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Technology's tipping point

Profile: Denmark's Dorte Mandrup

**The RIBA Journal**

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# 1

## Buildings



ED REEVE

**Comment 07**  
Orthogonal is back

**House 08**  
ACME reinvents the Kentish oast for 21st century family living

**Photo 15**  
London landmark Battersea Power Station photographed by João Souza

**Music centre 16**  
Hallé Orchestra's Manchester home gets handsome extension by Stephenson Studio

**Sports centre 22**  
Sciences and sports intersect in OMA's complex for Brighton College

**Kingston Town House 30**  
Kingston Town House by Grafton Architects is a place for students to feel part of a community

# 2

## Intelligence



BRYDEN WOOD

**Q&A 41**  
MAD Architects on how its Beijing office is coping with the coronavirus shutdown

**Digital revolution 44**  
When digital technologies collide – opportunities for construction

**Automation 48**  
As AI and machine learning reduce human intervention, what will it mean for architects?

**Customisation 53**  
Mass customisation is breaking the mould of modular construction

**Whole life 59**  
Making it easy to share your building data could make cradle-to-cradle design a reality

**Climate emergency 63**  
Active Buildings are even better than passive – they harness, store and distribute clean energy

# 3

## Culture



RIBA COLLECTIONS

**Leader 71**  
Our conversations run from the top to the bottom of the profession

**Wiles & Wainwright 73**  
Will Wiles thinks of Kubla Khan's stately pleasure dome when he sees the Met's successive HQs

**President 75**  
Alan Jones calls for the end of 'red-line-itis' when it comes to sustainable design

**Profile 76**  
Powerful shapes in dramatic landscapes: Denmark's Dorte Mandrup

**Polemic 83**  
Modernism can't call itself anti-traditional any more says Robert Adam

**Obituary 87**  
Bob Maxwell, 1922-2020, whose career spanned 70 years

**Letters 88**  
Opinion and comment from readers

**Parting shot 90**  
Odeillo Solar Furnace, France, photographed 40 years on by Alastair Philip Wiper

**On the cover**  
OMA's new sports and sciences centre for Brighton College, photographed by Liz Finlayson-Vervate

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Stephen Cousins discovers the pinpoint delights of What3Words addresses: [ribaj.com/what3words](http://ribaj.com/what3words)



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# 1: Buildings

Time, perhaps, to talk about orthogonality. Remember the late 20th and early 21st century years of Blobism? The swirls, the swoops, the Mr Whippiness of it all? That formal approach, visually exciting and constructionally costly, was not killed stone dead by the financial crash of 2007-8 as many hoped – it is still an option chosen by certain people, organisations and states with an eye to the ‘icon’. But as several of this issue’s buildings demonstrate, the rightangle has reasserted its dominance.

OMA, the Dutch practice founded by Rem Koolhaas and others, was never averse to an icon but generally played with subverting the cuboid. So it is at its ambitious new building at Brighton College with – surely – a clear

homage at one end to Will Alsop in his box-on-struts phase. In Manchester, Stephenson Studio’s new Oglesby Centre – rehearsal spaces for the Hallé Orchestra and public meeting-place – are an object lesson in how to proportion, colour and texture a building of interlocking boxes. And RIBA Royal Gold Medallist Grafton Architects has given Kingston University a building that is a homage to the rightangle worthy of Paul Rudolph.

Which brings us to ACME’s take on the Wealden Oast house. Non-orthogonal, as the original oast houses were. An abstracted take on rural functionalism. But you know what? All these buildings are contextual, in the broadest sense. Take a look. Work it out. ●

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‘What is so exciting about this process is that you’re building a structure that later you could melted down and recast, add more cells and grow it again’

Stephen Cousins and the living brick that grows itself from CO<sub>2</sub>: [ribaj.com/livingbricks](http://ribaj.com/livingbricks)

Hallé Manchester’s harmonious new rehearsal space, page 20.



DANIEL HOPKINSON



# Round our way

ACME has reinvented the traditional Kentish oasthouse as a truly original work of architecture

Words: Tszwai So Photographs: Jim Stephenson

**Below** Bird's-eye view of Bumpers Oast, a new family house in Kent.



The oldest known oast in England is believed to date back to the 16th century, but the ones with beguiling roof forms, at times pyramidal, at times conical, are mostly creations from the 19th or early 20th century. Though admired for their picturesque quality, the oasts were utilitarian structures housing the kilns to dry hops. Gone are the days when families brewed their own beer for profit, and many have been converted into dwellings. Perhaps one of the earliest examples of architects exploiting the oast house aesthetic in a different typology was the late 19th century school built on the Glen Tanar estate in Scotland by the Victorian eccentric and cofounder

of the AA, George Truefitt. Truefitt gave no hints of their source, but the two enormous pyramidal roofs crowning the school, each topped with a ventilating cowl, resemble the English oast houses. A recent reference is Caring Wood in Kent (RIBA, November 2017), a large country house with a striking angular roof designed by James Macdonald Wright and Niall Maxwell. Although oasts are not unique to Kent, the county is especially known for them. In the countryside, one spots many funnel-shaped roofs crowned with cowls rising above the treetops. Still in Kent, in a village just north from

**Right** Bumpers Oast is unmistakably reminiscent of the round Kentish oasts.

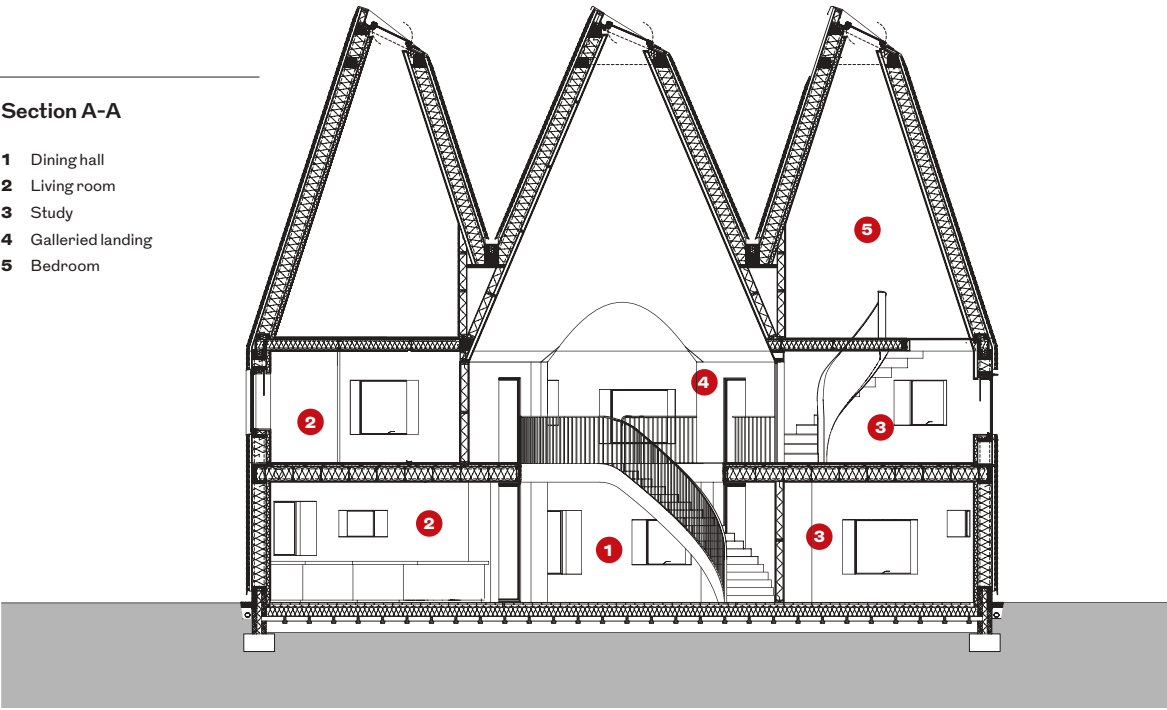






Section A-A

- 1 Dining hall
- 2 Living room
- 3 Study
- 4 Galleried landing
- 5 Bedroom



Above left Shingles line the bedroom walls in the apex of each turret.

**IN NUMBERS**

**£890,000**  
total contract cost

**230m<sup>2</sup>**  
GIFA

**3870**  
cost per m<sup>2</sup>

**14.22kg CO<sub>2</sub>/m<sup>2</sup>**  
annual dwelling emission rate (DER) – 46% improvement on Part L target

**41,000**  
rainscreen tiles

Below The house is entirely clad in ceramic tiles, changing from darker at the bottom to lighter at the top.



cone-shaped roofs. The original intent was to form a group of cylinders with majestic cones clad entirely in brick, thereby unifying the walls and the roofs, but this proved impractical. Eventually the client and the architect settled on local clay tiles.

The seemingly monolithic appearance is nuanced by six different shades across 41,000 tiles. The colours blend subtly from dark red at the base to orange in the middle and bluish-grey near the chamfered rooftops.

The interior is a medley of dreamy spaces. Entering through a slit between the roundels you are greeted by an oval dining table in the middle of the larger central circle, on a floor of polished concrete. Double-height glazed slits between the turrets help create the feeling of being in an external courtyard. Looking up, one's eyes travel some 40ft towards the small circle opening to the sky, inviting all kinds of whimsical thoughts: the hole topping Zumthor's cave-like 2007 Bruder Klaus Field chapel; standing at the bottom of the pitch-black well in Tarkovksy's 1962 film Ivan's Childhood; or simply a giant telescope reaching out to the cosmos. The enormous cone also has a practical purpose as a ventilation stack in summer when the ground floor windows and doors are all open.

