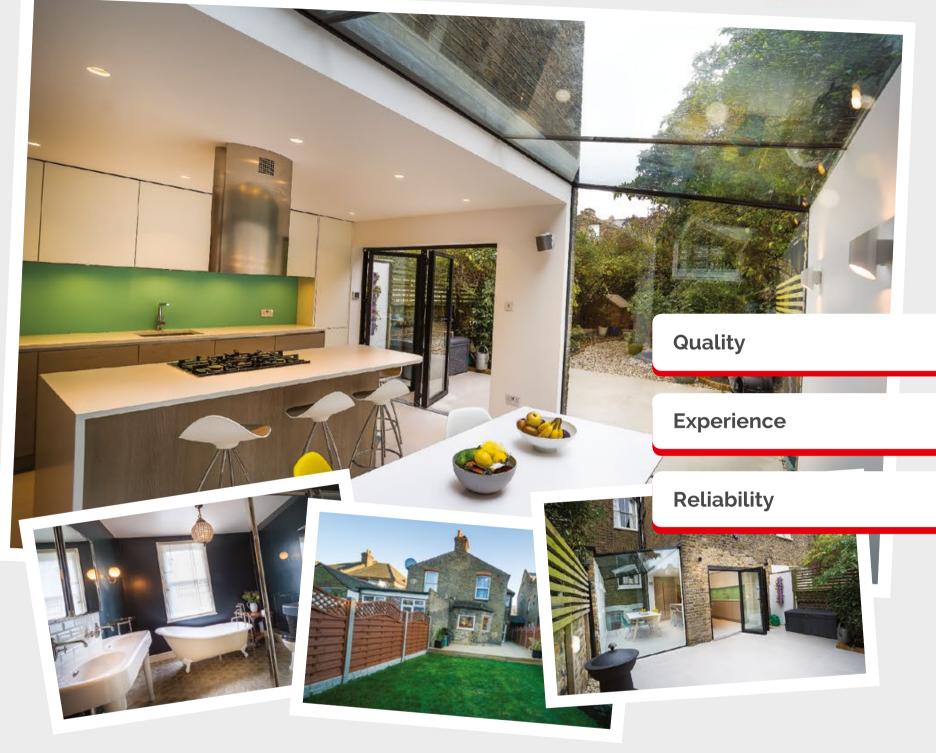
Buying carefully was another important part of the budget equation. "With a budget of only £140,000 we weren't going to be lavish," he says. "We bought the cheapest we could on certain things, but we didn't scrimp." For example, slate was used for the roof rather than less expen-

sive options, while economies of scale were achieved by finishing all five bathrooms with the same materials and shopping around for the best price for stone flooring, which the couple laid themselves in much of the property. Where they could, the couple rebuilt the original 600mm granite walls and pillars at the rear of the house, building elsewhere with Thermalite insulated blocks.

Externally, the property was originally destined to be clad in rough cast cement, the local vernacular for most new homes in the area, but the couple were unenthusiastic. "To start with, I didn't have the skills to do that job and I wanted to do what I could," says David. The Barkers also felt that Douglas fir and larch would be more suitable cladding materials for the home's woodland setting — luckily, the planners agreed.

The couple had originally planned to retire here but during the build decided to run the property as a bed and breakfast (<u>leacottage-bedbreakfast.co.uk</u>). "Many of our guests' first words are 'wow', which gives us great satisfaction," says David.





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let (cruckbarn.co.uk)

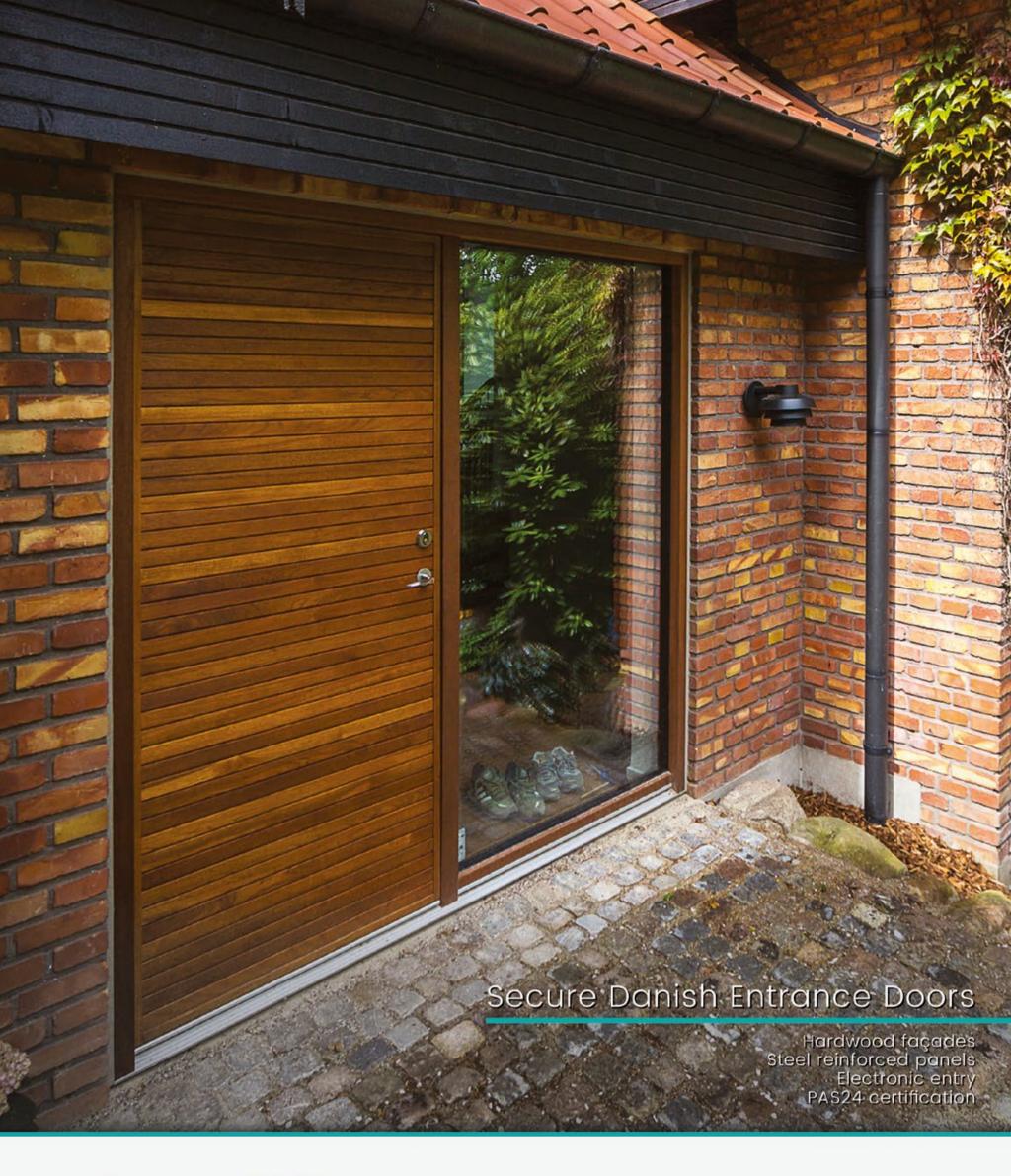
ven when working within a slim budget, it's worth creating at least one stand-out feature, whether that's through a particular choice of materials, a lovely view or a sense of delight in the space itself.

For the owners of this property, a simple cruck barn on the Herefordshire/Shropshire border, the drama comes from the vaulted oak structure and its wooded location. A more subtle sense of quality is generated by the artisan feel of many of the pieces of furniture and fittings, made by the property's co-owner John Wil-



liams, an architectural designer for Oakwrights and furnituremaker. It's an unusual set of skills that has saved him thousands of pounds over the life of the project, and while not everyone has this background, many of his tactics can be successfully employed by other self-builders.

For instance, John took a break at the end of the dry shell stage before installing services, allowing costs to be spread over years rather than months. Going directly to suppliers - including a local quarry for flagstones and a neighbouring woodland owner for oak logs rather than beams - kept costs down, as did storing 'waste' materials instead of sending them to landfill. Off-cuts of beams originally used as decking during works on the upper storey later became oak floorboards in the property. "Rather than going for obvious solutions that can sometimes be costly, thinking creatively can often save you money as well as producing a more original result," says John. "As well as using your own labour, look at ways to focus on space, light, views and materials."





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**ADVICE** 

## Steps to Building a Home for £1,000/m<sup>2</sup>

Minimising costs on a self-build project is all about micro-management, attention to detail and being disciplined with your time and resources, says architect Allan Corfield, who shares his golden rules for building a home for £1,000/m<sup>2</sup>



#### **ALLAN CORFIELD**

Allan Corfield is a chartered architect and director of AC Architects. He is also a member of NaCSBA (National Custom & Self Build Association), and experienced in designing self-build homes

uilding your own home is an intriguing challenge: it takes a lot of discipline, both in terms of your time and finances, to get it right. Many prospective self-builders want to know how they can keep costs right down, with some aiming to keep their build costs to around £1,000/m<sup>2</sup>. It's difficult and challenging, but it can be done.

There isn't a 'one-masterplan-fits-all' solution to achieving this - every single project produces its own individual problems that affect the bottom line. It's all about the micro-management of the subtleties; paying scrupulous attention to detail within each aspect of the self-build process is the only way you'll be able to keep costs down.

**MINIMISE GROUNDWORKS** If you can find a flat and serviced plot, this can be a great way to get your cost-cutting off to a flying start. It might seem obvious, but the less groundwork your build requires, the further your budget will go. Bear in mind you can buy plots at various stages of servicing and planning, and this can also limit your initial outlays.

For example, one of our former clients, Colin Amor, found a plot near Gleneagles in Perthshire (overleaf) with an existing footprint already in place; this had been left by a developer who had to stop work due to financial difficulties. This meant we already had a floorplan to work our designs into. Working to the constraints of a tight budget makes for a much simpler and more pragmatic design — sometimes the most impressive designs also come from working within such tight parameters.

HIRE A STRUCTURAL ENGINEER EARLY ON You'll be paying for the services of a structural engineer at some point, and as their fee is based on the overall build

cost, you might as well hire them at the earliest opportunity. Your engineer can iron out structural problems while in constant dialogue with your architect, ensuring your design is thoroughly thought out before building work commences. It is vital that your design is fixed before starting any build work — changes on paper are cheaper than changes on site.

#### **DON'T BUILD A BUNGALOW!**

Maximise cost efficiency by building a one-and-a-half storey or two-storey house — avoid building a bungalow if you can. A bungalow accrues the same foundation cost, the same roof cost, and typically the same cost for the ground floor walls. The only different aspect is the first floor walls. So why not build a house twice as large for slightly more?

#### **UTILISE RATIONAL GEOMETRY**

The design of your home is going to have a huge impact on your budget, so intelligent architecture will help keep you on track. Our clients' budgets inform how we create the designs — and we will be quite firm if it's obvious that their budget won't cover their ideas.

It's best to utilise rational geometry. Opting for a more traditional design, such as a square or rectangular building, featuring several internal walls in a 'racking' structure, is a wise idea. This can work out to be more cost-effective than a home built around an open plan design (where wide spans will require careful planning and more structural support).

