

# Kevin McCloud

Our editor-at-large outlines why building to Passivhaus standard is an aspiration worth aiming for

Elsewhere on the pages of this publication you'll find some mouthwatering examples of homes built to Passivhaus standards, the Holy Grail of low-energy construction. Passivhaus houses are super insulated like polar bears. They are built to very high levels of airtightness to keep the warm air in and avoid draughts, like a space capsule. They are designed with mechanical ventilation with heat recovery (MVHR) to recycle the heat in the building and provide tons of filtered, warmed super-fresh air to keep you healthy, just like a brisk summer's walk in the Malvern Hills. What they are not is chilly, expensive to heat, draughty, stuffy and running with condensation – qualities we proudly and defiantly like to associate with the average British home.

Our equivalent of MVHR is to put trickle vents in windows that mimic the draughts produced by poorly made, badly fitted windows in the 14th century. Passivhaus houses are, of course, foreign, built by people who can't understand why 21st-century British house builders haven't moved on from their medieval forebears.

'We are suspicious of any building technology that claims to deliver near-zero bills'

The apocryphal story goes that when Yvette Cooper was housing minister in the last Labour Government, she visited a Swedish Passivhaus project in the depths of winter. Snow and ice lay all around and the temperature would not budge above  $-15^{\circ}\text{C}$ . She asked an elderly couple how on earth they managed to stay warm in a house without central or underfloor heating – just an MVHR unit – and they replied that every human radiates about one kilowatt of energy, which they thought might be enough to heat their home. In the darkest, coldest months, however, it had got a bit too chilly for them: "Then we got a dog," they added. The third heat source obviously solved the problem.

I have visited so many contemporary British homes where the owners, building to high levels of airtightness and insulation, bottled at the last minute and supplemented their MVHR unit



with a boiler, only to discover they never used it. In the UK, we are suspicious of any building technology that claims to deliver near-zero bills, and addicted to the idea of fossil-fuel backup, despite the fact our climate seems to be warming and our winters are nowhere near polar. We also suspect that in summer you're not allowed to open the windows in a Passivhaus home, which is rubbish.

I've also visited self-built British homes that are really well constructed and cosy where the owners have pulled back from a Passiv level of insulation and airtightness and delayed the solar >>



This once-derelict barn in the Cotswolds became the UK's first Passivhaus in 2010



panels because they wanted to save money – which is bonkers when you think about it. Would you rather save £20,000 on your three-bedroom project only to face annual energy bills of more than £1,000? If you asked a business owner if they'd rather limit the value of their company and take a hit on their annual turnover, they'd laugh. They know that saving money every year generates profit, which increases the value of their capital asset. So it is with our homes. These days, the greener your home, the more attractive it will be to potential buyers and the sooner you'll sell it.

To add to this strange British inability to join up the long-term running costs with the capital value of our homes, I have one more shaming observation to make. The great greening initiative of the last 10 years, the noble ambition of retrofitting every home in the country to comfortable, energy efficient levels, has failed miserably. The Great British Refurb (GBR) was a Government-backed attempt to redress the balance and tackle the energy appetite of Britain's 26 million existing homes, many of them built before the 1920s when cavity wall construction began.

The GBR saw great pilot projects; major universities ran research programmes; examples were made of historic homes sensitively insulated and draught-proofed; generous grants and finance schemes were put in place to make the opportunity to retrofit your home a no-brainer. And yet the scheme crashed and burned in a fossil-fuel blaze of denial. Companies that had been set up to deliver the retrofitting



As featured on *Grand Designs* in 2014, Periscope House attained Code 6 – a now defunct British standard similar to Passivhaus

## 'The greening initiative of the last 10 years has failed miserably'

services, that had resourced themselves with armies of trained employees, liveried vans and expert surveyors, were sucked into this inferno. Even the Department of Energy & Climate Change was neutered and renamed, its minister resigning in the process. I was involved, there in the midst of that chaos, and still feel shaken by the British public's repudiation of what was, we all felt, a compelling offer. It seemed as if nobody cared about saving money, or energy, or the planet. Everyone involved felt that had we launched the initiative in Germany, Denmark or Holland, it would have been a success.

