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Denise Scott Brown questions big ideas  
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New columnists, new sections, new design



Waugh Thistleton's Stadthaus housing development in London's Hoxton is a quantum shift in pushing the limits of timber construction

# WOOD FOR THE HOOD

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EVER SINCE I'VE KNOWN HIM, partner Andrew Waugh of architect Waugh Thistleton has been a confident and inveterate self-promoter. Maybe it was a survival skill picked up when he was starting out, as one of the original warehouse residents of London's Hoxton, long before the place became synonymous with an indie cool that even spawned a haircut by the same name. Then, in the recession of the early 1990s, times were tough and, like now, the gift of the gab could help you win that all-important commission. And Waugh didn't do badly – with his then business partner Sarah Featherstone, their local knowledge and connections with the burgeoning art and music scenes saw them convert Hoxton's first club, the popular but labyrinthine Bass Clef, into the spacious and seriously cool Blue Note. And with the valid reasoning that 'if it ain't broke, don't fix it', Waugh Thistleton still works out of Shoreditch, has kept its local connections, and continues to find ways of keeping its work in the public eye – not least with its latest completed project, the Stadthaus in Hoxton.

'It's the tallest fully timber residential building in the world,' Waugh informs me, speaking of the practice's recent nine-storey, 29-unit housing development, built for developer

The 'pixellated' Stadthaus facade is apparently inspired by the work of Gerhard Richter.

## SITE PLAN



LEFT TO RIGHT:  
Internal view  
looking up at  
the solid timber  
KLH structural  
timber panels  
as installed:  
Drylining of the  
walls ensures  
the requisite  
acoustic  
insulation  
between units:  
Builders' work  
holes are  
pre-cut offsite  
ready for  
service  
installation  
giving tangible  
time savings on  
fitting out.



RIGHT: The KLH structural timber solution went up in 27 days, saving months on a conventional construction programme.

Telford Homes, just around the corner from his office. At 30m, he's right – so long as you discount the 38m high self-build love-nest raised by alleged gangster Nikolai Sutyagin in Arkhangelsk, Russia, for him, his henchmen and their molls – although the local two-storey fire policy for timber buildings mean that is soon to be demolished.

But strangely enough, it was these kind of prescriptive European construction policies that ensured the Stadthaus went up here rather than on the Continent – even though mainland Europe is far more accustomed to high-rise living. It might look like conventional construction from the outside, but behind the 70% recycled Eternit panel facade, it's anything but. The Stadthaus, above the ground floor concrete wall construction, is a panellised timber system build by Austrian firm KLH – and we're not just talking floors and walls, even the lift and stair cores are made of it.

The modular construction meant that the building went up in next to no time, with four KLH operatives taking 27 days to erect the nine floors, with first-fix electrics dropping from a conventional programme time of six weeks to

## KEY TO DIAGRAMS

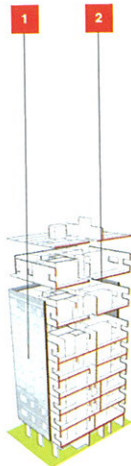
Plan of the Stadthaus showing the identical private and social housing entrances. The community office is on the north, street side.

## SITE PLAN

- 1: Section 106 negotiated amenity space
- 2: Social housing lobby
- 3: Private lobby
- 4: Emergency staircases
- 5: Bin store
- 6: Bike storage
- 7: Community office

## ISOMETRIC VIEW

- 1: Eternit skin
- 2: KLH structure



ISOMETRIC VIEW

eight days. Not only is the Stadthaus a quantum shift in the thinking of what the limits of timber construction are, but overall programme times were cut significantly, in this case from 72 to 49 weeks – which somewhat allayed the reservations of a developer unaccustomed to this kind of construction.

So how did the Stadthaus come about in the UK at all, given European regulations' resistance to both the height and construction type? According to Waugh, it's the differences between European constitutional law and UK statute law that makes challenging building codes on the Continent that much more difficult than here.

'Its constitutional basis means that if you want to change a regulation, you have to lobby to change the law,' he says. 'In Austria, for instance, any timber building over two storeys must have a non-flammable core. Here the building regulations are different in nature. In the UK, it's a process that involves the whole design team forming an argument for how you want to construct, and presenting a case to the building control officers, who will take a view on it. By default, it actually promotes



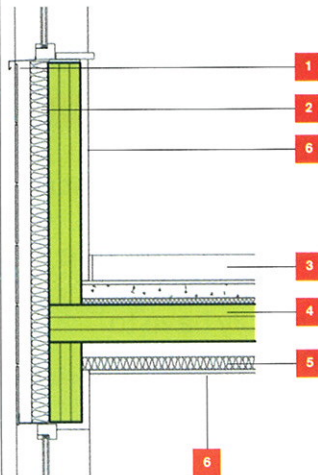
innovation in the industry?