#### BE SENSIBLE WITH GLAZING

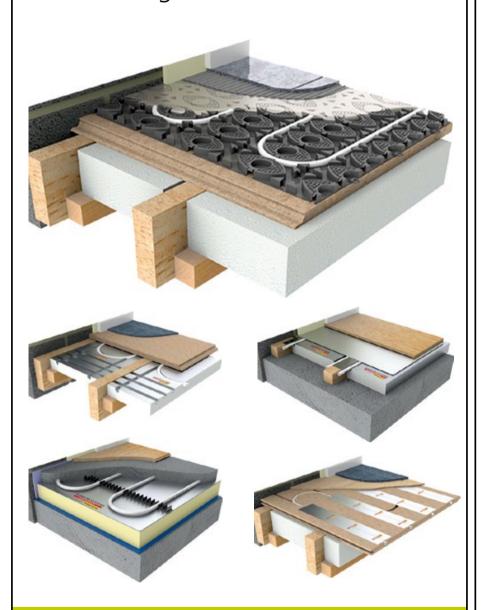
It's a good idea to find off-the-shelf, standard-sized products to incorporate into your design. For instance, it may work out cheaper to choose standard-sized windows as opposed to a bespoke piece of glazing. Consider sensibly sized fenestrations for windows and doors, and speak to your architect and engineer about what is most important to you. If there isn't a particular view you're trying to capture with that window, you

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don't need it. If you don't need the window, you don't need the extra beam — so you can spend the money on something else.

It's important to give careful thought to your construction method, and to examine costs closely. Choosing to go with structural insulated panels (SIPs) will initially cost a lot more than the likes of traditional blockwork, but the benefit of a prefabricated kit is that it keeps on-site labour costs down. A kit can be erected in a matter of days, whereas laying bricks can take a lot longer. The cost of labour per day will add up significantly in this instance, and this construction method is more susceptible to on-site conditions, such as wet weather. (See page 78 for more.)

CONSIDER THE LONG-TERM RUNNING COSTS

Always look to invest your budget in the fabric of the building. The fabric-first approach can have a knock-on effect regarding how much you spend on other aspects of your self-build. Opting for a highly energy-efficient and airtight build method, like SIPs or a closed-panel kit, can save you further on materials such as insulation, and potentially on the equipment required for your heating system. What's more, the more heat your home retains, the less you have to pay in heating it.

You don't have to go mad with 'eco-bling' either. Renewables are expensive, and you won't necessarily see enough payback from certain modes of renewable energy to justify their costs.

PROJECT MANAGE YOURSELF AND SET A THOROUGH PROGRAMME OF WORKS TO AVOID COSTLY DELAYS

If you want to keep your self-build costs down, project managing yourself is probably the best option. Take responsibility for your project, and be sure to subcontract out as much work as possible. This eliminates a main contractor's profit, meaning you can make your budget go a lot further. Our client Colin Amor also chose to do this, and lived on site to ensure everything ran on time and as smoothly as possible.

Key to project managing is setting out a thorough project time scale and programme with all of your chosen professionals sat around the table. Minimising delays and coordinating time on site can save you a lot of money, and keeping your team happy can have an effect on productivity. You want them to do a good job, so being a reliable client, or project manager, could motivate your team to work that little bit harder for you — avoiding costly mistakes.

You may even consider learning a trade in order to build elements of your new home yourself. You can help lay bricks, or learn basic joinery to take as much out of the labour outlays as possible.

BEWARE THE HIDDEN COSTS

Be savvy with the less obvious costs — the more time on site, the more you'll pay for site insurance, site facilities hire, and the likes of scaffolding, for example. Depending on the length of time you anticipate your build taking, look into buying a set of scaffolding for the duration of your project. You can sell the scaffolding on once the house is constructed, making some or all of your money back. If you hire scaffolding, you will spend a lot more on it over those weeks than it costs to buy it outright, and you won't get any of that money back! This tip can be applied to other things you might hire — diggers, for example.

The length of time your build is on site will also have an effect on your own living costs — you may be renting accommodation following the sale of your previous home, so the quicker you can get into your new one, the better.

SHOP AROUND FOR MATERIALS

Be sure to assess every avenue for sourcing your materials, and always get a range of quotes from different suppliers. Try auctions and online stores; you might even find some materials are cheaper to import too. Every penny you save can be redistributed to a 'wow' feature in your home, so it's important that you make the important decisions. Being organised, choosing and ordering all the fittings and finishings early on can eliminate costly on-site delays.

Keeping your costs down to around £1,000/m² is extremely challenging, but it can be done if you are focused and disciplined with your time and resources. **①** 



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## Northern Lights

Andrew and Kate Brown have transformed a dark and dingy house into a Scandi-inspired home for just £25,000

Words: Caroline Ednie Photography: Nigel Rigden









#### PROJECT NOTES

#### Project:

Cottage renovation

#### Location:

Aberdeenshire

#### Build time: Jan

2014 - Oct 2014

#### **Size:** 100m<sup>2</sup>

Plot cost:

#### £125,000

Build cost:

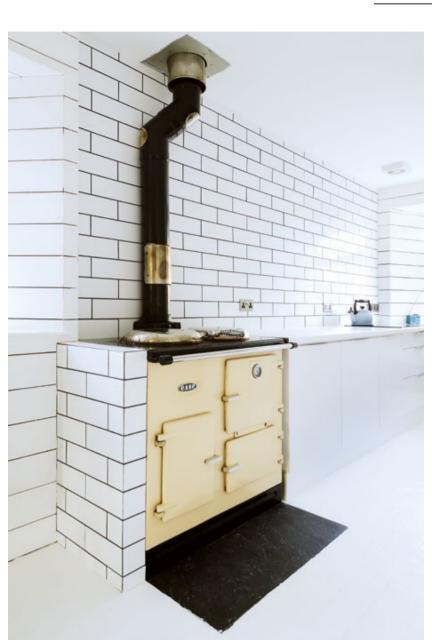
£25,000

**Value:** £200,000

#### **Exterior**

Although much of the exterior of the traditional stone cottage remains unchanged, the bathroom lean-to roof has been replaced and the southfacing stone gable wall (left) now features a large glazed opening which brings light flooding into the interior





#### THE QUICK READ

- ⇒→ Andrew and Kate Brown have transformed a dark and unloved stone cottage in rural Aberdeenshire into a light-filled home with a Scandinavian-style interior
- ⇒→ By searching out bargains and offers, and living in the property while work was carried out, the couple managed to bring the project in at just £25,000
- → A large glazed opening in the south-facing stone gable wall has transformed the interior spaces from dark and gloomy to bright and airy
- The roof required considerable repair due to woodworm.

  The bathroom roof had to be replaced, although elsewhere the couple worked hard to retain original features such as the doors and kitchen range



ortunately for Andrew and Kate Brown, the pain-to-gain ratio at the end of their 10-month renovation project was firmly in the gain camp. However, it was a different story at the three-month stage, when it was all about the 'pain' factor, as the couple dispensed with their builder while camping out in a small bedroom in their traditional stone cottage in rural Aberdeenshire.

"We were living in an upstairs bedroom where we had set up a little makeshift 'kitchenette' — a microwave and toastie maker, the lid of which was our 'dining table'. And we were there for three months — it was only supposed to be for a fortnight!" explains Kate, who along with Andrew is partner in Aberdeenshire-based architectural practice Brown + Brown.

#### **Pulling in the Light**

The couple's decision to renovate came about when they managed to purchase a traditional cottage, following a search that lasted the



#### **HOMES** COTTAGE RENOVATION







best part of three years. "We were looking for a cottage with the potential to be a light and modern space, which is practically the opposite of traditional north-east stone cottages," says Andrew. "It was a really dark house, one of the darkest houses I've ever been in," he continues. "The living room only had one window!"

Undeterred, the couple took on the property with plans to bring in more light, and reorganise the layout of the ground floor to create more open plan spaces — all within a modest £25,000 budget.

Bringing in light involved a fairly straightforward yet utterly transformative structural intervention. "We decided to create a large glazed opening in the south-facing stone gable," says Andrew. "We didn't require planning for the opening, but we did need a warrant [similar to Building Regulations approval in England and Wales]. The large sliding glazed door that's now there was from a client of ours who didn't want it, and gave it to us. This opening benefits so much from solar gain as light just floods in." In terms of reorganising the internal arrangement, this involved completely

gutting the house internally downstairs, retaining only the staircase. "The previous owners of this house were living 'the good life'. Lots of mod cons had been removed, including the back boiler system, shower and fitted kitchen. The kitchen was just a range, which we've kept, and a freestanding sink unit," he explains.

#### **Surprises in Store**

When the couple focused their attention upstairs, however, they were thrown something of a curved ball when they decided to take a closer look at the ceilings and roof.

"We took out the previous flat ceilings to open up to the sloping roof. And there we were sitting with a 3m-wide hole in the wall and no flooring and walls downstairs, when we discovered the roof structure was badly woodwormed and the 150 ceiling joists were sagging in the middle. We jacked these up and put new supports alongside them, before bolting these together, making them exceptionally strong," says Andrew.

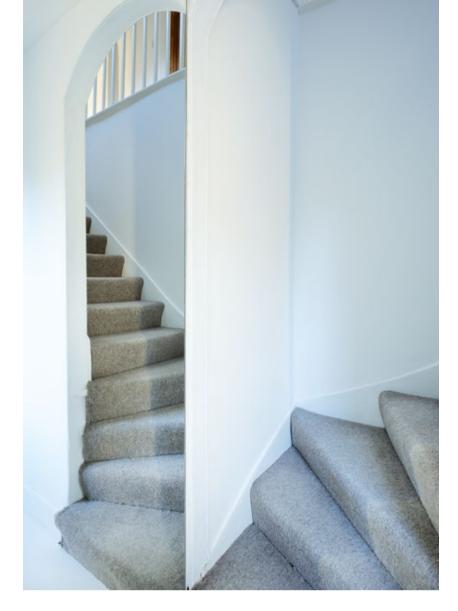




#### **HOMES** COTTAGE RENOVATION

Left and Below: Living Space
Kate and Andrew were delighted to find the house already had a Handol woodburning stove. The new glazed sliding doors were given to them by a client and draw light in throughout the ground floor





There were some decisions to be made when it came to upgrading the fabric of the building, too. "We didn't put in new insulation as we would have lost so much space. It's not a trade off we were willing to accept with the small size of the house. The solid stone walls are 600mm thick, and we've upgraded the oil heating and put in new radiators. The property is 150 years old and performs like a 30-year-old house," explains Andrew.

#### **Fresh Interiors**

Once the major structural works were completed, the couple had the opportunity to bring to fruition their ideas for the interiors. "We wanted to add a lot of white, to make the house light, but didn't want it to feel cold," explains Kate. "So we clad the internal walls with spruce boards, which we then painted white. Internal lining boards would usually be tongue and groove, but our boards have square edges, with a 5mm shadow gap between each board, achieved by very small black metal spacers located at the back of the boards, which mean that as the wood expands and contracts the spacing is maintained." The existing floors were also sanded and painted white using Ronseal Diamond Hard floor paint, which reflects back the light coming into the house.

The kitchen has been planned around the existing Esse range cooker, with a dwarf wall built alongside to integrate it into the room. The white kitchen cabinets were made by a cabinetmaker appointed by the original builder, to Andrew and Kate's design. "We blew our budget on the white wall tiles," says Andrew. "We looked at using subway brick tiles but when we had them in our hands they were quite bevelled and we didn't want that effect."

Against the white, light-filled backdrop the couple have added colour either through artworks or some nifty timber detailing. "We were keen to add bits of warm joinery elements made from birch-faced plywood in the office and bathroom. We're big fans of plywood, as it really warms spaces up," says Andrew.