That was years ago. In the meantime, not a huge amount has changed. We broadcast the building of England's first Passivhaus home – the earth-sheltered concrete property of the architect Helen Seymour Smith – in 2010 and today, in 2019, the total number of certified Passivhaus homes in England stands at a lowly 81. There are, by contrast, 2,353

in Germany and 4,599 worldwide; numbers which put us to shame.

Many of the homes we film are built to Passivhaus standards but are not taken through the assessment process. In 2014, we showed Natasha Cargill's Periscope House in Norfolk, designed by Studio Bark, which followed this path, but which did achieve the British equivalent, Code Level 6 accreditation, the highest available. I should add at this point that this Government has since scrapped the eco-building Codes along with all targets for zero carbon in construction following extensive lobbying by the house-building industry. Another badge of shame for Britain, another reason why we are the laughing stock of Europe.

So we need self-builders, more than ever, to pick up the mantle of Passivhaus construction and set the example. Whether you decide to go for full accreditation with the Passivhaus institute, or whether you build to a now-fictitious Code level, or whether you just try to make your house as energy efficient and airtight as you can, look at the example that Passivhaus buildings set. At the very least, don't just stick a gas boiler in your home, but buy another jumper. And maybe get a dog. **GD**

## ARE YOU PLANNING A **GRAND** DESIGN?

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The first U-Build home, a cost-effective approach to self-building by Studio Bark, is at Graven Hill



This property, built above a woodland quarry at Little Eaton, Derbyshire, was constructed by architect Derek Latham as his home

# Country house rules

The passport to paradise for rural self-builders or an expensive, drawn-out process with little hope of success – what's the deal with Paragraph 79?

WORDS JAYNE DOWLE

**B**uilding a stunning one-off home in a beautiful countryside setting is the ultimate aim for many self-builders. But there's one tricky piece of planning legislation you may have to comply with before you have any chance of living the dream. This is Paragraph 79, and it's vital to understand how it affects your preparations for getting planning permission.

Paragraph 79 (e), the section of the National Planning Policy Framework (NPPF) about isolated rural homes, has its roots in the so-called Gummer's Law, named after Conservative environment secretary John Selwyn Gummer, who pushed his measure through in 1997, promising that 'each generation would have the opportunity to add to the tradition of the country house, which has done so much to enhance the English countryside'. Tony

Blair's Labour Government amended this law, which became PPS7 and then PPG7: this said projects should be innovative rather than traditional in design. In 2012, under the coalition Government's overhaul of the planning system, prime minister David Cameron brought in the NPPF, with Paragraph 55 covering this kind of build. In 2018 this was updated to Paragraph 79.

## Success rates

The rule refers specifically to 'isolated new homes in the open countryside' and applies to England alone. Yet, while construction under Paragraph 79 and its predecessors has resulted in spectacular achievements for self-builds in unspoilt rural locations, it can be a long, challenging and expensive haul with no guarantee of success. Last year, architectural practice

Studio Bark, which has steered seven permissions successfully through planning and has several in the pipeline, asked all 327 local planning authorities (LPAs) to share their planning approval records. >>



ABOVE Latham knew his design had to be exceptional to win planning permission. The house benefits from large glass doors and windows to capture the view





You can build in isolated rural spots, but only if the house is of great architectural and technical merit and can be proven to tick a lot of boxes

Bark found the Paragraph 79 approval rate running at just 58 per cent, compared to the 87.5 per cent approval rate reported in Government figures for overall residential applications. This equates to a mere 66 approvals in six years – a success level of fewer than one a month across the whole of England. Seven of these approvals were the result of a successful appeal. In total, 43 building proposals were refused, six applications withdrawn and 12 more were awaiting determination.

### What are the criteria?

Paragraph 55 demanded that homes be both 'truly outstanding and innovative'; Paragraph 79 now asks for one or the other, so it does give self-builders more freedom, though in practice both aspects would usually be addressed in a design.