On the ground floor, the parlour and kitchen each occupy one turret with no door separating them from the 'courtyard'. The other two accommodate an en-suite guest bedroom and the study. A stair following the curve wall of the central circle leads to the galleried first floor landing which is finished

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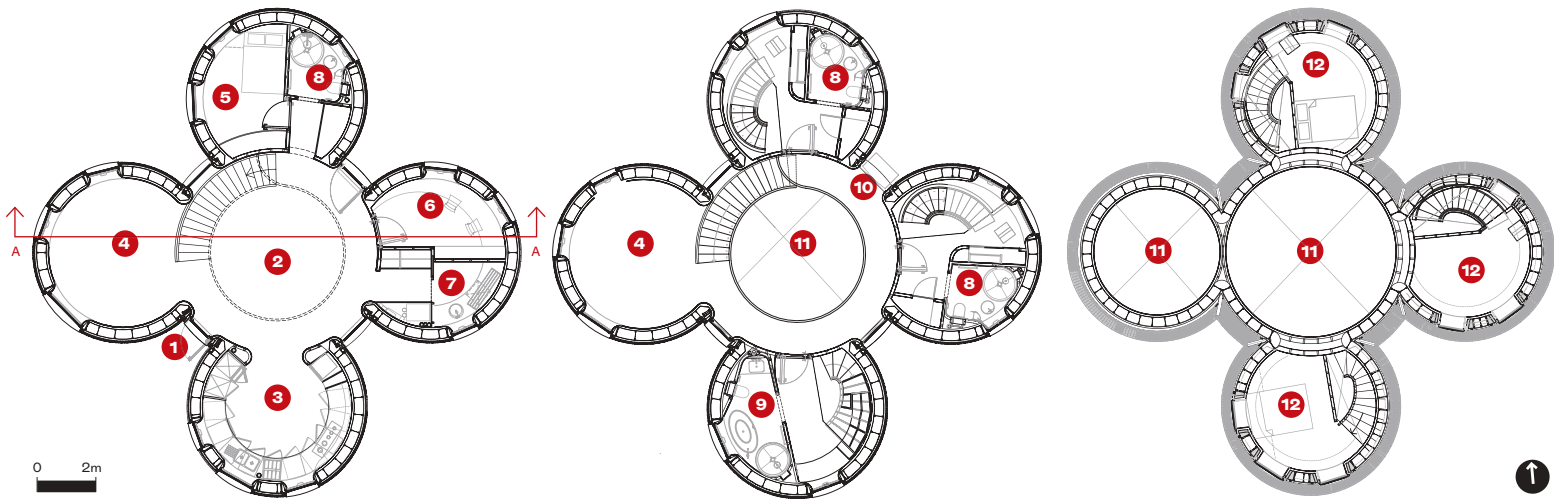
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Ground floor plan

First floor plan

Second floor plan



with a parquet floor and connects the upper chambers. One contains a chill-out space, the other three are bedrooms for the family. Each has an en-suite and a workspace as well as a small staircase leading to an attic where the bed is found. The conical walls inside the treehouse-like bedroom spaces are lined with large nailed-up overlapping plywood tiles. The bark-like scales spiral until they touch the rooflight at the apex, through which one could count the stars at bedtime. Square windows look out to the surrounding trees.

The circular layout would have defeated many experienced carpenters, but not these Kentish ones, who are familiar with install-

- 1 Entrance
- 2 Dining hall
- 3 Kitchen
- 4 Living room
- 5 Guest bedroom
- 6 Study
- 7 Utility room
- 8 Shower room
- 9 Bathroom
- 10 Galleried landing
- 11 Void
- 12 Bedroom

Credits  
**Architect** ACME  
**Client** Private  
**Structural engineer** AKTII  
**Contractor** Harry Barnes  
**Planning consultants** Barton Willmore  
**Mep** Furness Green  
**Building control** Wilkinson Construction  
**Environmental consultant** Etude

The layout would have  
defeated many carpenters

ing oast-house-friendly built-ins, including curved plywood cupboard doors. In fact, the whole process was full of serendipitous moments; had the client picked one of the other options, it would have changed the trajectory of the project. The decision to evoke a different ambience in the private spaces, for example, was for cost-cutting as the architect had initially intended to clad the entire interior with plywood, but the builder recommended whitewashed plaster.

There are interesting parallels between ACME's Bumpers Oast and David Leech's 'A house in a garden' in Dublin, completed in 2017. Both are based on a typology entrenched in the local subconscious – in Leech's case, the 1940s suburban house. Each created something familiar but unique through brilliant manipulations of their chosen archetype – a task that if done badly would result in pastiche. Both houses explored the local builder's skills and materials for economical but maximum results. They are too contextualised and poetic to fall into the Po-Mo genre, too idiosyncratic to wear the critical regionalist badge, nor they are trying to revive anything so cannot be labelled historicist. Both are truly original works of architecture 20 years into a century where modernism is still the orthodoxy. It is possible that the Instagram-genic Bumpers Oast might fade into oblivion in a world so indulged in consumption of architectural imagery, but it is one of the great houses of the past decade. ●

**Left** The central entertainment and dining space. Slits between the turrets help create the feeling of being in a courtyard connected with the outside as well as a strange sense of security.



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Herbal House - Oliver Palmer Photography

## Buildings Photograph

**Battersea Power Station: Energy Revolution**  
 Photograph Joás Souza  
 Words Jan-Carlos Kucharek

Captured in black and white in a languorous long-exposure before the redevelopment began in earnest, the 10 seconds that London-based Brazilian photographer Joás Souza allowed to take this shot of Battersea Power Station is a luxury he would never have afforded himself in his hometown of Salvador. Having been held at gunpoint there four times, personal safety was more of an issue, and required certain logistics. 'If I visited a building I would first scope it without a

camera at all, and on the day I would hire a security guard when I was doing the shoot'. And he lingered no longer than absolutely necessary. 'I just learned to be quick and precise!'

Since moving to London in 2005, he's revelled not only in the sense of personal freedom he feels – 'here you have to look for trouble' – but in the capital's position on the doorstep to Europe, where a short flight takes you to different climes, societies and architectures. As a citizen of a relatively new country – whose process of freeing itself from colonial rule resulted in Niemeyer's modernist city and the human feat that is Brasilia – it's the urban juxtaposition of ancient and modern that he

experiences here that makes living in his adopted city so exciting.

Just before scaffolding cloaked the power station in 2014, Souza's nine years of living here attuned him to sense a change in the fabric of the city significant enough to merit recording the view – to see that a piece of old London was passing and being transformed into something new. 'I thought about the coal that powered the station for 50 years and wanted to contrast it with the trains in the foreground, now probably running on nuclear-powered electricity', he adds. 'And to simply read something so huge, monolithic and static against another speeding past.' ●





# Hallé's new home

Stephenson Studio has extended the Manchester-based orchestra's church premises in brick and steel

Words: Hugh Pearman Photographs: Daniel Hopkinson

Manchester's Ancoats district, just north-east of the centre, was the heart of the city's huge industrial expansion from Georgian times onwards. Framed by two canals – the broad, beefy transpennine Rochdale and the narrow, delicate local-connections Ashton, both corridors for early 19th century and later mills – it has been the focus of intense redevelopment in recent years. Mills are converted, new residential blocks inserted, and in the New Islington quarter you find the wholesale redevelopment managed by Urban Splash (originally masterplanned by Will Alsop) which stretches between and links the waters of both canals. On Blossom Street a few blocks north-west of there, however, you find a different kind of conversion and extension. This is the Romanesque 1859 former

church of St Peter's by Isaac Holden, which until 2013 was abandoned and near-derelict. It is now a rehearsal and education centre for the Hallé Orchestra. Its new Oglesby Centre extension by Stephenson Studio is placed right in front of it. Yes, a new building between the grade II listed church and its (relatively recent) parvis, Cutting Room Square. That might sound a bit mad and indeed the 2016 RIBA competition for the £4.2m extension attracted its share of raised eyebrows. Other entrants were Caruso St John, FCB Studios, Flanagan Lawrence and Jamie Fobert. But it was Manchester boy Roger Stephenson's practice that got the thumbs-up from the judges, including Sir Jeremy Dixon, Niall McLaughlin and the Halle's representatives. It must have helped



IN NUMBERS

£4.2m  
Construction cost

1,145m<sup>2</sup>  
GIA

3  
practice rooms

1  
large rehearsal space

1  
piano lift

78 weeks  
construction period

This image Carefully proportioned, the Oglesby Centre in brick and Cor-ten expands Hallé St Peter's and finally provides it with an entrance onto Cutting Room Square.

Opposite bottom left Forward march – the original entrance to the church is in the northern side and other buildings used to adjoin it at its western end where the Oglesby Centre now stands.





**Left** A deep steel-lined portal with Simon Armitage poem cuts through the thick brickwork at the base of the campanile to link new and old buildings.

**Right** Onwards and upwards – the campanile of the church is revealed on the journey to the main spaces upstairs.

**Client** Hallé Concerts Society  
**Architect** Stephenson Studio  
**Structural engineer** Booth King  
**MEP engineer** Max Fordham  
**Acoustic consultant** Arup Acoustics  
**Project manager** Mace  
**QS** Simon Fenton Partnership  
**Main contractor** HH Smith  
**Handmade brick** Imperial Brick  
**Weathering steel cladding** Ruukki

that Stephenson’s practice had previously delivered the city’s well-regarded new building for Chetham’s School of Music.

So you expect some oddness – church on square with modern frontal extension – but when you go there, it makes a surprising amount of sense. First, with streets right up to it on the other three sides, there was nowhere else to expand. Second, there was no entrance, grand or otherwise, being obliterated as the church with its original side entrance had not addressed the square at all. In the past other buildings had butted up to it and left their marks on its largely blank brickwork on this end, so different from Holden’s richly modelled flanks, apse and campanile. Third, the new long thin ‘Roman’ burnt-red handmade bricks achieve an excellent colour match for the old church, the massing and parapet levels respond well to it, and the campanile becomes a point of focus as you enter the building from the square. As the stair rises through an atrium to the main rooms on the first floor, there is the tower

looming right above you through the glass.

In fact the Oglesby Centre gives the church an entrance to the square it never previously had. It opens up to it – via a structurally ambitious corner cantilever visually carved out of the block – with a public café at ground floor level and a new link from there cut through the enormously thick brickwork of the campanile base to the previously restored main body of the church, with its slender iron columns helping the orchestral acoustics.