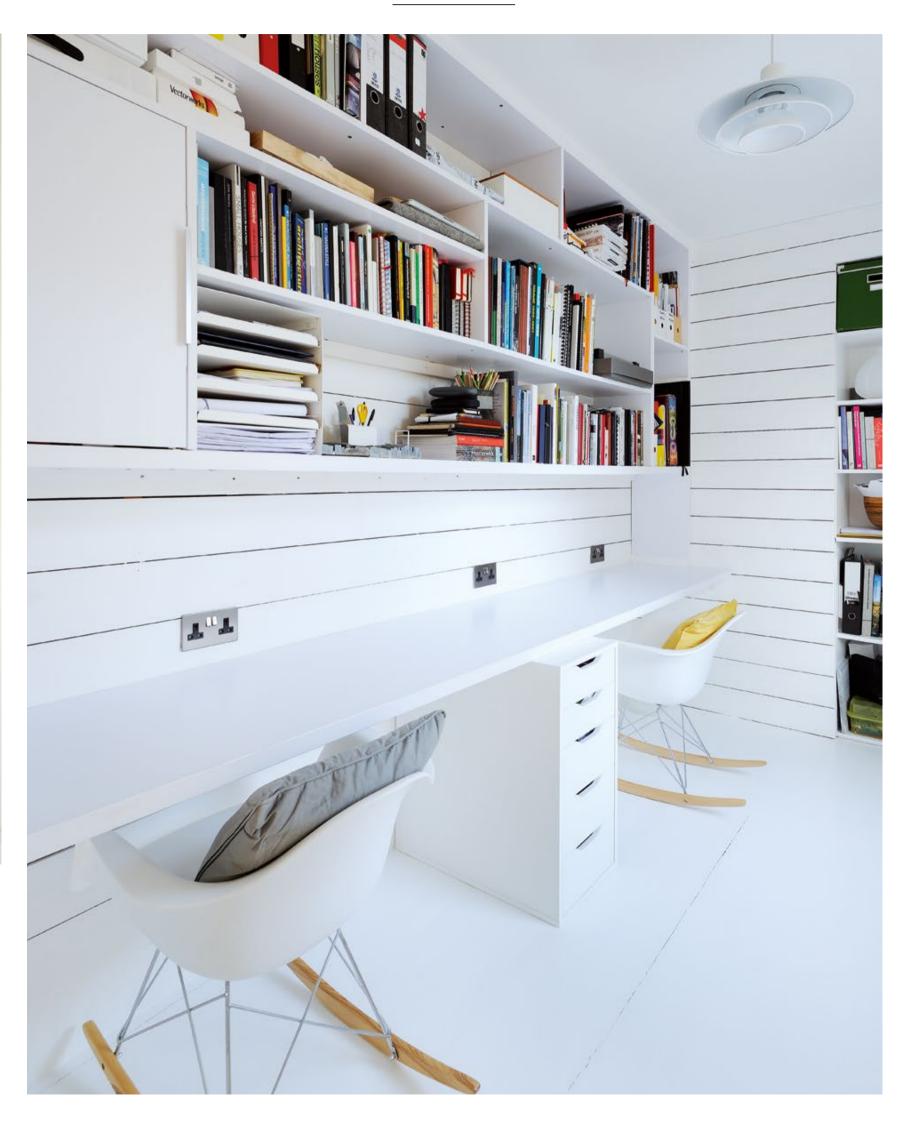
The timber details include bespoke shelving in the office made by the cabinetmaker. The door is a large 24mm-thick piece of birchfaced ply, with a simple hole cored for the handle. The plywood trim in the bathroom has been treated with waterproof polyurethane to



#### **Home Office**

The home office space (Andrew and Kate are both architects) features the painted spruce cladding seen elsewhere in the house. It is separated from the rest of the layout by an oversized door, custom made in 24mm-thick birch-faced ply

#### **HOMES** COTTAGE RENOVATION

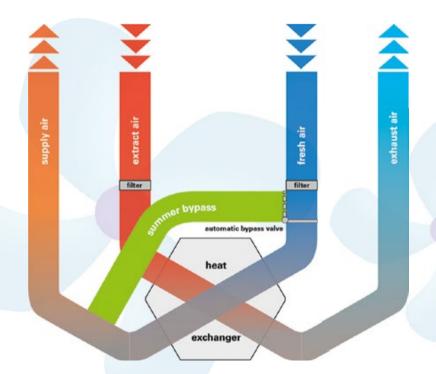


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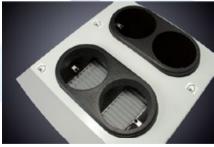
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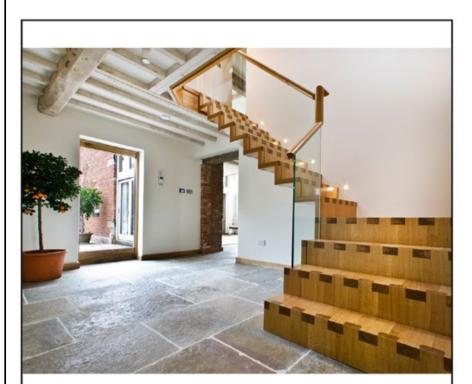


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#### Right and Below: Bathroom

The first floor bathroom has had its low Artex ceiling removed and now features timber panels, treated with waterproof polyurethane. Upstairs there are also two bedrooms (above) and a loft room

deal with moisture. "We originally weren't intending to use timber there but we were shocked at the price of wet wall," says Andrew. "We're actually not massive fans of bathroom tiles, as you've always got to keep the grout clean — that's why we have wet wall on the shower walls." The bathroom ceiling has also undergone a major rethink. "The original Artex ceiling was the same height as Andrew — it was quite dangerous!" explains Kate.

Upstairs – which comprises two bedrooms and a loft room – some replastering has been carried out, with the couple trying to retain and maintain the few original features, including the existing doors.

Astonishingly, Kate and Andrew managed to complete all this within their £25,000 budget. "We were able to afford this by using savings, calling in favours wherever possible, and buying items when we saw them on sale," says Andrew. "We bought all our kitchen appliances in an IKEA sale before the job started, and added big items like the bath as we spotted them going for a good price."

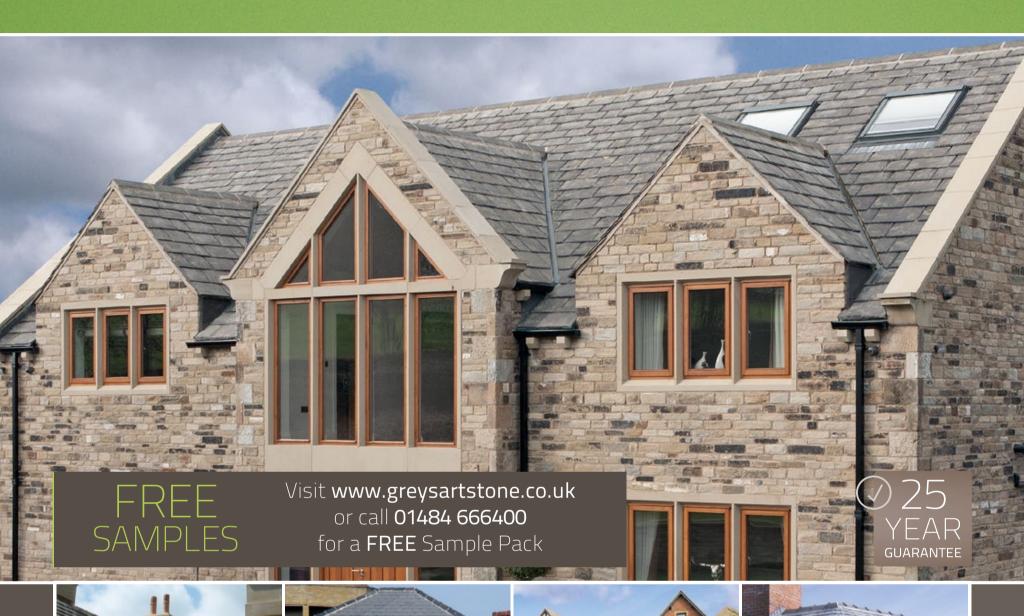
And of course the couple also made savings by staying on site during the build, squatting in a bedroom and moving their furniture from room to room during the renovation. "We couldn't have done it any other way," concludes Andrew. "On the whole, we think we've maximised the space and made the house as good as we could for our budget."



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**HOMES** COTTAGE RENOVATION

## The Project



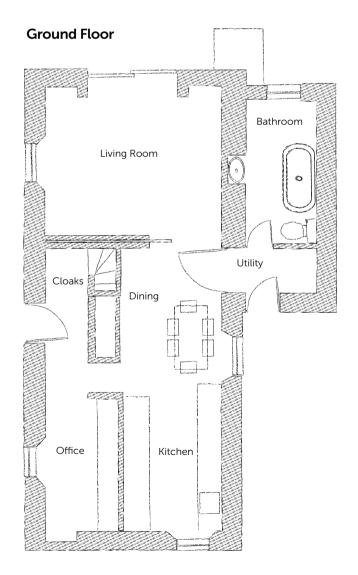
Andrew and Kate Brown Architects and homeowners

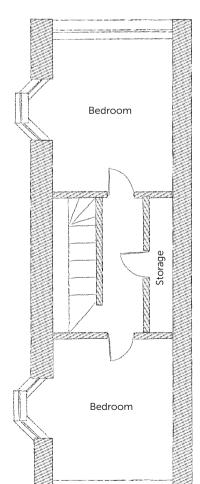
#### **HOMEOWNERS' VIEW**

If we have any advice for others, it would be not to live in the house while the works are carried out. If you're going to keep living in the house, try to go on a room by room basis! Also, make sure you properly research any contractor you appoint. We used a contractor we had worked with on numerous projects before, but even then we ended up parting company part-way through the build.

We think we have maximised the space and made the house as good as we could for our budget, but there are always things that work out better than others. The glazed opening in the south-facing gable wall has worked out even better than expected, and in the winter when the sun is low, the light comes all the way into the interior.







**First Floor** 

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Cabinetry (office)	£1,000		
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looming and big energy bills from their Victorian-era home, Mr and Mrs Young decided to pursue an ambi-

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Mrs Young decided to pursue an ambitious self-build project. To meet their demands for an ultra-efficient Passivhaus, H+H's Aircrete Blocks were the building material of choice on this project.

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With the close dimensional tolerance of aircrete, blockwork fits together snugly, which in turn creates the airtightness necessary for Passivhaus. In this case, the bungalow's construction took 28 weeks — with the inner shell erected in just three weeks.

The Young family were thrilled by aesthetics as well as efficiency of their new home. "We were primarily driven by the desire to reduce our own energy consumption," say Mr and Mrs Young. "We have downsized, but with the slopes and curves in every room we are comfortable and content."

For further information about how H+H can assist in creating your dream home visit <a href="https://hhcelcon.co.uk">hhcelcon.co.uk</a>, follow H+H on Twitter @celconblocks, or check out the H+H Facebook page and YouTube channel. **6** 



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## History, Revised

Rick and Jenny Knowles have carefully renovated, extended and remodelled a historic, run-down building into a light and open family home

Words: Matthew Henderson Photography: c/o CDMS Architects

hen Rick and Jenny Knowles first stepped into the hallway at Forge House – a run-down and disjointed property in the historic village of Storrington, West Sussex – they knew that they had reached the starting point of a new journey. "We were looking for a project, an eco-refit, and had spent about a year viewing various properties in the area," Rick explains. "We walked through the front door, looked around at this gloomy hallway, smelling of damp — and we just thought 'yes!"