In full, Paragraph 79 states that a project is permissible only if 'the design is of exceptional quality, in that it is truly outstanding or innovative, reflecting the highest standards in architecture, and would help to raise standards of design

more generally in rural areas; and would significantly enhance its immediate setting, and be sensitive to the defining characteristics of the local area'. In short, you can build in isolated rural spots, but only if the house is of great architectural and technical merit and can be proven to tick a lot of boxes.

On one hand, then, Paragraph 79 appears to support the building of new country homes on land – such as Green Belt and Areas of Outstanding Natural Beauty – which previously might not have gained planning permission. On the other hand, Paragraph 79 also appears to work against such construction, because the regulation argues that LPAs should not sanction new isolated homes in the countryside unless there are 'special circumstances', such as the exceptional quality or innovative nature of the proposal.

This is where the challenge of Paragraph 79 really lies. The policy specifies difficult-to-meet guidelines that are both tight and vague. A major contradiction is that those seeking planning permission may

be asked to limit the visual impact of their project, but should simultaneously be raising standards of design.

### Interpreting the law

Also, like any planning issue, Paragraph 79 is subject to interpretation. Each LPA must decide what passes the litmus test for planning permission, but the quality is set at a national level and there's not enough casework to offer concrete guidelines. And there are regional differences: what is acceptable to authorities in Norfolk might not be understood in Northumberland. Yet, given the prospect of creating a remarkable »





Headlands is a sustainable Paragraph 55 - which preceded Paragraph 79 - project designed by Hawkes Architecture (01580 892 739; hawkesarchitecture.co.uk)



**LEFT** Shawm House by MowsonKerr (0191 230 1799; mowsonkerr.co.uk) maximises its views with an open-plan living space on the first floor. On the ground floor, there are bedrooms and a study area

**THIS IMAGE** Built in an exposed Northumberland setting, Shawm House was able to circumvent the demands of Paragraph 79 with its outstanding design and use of an existing farm building

## YOUR ROUTE TO SUCCESS

### Build a team

Gaining approval for a Paragraph 79 project is seen as a badge of honour among architects - and responsible ones will only take on the projects that they feel have a fair chance of success.

You do, of course, need to engage an architect with a strong track record in this kind of project. It's a long, challenging haul, so you must be totally confident you share the same ideas and vision.

You can't be a control freak over design and detail; your architect and team really will know best, so you'll need to trust their judgement.

- Accept that, guided by your architect, you will have to assemble a team that's likely to include landscape architects, planning consultants and sustainability experts. And getting the right people together may take time.

- The more sensitive the location, the more difficult it is to win planning permission; land that is designated AONB, flood zone, Green Belt or conservation area will be that much more challenging.

### The right site

Respect for the land's history, and existing buildings that have some merit, will strengthen a case, as may a personal interest in the land - if it belonged to your family in the past, for example. Note that anything with a commercial aspect has less chance of being accepted.

Hugh Petter, director of Adam Architecture (01962 843 843; adamarchitecture.com), says that successful projects are often built where long-derelict country houses once stood. 'The fact that the principle of a home has been long-established certainly helps - not least with establishing that feeling that "a house belongs here".'

- Garnering local support, with a communicative architect who is prepared to host public meetings, create models and so on, can help push a proposal through. In addition, respect for local craft techniques, such as thatch and tile-hanging, may be favourably regarded.

### Play the planning game

A pre-application submission is recommended before the full application, so risks and issues can be identified early on. Ensure that the scheme is not simply rejected out of hand by the LPA case officer: it should go forward to the local planning committee, which can be educated and undertake a site visit. The scheme may also go to an appeal inspectorate, to judge if you have met the criteria.

Taking the proposal to an independent design review panel is also recommended, and may be a requirement of an application. The decision made by experienced designers should carry weight. This is an impartial feedback process that allows the planning authority an expert voice to sign off or reject the project. 'How it's pulled together can work in very different ways,' says Wilf Meynell, of practice Studio Bark. 'Some councils, such as North Norfolk, don't have a panel, some are in-house and some are independent.'

