# Passivhaus takes hold in Britain

Oliver Lowenstein

On a warm October day last year, Chris Huhne, the new coalition Government's Energy and Environment Minister, strode purposefully towards the lectern to give a keynote speech in North London's Islington Town Hall. The hall was packed, and the event, the first Passivhaus conference in Britain, waited to hear what the minister had to say. Later the lines were analysed and deciphered for clues to 'the greenest Government ever' commitment to decarbonising the country's building stock. A key line referred to the event as "a watershed moment," in which he'd "like to see every new home" reach the Passivhaus standard. It was quite a journey for the continental Passivhaus approach to building, which just three and a half years hardly any in Britain had heard of.

One year on from the Passivhaus conference last year, what high hopes were attached to the Government's commitment to decarbonise Britain's entire residential building stock – have been fading by the month. Yet alongside this, the sense that as far as strategies for realising zero energy buildings, the momentum of interest and practical take-up, whether in training or actual live-projects, in the Passivhaus approach in the UK has been ballooning. As with the UK take-up of massive cross laminated timber I wrote about in the last issue of Detail Green, this is again a story of research, techniques, technologies and building expertise that have been developed abroad and, after a considerable time-lag, begin to migrate to Britain. A different network of actors have been involved, though also a very similar cultural dynamic, involving small networks of committed sustainable building and architecture types, breakthrough moments and broadening acceptance. This was followed by curiosity, interest and take-up by the mainstream alongside other symptoms of a band-wagon gathering pace. What is markedly different is how recent the take-off has been, and in terms of certified Passivhaus buildings how – still – comparatively few there are. Germany has passed its 10,000th Passivhaus building, even if no-one, apparently, knows how many are certified. Here, in Britain they can be counted in a few handfuls and even with the current wave of excitement, it's difficult to really envision the numbers catching on and up with the levels of mainland central Europe.

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*A Passivhaus prehistory*

At the heart of those pushing Passivhaus in the English part of Britain has been a sustainable building network, the relatively small Association of Environmentally Conscious Builders or AECB, founded in 1989. Though often described by some within the mainstream as a 'grassroots' organisation, the AECB includes members with specialist knowledge, skills and experience second to none, if ones at odds with the prevailing UK architectural orthodoxy of the time; where sustainability wasn't an issue worth thinking about. One of these is David Olivier, who, through the eighties and nineties, acted as an independent consultant, conducting research which, although immensely detailed, didn't receive the attention it merited from the mainstream, including Government research centres such as the Building Research Establishment (BRE). Through the nineties, Olivier's work found an audience among the 1500 or so members of AECB, a substantial part of whom were architects and others working closely with architects. This said, BRE started up a Passivhaus Unit in 2004, led by Gareth Hodgson, with the explicit intent of bringing its principles to the wider building sector. The Unit has grown into the influential Passivhaus UK body, disseminating information and running certification courses to the mainstream.

It was really only, however, in the mid 2000's that Passivhaus began to gain wider attention. Andy Simmonds, one half of the architectural practice Simmonds Mills, (and also AECB's current part time CEO), recalls that through 2005, this had coalesced into "three identifiable groupings: the AECB, BRE's Passivhaus Unit, and a small number of pioneer architects, including John Williamson, a west Wales architect, and the London based Justin Bere." Within two years, after following different if at times intertwined Passivhaus paths, together these groups would effectively be behind launching Passivhaus in England.

