

FACT FILE

NAMES Peter & Katy Worthy
OCCUPATIONS Owner & interior designer for a smart home company
LOCATION Farnham, Surrey
TYPE OF PROJECT Self build
STYLE Contemporary
CONSTRUCTION METHOD Timber frame
PROJECT ROUTE Self project managed
PLOT SIZE 1.5 acres
LAND COST £715,000
BOUGHT 2011
HOUSE SIZE 297m²
PROJECT COST £645,000
PROJECT COST PER M² £2,172
TOTAL COST £1,360,000
VAT RECLAIM £10,000
BUILDING WORK COMMENCED September 2016
BUILDING WORK TOOK 36 weeks
CURRENT VALUE £2,500,000

Left: The house is clad in a mix of Ochre Blend Norstone, acrylic render and Thermowood – a durable timber which will eventually weather to a dark grey/brown colour

Smarter living

Peter and Katy Worthy have replaced a 1950s bungalow in Surrey with an ultra-modern, efficient and high-tech family home

WORDS SOPHIE VENING PHOTOS MATT CHISNALL

Having worked in the home building and design industry for 14 years, Peter Worthy knew he eventually wanted to create his own property, and even set himself a target of achieving his dream before he reached the age of 50.

"My wife Katy and I were on honeymoon when we got an email notification from Rightmove about a bungalow for sale with plenty of land," says Peter. "We were looking for a project of some sort and I immediately recognised the property as one I had driven past many times and always thought would make an ideal site for a self build."

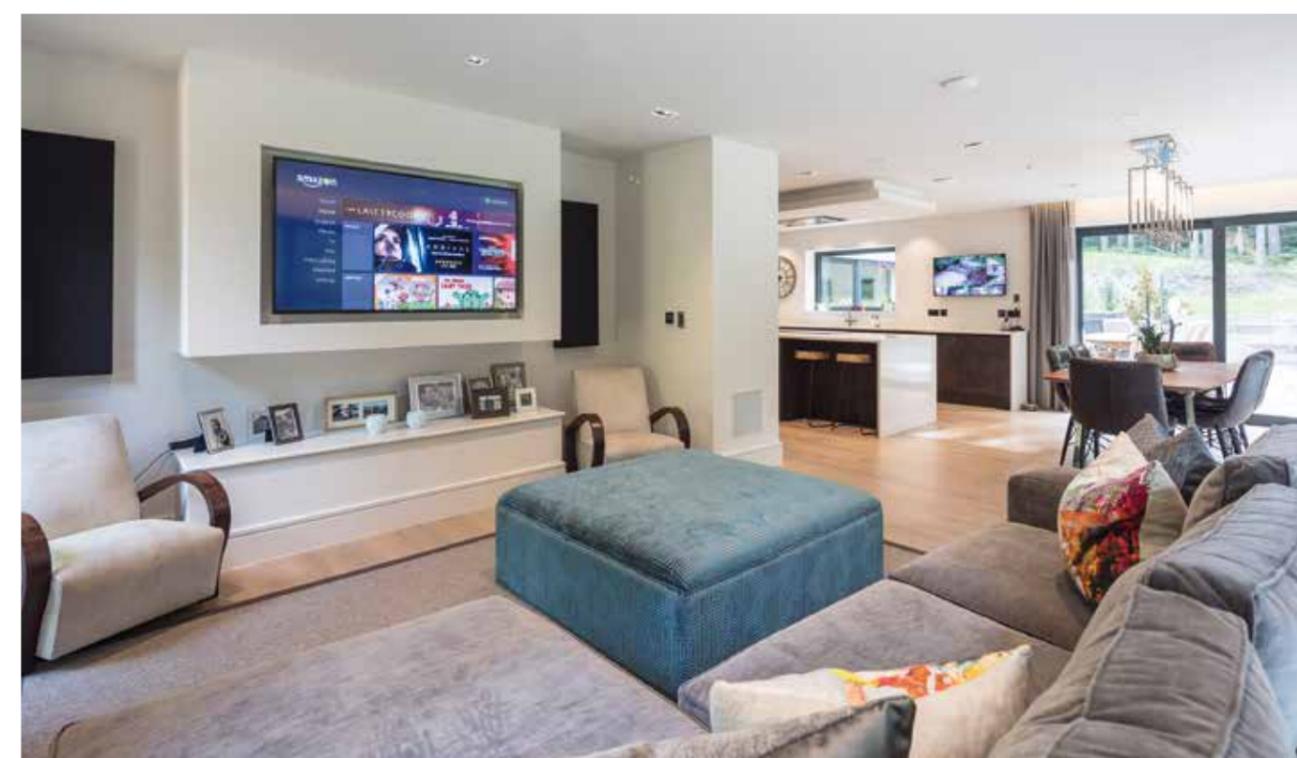
The 1950s bungalow was surrounded by approximately 1.5 acres of land and set on a private road with large neighbouring houses. The couple bought it in 2011 and briefly considered renovating the dwelling to sell on. But when Katy became pregnant with their first child Lucy (now 6), they changed their tactics.