The other key material here is Cor-ten oxidising steel, used to express the form of the large first-floor rehearsal room. Cor-ten is too often used in the wrong places, just as a fetish product. Here there is a clear rationale for its use: just as so much of this part of Manchester is red brick, so also there was always a good deal of exposed ironwork, with factory water tanks very visible. The steadily darkening steel, on its journey from orange to conker-brown, sits just fine with the brickwork and its dark lime-mortar recessed



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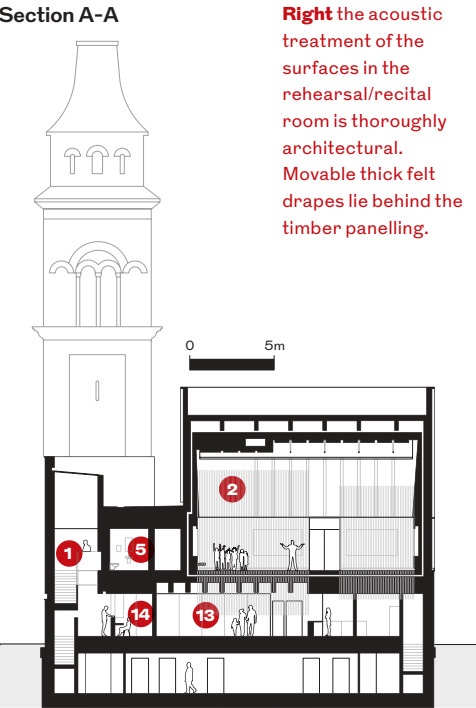
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joints. A consciously industrial rather than ecclesiastical aesthetic, it is detailed with a concealed gutter to avoid rust streaks down the brickwork below.

The Hallé Orchestra, for all its illustrious yet frequently chequered history since Sir Charles Hallé established it in 1857, had no permanent base of its own to rehearse in until the St Peter’s project. The church thus performs much the same role that St Luke’s church in London’s Old Street does for the London Symphony Orchestra which is associated with the Barbican.

The brief asked for rehearsal, performance, education, administration and support spaces for the orchestra and choir, plus the public café space (a second largish rehearsal room could with difficulty have been added but, perhaps fortunately for the overall composition, this was dropped). Although the building steps forward from the church, it also digs down: the basement (daylit from pavement lights) is a cellular layout that includes a large practice/education room, offices, instrument store, plant room, café kitchen and toilets. The excavation caused a literal wobble moment during construction when the campanile was observed to move fractionally, about 15mm, due to soil dynamics. It was quickly stabilised but the construction team still quiver slightly when they mention it.

The big rehearsal space – intended for



- 1

Atrium with main stair
- 2

Rehearsal/recital space
- 3

Practice rooms/control room
- 4

Artist’s room
- 5

Toilets
- 6

Passenger lift
- 7

Piano lift
- 8

Cleaners store

9

Acoustic windows overlooking square

10

Cutting Room Square

11

Orchestral rehearsal space in old church

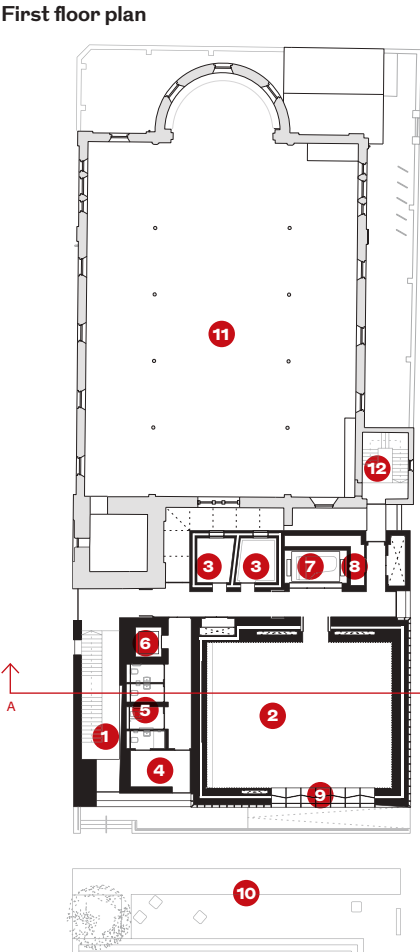
12

Escape stair

13

Ground floor café

14

Reception

smaller ensembles than the full-orchestra volume of the main church – is for recording use as well, and like the practice rooms is acoustically isolated in a box-in-box arrangement. It’s a well-proportioned space in which the usual wall and ceiling acoustic treatment is subsumed into the architecture. The architects – Stephenson working with co-directors Keith Hamilton and Justin Risley and associate partner John Boardman – wanted a less timber-dominated interior than at Chetham’s so went for an almost country-house aesthetic of light oak timber panelling up to a certain height, flush with white plastered surfaces above that. Unusually, it is not a blank box: a row of tall triple-glazed windows, zigzagged for acoustic reasons, looks out over the square and provides external evidence of activity within. The acoustic can be varied to some extent with thick felt moveable drapes set in apertures behind the panelling. Necessarily low-speed silent air handling comes from rooftop plant concealed behind the wall upstands.

There is a sense of proportional rightness to the massing of the building. Deference to the church is apparent, but not subservience: the new building is confident in itself, if muted in tone. It plugs into the church firmly without overdoing the glazed links. It’s a satisfying thing when architects design proper boxes, but then Manchester has got plenty of precedents to draw on. ●



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# Back to the future

OMA's new sports & sciences centre for Brighton College seems stuck in a bit of a time warp – and the client more so

Words: Isabelle Priest



I zone out. When I come round, I find myself in what can only be a Remembrance Day service. A schoolgirl is standing before a teenage orchestra singing Vera Lynn's (There'll be Bluebirds Over) The White Cliffs of Dover. On the wall behind, below a hundred wispy pink fabric pendant lights, a huge screen is showing slow-moving drone footage of England's south coast against a glorious blue sky with twinkling waves and gleaming cliffs. Former Conservative MP Nicholas Soames, Winston Churchill's grandson but more re-

cently notable as a fairly pro-EU thorn in Boris Johnson's side, is coming up to speak. I have heard them and us analogies in abundance – an object from the Continent, a brooding spaceship, a strange Dutch visitor – as well as a dose of stereotypes about the Dutch being single-minded and architects all dressing in black roll-necks.

I'm at the open day for OMA's anticipated £55m Sports and Sciences Building for Brighton College, to which the architect has enticed an array of journalists from all over

Europe. We're two weeks from MPs ratifying the UK's Withdrawal Agreement from the EU and I'm perplexed. How have stories from the Second World War, such as the seaplane containing Dutch ministers landing nearby in 1940, been woven into this supposedly futuristic building's narrative? It's weirdly nostalgic. I get the impression it's not how the architects might have sent off a radical sports and sciences building either. Sprinter Colin Jackson, who although retired is arguably more relevant than Soames, is standing

silently in the crowd, waving only on request. The complex is declared a departure from the 'set of polite buildings' (by British architects) the school had completed when this one was commissioned after a competition in 2014. But with this backward-looking display about Britain, what might we expect? Listening is causing me an existential meltdown. That the next song is from Rocky doesn't help.

OMA won the project, says headmaster Richard Cairns, because the school wanted a sports building with lots of glass and the Brit-

ish architects it spoke to said that couldn't be done. However, its chief architect Ellen van Loon tells me that it emerged that it was the only practice which took the school's original three-part brief – one block of generic classrooms, the science department and all sports facilities – and combined them into one mega multidisciplinary building, in that OMA way. The project lost the general teaching spaces to scale back its height, which van Loon felt was too 'colossus' for its context, but the rest remained. The building is a 120m long, 23m

wide, 14m high rectilinear form. Science essentially sits on top of sports, but they do slip past each other; views carry through and between. 'You can,' as Cairns says, 'never be certain which department you are in.'

Brighton College was founded in 1845 and is located east of the city centre in a primarily 19th century white-stuccoed residential area. It occupies a rectangular plot, with the extended gatehouse facing the road to the south (RIBA March 2015). Most of the buildings cluster in an increasingly compact collegiate

**Above** The new building viewed from the cricket pavilion. Larger sports 'cells' are on the ground floor with the science classroom 'cells' slotted above.

## IN NUMBERS

**7,425m<sup>2</sup>**  
GFA

**£55m**  
budget including  
demolition costs

**Left** The rooftop is not as naturalistic as originally intended. The bar and artificial turf give the feel of a sponsored champagne terrace at the races.

**Left** Two level entrance with cantilever and dancing columns framing the entrance much like Will Alsop's Peckham Library of 2000.

How have Second World War stories ended up in the building's narrative?





**Right** Views connect the science labs to the sports activities outside. The terraces that inspired the exterior can be seen in the distance.

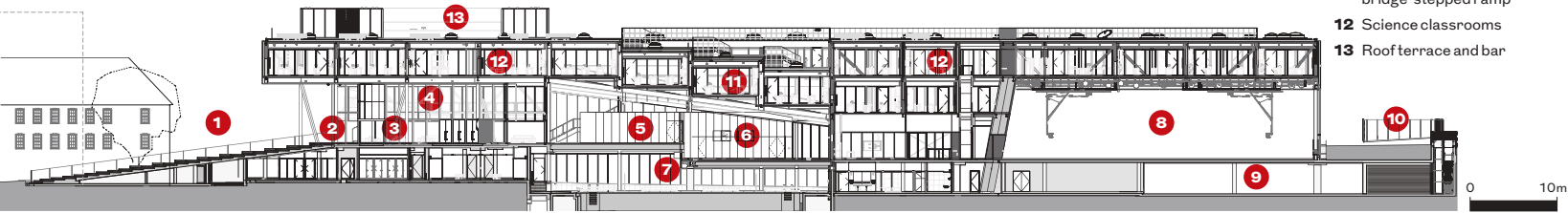
**Bottom** The 'lido' or swimming pool on the lower ground level.

fashion at this end (the school estate is undergoing an epic transformation with 11 new buildings in 11 years). Behind them, dug into the hillside, is the playing field – a large levelled area with terraced Brighton townhouses following the topography on two sides. OMA's complex is the only teaching building that crosses into the sports field. It stands alone, stretching along the western side, replacing a 1970s and 80s sports hall and pool.