But the process doesn't always work. Wendy Perring, of PAD Studio (01590 670 780; padstudio.co.uk), is outspoken about the decision taken in 2017 by the South Downs National Park Authority to reject one of her practice's schemes - despite a glowing report from the design review team. 'Of course, it could be argued that the design review panel had made a mistake. After all, beauty is subjective, is it not? But to take this stance implies that several award-winning architects, landscape architects and academics do not know what is exceptional,' Perring says.

### Design guide

A design does not necessarily have to be in the local vernacular (especially if the site is indeed isolated) and this can bring huge freedoms, if handled carefully. Research by Studio Bark has found that partly sunken, earth-sheltered homes, which may have eco-friendly elements, have a stronger chance of success as they impose less on the landscape.

In meeting the 'innovative' requirement of Paragraph 79, some schemes are a chance to specify cutting-edge technologies and test new products coming to the market. However, sustaining the innovation element over a long build process can be tough.





**BREAKING DOWN THE BARRIERS**

**Richard Hawkes of Hawkes Architecture**

(01580 892 739; hawkesarchitecture.co.uk), who has completed 16 PPS7/ Paragraph 55 and Paragraph 79 builds, offers his view of the regulations

Paragraph 79 is a hurdle, not a prison fence. The policy sets a high bar for design. In my experience, this bar seems to be treated differently from one local authority to another.

We have worked with local authorities that have been very open-minded from the outset, and happy to approve new homes under this policy. In such instances, Paragraph 79 has been treated as a hurdle designed with the potential to be leapt.

As an example of the other extreme, we once had a pre-application cheque returned with a letter firmly stating that the council would not support any such application. In this case, we succeeded at appeal and our client is now living in their magnificent home, which embodies everything a Paragraph 79 house should.

The policy's current form seems to suggest that a new house could, in theory, go anywhere in the open countryside if it can be shown to meet the tests set within Paragraph 79. The truth is that not all sites have the capacity to jump high enough.

As an architectural practice, we start by establishing whether a robust policy case can be made. This ensures that our design builds on a solid foundation. But why does it have to be such hard work? This year marks the 22nd anniversary of this unique policy yet many applicants, architects and planners struggle with the few simply worded tests.

The trouble is that the application of Paragraph 79 is so variable from one planning authority to another. Despite having been around more than a generation, it is a policy that is still so misunderstood.



**ABOVE** At Black Barn, Douglas fir timbers taper upwards towards the large southern gable, creating a dramatic elevated roofline and framing magnificent views

Black Barn, built in the Suffolk countryside by Studio Bark (020 7993 4332; studiobark.co.uk), is a modern interpretation of traditional barns that have dotted the East Anglian landscape for centuries



**This is where the challenge of Paragraph 79 really lies. The policy specifies difficult-to-meet guidelines that are both tight and vague**

bespoke home, the last thing some architects would want is a one-size-fits-all diktat.

There is also interpretation concerning the nature of a site, and whether it is subject to Paragraph 79. 'If it's not isolated, Paragraph 79 won't apply,' says Studio Bark founder Wilf Meynell. 'There are two ways this could be interpreted. It could be visually isolated, in that you can't see another house for miles, or it could be isolated from service – ie transport links and electricity supply. However, it seems like the Planning Inspectorate is leaning more towards visually isolated as a measure.' A decision may be made at local level, but in most Paragraph 79 cases, the national Planning Inspectorate ratifies the decision – 'and national trumps local', adds Meynell.

The problem of interpreting 'isolated' follows the landmark case of *Braintree District Council vs Secretary of State for Communities and Local Government* (2017), which paved the way for a more broad-brush approach to the meaning of the word. There is no formula to

ensure a suitable site; rulings can appear contradictory: if the site is too beautiful, the proposed house could be deemed not to enhance the setting. Likewise, a few scrubby acres of land might be considered unworthy of a house of exceptional quality.