"We decided to make this our family home instead. We looked at renovating and extending the bungalow, but then I started to think about creating a contemporary, energy-efficient Passivhaus that we would stay in for the next 15-20 years," says Peter.

Eco design

Peter did some internet research to find a suitable designer and got in touch with Leigh Brooks at BWP Architects, having noted his track record for creating beautiful, modern eco houses.

The Worthys' brief was for a forever home. The couple wanted something with plenty of open-plan living, a separate playroom, a kitchen with a larder, a walk-in dressing zone, a cinema room and at least four bedrooms – preferably one more, if the design could deliver enough space to accommodate it.





“I’ve learnt over the years not to complicate things – after all, smart homes are intended to simplify your life”



Leigh's response to the Worthys' requirements was a five-bedroom property based on the Passivhaus principles of controlled airtightness, minimal thermal bridging and plenty of insulation to reduce energy consumption. The design would use an MBC Timber Frame structural shell – which guarantees airtightness levels at 0.6 air changes per hour (the Passivhaus threshold) and U-values (a measure of heat loss) below 0.10 W/m²K.

The house is designed to sit on MBC's Passivhaus-certified raft foundation system, which is detailed to minimise thermal bridging issues at wall and floor junctions by encasing the foundation in expanded polystyrene (EPS) insulation. The structure would be paired with high-quality double glazing to allow plenty of daylight to flood through and lock in free warmth from the sun in winter.

Leigh specified a mix of cladding in Ochre Blend Norstone, acrylic render and Thermowood. The latter is produced by heat-treating pine and spruce at temperatures in excess of 200°C. The process creates a highly durable and stable timber that's perfect for exterior use and will eventually weather to a dark grey-brown hue.

Getting consent

With the design agreed, Leigh and the Worthys set about gaining planning permission. The plot is in green belt – an area of protected

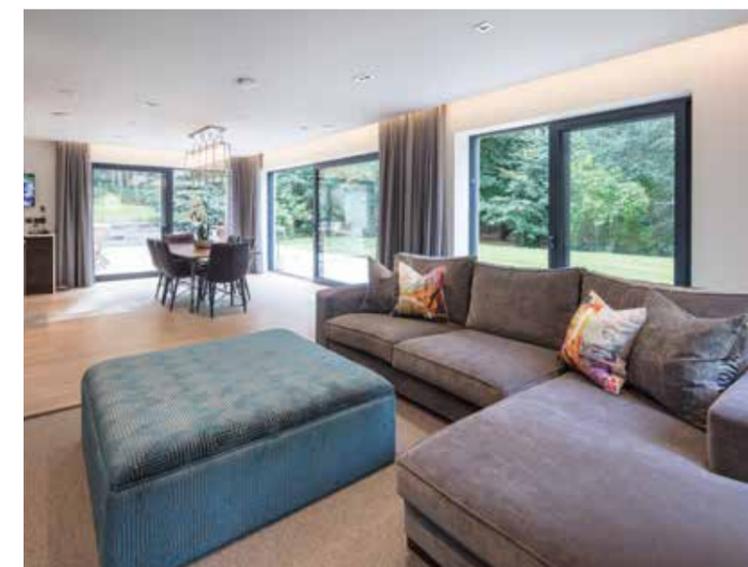
countryside – which meant it was subject to strict planning policies set by Waverley Borough Council, including limiting the size of replacement dwellings to just 10% larger than the existing house.