'The school added many buildings in the 1970s,' explains van Loon. 'But the quality was not very high and quite quickly done. Thinking in education was also different. Those were simple buildings with corridors, stairs and classrooms either side closed off so you couldn't look in. Education now is more two-way, with kids learning from each other... In science, for example at Novartis' campus, knowledge needs to be cross-disciplinary. Biology, physics, all kinds of things are involved, and this more collaborative work mode demands other kinds of buildings.'

This is OMA's first secondary school sports building. The brief required a sports hall, gym, pool and a 25m running track for speed training. The science department was incorporated to free space next to Eric Parry's Music Recital Hall (RIBA J October 2016) where a huge performing arts centre by Amsterdam firm krft is planned. Van Loon wanted direct teaching in classrooms and informal space for self-learning too. Corridors become breakout spaces, entrance steps become an outdoor auditorium or area to hang out, and the roof a space to watch matches and the only point in the school with a sea view. Transparency was crucial in the relationship between indoor sports and those on the field, as well as with the classrooms and laboratories.

Section A-A



- 1 Outside auditorium stair

2 Covered viewing platform

3 Upper entrance

4 Atrium

5 Exercise studio

6 Weights gym

7 Swimming pool

8 Multipurpose sports hall

9 Underground parking

10 Minibus lift to parking

11 Wheelchair inaccessible classrooms on 'science bridge' stepped ramp

12 Science classrooms

13 Roof terrace and bar



KILIAN O'SULLIVAN © OMA



LIZ FINLAYSON-VERVATE

## Three classrooms are not wheelchair accessible

'I liked science at school,' says van Loon. 'I wanted people to walk through the corridors and see experiments taking place in the classrooms to encourage curiosity as well as uptake in them, particularly among girls.'

In form, OMA wanted a 'contextual' building. It experimented with scale, looking at the residential terraces, interpreting each as a cell. The building had to be long and fit with the flat roofscape of the terraces opposite as well as the stepping roofs elsewhere in Brighton. Externally, each function – sports hall, gym, classroom – is expressed as a unit, glass bounded by charcoal grey GRC cladding. This tactic made planning easier.

The approach to the building is towards the built-up end of the campus and bridges the one-storey difference with the playing field by creating two entrances. The first is a slow stepped concrete ramp that scoops people up to a viewing platform and into the atrium where the opening event took place. The other is an inconspicuous doorway at lower level that leads to the changing rooms and the swimming pool on one side of a wide corridor.

Upstairs, rooms unfold around spacious circulation intended to effortlessly draw people up from the atrium to the champagne



**Above** View down the stepped ramp, wheelchair inaccessible classrooms on the right, breakout spaces and seaside stripe sofas on the left.

**Below** Ground floor two-lane 25m speed training running track and sports hall in distance.

Credits  
**Architect** OMA  
**Client** Brighton College  
**Contractor** McLaren  
**Services engineering** Skelley and Couch  
**Structural engineering** Fluid Engineering  
**Landscape** Bradley-Hole Schoenaich  
**Acoustics** Ramboll  
**Fire engineering** The Fire Surgery  
**Sustainability** Eight Associates  
**Employer representative** Gardiner & Theobald

terraces on the roof and those sea views. Further on, still on the ground floor, past a stair to the science department above, an avenue separates the 25m running track from a gym and exercise studio. The multifunctional sports hall occupies the full width at the end, where the outdoor field provides a backdrop for indoor activities. Doors opening between the two allow their functions to overlap. From the gym you get glimpses of the pool below.

Upstairs are van Loon's spaces for creativity – corridors that are break-out spaces and exhibition spaces, as well as the biology, physics and chemistry classrooms and laboratories. Everything is high-tech, every material is manmade, sharp. The place smells rather toxic. To the third floor there's another stepped ramp that gives the building its external expression of stepped cells to mimic the townhouses. It was intended to be sloped, but became too steep, so three classrooms are not wheelchair accessible. I'm promised the school has a sophisticated room system to accommodate disabled pupils or redistribute them should someone become temporarily disabled, yet it is an odd decision.

On the semi-accessible roof is another, two-lane 50m running track, squeezed between railings and a roofscape of plastic light domes. The physics extractor vents are disguised by a rooftop bar and there is artificial turf instead of the original planned grass. It's the 'Brighton bling' that the school wanted, to counter an over-austere look it was afraid its Dutch designers would bring – along with



LAURIAN GHINITOIU, COURTESY OF OMA

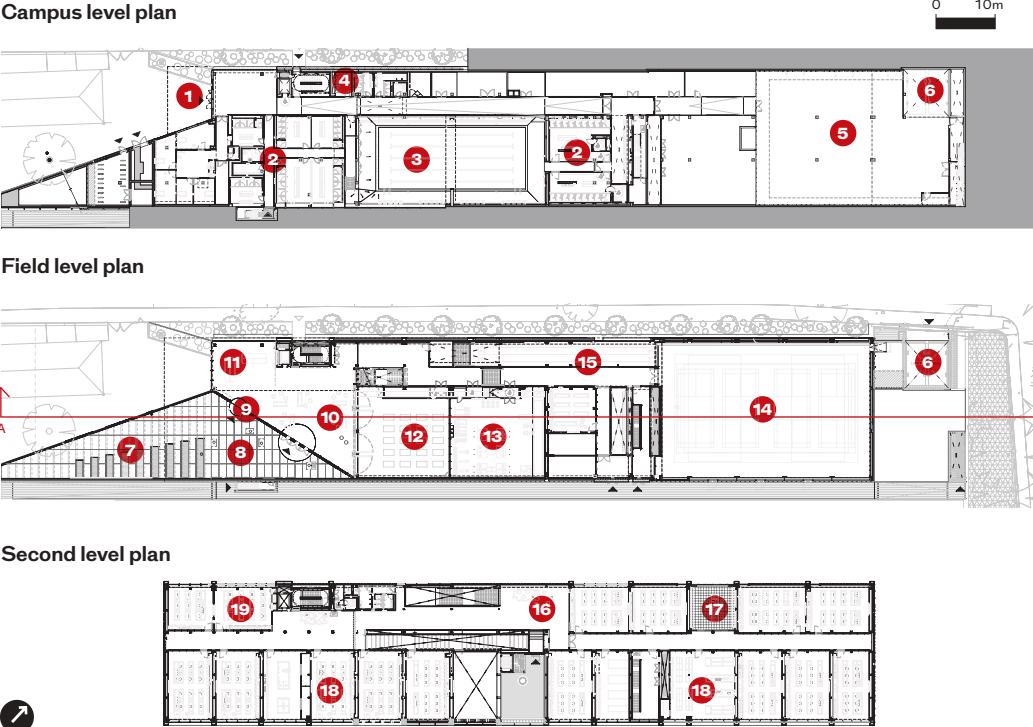




interior choices such as the seaside stripe sofas, pebble seats, light fittings and wayfinding words from 'pool' to 'lido' and 'cinema' to 'kino' that grate with the architecture.

That's not to say the architecture is spot on. The entrance steps are heavy. The 'dancing columns' and greyness under the cantilevered portico are bleak. And I don't buy the reference to stepped terraces as an excuse for inaccessible classrooms. The building looks cumbersome from the field, especially compared to the amiable scale of the campus elsewhere, but I don't share other journalists' dislike of the street elevation – it mostly neighbours an industrial park.

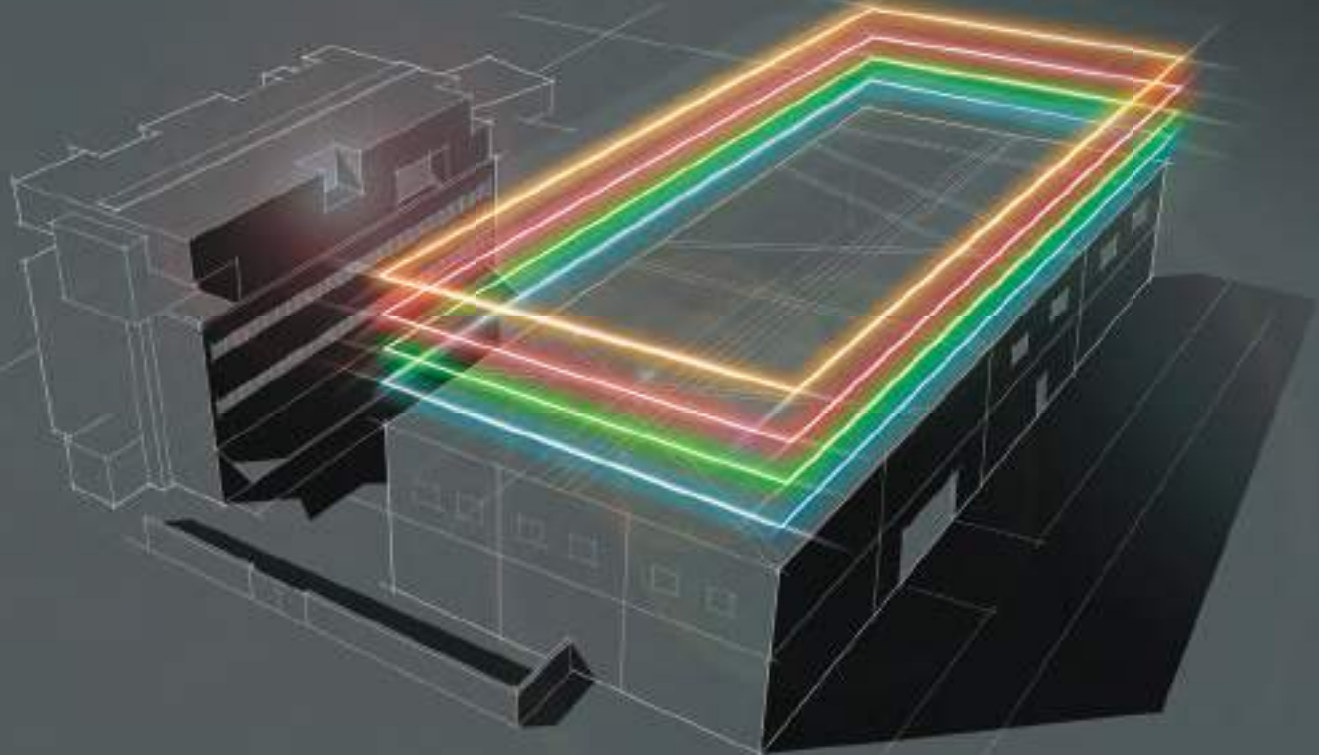
Who's at fault? It's difficult to know. In many ways this is more of the same from OMA. So little changes conceptually it could have been built any time in the past 20 years. It lacks the firm's usual magic, but it does provide fantastic facilities (the cinema is particularly good) and is bold for a British private school, although the state sector has been doing the all-in-one thing for years. The running track must remind you of Zaha Hadid's Evelyn Grace Academy, even the zigzag angles. Perhaps OMA didn't want to deploy its utmost sophistication here, and judging by the sentimental, backward-looking opening event, who could blame them? Some nuances of public schools are no doubt lost on the architect, but one Dutch journalist told me it all looks Harry Potter to them. What does it say to be a foreign firm building in Britain right now? ●