Forge House is a two-storey property featuring a half-timbered façade, situated on a prominent corner in the Storrington Conservation Area. By researching the local history, Rick and Jenny found that the house had seen a lot over its history: as a 'cramming' college for future military officers, then as the college principal's house with classrooms and dorms, before finally being split up during the last century to become a doctor's surgery with first floor flat above and finally, ground floor rooms used for other community activities. "The house seemed heavily compromised, but by things that could

#### THE QUICK READ

- Parts of Rick and Jenny Knowles' house have been found to date back to the 1500s. In the past it has seen various uses, including as a college for military officers and a doctor's surgery
- Rick and Jenny's aim was to work with the historic fabric of the building while adapting it to suit modern life
- → A newly formed rear extension has provided a much-needed link to the garden and created a spacious kitchen diner too

#### **PROJECT NOTES**

#### Project:

Renovation and extension

#### Location:

West Sussex

**Build time**: Aug 2014 – Feb 2015

**Size:** 255m<sup>2</sup>

Plot cost:

£430,000

Build cost:

£300,000

Value: Unknown



#### HOMES RENOVATION AND EXTENSION



#### **HOMES** RENOVATION AND EXTENSION



be fixed," begins Rick. "It needed rescuing in a way — there was certainly an emotional response to the building initially, in that this potentially magnificent building had been neglected for such a long time, and it just needed to be treated better."

The large garden was a revelation, too. "We walked through this gloomy house, fighting our way along the dark inner rooms and past the brick pillars which formed the kitchen extension for the first floor flat above," recalls Jenny, "and then this wonderful garden revealed itself! It's as if the house had turned its back on the garden."

#### A Sustainable Approach

From that first visit, Jenny and Rick's initial vision was clear — to 'find' the original house, strip out all of the extra partitions and WCs added as a result of its previous uses, and restore it back to its original dimensions. "We wanted to discover the original bones of the building, and then turn it into a family house suited to modern living," says Jenny.

The couple were also strong advocates for taking a sustainable approach, looking at energy sources and energy retention in an ethical manner. The house was to be internally insulated throughout, but the choice of insulation would need to work with the existing lime mortar of the walls to help the building continue to breathe. At the same time, Jenny and Rick were keen to use what was already there, by recycling bricks and stonework and reinstating original walls.

"We had a list of 'eco' things we had heard of, and went through a shopping list of the things we liked in order to understand the financial costs and payback periods," says Rick. "Then we took a whole house approach to it. We appointed a sustainability consultant to help us understand our options."



**⋙**→





#### **Above: A Piece of History**

Timbers dating back to the 1580s were discovered when stripping back the house — they now frame glazed doors, which provide views through the ground floor

#### **Right: Living Room**

This project was all about combining existing features with modern living — so original doors, fireplaces and mouldings play a big role

#### **The Design Process**

The couple appointed CDMS Architects with a brief to reinstate Forge House as a family home, with any design interventions to be respectful to the existing building. Elements of the original structure were to be exposed and restored, so a sensitive and honest architectural approach was required.

"We were fairly settled in terms of the design brief from an early stage," says Jenny. "Certain rooms were easy to design as the existing layout made it clear which spaces could go where. The kitchen and rear areas were a challenge, though, as we wanted to bring light into the building while keeping the integrity of the structure."

A key concept from CDMS Architects was to provide clear circulation from the front entrance to the rear garden and up through the house. Within the entrance hall, an existing mezzanine level was removed to create a galleried double-height staircase. WC facilities to the rear of the property were stripped out and an extension formed, which would provide an open plan kitchen and dining space with views across the garden.

On the first floor, the kitchen of the previous apartment was enlarged and converted into a home office with views over the garden, an existing bedroom became a family bathroom with walkin shower, and the other bedrooms were refurbished. Externally, extensive repairs were carried out to the limestone-clad south eleva-



#### **HOMES** RENOVATION AND EXTENSION





tion, alongside an extension to the rear which was constructed in matching brick, and refurbishment of the part timber and render front façade. Internally, the building was to be lined with natural insulation, with all windows replaced with new timber frame double-glazed units.

#### **Creating a Budget**

The couple paid £430,000 for the property, and had an original construction budget of £240,000 to cover the work. "We knew we were pushing it from the word go, so we appointed a cost consultant to provide a cost estimate early in the design process," says Rick. "Our budget was stretched in the initial cost plans, so we worked with the architects to tailor the design." However, it soon became apparent that their budget needed to be extended further. "Hav-

ing gone through some value engineering, the architects said that ultimately we had a choice — we could have the kitchen extension or insulate the interior of the building, but not both. We realised that we needed to find a way of satisfying our wish for modern living with our sustainability aspirations."

Jenny and Rick moved out when the construction works began, but for them, the process started in the months before, as they undertook some of the early work themselves, stripping walls and investigating the condition of the timber floors.

Construction got underway in August 2014, with a planned completion in February, seven months later. After overcoming some initial hurdles when water was discovered to be running freely into the rear extension, the team worked together to decide on the best solution for tanking the property. During the course





#### Left: Bathroom

This house is a lesson in how to combine old and new elements — here, sleek modern sanitaryware sits alongside an original fireplace and a column radiator

#### Above: Bedroom

Throughout the building there are hints of its previous uses and the changes it has undergone, while cleverly placed windows now bring in much-needed light

of demolition, the original building also began to gradually reveal itself, to the delight of all involved. "We discovered timbers that have now been unofficially dated back to the 1580s," says Rick. "We had absolutely no idea that the house was as old as that." These timbers are now used as a surround for new glazed doors on the ground floor, providing a visual axis through the property and out to the rear garden and ensuring that plenty of character remains.

#### **Original Footprint Revealed**

"We also discovered that some internal walls were as thick as external walls, revealing them as the original footprint of the house, and demonstrating to us all how it had been developed over the centuries," adds Rick. Jenny and Rick were keen that the materials should not "shout too loudly" but work in harmony with the existing build-

ing. With a background in design and an interest in sustainability, Jenny became involved in this research from an early stage.

For instance, Pavadry, an internal wall insulation system comprising a composite woodfibre and hardboard insulation to which plasterboard is fixed, has been used to insulate the house. It improves the insulation of solid masonry buildings while controlling the passage of moisture in lime mortar, preventing condensation.

"We got wowed by some of the modern ideas we could have had and they could have been very interesting avenues to go down," says Jenny.

"However, we felt that the extent of the work had to be proportionate to the house to retain its original character, while at the same time giving us the lifestyle and environment we were looking for. For us, above all, this is a happy home!" •











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#### **HOMES** RENOVATION AND EXTENSION

## The Project



Rick and Jenny Knowles Homeowners

#### **HOMEOWNERS' VIEW**

We were very fortunate to work as a team with the contractor and architects, and whenever there was a problem, we all pitched in to discuss the pros and cons of potential solutions before choosing the right one for the house and us. It was amazing to see the work in progress — we were staggered at how much was being done each day and renting locally meant we could make regular visits to the site. Our architects came up with some great ideas to bring in double-height spaces and allow light in at front and back.



**Corin Morton**CDMS Architects

#### **ARCHITECT'S VIEW**

The completed house has a calm air about it, and a series of rooms which feel both welcoming and well proportioned. Dotted around are discoveries of its past which have been celebrated by the clients — exposed timbers and original decorative tiling sit side by side with modern fittings, as well as clear evidence of a construction process which has been undertaken with care and affection for the building.

#### First Floor



#### **Ground Floor**



#### **SUPPLIERS**

<b>Architect</b> CDMS Architects		
01273 220407; cdmsarchitects.com		
Structural engineer Mitchinson Macken		
01273 609742		
Main contractor Minton Young		
01273 915588		
Sustainability consultant		
Delta Green01273 468756		
Cost consultant Robinson Low Francis		
01273 325781		
Internal insulation Natural Building		
Technologies01844 338338		
Glass sub-base Ty-Mawr01874 611350		
<b>Electrics</b> GB Electrical Services		
01273 557375		
Kitchen Harvey Jones		
harveyjones.com		
Timber windows and bifold doors		
KP Joinery01903 745929		

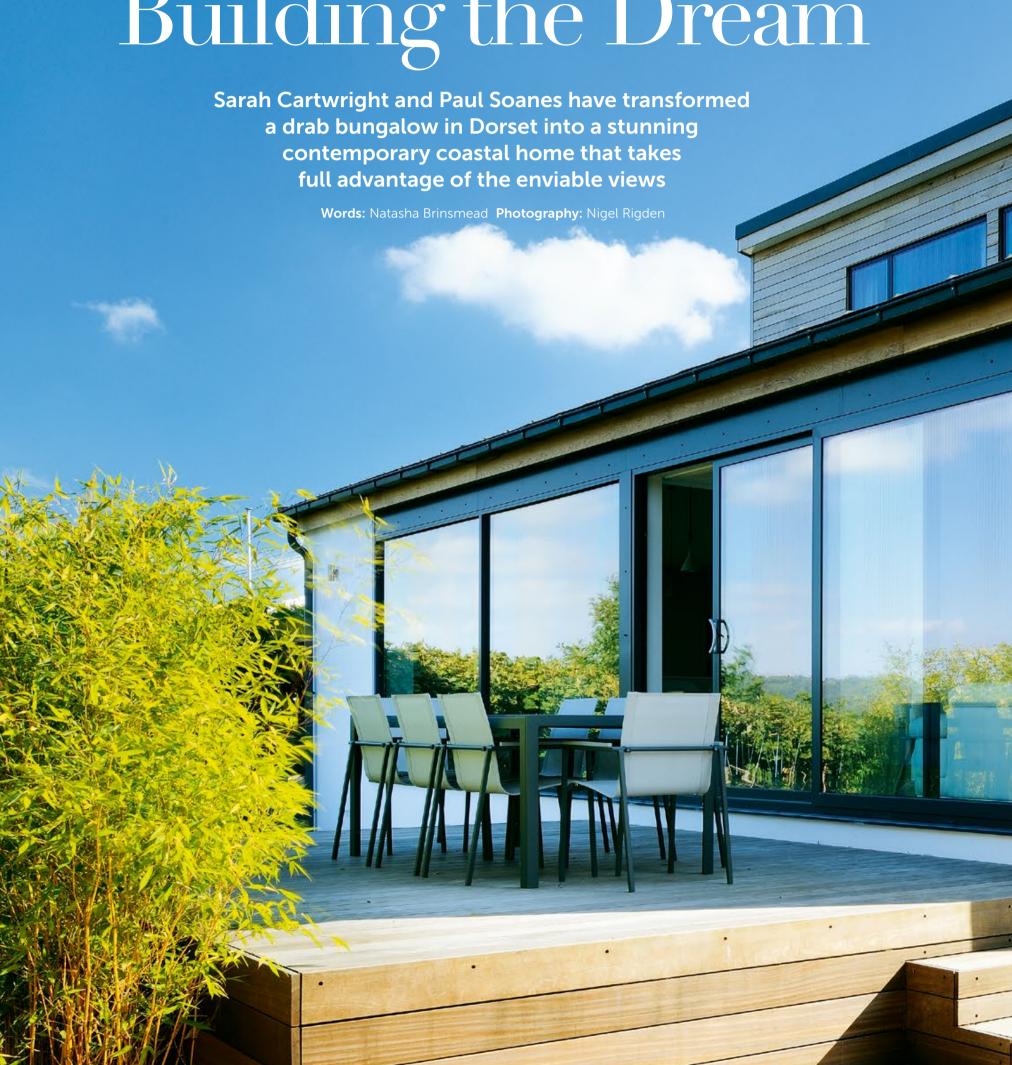
#### **COSTS**

**Total** 

Demolition	£6,500
Steelwork	£12,500
Foundations	£9,000
Roof and rooflight	£7,500
Stone floor	£12,500
Doors/windows	£25,000
Electrics	£19,500
Plumbing	£18,000
Internal carpentry	£25,000
Internal insulation/	£45,000
decoration	
Internal walls	£7,000
External walls	£15,000
External works/	£35,000
decoration	
Kitchen installation	£2,500
Bathrooms	£15,000
Contractor overheads	£31,000
Miscellaneous extras	£14,500
	-