Leigh's strategy to overcome this was to apply for consent to extend first and, once this was in the bag, seek approval for the dwelling the couple really wanted. Planning was granted to add 40% more floorspace through an extension; on top of this, they secured a certificate of lawfulness showing that the garage could be converted into habitable space to accommodate a kitchen-diner. This gave the Worthys a strong platform from which to apply for a much bigger new house – but as luck would have it, building control condemned the bungalow's foundations anyway. This meant extending was no longer an option, leaving self build as the only viable route.

Planning permission was finally secured in December 2015 and, with their second baby on the way (William, now 4), Peter and Katy organised an £800,000 arrears-based stage payment mortgage with National Counties Building Society to fund the project.

Running the site

Construction began in autumn 2016, with Peter taking on the mantle of project manager. “MBC provided its own team to erect the frame, and I employed and oversaw the roofing contractor; site



clearance team and various tradesmen who I'd worked with on previous projects,” he says. “I was very strict with myself not to let the stress of a self build get to me. I would spend a couple of hours on site every morning before work and return by 4.30pm if needed. We lived in a caravan on site so were close by if any problems arose.”

Work ran very smoothly. The passive foundation system was installed in two weeks, and the timber frame in a further five. New utilities went in, too, as the existing supplies to the bungalow were over 60 years old. “The bungalow had an oil-fired central heating system and we wanted to change to a more efficient gas boiler,” says Peter. The high levels of insulation, however, mean the couple hardly have to switch it on. “We have fitted underfloor heating (UFH) downstairs, but no emitters upstairs – apart from electric UFH in the bathrooms,” says Peter. “The system is set to come on for about an hour every morning during the winter, but that's all we need.”

As with any build, there were a few small hiccups along the way. For instance, the pair forgot to have a gas pipe run into the kitchen – so they had to fit an electric induction hob instead. Fortunately, they've found this to be perfectly suited to their needs. Perhaps the biggest hitch came towards the end of the project, when the Worthys realised that the landscaping needed to be put in as soon as possible. “It quickly became apparent that if we didn't sort out

WE LEARNED...

THE PLANNING GAME can prove to be very frustrating. So many people face delays at this stage and it can cause some heartache. Because of the business I'm in, I'm used to it and could see there was an end in sight – so my advice is don't get upset and just stick with it.

GO FOR DISTINCTIVE DESIGN that captures the imagination. There are quite a few really big houses on our road that look completely different to our home, but the planners and building control both commented that they enjoyed seeing something bespoke.

BE CAREFUL WHEN MAKING BUDGET CUTS during a project, as they can cause unexpected issues. We initially planned to use porcelain floor tiles on the master bedroom roof terrace, for instance, with a flush threshold between inside and out. Halfway through the build we changed the exterior finish to astroturf as we realised that it would save us over £5,000. However, we didn't consider that there would now be a step down onto the terrace. It's a minor issue but we should have thought it through in more depth.