- Top left** Voids and lots of glass create interesting visual links between sports and science pupils.
- Below** Ground floor exercise studio. Sloping angles create interesting spatial geometries.
- |                            |                                 |                              |
|----------------------------|---------------------------------|------------------------------|
| 1 Lower entrance           | 8 Covered viewing platform      | 14 Multipurpose sports halls |
| 2 Changing room area       | 9 Upper entrance                | 15 25m running track         |
| 3 Swimming pool            | 10 Atrium                       | 16 Breakout space            |
| 4 WCs                      | 11 Converted ice cream van café | 17 Biology greenhouse        |
| 5 Underground parking      | 12 Exercise studio              | 18 Science classrooms        |
| 6 Minibus lift to parking  | 13 Weights gym                  | 19 Cinema                    |
| 7 Outside auditorium stair |                                 |                              |



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# Be the catalyst for change

The climate emergency will dominate Futurebuild’s keynote sessions and discussions, while the halls will be showcasing ways to build smarter



Recent climate change demonstrations and government declarations make one thing clear; we must all come together to take action against these challenges that face us. Put simply, without collaboration, we will fail.

Against this backdrop, Futurebuild 2020 (03–05 March, ExCeL London) will inspire architects and designers to join fellow industry leaders and innovators to be the catalyst for change that is so urgently needed to help deliver a more sustainable built environment.

**Setting the agenda**

Futurebuild’s highly-regarded Arena programme is returning for 2020, bigger and better than ever before, with the climate and ecological crisis leading conversations. Following a three-day progression, the discussions will be led by politicians, academics and industry shapers.

While conversation in the Arena will focus on the biggest issues facing the built environment at a macro level, six keynote stages located across the event will look at the specific challenges impacting buildings,

offsite, energy, interiors, resourceful materials and critical infrastructure. This programme of solution-driven sessions will share the latest thinking and research, to educate, inform and inspire visitors to make a positive change.

The buildings keynote stage will explore the latest thinking and initiatives in building quality and performance. Opening the programme on day one (3 March) is the RIBA Sustainable Futures Group which will host a session on delivering on sustainability with a greener RIBA Plan of Work.

**Below** Futurebuild 2020: An agenda-setting conference with a world class knowledge programme and innovative and inspiring brands



**Beyond the stages**

Around each keynote stage will be an exhibition of innovative brands, offering unique solutions to the challenges discussed in the companion knowledge programme. The exhibition will feature some of the largest headline brands in the sector, alongside SMEs and start-up organisations, creating a dedicated platform to connect these companies with forward-thinking specifiers and buyers.

Of particular interest to architects and designers will be the buildings section, which is expanding for 2020 to include two new showcase areas; the whole house retrofit zone and the digital impact zone. Here, visitors will have the chance to discuss the various refurb and retrofit solutions, both current and in development, as well as the latest developments in digital construction. The hugely popular RIBA Bookshop will also return, as a vibrant space for book signings from a number of RIBA selected authors.

With innovation running through the whole event, Futurebuild has announced the UKRI (UK Research and Innovation) Transforming Construction Challenge (TCC) partners are joining forces as its lead innovation partner. The challenge is made up

Tackling the climate emergency lies in all of our hands



**Left** Over 200 hours of structured learning across an inspiring conference programme and six keynote stages – all free and CPD accredited

**Above** Discover the latest technologies to fulfil your zero carbon strategies

of three organisations - The Active Building Centre, the Construction Innovation Hub, and the Transforming Construction Network Plus. Together, these organisations are unleashing and nurturing the construction sector’s innovative potential by working with industry and academia to drive change in how we build our buildings. They want to ensure we build safer, healthier, more affordable, more energy efficient buildings which deliver better outcomes for those who use them and for wider society.

The centrepiece of the partners’ presence at Futurebuild 2020 will be a centrally located Innovation Lounge. With the Challenge offering a range of opportunities for UK-based researchers and businesses, the lounge will provide visitors with the opportunity to meet with experts across the three organisations, and find out how they can become involved.

Along with TCC, Futurebuild’s innovation partners will be recognised through a dedicated innovation trail. A guided route will take visitors on a journey through the event enabling them to learn more about the latest thinking from these leading brands, including ACO Technologies, Smart Systems, Renson, Steico, 540 World and Forterra.

**The game changers are back**

Championing innovation is the central purpose of Futurebuild and the 2020 event

sees the return of the Big Innovation Pitch. Hosted across the event, in conjunction with BRE as technical partner, the competition is industry’s largest call-out for innovation to date and will identify and celebrate novel new approaches to tackle the biggest challenges facing us all.

Martin Hurn, event director of Futurebuild, said: ‘The responsibility for tackling the climate emergency lies in all our hands and we must collaborate in order to find solutions to secure our future. Futurebuild 2020 provides the perfect platform for forward-thinking decision makers across the built environment to come together and play a key part in driving positive change.

‘Innovation to us is more than just futuristic concepts, it’s about sharing the latest thinking and ideas, processes and solutions, products and materials. All these things coming together under one roof at Futurebuild 2020 will inspire people to do things differently and create real change.’ ●

For more information about Futurebuild 2020, the home of innovation, visit [www.futurebuild.co.uk](http://www.futurebuild.co.uk).

**futurebuild**  
03–05 March 2020 / ExCeL, London



The image shows a large, modern interior space. In the foreground, a wide, multi-level concrete staircase is populated with several people sitting and standing. The background features a wall composed of vertical concrete fins and large windows. The ceiling is made of horizontal concrete beams, and the floor is a polished, reflective surface. Warm, ambient lighting is provided by recessed lights in the ceiling and walls, creating a cozy atmosphere. The overall design is minimalist and industrial.

# Room for a view

...or two. Grafton Architects' Town House for Kingston University is all about space – light, breezes and outlooks. It helps you think

Words: Eleanor Young Photographs: Ed Reeve



Kingston’s Town House is a remarkable building for a modest university. Quite how that has come to be lies in the team behind it. Kingston University vice chancellor Steven Spier is architect-trained. You don’t get many of them. His director of estates is an architect; so is the project manager. The actual architect of the building is RIBA Royal Gold Medallist Grafton Architects. Spier is surprised himself when he realises what an architect-infused team he had. ‘It is all that stuff that architecture gives you – we believe in it,’ he says.

The RIBA competition brief for this student work space and library, with dance department, was set with aspiration that has been carried through – unusual for a client in what is often a quality-cutting world of higher education estates, where many good ideas end up value engineered to meanness. You can’t accuse Kingston University’s Town House of that. The volumes are big enough to take your breath away but are inhabited and unexpected, keeping you on your toes. Logical plans become complex interlocking volumes. Grafton’s Yvonne Farrell says so, but study the plans yourself and visit if you can: she is quite right. As Nicholas Hare Architects’ Student Centre for UCL shows, a relatively open brief enables exciting architecture.

One of those things that architecture gives you, that Grafton has talked much about, is ‘freespace’ – on which it pinned its curation of the Venice Biennale in 2018. Space and light yes, but it also encompasses views, air movement and sunshine and moonlight. On paper it tends to ephemeral flummery. In concrete you can feel how Grafton can claim your mind works differently if there is space above your head. It starts with the compression and release of the entrances, set in the corners of the building. Here the edges of the concrete floor plates above your head keep a lid on the first experience. But a few steps in and the building throws its arms open wide to you, reaching up and out.

The central staircase has a commanding presence



Section A-A

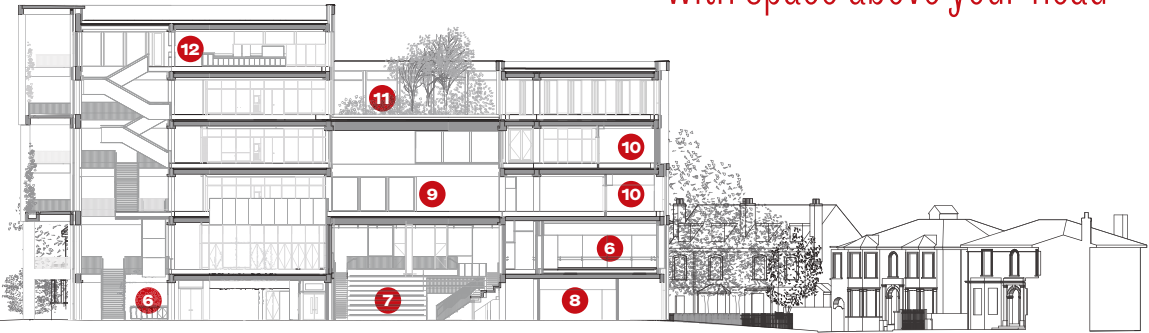
- |                 |                 |
|-----------------|-----------------|
| 1 Entrance      | 7 Courtyard     |
| 2 Atrium        | 8 Plant room    |
| 3 Project space | 9 Project space |
| 4 Corner room   | 10 Corner room  |
| 5 West garden   | 11 South garden |
| 6 Entrance      | 12 Café         |

Previous page: The courtyard auditorium.