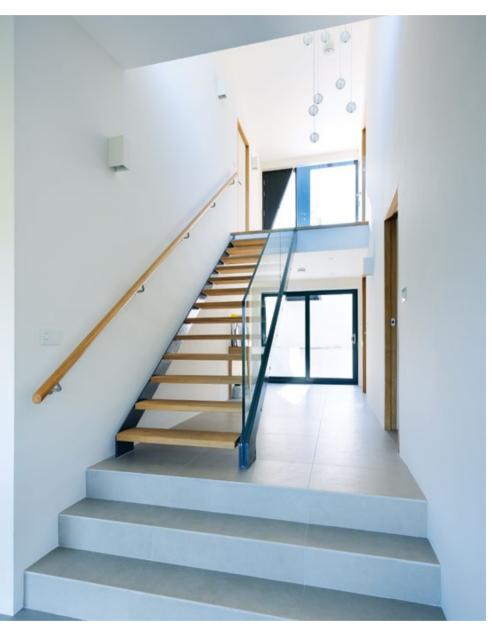
£300,500

## Building the Dream





Below: Hallway
The house is entered on the first floor via
a 'bridge'. The staircase then leads down
to the hallway and main living spaces



hile Sarah Cartwright and Paul Soanes didn't set out to own the stunning holiday home they have renovated, extended and remodelled in Lyme Regis, Dorset, they are over the moon with the end result. "Paul is from the area and we had been going on holiday there for many years," explains Sarah. "We were just looking for a holiday cottage to rent, when I came across this bungalow for sale. I had recently read an article about being able to claim some VAT back on furnished holiday lettings, and it just seemed to make sense to buy somewhere — luckily Paul agreed."

#### **An Evolving Project**

"We were only planning on just doing the bungalow up a bit," says Sarah. "But having built our house in Surrey and seeing the potential of this site, we ended up changing the whole house."



#### **HOMES** BUNGALOW EXTENSION AND REMODEL





Sarah and Paul began searching for local architects and came across Annie Martin. "We were looking on Annie's website and recognised lots of her previous projects from magazines and just loved her style. We did worry that this project might not have been big enough for her, but she was fantastic and came up with a design that exactly fitted our ideas."

#### **A Contemporary Design**

Planning was passed easily for the design, which involved building up into the roof space to create a second storey. In addition, an extension spanning the entire width of the bungalow and projecting 3m out at both ground and first floor level was designed, although the kitchen floor had to be lowered by 500mm to avoid any overlooking issues with the neighbouring properties.

Sarah and Paul knew from the outset that they wanted the finished project to be contemporary in its design. "Our home in Surrey is

contemporary and we both favour modern kitchen and bathroom design," she explains. "Although we had a good idea of what we wanted from the new house, we were very keen that it looked like an 'Annie Martin house' so we were happy to go with her ideas."

Having had experience of self-building before, Sarah felt confident that she could project manage the extension and remodel of the bungalow herself, with Annie recommending local trades who she had worked with before. "I visited the site every two to three months, and Annie and our builder were great at keeping us up to date with the progress," says Sarah. She also sourced the internet for the best prices where possible. "I don't know how anyone ever built a house before the internet. I sourced most of our materials this way and was able to claim back the VAT doing it myself."

A particular online win was the kitchen: Sarah purchased the sleek ex-demonstration Poggenpohl kitchen for half its original price, as well as all the Miele appliances.

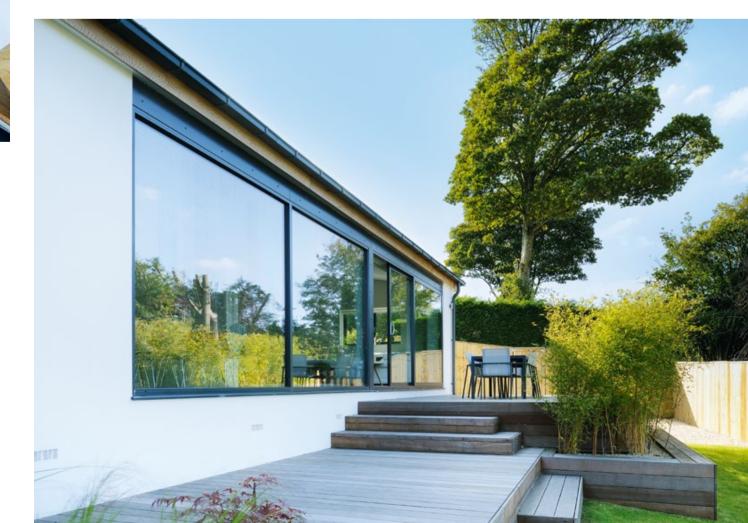




Above and Top Right: Open Plan Spaces Although the living room is open plan to the kitchen and dining space, a huge pocket door can be closed to separate the spaces when required

#### **Right: Decked Patio**

The wall of glazed sliding doors leading out from the living room and kitchen can be used to access the rear garden



#### **Extending the Bungalow**

The extension was designed to sit at the front of the house to avoid any overlooking issues, which meant that the heavily sloping front garden had to be extensively excavated.

A clever bridge made from timber, glass and steel now leads from the driveway straight into the entrance hall on the first floor, overcoming the challenge of the sloping site and affording stunning views right through the house and out the other side, thanks to a large square picture window set above the staircase that leads down to the main living areas on the ground floor. Beneath the glazed bridge is a sunken patio that can be accessed from the ground floor bedrooms.

"Making the most of the views was really important to us," says Sarah. "The bungalow was very ill-considered. The only room that had any views was the kitchen and they had used frosted glass in the windows!" In order to draw light in and give views out, the entire rear wall of the bungalow was knocked down and replaced with glass sliding doors that lead out to a raised deck and the garden beyond.



#### **The Sloping Site**

On entering through the front door from the bridge (right), you are met with views out over the Dorset countryside beyond. The formerly sloping front garden (above) was heavily excavated to accommodate the extension













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**Exterior Spaces** 

It was important for Sarah and Paul to maximise the outdoor spaces, given the enviable location of the house — at the front, a patio lowered into the ground makes for a private seating space, while the rear garden has been designed to make the most of the views

Internally, the living spaces on the ground floor have been kept largely open plan, with the kitchen diner and living room flowing on from one another. "We have a huge timber pocket door between the kitchen diner and the living room," explains Sarah. It has been painted the same colour as the walls, so when it is closed it just looks like a wall."

Sarah and Paul chose to introduce underfloor heating throughout and say that the house is so well insulated that they hardly need to have the heating on. The house also benefits from a mechanical heat recovery system which keeps the house feeling fresh and well ventilated and does away with the need for trickle vents, which Sarah was not keen on. On the new first floor, the two bedrooms both have en suites, while on the ground floor are a further two bedrooms, one with en suite, plus another separate shower room. Externally, the local Purbeck stone used for the low walls ties the

new design in with the surrounding areas, while the crisp white render, cedar cladding and zinc roofing ensure the house has a decidedly contemporary appearance. The project took just 18 months to complete, despite a couple of frustrating delays along the way, involving switching from a septic tank to going on-mains.

At just 15 minutes' walk to the sea and with such high-spec interiors, were the couple worried about letting their new home out?

"We began renting it out last summer," says Sarah. "Now we are almost fully booked for this coming summer and I am really enjoying running the business. As we had only really set out to do a loft conversion, we obviously went over budget. But once we had such a fabulous architect and location we didn't want to waste the opportunity."

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**HOMES** BUNGALOW EXTENSION AND REMODEL

## The Project

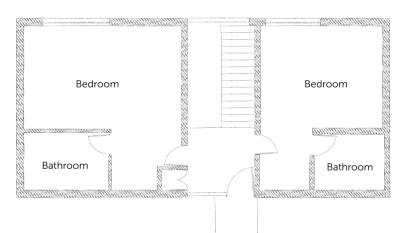
**Annie Martin** Architect

#### **ARCHITECT'S VIEW**

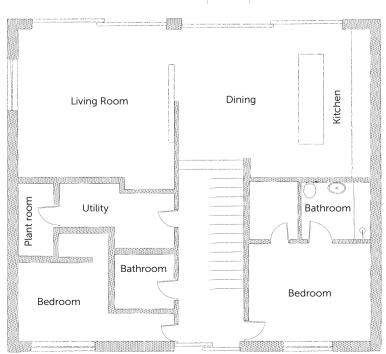
The existing dwelling, a small, rendered two bedroom bungalow built in 1998 and set within a Conservation Area, was not of architectural merit. Accessed via an awkward narrow stepped path, it was 3m lower than the road and parking area and 1.7m above the rear garden.

A two-storey extension to the north with a low monopitched grey zinc roof allows access from the parking area to the first floor and gives additional accommodation without significantly raising the existing ridge line. Large openings were introduced into the existing fabric to the north to take advantage of distant views. To reduce overlooking and provide a better connection to the lower rear garden, the existing floor level has been reduced by 0.5m. The proposed alterations and extensions are a response to the site: the most public façades are kept simple, while beyond this the building opens up and is orientated towards the site and views, while respecting the neighbouring properties.

#### First Floor



#### **Ground Floor**

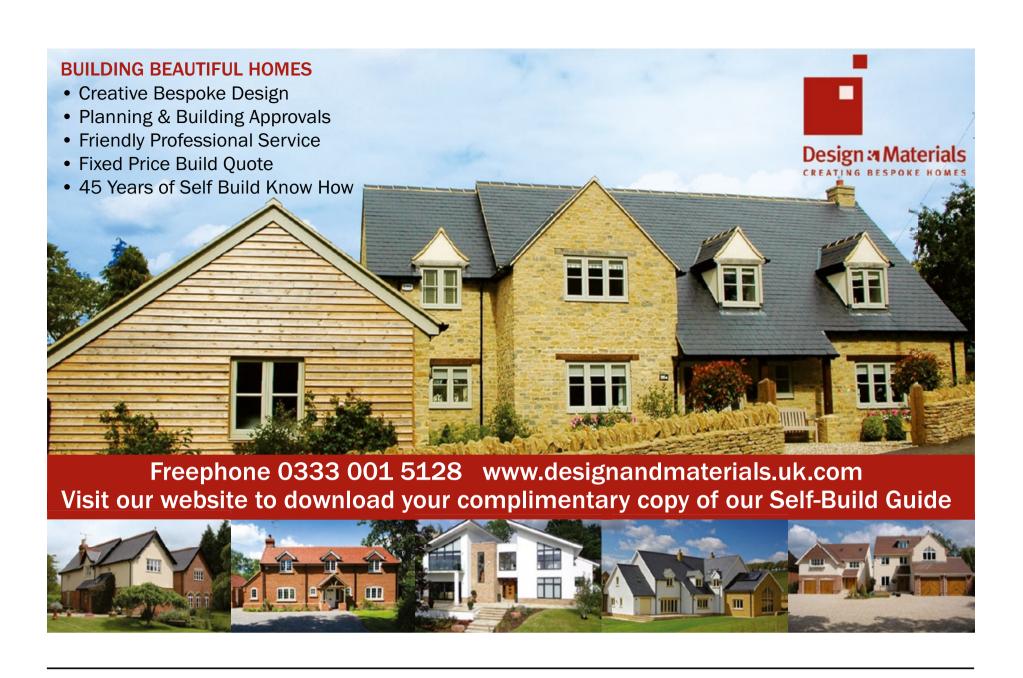


#### **SUPPLIERS**

**Architect** Annie Martin ......01647 272839; anniemartin.co.uk Structural engineer Brody Forbes .....brodyforbes.com **Building contractor** Paul Rainsborough .....07793 728469 **Carpenter** Jim Beard......07900 980139 Timber frame and cladding All Timber Frames Ltd.....alltimberframes.co.uk Windows, shower screens and stair glass SW Glass.....swggltd.co.uk **Kitchen** Poggenpohl ....poggenpohl.com **Lighting** Amos Lighting .....amoslighting.co.uk Zinc roof Andy Sterrick ..... .....zincandy@live.co.uk **Sanitaryware** Burgbad ....burgbad.de/en/ Duravit......duravit.co.uk Hansgrohe.....hansgohe.com Shower trays Kaldewei ..... .....kaldewei.co.uk Tiles Porcelain Tiles. ..... .....porcelain-tiles.co.uk Porcelanosa.....porcelanosa.com **Bridge and stairs** Morrisons Fabrications. ..... morrisonsfabricationsltd.co.uk **Landscaping** Little Fones Landscapes .....littlefones.co.uk Interiors JAM Interiors Group..... .....jaminteriorsgroup.com Air handling Nuaire .....nuaire.co.uk