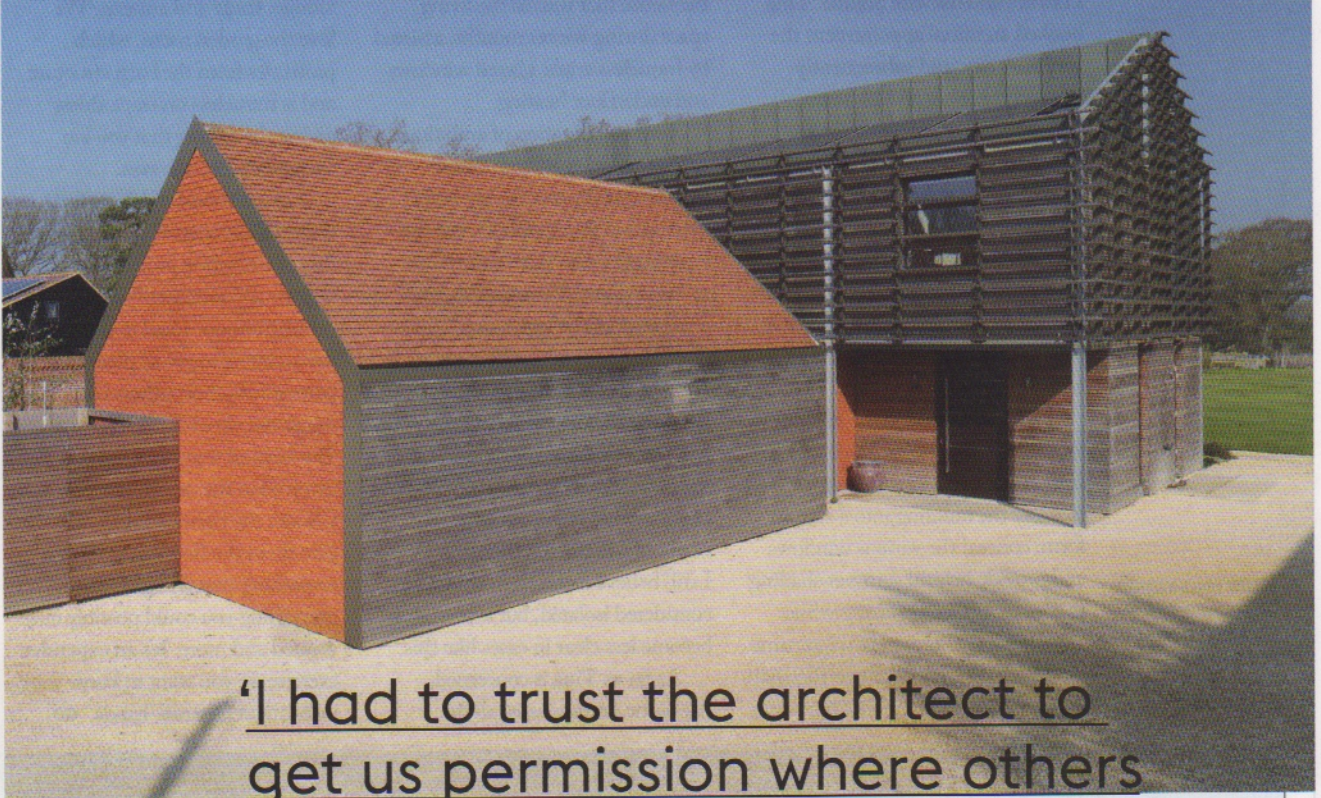
**Counting the cost**

'There is no getting away from the fact that design fees, consultant fees and everything up to planning will inevitably be more expensive than a standard project,' says Meynell. 'You're always going to be doing something challenging or what hasn't been done before.' His advice is to expect to spend between 20 and 25 per cent of your total project budget on this preparation work – usually in the region of between £30,000 and £100,000. As most Paragraph 79 projects are ultra-high spec, build costs are likely to be higher – from around £2,000 per square metre up to £5,000 per square metre.