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1 Terraced houses for the 2010 Scotland's Housing Expo, Inverness
HLM Architects
2 Underhill House, The Cotswolds, Gloucestershire
Seymour-Smith Architects
3 Tigh Na Cladach, Dunoon
Gokay Deveci

Already in around 2003/4, the AECB began receiving requests from its members for guidance concerning low energy building design and construction. The result was a set of energy standards. From there after discussions with BRE and the Energy Saving Trust (EST) to look at harmonising energy standards through 2006 and 2007, the AECB launched Carbon Lite, a major carbon literacy programme based around the AECB standards, led by Simmonds and Liz Reason, an energy marketing specialist working with the AECB. Simmonds, by now deep into the Passivhaus approach, began in his architectural capacity, to look at how he could apply what he was learning to first, refurbishing his own home, and next, Disability Essex, a Centre for Disability Studies through 2008/9. The latter passed Passive certification last year. Simmonds and Olivier and a growing number of close AECB colleagues, used what they were learning from their own projects to provide technical and design understanding for those coming new to very low energy design. All this would feed through into the AECB community and beyond in different ways.

During this same period, architects John Williamson and Justin Bere would develop their first Passivhaus designs – both supported by BRE and Hodgson –, with Williamson completing a residential dwelling and an Adult Community centre in West Wales for Powys County Council. In 2009, these became the first UK Passivhaus buildings to gain certification. Bere, who has had a life-long passion for low energy building, was only alerted to the existence of Passivhaus when a German assistant, Tobias Schaffrin, pointed out how similar the detailing on Bere's 2005 Focus House project was to Passivhaus. Bere was stunned to find literally hundreds of architects across Europe developing similar, though more advanced, skin tight buildings he'd spent years aspiring to. He began integrating Passiv principles into his design, and in spring 2007 attended the Passivhaus European conference held that year in one the epicentres of Passivhaus activism, Vorarlberg's Bregenz. The visit for Bere was nothing short of an architectural revelation, discovering there "these beautifully designed low energy buildings of the sort that appealed to a design-led architect."

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Another UK attendee, Nick Grant, who is closely connected to sustainability pioneers, Architype, had been unconvinced about Passivhaus prior to Bregenz but returned with a changed perspective.
"I travelled to Bregenz with half a mind at debunking it, but came away pretty convinced. Part of it was seeing actual buildings, and the rationality of the process. I was impressed by how it was conceptually sophisticated, though also very simple, and realised that actually there's something in this." Grant returned to Britain all fired up, learning the Passivhaus Institute's PHPP computer modelling software, and began showing others within Architype's West office, near Hereford, both how the programme worked and underlining the potential benefits. After various false starts, the practice used this knowledge on two primary schools in Wolverhampton, Bushbury and Oak Meadow. Opened in September this year, they are Architype's first live passive projects.
Meanwhile in Scotland, knowledge about Passivhaus also began to circulate, albeit through an entirely separate and different route. Research visits to Norway and Sweden by Scottish architects in the early 2000's, including Gokay Devici and Edinburgh's Gaia Architects, introduced the Scots to the Nordic Passivhaus community, including one of its founders, Hans Eek. As climate and geography is closer to Scandinavia than more southern England, it isn't surprising that a separate Scottish Passivhaus path has emerged, with Devici's Tigh Na Cladach affordable housing in Dunoon on the East Scottish coast having been the most significant project to be realised so far. Interestingly, Devici states that his intent was research focused. Frustrated in previous projects with the difference between the claims of different energy approaches and their actual results, he wanted to see if Passivhaus would work in practice. So far post occupancy testing is showing very good results.