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Prelims and professional fees	£25,000
Groundworks and demolition	£26,000
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## The Power House



#### **Exterior**

The existing two-storey detached house was built in 1948 with a tiled pyramid roof, which has been stripped, strengthened and re-covered using clay tiles before photovoltaic (PV) panels could be fitted. Triple glazing has been installed and a new single-storey timber extension constructed with trays of planted sedum on the flat roof





#### THE QUICK READ

- >>> Nigel and Chris Humphrey bought a tired detached brick house, built in 1948, and planned to drastically eliminate energy costs and reduce carbon emissions
- >>> The couple installed cavity wall, floor and loft insulation, an air-source heat pump with floor and wall heating emitters, solar PV (photovoltaic) panels, triple glazing, a woodburning stove, LED lighting and energy-efficient appliances
- **■→** Energy bills have been reduced by more than 80 per cent; the house has received an International Green Apple Award as well as 'SuperHomes' status (awarded to existing homes which emit at least 60 per cent less carbon dioxide than previously)

hen Nigel and Chris Humphrey decided to move to Wales they wanted to find a seaside home near good schools for their two children, Adam and Ellie. The couple chose Penarth on the south coast, and found a run-down 1940s house which they bought as a renovation project, renting a bungalow to live in

while the work was carried out. Built as one of a pair of symmetrical detached houses, the compact square brick property was in desperate need of attention. The gas boiler was old and inefficient, windows were leaking and there was

no insulation in the loft space or cavity walls.

"Heating the place must have cost a fortune and produced huge clouds of CO<sub>2</sub>," explains Nigel, an architect by professional, who also designed this scheme. "What it did have going for it was the orientation toward the south. It was also structurally sound and thermally massive, with pre-cast concrete slabs forming the first floor."

The challenge was to bring the three bedroom house into the 21st century by increasing living space while reducing energy costs. "I'd recently completed an MSc on energy efficiency in building, but although I had lots of ideas our budget was fairly limited £50,000 for upgrading the main house, and £70,000 for building a new extension," continues Nigel, who enjoyed tackling much of

#### **HOMES** ECO EXTENSION AND RENOVATION

#### **Living Room**

Existing parquet flooring was uncovered and restored in the sitting room, where a red woodburning stove from Chesney's has been installed. Dark blue low vinyl paint on the walls delineates where heating pipework is buried

the work on a DIY basis with help from his son, including demolition, landscaping the garden, internal joinery, and fitting out the kitchen and bathroom.

#### **Extending the Existing House**

Planning permission was granted to demolish a detached garage and use the resulting space to build a carefully designed and highly insulated extension containing an office, utility, wetroom and a garden room, as well as enlarging the kitchen. The shell of the extension was constructed by a local builder with timber walls, clad externally in Welsh larch, and rooflights inset into the flat roof which Nigel then finished with pre-planted trays of sedum.

Installing underfloor heating in the new extension was simple, but original terrazzo floors were uncovered in the entrance hall and kitchen, with oak parquet in the sitting and dining rooms, which





#### **HOMES** ECO $\underline{\mathsf{EXTENSION}}$ RENOVATION







prevented underfloor heating being laid in the older part of the house and required an alternative heating system.

"We didn't want to reduce the ceiling heights, raise all the door lintels and re-do the skirting by laying screed over the top, so the answer has been to install the heating pipework vertically in the walls," says Nigel. "Existing plaster was all stripped off, the pipes fitted and then plastered over with two layers of a lime mix."

#### **An Eco Retrofit**

An air-source heat pump in the garden extracts heat from outside air, which is used to warm water pumped through the pipework buried in walls and floors, qualifying the property for Renewable Heat Incentive payments of £1,000 per year for seven years.

Draughts were a big problem in the old house, so leaks were sealed and new insulation fitted. Old aluminium double glazing has been replaced with triple-glazed windows, which are a pine/aluminium composite finished externally in grey to match the milled aluminium rainwater system.

Once warm, the thermal mass of the house acts as a heat store, and each room's temperature is individually monitored using radio-



#### **HOMES** ECO EXTENSION AND RENOVATION

#### Kitchen

Nigel's father-in-law was a village shopkeeper in Cresswell Quay in Pembrokeshire and his mahogany shop counter, complete with a brass measuring stick, has followed the family from house to house and is now a feature of the freestanding kitchen. New rooflights were installed above the reclaimed sink in what had previously been an external passageway between the house and garage







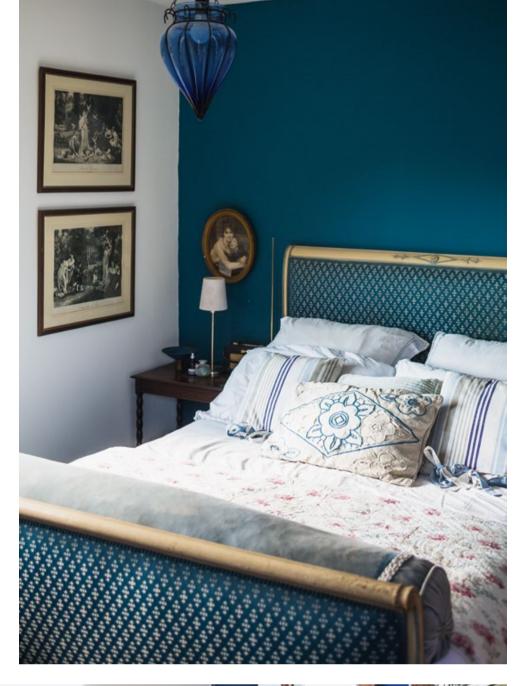
#### **Above: The Roof Terrace**

A roof terrace above the dining room, which features a recycled rubber floor, can be accessed from two of the first floor bedrooms

#### Far Right: Bathroom

Slate reclaimed from old snooker tables was cut and polished by a local stone yard; it makes a stylish sink support in the newly refitted bathroom, which has an original 1940s terrazzo floor





controlled thermostats, set to keep the living spaces at a uniform 19°C. The existing conservatory acts as a buffer space to the sitting room, reducing heat loss through the adjoining wall and at times contributing heat.

Solar panels have been installed on two of the roof slopes, catching rays from the sun and ensuring that the couple receive £250 per year from the Feed-in Tariff payments. The house is now a power station in its own right, and overall an 81 per cent carbon saving has also been made.

"All the changes were thermally modelled in a software programme called Ecotect which made it possible to look closely at several options for improvements and the cost-effectiveness of each," explains Nigel.

In addition, the property needed to be rewired, replumbed and decorated throughout, with a new kitchen, bathroom and utility room installed. After 10 months the family moved in and are delighted with the new home and drastically reduced bills.

"Costs for all space and water heating, lighting, appliances and cooking are about £500 for the year, and because the energy used is from renewable sources, the CO<sub>2</sub> production is zero," says Nigel. "With the Feed-in Tariff and Renewable Heat Incentive [which lasts for a period of seven years] payments, we won't be paying much toward our energy costs for another 20 years."







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**HOMES** ECO EXTENSION AND RENOVATION

## The Project



**Nigel Humphrey** Homeowner and architect

#### **ARCHITECT'S VIEW**

Achieving an almost zero-carbon house was challenging. I often use thermal modelling to create energy-efficient buildings and I'm familiar with concepts such as Passivhaus, but this can be a costly option when renovating an older house.

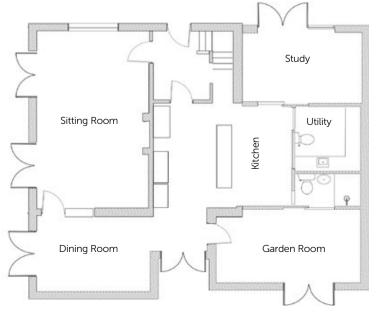
Instead, my strategy was to reduce energy losses as much as I could afford, maximise free energy gains from the windows and solar panels, use a very efficient heat source and distribution system — with an air-source heat pump and vertical wall panels — and importantly, use only 100 per cent renewable energy from an external supplier. For this to work, good-quality, energy-efficient building products were essential.

I was both the architect and project manager, and Chris was working full-time and took on the client's role, so effectively I reported back to her during the project. Completing so much of the practical work myself on this and previous homes means that I fully understand the problems faced by trades on site, and can design homes which are both energy efficient and practical to build.

#### First Floor



#### **Ground Floor**



#### **SUPPLIERS**

<b>Design</b> Nigel Humphrey MAS Architectural
Design mas.eu.com
<b>Engineers</b> Nick Burgess, Rexon Day
Contractor Atlantic Dwellings
atlanticdwellings.com
Subcontractor LBM Carpentry and Building
Windows and external doors Velfac
velfac.co.uk
Slate worktops and sink Cardiff
Reclamation 029 2045 8995
Heating, PV, controls, supply and
installation Radiant Heating Solutions
heating-solutions.biz
Air-source heat pump Dimplex
dimplex.co.uk
Sedum modules Green Rooftops
greenrooftops.co.uk
Woodburning stove Chesney's
chesneys.com
Floor sanding Acorn, Cardiff
acornfloorsanding.com
Railings Ornamental Fabrication
Insulation installer AE Insulation Ltd
029 2036 2442
<b>Lighting</b> EMA Lighting
Insurance IMI General Insurance Services
01225 702400

#### **SELECTED COSTS**

Demolition	£580
Substructure	£4,810
Below ground services	£2,700
Masonry	£17,329
Carpentry	£31,440
Roofing	£5,500
Electrics	£20,127
Plastering and rendering	£500
Above ground drainage	£250
Plumbing and heating	£750
Joinery	£18,469
Decoration	£1,600
External works	£250

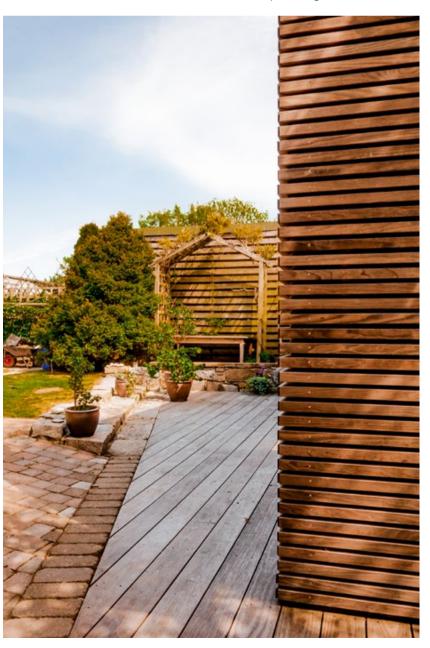


#### QUICK GLIMPSE

### PLEASING SYMMETRY

#### **Complete Contrast**

Despite the very traditional architectural style of the main Edwardian house, the timber-clad extension, with its bifold glazed section, fits in perfectly and adds a pleasing new dimension





Rather than trying to match the distinctive style of this Edwardian house in north Aberdeenshire, the owners have wisely chosen to add a contemporary extension that contrasts with the original materials and design.