Above Stairs at the entrance.



Section B-B



Your mind works differently  
with space above your head

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cost per m<sup>2</sup> nia

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(lines of concrete climbing the building, timber stairs inside them), this draws you upwards but the vertical impetus is offset by the ‘courtyard’ – an auditorium of oversized steps ranged to face into the building. Those perching on the steps are framed by an 8m gap between super-sized sliding doors. From the refuge of the steps staff and students have the prospect of the whole ground floor spread out before them, a commanding position that also gives views up into the library through internal windows. The courtyard is crisscrossed with routes, students cut through it to the bike park or, at a high level, between library and dance studios, perhaps leaning on the balustrade to spot a friend. It has space for 269 seated but is more likely to be used for a student fashion show than a lecture, says Spier. Its orientation is one of the products of a special part of this project, the adjudication committee. This was the group of competition judges – including Spier, architect John Jenner and university governor Nancy Cogswell – which selected Grafton Architects. They met at key points in the process to wrestle with big questions and ask difficult questions. Importantly, they were separate from the project or finance committee.

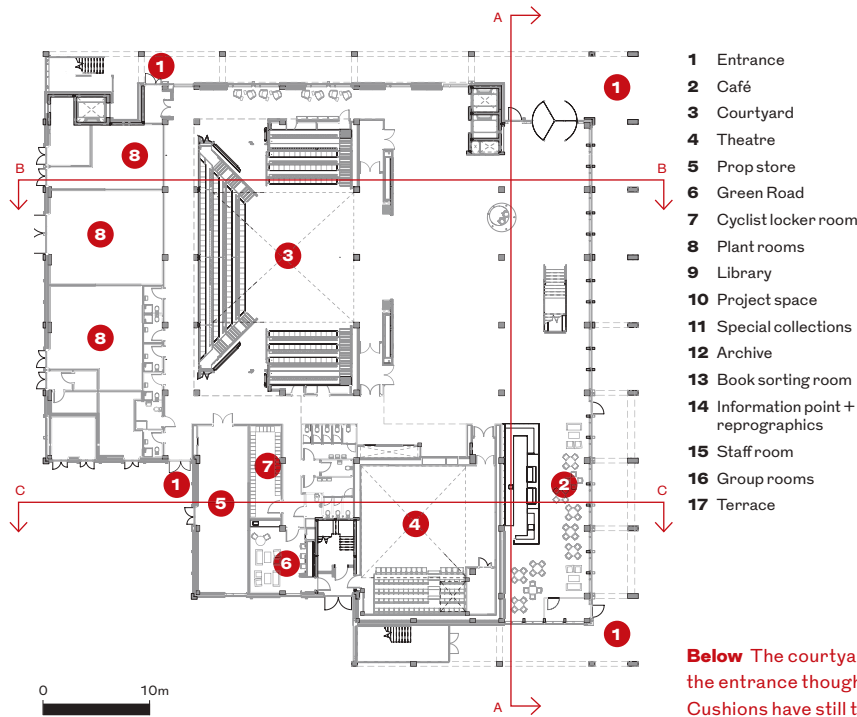
But the most radical element of the building is the loggias that edge it on the three sides. They might appear in photographs as a well done exercise in facadism: extended brises soleil, that give the facade depth, play with your sense of scale and green higher levels of the building. But more fundamentally they transform regulatory compliance on means of escape into a joyful everyday freedom. Instead of dark cores with escape stairs, students can trip down the outside stairs cascading along the facades from the fifth floor, straight into lectures in the next door building to the south, or northwards alongside the dark holm oaks in a pocket park. Students can get out to the fresh air, to look over Kingston while talking on the phone, to work among tall grasses on roof terraces, or – by the café at the top – to take a royal view of Windsor Castle. On the ground floor the loggias land as a colonnade, a civic presence onto an expanded street-side strip of green.



At third floor the concrete staircases along the façade switches to a condensed, steel dogleg staircase. Stage lights bring columns to light on darker days.

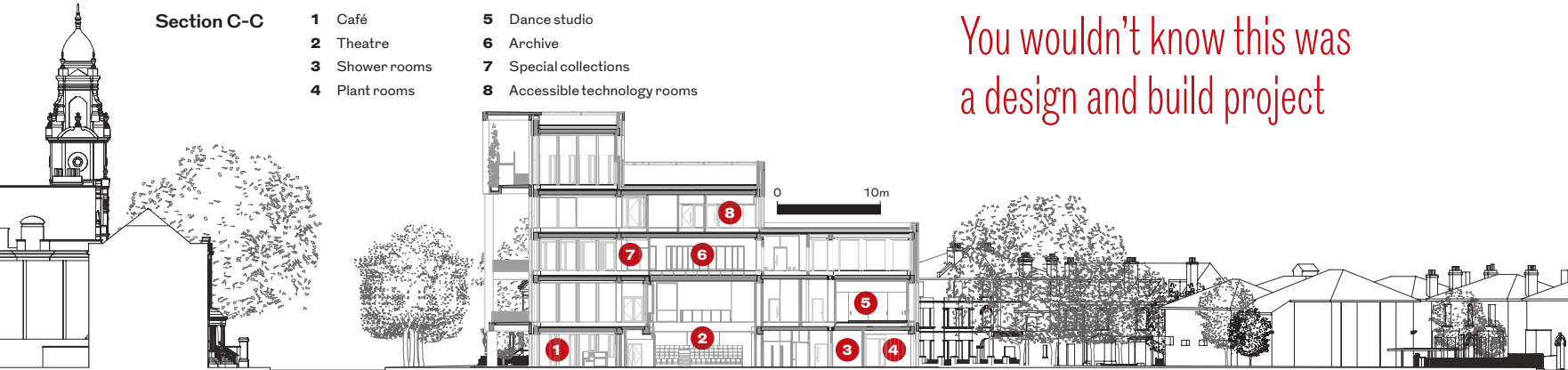
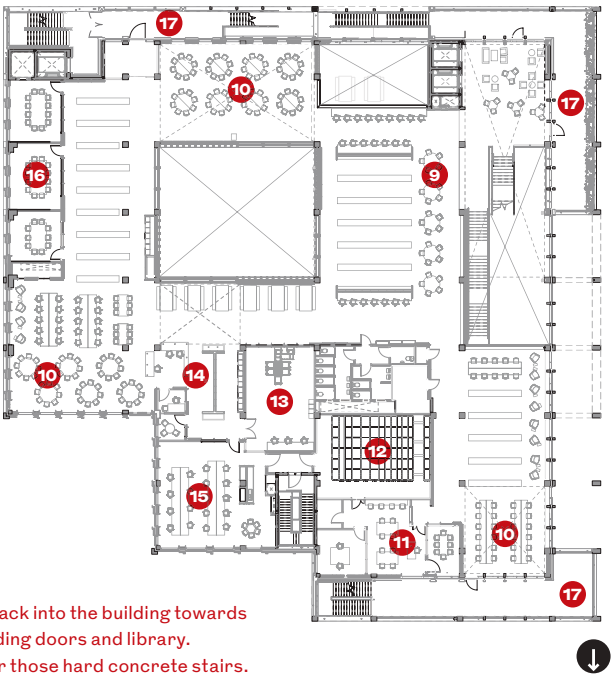


Ground floor plan



**Below** The courtyard looks back into the building towards the entrance though great sliding doors and library. Cushions have still to come for those hard concrete stairs.

Second floor plan



Anyone who has been keeping up with the climate impact of the embodied carbon of our buildings would feel uneasy walking into a building that so revels in its concrete construction. Grafton's position is that the concrete has to justify itself, pointing to the reduction in waste of using precast, prestressed compared to in situ concrete as a 'lean' structure. Blast furnace slag made up 36% of structural elements, reducing cement use. Grafton director Gerard Carty describes the structure of the floor plates as 'car park decks', the fins of the double T beams ensuring maximum span capacity. Open library seating flows through the building, gently ordered by the structure. 'We wanted to show the weight and order of elements,' says Carty. The grid is at 6.4m centres facing the street but stepping back into

**Credits**  
**Client** Kingston University  
**Architect** Grafton Architects  
**Contractor** Willmott Dixon Construction  
**Structural engineer** AKT II  
**M&E consultation** chapmanbdsp (design stage), DES Electrical/CMB Engineering (construction stage)  
**QS, project and cost management** Turner & Townsend  
**Client technical team:** Architon Group Practice and MG Partnership

the depth of the building the spans increase in length to accommodate the 12m wide performance space and 15m wide courtyard. Internally, the concrete is moderated by joinery that lines the deep reveals of doors and internal windows and sits in between the internal double glazing designed for acoustic separation. From this – or the co-ordination of lights and detectors gracing the concrete soffits on the joints of the double T beams – you wouldn't know that this was a design and build project. There is much praise for the contractor team from Willmott Dixon, and Kingston – with £111 million spent on the estate since 2014 when Grafton was appointed and at least one more major building to commission – is a client worth pleasing. It no doubt helped that Grafton Architects'



team came over every week from its Dublin base.

Vice chancellor Spier has been involved in a number of new builds during his ascent of the academic ladder. But at Kingston he sees the building as an answer to a particular problem. Like many less well-known universities, Kingston was caught on the hop when the cap on student numbers was lifted and establishments known by reputation could Hoover up more students than ever before. Town House is about attracting students and it is also about serving a different kind of student to those at more elite universities, those who may not have local student halls and are perhaps living at home. Spiers sees this sort of work space as the right of students at Kingston as much as those at Russell Group universities and of real value to them.

‘Here, students have complicated lives and families, and this is a way to draw them in,’ he says. ‘People like being here in a community of students. We try and keep them here on campus.’ ●



**Top right** The underside of the slab alternates structural T-bars and very controlled lines of lights etc. Beyond the glass are wires for vines to grow.