In this way, engineer Techniker's daring idea to avoid dealing with differential movements between concrete cores and timber structure by suggesting that the whole thing be built in timber was a perfectly viable proposition. 'Being used to working with concrete, originally [lift manufacturer] Kone just laughed at the idea when it presented the tolerances and loading requirements to the engineer,' recalls Waugh. 'But they were asking for +/-20mm over nine storeys for their lift rails – we ended up giving them +/-3mm. And at these thicknesses and density, charring protects the timber as it burns. In addition, with the two separate 128mm solid timber walls, one supporting the core, and the other the floors, it became a belt, braces and buttons approach to fire separation.'

Fresh thinking wasn't only applied to the construction methodology, but to the Stadthaus' whole planning process as well. Two previous applications for the Murray Grove site had been refused on the grounds of height and density, and local resistance to development was high, so Waugh looked to go in heavy with

#### KEY TO DIAGRAM

- 1: Eternit tiles with 50mm air gap behind
- 2: 70mm performance insulation over 128mm KLH wall panel
- 3: 15mm timberboard over 55mm screed atop 25mm insulation
- 4: 146mm KLH floor structure
- 5: 50mm insulation below 75mm void
- 6: 1 layer plasterboard



the planners on the design's sustainability credentials and create an embodied energy argument for not providing the requisite 10% on-site energy renewables.

He also concentrated on rethinking the planning approach by engaging with the community from the outset. To the side of the proposed development were run-down garages and some scrubland managed by the local arm's-length management organisation. 'We asked local groups early on if they would be amenable to us using that area for the purposes of construction and storage, with the promise that once finished, we would repair and re-landscape the park area and return it to them. Design-wise, we positioned all the family units, including the affordable housing component to look over the park area, and the developer also agreed to give over the ground floor of the development to the residents' association for a rent-free period of 25 years,' says Waugh. The approach worked – the negotiated Section 106 agreement duly formed part of the planning application, and as it went through the process, not one letter of objection from local residents was received.



LEFT: A panel being CNC cut and routed in the KLH factory, Austria.



ABOVE: A flat in its 'raw' and completed state. Floors went through rigorous testing and design development to ensure acoustic compliance with the NHBC Building Codes.

LEFT: The completed Stadthaus.

But the Stadthaus's influence has gone far beyond the immediate locality. The sustainability aspects associated with this building type, and the independently tested construction methods the firm used to prove its viability to the NHBC, are now piquing curiosity in Europe and beyond. According to Waugh, the Italian government has been conducting studies into the seismic resistance of all-timber construction, with the local government in Florence, having studied the Stadthaus, looking to incorporate its findings into its design guides.

Waugh has also been lecturing at universities in the Nordic states, with particular interest being taken by Sweden which only recently rescinded its building policy against timber construction to a pro-timber one. Washington's Institute for Professional and Executive Development (IPED) has been analysing the applicability of this timber building system in the American affordable housing market, and he's been spending time over there trying to get LEED Platinum housing certification for the system – the US equivalent of BREEAM. As it is, built

to a developer specification, the Stadthaus is designated Eco Homes 'Very Good', coming in at around £1,400/m<sup>2</sup>. Waugh says small improvements could easily make it Level 4, and with changes to the window spec, Level 5 could not be ruled out – a standard to which the test houses at the BRE Innovation Park aspire. Not bad for any construction, then – let alone potential affordable housing in inner London.

So what of the future? Waugh Thistleton seems keen on remaining the Daddy of solid timber construction, with the firm developing

**'Meeting carbon reduction targets isn't just about whether you specify argon glazing, but about rethinking structure itself. What we now see as innovations simply have to become necessities'**

the system further and proposing a 25-storey tower in north London – a project that, if approved, will ensure it holds the timber high ground. And it looks like Waugh is going to be pushing the sustainability dollar with even greater gusto. With the use of timber at the Stadthaus offsetting 310 tonnes of carbon, relative to an equivalent concrete and steel construction, he recently lectured to the UN's Food and Agriculture Organisation in Rome over its viability as a high-density, Kyoto-compliant construction methodology.

But he is naturally taking all this attention in his stride.

'As we move towards 2016 and zero carbon homes, it's our responsibility as a profession to look to meeting and exceeding our carbon reduction targets. It's not just about whether you specify argon glazing, but about rethinking structure itself. And if we're ultimately going to save the planet, what we now see as innovations simply have to become necessities,' he says with conviction.

It's difficult to work out if Waugh's on a power trip or a mission, but for this Shoreditch boy, you certainly can't question