The single-storey extension has been clad using Kebony Scots Pine cladding (kebony.com). "Buildings are exposed to extreme weather here in Scotland," says Mark Williams of HRI Architects (hri-architects.com), who designed the extension. "We discovered a number of years ago that you can successfully use timber cladding in Scotland but only if it is carefully considered — we use Kebony in many projects because it is 'pickled' with a natural alcohol that gives it the robustness required."

The process involves treating the timber with a natural alcohol under conditions of heat and pressure to ensure structural stability; over time, the material will acquire a grey patina.



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#### **Scandi-Style Interiors**

The new extension has brought light flooding into the main body of the house, thanks to its large areas of glazing. Natural timber and plenty of white ensure the look is fresh yet homely







Internally, the new extension has added a large open plan kitchen diner which can be opened up to the patio through a bank of sliding doors.

A large beam that runs across the new opening between the existing living space and the new kitchen echoes the external cladding, as do sections of the new island unit - resulting in a pleasing, unified look.

The new interiors are undoubtedly minimalist, yet have undertones of Scandinavian style and achieve a sense of warmth. Entire walls of neat built-in shelving keep the new space uncluttered yet allow for displays of personal objects, while the use of timber alongside plenty of crisp white and an abundance of natural light ensure the whole look oozes character — something that is often hard to achieve alongside contemporary design.

From the garden, a glimpse of the original section of the house can be seen, giving a clear sense of how beautifully the two architectural styles are working together.



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## A MODERN EDGE





#### **Right: Front Elevation**

The brief for the house was that it should echo the existing design of the neighbouring houses, yet have a contemporary twist. As a corner plot, the positioning of the windows to maximise light was crucial







Craig Marston, director of Ke-design (<u>ke-design.co.uk</u>), explains the thinking and techniques behind the design of this new build in Shropshire, which sits within a 1950s ex-council estate

#### PROJECT NOTES

Project: New build

**Location:** Shropshire

Build time:

Eight months

**Size:** 103m<sup>2</sup>

Plot cost:

£30,000

Build cost:

£100,000

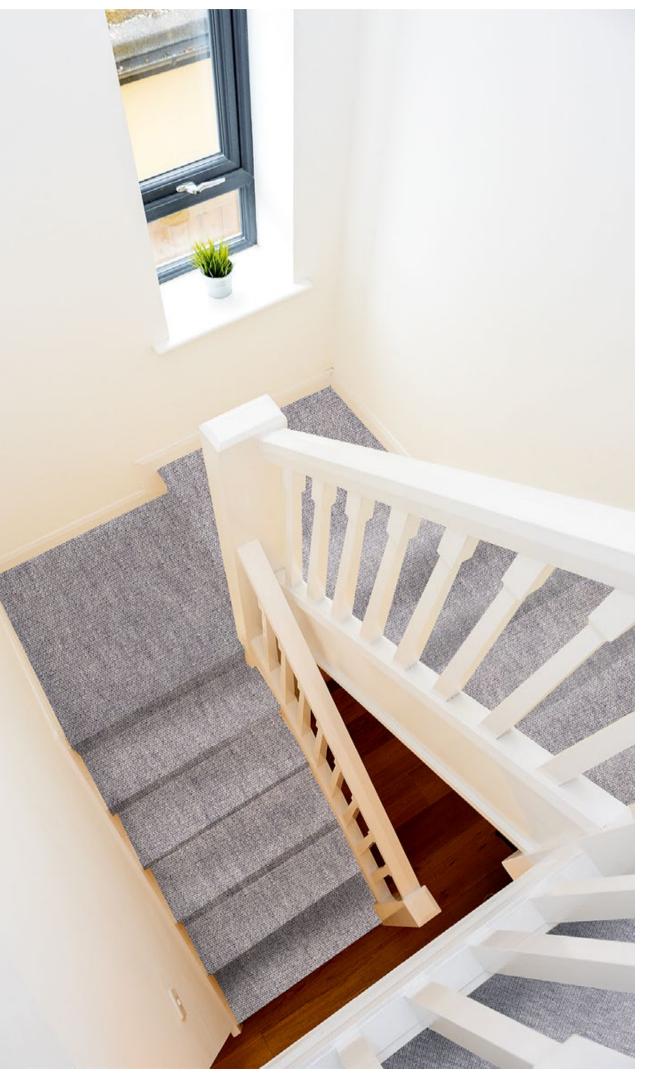
**Value:** £186,500

#### HB&R: What was on the site prior to the new build?

Craig Marston: The site was a windfall site. The tight 260m<sup>2</sup> corner plot is the former side garden of the neighbouring house on a 1950s ex-council estate. It already had outline planning for a three bedroom detached house prior to purchase.

#### What was your brief for the project?

The plot was bought by David Pallatina of D G Pallatina Building Contractors; he approached Ke-design as he wanted something a 'little different'. It would have been so easy for the client to just try and replicate the neighbouring ex-council houses, or build a brick box with white PVCu windows and a pitched canopy over the door.









# Ho sebuild

#### **Open Spaces**

To make the most of the available floorspace, the living room, dining area and kitchen all flow into one another. The staircase leads to three bedrooms on the first floor; room has been left for another staircase leading to loft space for a future conversion

Instead, the brief was to design something that was in keeping with, but very different to, that of the local council house vernacular. It had to be simple but with a contemporary twist. The client understood the importance of natural light so really wanted to make the most of the corner plot, which is on the east-to-west sunpath with the kitchen and master bedroom getting the morning sun.

#### What is the layout like inside?

It has a compact but airy circulation core, with an open plan kitchen/dining/living area. While a typical three bedroom house in the area could feel boxy, the open plan design here means there is plenty of room for entertaining.

As a small site, our approach was to keep the circulation space to a minimum to maximise living space in this  $103\text{m}^2$  build. The traditional 'front and back door' approach would have wasted space, so the 'front door' to the principal front south-facing elevation was omitted. This was replaced with glazed French doors to access the front garden from the dining area, and the general entrance and utilitarian requirements located at the darker north-east side. High-level windows maintain privacy and give a wall to put a sofa underneath, while allowing in a lot of light. The bifold doors open out to a small but functional garden.

The bedrooms have extra-low sill levels to give a feeling of space, while a return stairs with a long window on the half landing creates a light airy staircase and the illusion of space.

The house was designed in such a way that in the future a second flight of stairs could be put over these to access the attic, where the roof is constructed out of attic trusses for easy conversion if desired. On the first floor is a linear master bedroom with dressing area and en suite. The other two bedrooms are good size doubles with built-in wardrobes.

#### How was the new house constructed?

A traditional construction with 75mm high-density cavity wall insulation. There is also underfloor heating on the ground floor.

#### What materials have been used to finish the house?

The council estate is 1950s brick. Therefore, to borrow from this, the new build is mainly finished in brick. The elevations were broken up with larch cladding. With the house not having a 'front door', a projecting rendered feature panel frames the kitchen window and gives it a sense of place. Gunmetal grey PVCu windows have also been used. •



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# TERRACE TRANSFORMED





#### A Modern Rear Elevation

The double-fronted façade has been maintained, while at the rear, the house has been transformed by a ground floor glazed extension and a first floor brick extension





Victorian terraces offer a huge amount of character, yet they do not always offer the space and layout required these days—this Twickenham terrace, however, designed by Phillips Tracey Architects (phillipstracey.com), has been refurbished, extended and rearranged to meet the needs of modern family life.

The original building is a double-fronted traditional Victorian house. While the restored front elevation retains its strong original character, it is juxtaposed with a more contemporary side elevation to provide a positive architectural addition to the neighbourhood. Here, a series of clerestory windows, set beneath a crisp zinc roof, appear to float above a tall new boundary wall. Above, the brick and slate palette used for the first floor of the new extension connects the new with the old, while a contemporary zinc-clad dormer adds a final contemporary flourish.

The existing materials palette has been used both as a point of reference for the extension and to create architectural points of interest, including the internal use of exposed whitewashed brickwork to enhance character.

Externally, red and yellow stock bricks, a slate roof and timber sash windows exude character and sit well with the new elements. To reduce carbon emissions and improve comfort levels, the solid external brick walls have been insulated with cork and lime plaster lining, and all glazing has been replaced with matching double-glazed sash windows.

Additional refurbishment has also been made where necessary to modernise services in the building, including replac-

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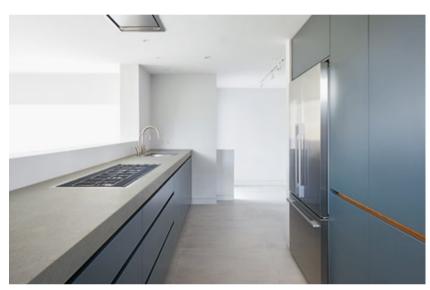
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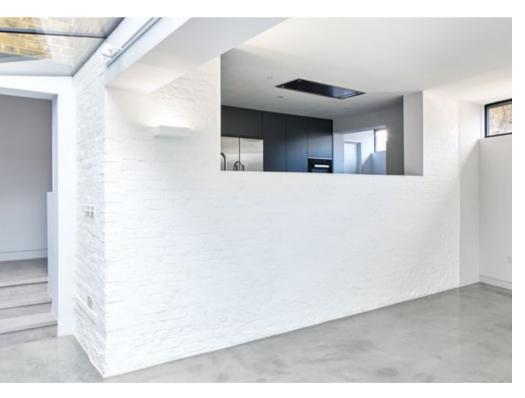




#### **Old With New**

Whitewashing existing brick walls internally and combining them with modern touches such as the polished concrete floor and simple oak staircase creates a nice juxtaposition between old and new, while the timber windows and doors ensure the new exterior elements sit in harmony with the surrounding Victorian architecture







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Internally, the house has been remodelled, retaining some more traditional cellular rooms, as well as new contemporary open plan spaces. Retained period features stand in striking contrast to the new glazed side-return kitchen extension, flooding the space with light thanks to full-height aluminium bifold doors. The rear elevation has been orientated towards the garden, creating a physical and visual link between inside and outside. As

well as providing more living space, the extension improves the geometry of the awkwardly shaped garden and helps to provide a robust and defined boundary to the site.

A compact, simple new oak staircase leads to the two floors above, where bedrooms and bathrooms on the first floor have been upgraded, with a modest first floor rear extension providing additional space. In the attic, a new en suite bedroom makes excellent use of the existing roof space, maximising the use of the building envelope.