Above: William and Lucy's bedrooms both have large windows offering woodland views. Left: A comfortable seating area and clever storage for the children's games and toys make this the perfect playroom for Lucy and William

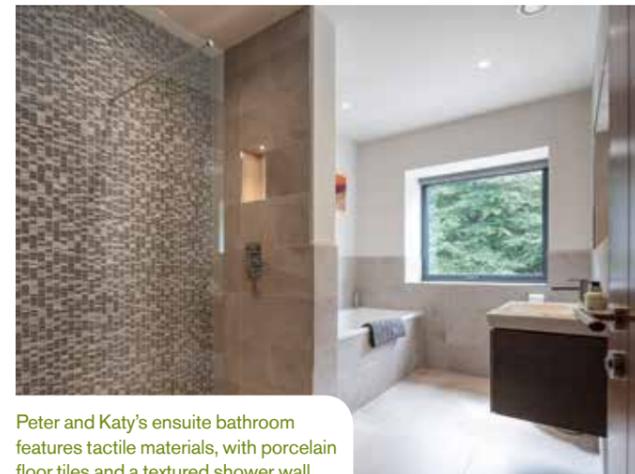


Above: Sited at the end of the house, the master bedroom leads out on to a terrace, which provides Peter and Katy with their own private outdoor space

The master bedroom has strip LED lighting that switches on automatically upon entry. Ceiling speakers are fitted in every part of the property, allowing an immersive music experience, while smart lighting controls are installed in the key living areas and first floor landing. As a safety feature, low-level LEDs awake when you step into the bathrooms at night. Meanwhile, all the window dressings can be controlled remotely.

"We even have bedtime buttons in the children's bedrooms to give the right level of lighting and music, which switches itself off after they've been in bed for 45 minutes," says Peter. There's a morning button, too, which turns on CBBC in the playroom, puts the radio on in the kitchen, opens up the ground floor window blinds and turns on the lights. "We could have installed more, but we're living with it at a comfortable level where everyone can operate the system," says Peter. "I've learnt over the years not to complicate things – after all, smart homes are intended to simplify your life. As tech develops, we can always update it if the infrastructure is there."

The family are very happy in their new home – but they wouldn't rule out taking on another project. "I really enjoyed running the scheme and would self build again, perhaps when I've sold my business or taken a step back," says Peter. "A successful project is all about having good professionals and trades around you. You need to trust the people designing and constructing your home, because you're reliant on them being the experts. Our architect, Leigh, was fabulous. He understood what we wanted from the start."



Peter and Katy's ensuite bathroom features tactile materials, with porcelain floor tiles and a textured shower wall

the exterior, then we'd end up with a lot of dirt coming into the house and damaging the interior," says Peter. "We had to borrow another £50,000 from our self build mortgage provider to be certain we had the funds to install the patio and driveway."

Integrated tech

The project was completed in May 2017, and the finished article is nothing short of spectacular. The Worthys' new home benefits from an instant connection with the surrounding landscape thanks to the swathes of large glazed panels, which help to ensure you never feel far from a stunning woodland view.

You enter at ground floor level using an electronic release system rather than a traditional key. On your left is the study and to the right lie a boot room and WC. Further ahead are a utility room (housing the washing machine, tumble dryer and a shower) and the large open-plan kitchen, dining and living space, with a separate pantry

and playroom for Lucy and William. Here, sliding doors provide access to outdoor hard-standing, as well as opening up woodland views and flooding the living zone with natural light. Carry on down the hallway and you enter the lounge, which doubles up as a cinema room with a ceiling projector, as well as having a 120" TV screen with Dolby ATMOS immersive audio.

Upstairs is the master bedroom – with ensuite and dressing area – plus four more bedrooms (one with ensuite) and a family bathroom. "If we were to do it again, I might have made the children's rooms a little bigger," says Peter. "When designing, you get this idea in your head that the property will be worth more if you have more rooms. You need to remember that it's your forever house and consider what the space is actually going to be used for."

Lifestyle-enhancing technology is incorporated in every zone, allowing the couple to better interact with their new property and creating a unique show house for their company, Smarthomes.



closer look

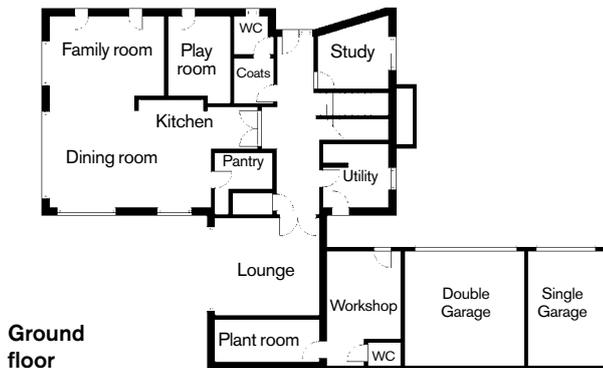
The smart route to home tech...