● **Turn to p29 for how one architect helped his client fulfil her dream of a rural idyll >>**



Echo Barn was built on a disused farmyard under Paragraph 55 regulation; it sits among traditional Kentish structures in a village setting



'I had to trust the architect to get us permission where others had suggested we couldn't'



**Tina Macfarlane** hired an architect to get her country home through the planning process after watching him succeeding with his own house on *Grand Designs*

In the Kent hamlet of Biddenden, close to the High Weald Area of Outstanding Natural Beauty and Sissinghurst Castle, Tina Macfarlane lives in a striking contemporary home that was completed in 2017 under the Paragraph 55 regulation – the predecessor to Paragraph 79.

The location was once a disused agricultural plot adjacent to a listed farmhouse and associated buildings. Now it hosts a home which takes in two single-storey timber barns, clad in brick tiles, that encircle a courtyard. A veil of cedar louvres wraps around the house

and gives the sense, at first glance, that this four-bedroom home may still be a barn.

Tina, a dentist, who lives with her teenage daughter Iona, had purchased the plot from a friend, owner of the nearby farmhouse. 'We had previously sought some advice about the potential of putting a house on the site, but had been told it was highly unlikely it could ever happen,' Tina recalls.

'Fortunately, we watched an episode of *Grand Designs* one evening where we saw a couple building an experimental arch-roofed house and they had used the predecessor to Paragraph 79 and 55 – PPS7 policy – to make that possible. >>

**RIGHT** Echo Barn makes use of a photovoltaic-thermal panel on the roof that gathers solar energy as electricity and heat. The heat is directed into the 'earth energy bank', a heat store located underneath the house





It just so happened they lived only 10 miles away!

The couple Tina saw on Grand Designs was architect Richard Hawkes and his wife Sophie. Tina booked an initial appointment the very next day, and subsequently engaged Hawkes and his team, which included an experienced planning consultant and landscape architect, and the process was in motion. 'First came an assessment of the site to establish how a robust case might be made,' Tina says. 'Then the fun began, developing a completely bespoke design for us that would be completely right for our site.'

Hawkes suggested the distinctive louvres for Tina's new home – called Echo Barn. The louvre design aimed to unify the building into a simple form, conceal the various windows and provide helpful summer shading to the south-facing glazing while allowing for solar gain in wintertime.

The PV-T (photovoltaic-thermal) panel mounted on the roof harnesses

solar energy as electricity and heat. The heat is extracted and channelled into the 'earth energy bank', an inter-seasonal heat store underneath the house that warms the living space during winter months, assisted by frameless triple-glazed windows and underfloor heating.

This combination of ambitious design and hi-tech innovation unquestionably met the rigorous demands of Paragraph 55, but the location of Echo Barn contributes to the ongoing discussion about a key facet of the legislation: what does the isolation aspect mean?

'The Echo Barn project happened before the term isolated had been tested as much as it now has,' says Hawkes. 'It was generally considered as being either in or out of a defined settlement. I still believe Echo Barn would be considered isolated, but it's certainly become less clear in cases like this.'

As far as Tina is concerned, her home encompasses all the

positive aspects of living in the country. The four bedrooms are all en suite, there's an open-plan kitchen, dining and garden room, lounge, study and annexe. 'We love the garden room, which protrudes from the barn structure and is frameless on three sides, giving the feeling that you are sitting outside,' she says.

How involved did Tina feel with the experience, given that this construction project was a major - and potentially controversial - undertaking? 'I had to trust the architect to get us planning permission where others had suggested we couldn't,' she says. 'But beyond that, we were still involved in the design process. Choose the right architect and give them the freedom to design something that will give you everything you could possibly have wanted and more. It's an expensive exercise, so you want to know your investment is in safe hands.' GD

**BELOW** Tina's main house is wrapped in a veil of cedar louvres, giving the impression it is still in agricultural use



PHOTOGRAPHY CAROLINE BRIDGES; LENNY CODO; HAWKES ARCHITECTURE