**This image** Kingston sees the Town House as a public face for the university, giving more space to the street and with a public café on the ground floor.

# Fix your eyes on...



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# Hotel guests sleep soundly thanks to Granada Secondary Glazing

Granada’s secondary glazing enabled restored grade II\* listed hotel Kimpton Fitzroy situated on a busy London road to give guests peace and calm while retaining its original character



Situated in Russell Square in the heart of London, the historic grade II\* listed Kimpton Fitzroy London Hotel opened in 1900 as one of the first purpose-built hotels in London. Originally designed by the architect Charles Fitzroy Doll, much of the hotel’s opulent interior was the inspiration for Doll’s later designs for RMS Titanic.

After extensive restoration, it reopened in 2018 as a modern luxurious 5-star hotel while retaining its important architectural splendour.

Due to the hotel’s central London location, noise insulation from traffic using the busy main road was a key requirement

**Above** Discreet Horizontal Sliders installed to reduce traffic noise entering the hotel room.



**Below** Kimpton Fitzroy Hotel is situated on one the busiest and noisiest roads in the heart of London’s City Centre.

in this major renovation project. The primary windows could not be changed due to the building’s listed status and the owner’s desire to retain them to preserve the building’s original character.

Granada Glazing’s aluminium secondary glazing was specified to attenuate external noise and create a quieter, more comfortable experience for patrons in both the 334 individual custom finished guest rooms and the 39 new luxury suites.

Working with London-based Architects, Granada Glazing designed, manufactured and installed a bespoke system using two and three-pane horizontal sliding windows,

Granada’s secondary glazing can reduce noise levels by as much as 80% - 54 decibels and can substantially reduce heat loss

**Right** Privacy shutters working in conjunction with Granada’s secondary glazing

**Below** Noise from nearby traffic has been substantially reduced in guest bedrooms with the installation of Granada’s secondary glazing.



balanced vertical sliders and heritage hinged units to blend unobtrusively with the existing primary windows.

Powder-coated in a white high gloss finish, the slimline aluminium frames utilised 6.4mm acoustic laminated glass, crucial in meeting the required noise reduction level. Granada’s secondary glazing can reduce noise levels by as much as 80% (54 decibels). In total 900 units were manufactured and installed, improving both acoustic and thermal insulation.

A key challenge was the size of the project. Working to a demanding programme, Granada’s close collaboration with the main contractor ensured that a premium quality installation was delivered on time and within budget.

Renovations across nine floors also involved reconfiguration of the public areas and inclusion of new restaurants, bars and event spaces.

Principally, secondary glazing was installed to combat noise and make the hotel quieter. An added benefit provided by Granada’s secondary glazing is greater thermal efficiency, reducing the building’s carbon footprint and energy costs.

Granada Glazing partners with architects and specifiers on the design, manufacture and supply of high quality commercial secondary glazing for all sectors and building types across the UK. ●

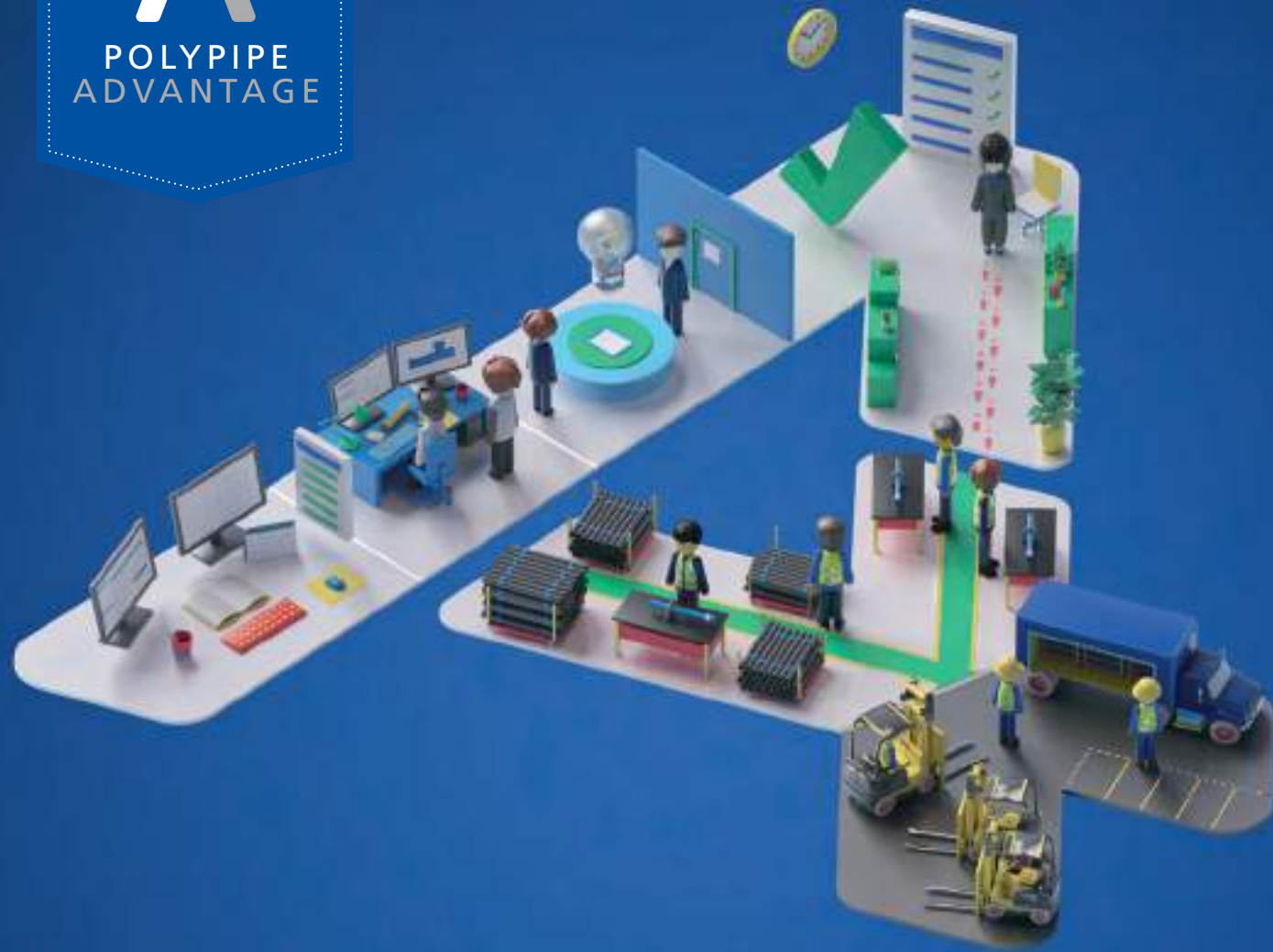
To hear the difference that Granada’s Secondary Glazing makes, please visit here: <https://www.gsecg.com/kimpton-fitzroy-hotel/>

For more information on how we can assist with your project or to book Granada Glazing’s RIBA Certified CPD, please telephone 01909 499 899 or email: [info@granadaglazing.com](mailto:info@granadaglazing.com)



**Left** Granada Glazing’s horizontal sliders are both slimline and discreet, they match the style and function of traditional casement windows. The panels can be lifted out of the frame to give full access to clean the primary windows. This is often a consideration missed when working on hotel projects or projects that require frequent access for cleaning and ventilation .





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# 2: Intelligence



Business, clients  
& services

## MAD Architects

Coronavirus means all construction sites in China are closed, but staff at MAD's Beijing office are working from home and hope for limited fallout for the business

**Has anyone at MAD contracted coronavirus?**

At present, no. There was a drama when one member of staff realised later that they had been in a meeting in January where there were people from Wuhan, but they didn't get the virus.

**What measures is MAD taking to avoid contracting or spreading the virus?**

Our Beijing office has remained closed since the holiday on 3 February and all our staff (90 architects and 10 others) are working from home in self-quarantine. Usually everyone works in the office so we are using a remote working software called Splashtop to access the server. Most staff are using their personal computers, otherwise the office has lent them one. We have a meetings system and each project team has a WeChat group (like WhatsApp). Staff log in every day between 9-10am and then they manage their workload/time.

**Does MAD have any projects in Wuhan? How is the virus affecting daily work?**

The practice doesn't have any in Wuhan or Hubei province, but it has around 25 projects at different stages in many other cities in China. However, all construction sites are closed, so site visits aren't possible, nor are new project visits. We're expecting that to continue until at least March. Beyond the homeworking, it isn't affecting us too much. No one can do any international travel because airlines have cut flights but our Rome and LA studios are operating as usual.

**What is happening at a wider level in Beijing?**

During the holiday, it was incredibly empty. There weren't cars or people in the streets. The only places you'd see people was in supermarkets stockpiling food and in pharmacies buying medicine and face masks. People are going out as little as possible, grocery shopping perhaps once every two to four days and walking their dogs every four days. Some are having groceries delivered to avoid going out at all. Since last week the roads are a bit busier and people have been for walks more; it seems to be getting a bit better.

**Do you anticipate a financial impact on MAD's business as a result of the virus?**

We don't see any immediate impact, but it is only a couple of weeks since the end of the holiday. We expect potential projects to have delays rather than get cancelled. The latest is that the virus may peak mid-late February and should be finished by April. We are reviewing the news every day and for the moment the office will be closed for at least another week. People have faith in the government and medical teams, and we salute the people on the front line in Hubei province.

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Intelligence is officially approved RIBA CPD. Look out for icons throughout the section indicating core curriculum areas.



# Distinctive designs for London’s Entrances

Boon Edam was tasked with selecting the right entrance products that focused on usability, security and design for London’s refurbished Devon House



In the London Borough of Tower Hamlets, adjacent to Tower Bridge in the prominent position looking over the River Thames, is Devon House at St Katherine Docks. Built in 1989 and forming part of a historic redevelopment by an Act of Parliament, it sits surrounded by shops, restaurants and bars with enviable direct transport links close by, including transport by boat.