4 The Larch House, Ebbw Vale, Wales
bere:architects
2 The Camden Passivhaus, London
bere:architects

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noch freigeben lassen

*The centre gets interested*
It's apparent that those picking up on Passivhaus haven't been metropolitan, London-centric architects – AECB is a predominantly a West country, West Midlands-Welsh and Welsh borders congregated network. It was only with the link-in with Bere (and also John Bootland of the Good Homes Trust) that interest in Passivhaus in the capital, both from architects and the media, began to gain momentum. By 2008 Bere's committing his new projects to Passivhaus standards, which, along with talks, workshops, and conferences, helped build momentum and raised Passivhaus's profile in London. The projects include a since completed residential home (looking not unlike a Vorarlberg building in a leafy, well healed part of North London), a North London community centre rebuild, and lastly a competition win to design two experimental affordable houses in a big South Wales building programme on the edge of ex-coal mining town, Ebbw Vale. These last two, Larch and Lime house, have been designed specifically to very low and affordable housing budgets, and with the very different South Wales climate in mind. Although it is clear all these early buildings have required established passive product companies from across Europe, Ebbw Vale and South Wales are attempting to break this, with a few British companies beginning to manufacture products. At Future Works, a group of Welsh joinery companies have came together under the name, Company Precision Joinery, to produce a first UK standardised Passivhaus window.
The result has been a first wave of genuine and accredited Passivhaus projects across a broad geographical range. Bere's residential projects, and a small number of private home's, including Underhill House by Helen Seymour Smith, Denby Dale house by ex-AECB chair and Green Building Store founder, Chris Herring, and SimmondsMills' Disability Essex, all accredited in 2010. The housing projects need to be seen in the context of the British Government's 2006 announcement that every residential building, including existing stock, would be legally required to attain zero carbon energy levels by 2016, precipitating the AECB's CarbonLite programme, and in 2009 the major Government funded Retrofit for the Future research. This research is now being concluded, and includes practices that have committed to Passivhaus, looking at how to refit a cross section of older, primarily urban housing types. Among them are PrewettBizley Architects, another young London practice. Rob Prewett notes that many of these Retrofit research projects are informed by Passivhaus issues and ideas, including cold-bridging, heavy insulation and walls, even if they weren't technically, passiv-projects.

*What the critics say*
The passive rush, as a few have titled it, has not been short of critics. Within the British sustainable building world the most high profile comes from BedZED's Bill Dunster, who in a 2010 Building Design magazine article commented that, "it's not so clever to insist on expensive levels of air-tightness in the temperate south. But is even stranger to demand electricity hungry, fan-driven, heat-ventilation when passive techniques work fine. The UK has to combine Mediterranean passive cooling techniques with the northern European need to conserve heat …" Chris Morgan, from Scotland's Locate Architects, a passiv-advocate hoping to complete the first passiv-self build, notes how some "fail to see the drawbacks". He also points out how divisive the take up of Passivhaus has been in Britain across the wider sustainable architecture community, in this respect mimicking its central European reception. Aesthetics, and the vexed question of how far Passivhaus allows architectural expression, is given a sustainability perspective by Mole Architects' Meredith Bowles, in underlining how Passivhaus's continental development has done so within "part performance, part product" parameters. While Bere argues that Passivhaus is more process than product, it is well known and acknowledged that EU funding for the early experimental Passivhaus R&D was partially premised on developing such 'products.' Bere feels vindicated in that passive is an approach, which works: "what's clear is that the tests are showing the Passivhaus buildings built so far are performing 'spot-on.'"
There seems to be consensus that the Passivhaus rush is set to continue for a while yet. There may be dark mutterings as to where exactly the Governments zero carbon housing is heading, and likewise concerns at the skills level of UK builders, and specialist contractors, and whether they are up to delivering passiv-standard insulation, even if training packages are now emerging. Places on BRE PHPP training courses for architects are also over-subscribed, and last year's first UK Passivhaus conference saw both the ministerial keynote and the launch of the Passivhaus Trust. New Passivhaus projects regularly crop up in the British architectural media. 4Orm's Arbark Park, is the first passiv multi-dwelling for five households, and the mainstream are also getting in on the act: two large-scale residential Passivhaus schemes, a 28 dwelling project in Houghton-le-Spring by Devereux, and b3 architects' 66 housing development in Portland on the South coast, are nearing completion, while Rick Mather Architects have teamed up with Architype for a London housing block. While this isn't central Europe; there is neither any regional municipality legislating that all public funded housing be to Passivstandards, as in Vorarlberg, nor a municipality requiring all public buildings to attain similar standards, like Frankfurt. Nor, yet any sort of iconic passive statements, as in Arno Lederer's Ravensburg passivmuseum. But what is certain is that Passivhaus, although relatively small in scale, has arrived in Britain, and is set to stay.