The Worthys' self build incorporates a range of smart technologies, including keyless entry, remote control of lighting and blinds, and whole-house audio. Getting the fundamentals right was key to the success of these bells and whistles. "The important thing when installing home tech is the infrastructure," says Peter. "We have Cat 6k cabling throughout the house, which is compatible with most brands – so we can replace and update components as and when. My advice for anyone considering something similar is to avoid products that have their own specific cables, as this restricts you to a single manufacturer."

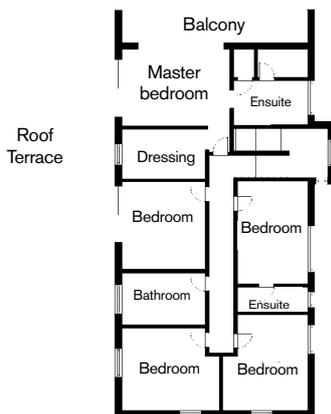


Touchpad controls

Floor plans



Ground floor



First floor



House plans re-created using Build It 3D Home Designer software. www.buildit.co.uk/3dsoftware

£ TOTAL BUILD COST BREAKDOWN

Elements	Cost m ²	Cost %	Total cost
Professional fees	£81	4%	£24,000
Demolition, initial groundworks & drainage	£109	5%	£32,500
Site setup	£17	< 1%	£5,000
Timber frame & foundations	£505	23%	£150,000
Steel & EDPM flat roofs	£84	4%	£25,000
Windows & doors	£118	6%	£35,000
Exterior cladding	£135	6%	£40,000
General trades	£67	3%	£20,000
Electrics & plumbing	£236	11%	£70,000
Underfloor heating & heat recovery system	£27	1%	£8,000
Kitchen & bathrooms	£134	3%	£40,000
Smart home technology	£202	9%	£60,000
Exterior landscaping	£118	6%	£35,000
Carpentry (incl. staircase)	£24	1%	£7,000
Plasterboard & plaster	£88	4%	£26,000
Flooring	£54	2%	£16,000
Cabinetry	£84	4%	£25,000
Garage doors	£17	< 1%	£5,000
Glass balustrades	£25	1%	£7,500
Tiling	£27	1%	£8,000
Decorating	£20	< 1%	£6,000
Grand total			£645,000

Useful contacts

ARCHITECT Leigh Brooks, BWP Architects 01252 821114 www.bwparchitects.com SELF BUILD MORTGAGE National Counties Building Society 0330 024 3411 www.ncbs.co.uk MORTGAGE BROKER Simon Tyler, TMM 020 7930 7242 www.tylerrmm.com TIMBER FRAME MBC Timber Frame 01452 346499 www.mbc-timberframe.co.uk ROOFING Colorcoat Urban 01244 892449 www.colorcoaturban.com Steel Roof Installers UK 07960 994462 www.steelroofinstallersuk.com STONE CLADDING Norstone 020 3178 2801 www.norstone.co.uk ACRYLIC RENDER Dryvit 01462 819555 www.dryvit.co.uk THERMOWOOD TIMBER CLADDING Bennetts Timber 01472 350151 www.bennettstimber.co.uk BATHROOMS Walton Bathrooms 01932 224784 www.waltonbathrooms.co.uk Villeroy & Boch www.villeroy-boch.co.uk Crosswater 0345 873 8840 www.crosswater.co.uk HOME TECHNOLOGY Smarthomes 01252 741 266 www.smarthomes.tv KITCHEN & BESPOKE CABINETRY Ian Morey, Sterlingdale 07713 620884 www.sterlingdale.co.uk