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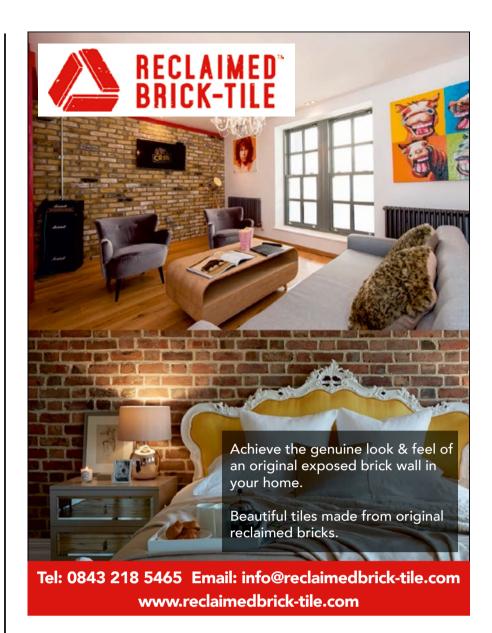
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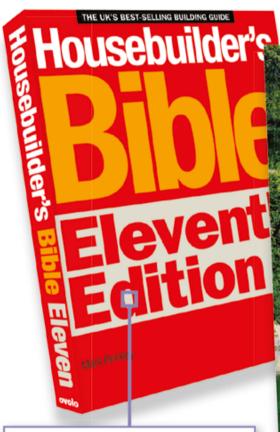






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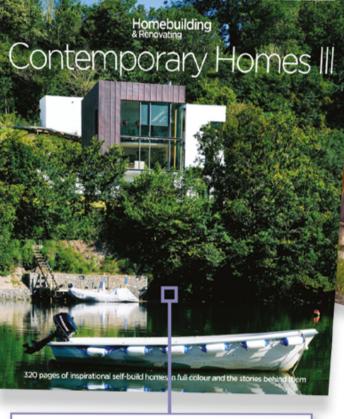


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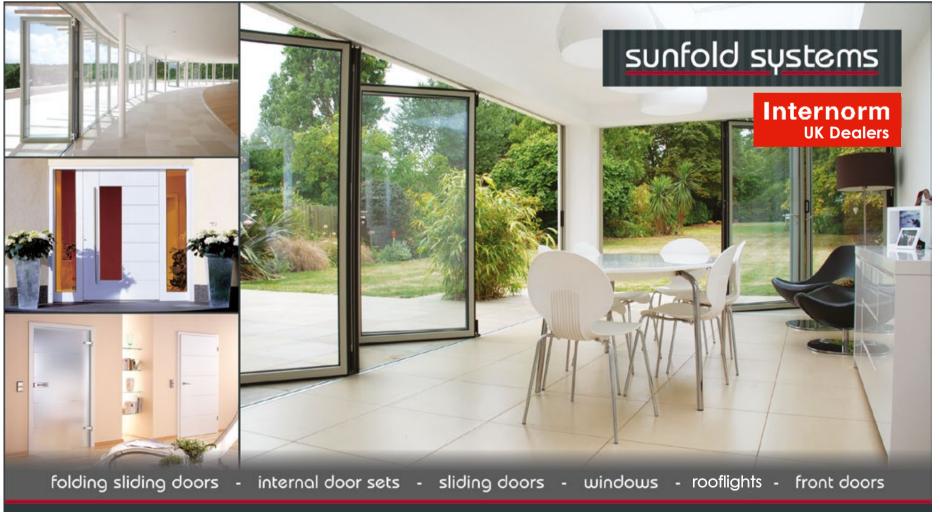
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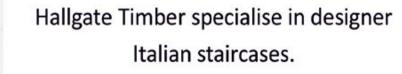












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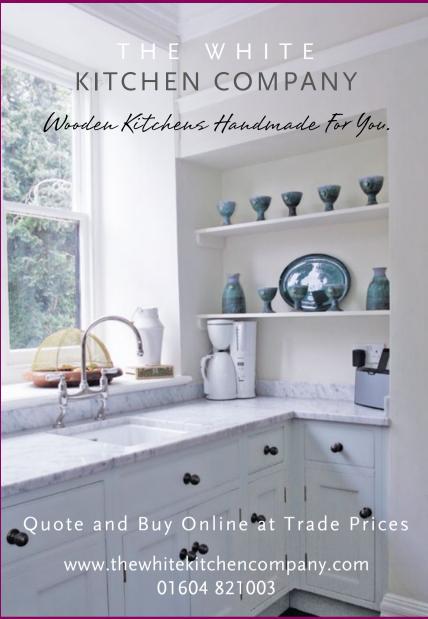
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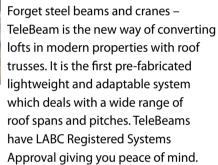


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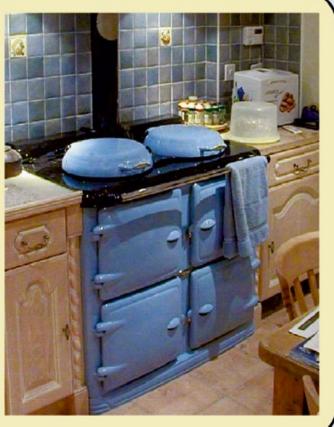
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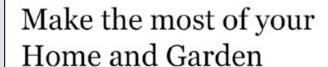
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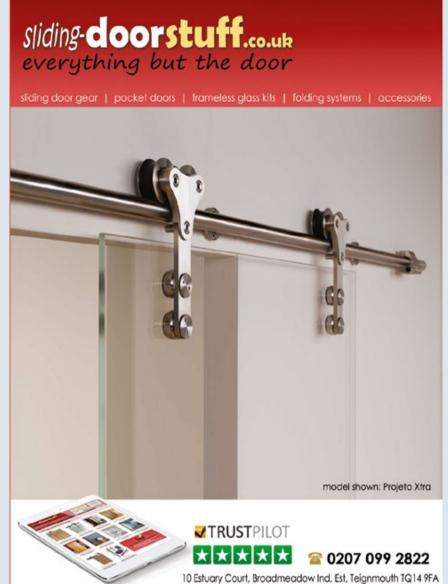




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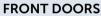




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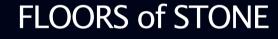
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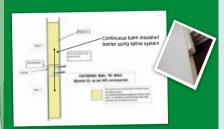
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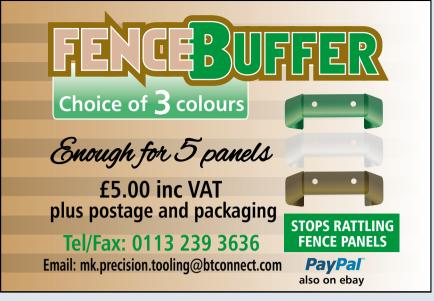
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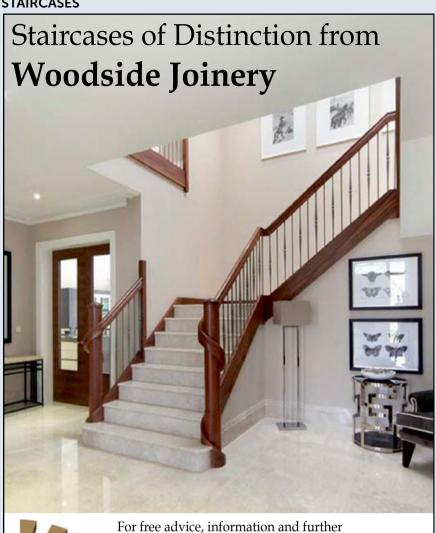
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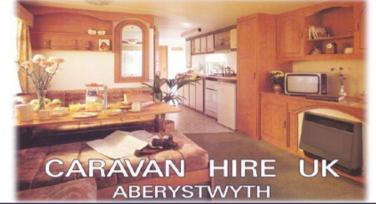
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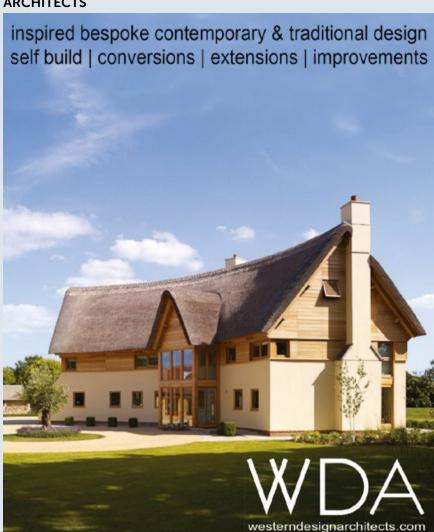
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BLANCO UK has introduced a new premium mixer tap, the LIVIA-S, which combines both classic and contemporary style. Combining a high J-shaped spout and an eye-catching body, the LIVIA-S is designed to make a statement whatever the kitchen style. The LIVIA-S, pictured in chrome, beautifully complements Silgranit and ceramic sinks and high-quality natural stone worktops.

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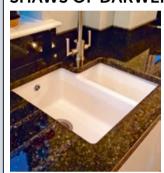


Established company offering wide range of HRV units and ducting immediately available from stock. Choice of several different heat recovery ventilation units including high efficiency Passivhaus certified units from Brink Climate Systems. Stockists of the easy to install HB+ radial ducting system.

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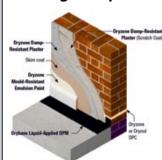
#### **SHAWS OF DARWEN BRINDLE 800**



The new British made Brindle 800 from Shaws of Darwen is a practical, yet stylish, square single bowl with a separate true half bowl with an offset dividing wall, perfect for vegetable preparation and island unit applications. This beautiful new model can be inset or undermounted with granite, wood or quartz worktops and both bowls come with a 3½" waste outlet. The Brindle is manufactured with a durable glaze designed for years of usage.

www.shawsofdarwen.com

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Dryzone Damp-Resistant Plaster from Safeguard Europe is a breathable pre-blended plaster developed to control dampness and salt migration in walls and a modern alternative to traditional sand and cement mixes. The high-performance plaster is ideal for replacing existing plaster that has already deteriorated or for use in new-build and conversion projects to limit potential damage caused by minor ingress of dampness.

www.safeguardeurope.com/dryzone-system

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Mumford & Wood Conservation™ sliding sash windows are now Secured by Design certificated to meet Approved Document Q – Security. Recognised as Britain's leading manufacturer of high performance, timber windows and doors, Conservation™ sash windows carry additional security features that meet the requirements of Document Q Building Regulations, for the new build housing sector.

www.mumfordwood.com

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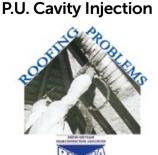


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- → A DIYer's Guide to Electrics
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#### MY BIG IDEA NO. 13





# The Feature Staircase

#### Architect John Dyer Grimes shares one of his favourite design tricks

opens — and you of gasted or indeed do key to achieving a great first impression is the feature staircase. A good reason to include one is that it provides an excuse for a double-height volume — there's nothing more impressive than

Whether you travel up a triangular staircase or a helical structure that allows you to walk around on yourself, it can take you on a journey through the house. Having a double-height space also adds to the

walking into a space with soaring ceilings

(like cathedrals) to make you feel elevated.

hen you walk up to a front door you want to see what's behind it. The door opens — and you could be flabbergasted or indeed disappointed. The

John Dyer Grimes is managing director of architectural practice Dyer Grimes Architects (dyergrimesarchitects.com)

sense of theatre, with a balcony area above allowing you to look down when welcoming in guests.

With today's array of modern materials, it's possible to create a statement piece, such as an open tread glass staircase which

allows you to view through the stairs, or even create a fine wire suspended staircase to appear as if it's hanging from the ceiling. For me, the ultimate feature staircase incorporates curved plaster forms which – in modern times with the geometries you can achieve with technology – can take the form of a breathtaking helical staircase wide enough for two people to walk down simultaneously.

An exaggerated feature staircase, complemented by a feature light, really is the wow moment for a home.  $oldsymbol{\Theta}$ 



## Meet our design experts

Our experts share their know-how in the creation of dream kitchens.

#### **Phil - Maidstone**

"Great kitchen design is a combination of understanding what people need and using professional knowledge to exceed expectations."

"I always find out how a new kitchen could help make their lives easier, listening to feedback and adapting the design to ensure we achieve the perfect solution. Each design should be a unique reflection of them and their lifestyle."



"Kitchens, especially in newer properties, are getting smaller. So finding space for the things you need is always a challenge."

"To create the perfect kitchen in a smaller space, it is important to balance what you need against what you want", explains Calum, an expert design consultant at Wickes.

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