Devon House underwent a full refurbishment in 2019 internally and externally that included a brand-new reception space and terrace with prime views over the river. The new reception area is presented as a social space, almost mimicking a coffee house with its relaxed atmosphere. A refurbishment by Blackstone demanded distinctive design features, and the gold tones that stand out against the warm browns of this project are symbolic to Blackstone’s previous refurbishments.

**Great relationships form beautiful projects**  
The lead architect refurbishing Devon House was Stiff + Trevillion – a west London based practice established in the 1980s, with an impressive portfolio of commercial, restaurant and retail projects. Having worked closely with the firm on previous and current projects – including Blackstone refurbishments – there was an established relationship and good understanding of the firm’s ambitions for Devon House.

‘From the outset, it was clear what the requirements were from Stiff + Trevillion,’ said Andy Collins, specification manager for Boon Edam UK. ‘Having collaborated with the practice on a number of occasions, we already understood their design intent.’

**Framed revolving door with a minimal feel**  
When Boon Edam was brought into the project at Stage 2 of the design process by Stiff + Trevillion, the client had already decided that the entrance would consist of one revolving door. With a predicted net internal area of 92,819ft² over multiple



floors and a variable design occupancy, it was our responsibility to help formulate the best entrance solution for possible density increases and rising footfall.

For smaller buildings, it is common to only require one revolving door that has the ability to cope with busy periods. In this instance, the choice of door came down to design. It was decided that a four wing Type One Tourniket would be the most suitable entry, meeting both throughput and aesthetic requirements. A Type One inherits a slimline 18mm soffit from the all glass revolving door (Crystal Tourniket) with the overall structural features of a standard revolving door (Tourniket) – such as aluminium framed profiles. This hybrid door allows for the drive to be located under the slab rather than in the canopy.

**Adaptable security with design intent**  
Along with the Type One Tourniket installation, it was understood from the beginning that Devon House would be designed with adaptability and growth in mind. We were aware of the design capacity of the building from very early on regarding the project. The building capacity helped to dictate the number of lanes needed around the entrance. We also had to consider the access requirements of the Disability Discrimination Act, which led to a wide

**Opposite** Devon house at St Katherine Docks.

**Above** Devon House reception, featuring Boon Edam Lifeline Speedlane Swings and Type One Revolving Door.

**Below** Devon House at night featuring a Boon Edam Type One Tourniket.



Devon House had to be designed with adaptability and growth in mind

lane set up on the east and west sides of the reception area. A wide lane configuration would allow disabled users to leave and enter through a similar type of turnstile.

Consideration also needed to be made for peak times. As this was a workplace, we understood these to be the start and end of the working day – and lunch time, which would also have to cope with bi-directional traffic with users leaving and entering the building simultaneously. The aesthetics of the lanes match our business edition Lifelines, where the construction is stainless steel and coated with Black RAL finishing.

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# Tech’s new dawn?

In an 11-page overview of technology’s promised golden future for construction, we examine automation, mass customisation and designing for whole building life. First, the possibilities and barriers to realising digital’s full potential

Words: Matt Thompson

The construction industry is at a critical moment. Thanks to sector-specific innovation using digital technologies, today’s wasteful practices are about change forever. It will unify our fragmented industry, knitting together many separate systems into one.

We’re whizzing up a recipe of ingredients – BIM, virtual and augmented reality, algorithms, AI, machine learning, advanced manufacturing, robotics, 3D printing, autonomous plant, reality capture, smart sensors, IoT, 5G networks, and so on – into a primordial soup, zapping it with enabling conditions, and hoping to serve up a new super-efficient, integrated, circular, value-added construction industry on Future’s table.

This would-be dream – which has been called a ‘system singularity’ – has in recent years ramped up to a must-have need. Ageing infrastructure, growing populations, urbanisation, housing crises, and, especially, climate change (and other environmental threats) all place a huge burden of expectation on the construction industry.

## Enforcement and cash

The market is not moving fast enough to meet this need so governments are trying to force the change. For example, Japan has a Smart Construction initiative, and Sweden, a Smart Built Environment programme. The UK equivalent is the Transforming Construction agenda, with its Construction Innovation Hub executive and seed-funding for everything from academic projects through R&D to demonstrator projects. Putting its money where its mouth is, it has a presumption in favour of offsite construction across five major government departments, and has

## WHAT IS THE SINGULARITY?

The technological singularity is a hypothetical future point in time at which technological growth becomes uncontrollable and irreversible, resulting in unforeseeable changes to human civilization – Wikipedia

**Below** The Jaguar Land Rover Advanced Product Creation Centre designed by Bennetts Associates demonstrates that moving towards standardisation can produce striking, sustainable architecture.



HUFTON + CROW ©



Investment in ConTech totalled over \$4.3bn in the first half of 2019

**Left** Bennetts Associates’ Jaguar Land Rover Advanced Product Creation Centre employed design for manufacture and assembly techniques for, among other things, its precast lattice floorplate planks.

recently appointed Mark Farmer, author of the influential Modernise or Die report, as its modern methods of construction (MMC) tsar.

Concurrently, the venture capital community has started a gold rush. According to the Wall Street Journal, investment in ConTech (construction technology) totalled over \$4.3bn in the first half of 2019, blurring into the no-longer distinct PropTech, which attracted \$14bn in the same period. With the global construction industry forecast to be worth in excess of \$24 trillion in 2021, and productivity gains of 40% possible from digital tech, that fever is only going to increase.

At heart, the singularity is nothing more than a route to industrialisation. This is a journey other industries – automotive is the favoured example – started many moons ago. Construction has resisted not out of truculence but because, as the industry that underpins all industries, change is extraordinarily difficult, made all the tougher in the knowledge that it must address incoming global risks.

The devil is in the detail, but ultimately it is all about highly automated design, maximum standardisation, efficient and quality-assured translation from digital to physical (and back again), and setting up robust data and materials feedback loops. Closing the loop is critical for long-term value. It validates solutions, facilitates machine learning and AI, and informs triple-bottom-line improvement.

Seductive at first glance, this vision has its detractors. Paul Karakusevic of Karakusevic Carson Architects, for example, recently damned volumetric modular homes – one of the fruits of the transformation – as ‘crude’,

‘over-scaled’, and a ‘blight’. Cany Ash of Ash Sakula dubbed the direction of travel a ‘religion’ that fails to take in ‘the complexity of building places’.

## Not all it’s cracked up to be?

Professor Stuart Green from the School of Construction Management and Engineering at Reading University, is similarly sceptical, but for other reasons. The current agenda is ‘over-hyped’, he says, with effectiveness ‘forever subordinate to narrowly defined efficiency’, with ‘direct material consequences for long-term sustainability and societal wellbeing’. Among its unintended consequences, he argues, is that MMC makes buildings less adaptable over time, de-skills communities, and does nothing to make housing more affordable.

Jane Burry, dean at the School of Design at Swinburne University of Technology, Mel-

bourne, Australia, and co-chair of the Fabricate conference due to take place at UCL in April 2020, sees industrialisation as a driver for public good. She concedes, however, that anything that makes building more streamlined might simply encourage us to build more or replace faster without due concern for the triple bottom line. As she says, ‘There’s been a lot of hype around the Google incursion into the construction industry. It will only want the low-hanging fruit, the straightforwardly deliverable buildings. It’s not morally bound to design the whole city for us.’

Even if these fears are misplaced, the dreamed-of future faces some pretty stiff obstacles. While the technology is forging ahead in astonishing ways and at breakneck pace, its adoption is slow and thinly distributed because dyed-in habits and ill-suited processes stand in the way.

That’s the polite way of putting it. Kelly

The automotive industry has brought together digital technologies. Could architecture? Here pictured: Bennetts Associates’ Jaguar Land Rover Advanced Product Creation Centre.





We fear taking on uninsured risks and resist efficiency because it might eliminate the variations that allow us to turn a profit

**Right** Staff at David Miller Architects, where the workflow is increasingly digital.



DAVID MILLER ARCHITECTS

Cone, vice president of industry strategy at ClearEdge3D, is blunter. According to him, the industry is in a serious mess: 'And 95% of that weird, nasty, adversarial S&M stuff we live with day-to-day as our normal operations in this business comes from our contracts.'

We fear taking on uninsured risks. We agree to produce unnecessary deliverables despite their patent inefficiency. We resist efficiency because it might eliminate the variations that allow us to turn a profit.

Emma Hooper, information management specialist with Bond Bryan Digital, not only recognises the problem but has seen the solution: linking contracts with integrated project insurance. In a past life she worked on the first ever such contract managed by IPInitiatives, and it was revolutionary. 'You need a whole new framework with the right people at the right time, with the right motivation and information management structure. Only then can you reap the benefits from plugging in the tech.'

David Miller of David Miller Architects, well known in the industry as a BIM adoption guru, agrees that contracts just aren't keeping pace with technology. He also identifies fragmentation as a major barrier to the kinds of value-driven, sustainable future we want. Despite years of Soft Landings, architects never meet facilities managers, he says, and only rarely meet the contractors, meaning that there is no 'continuity of information'.

None of this is news, but pressure to change has come to a head. The Construction Leadership Council's 2018 Procuring for Value report, backed by the government of the day, called for 'an outcome-based, transparent, and efficient industry' and said the Construction Sector Deal would not be possible without procurement reform on the basis of whole-life value and performance.

On balance, the stars do appear to be aligning. The great imponderable, however, is when. Jane Burry reflects that systemic change is slow. 'These new experiments may only be realised in another 100 years. If Corbusier or Mies walked into a contemporary city, they'd be likely to say, "I see you finished what I started".'

Jamie Johnston, head of global systems at Bryden Wood, a practice heavily invested in the Transforming Construction agenda, is much more optimistic. 'With BIM and super-planned design and manufacture it's different. That's not wild speculation; that's next year.'

David Miller is somewhere in between. 'After all,' he says, 'We thought that design information would be automated by 2010, but we still have to fight with that!'

The future is always distributed and uncertain. If it happens at all, the 'singularity' is likely to be gradual and incremental, requiring considerable change in skills, composition and business models, but is

nonetheless manageable.

The threat, of course, is that it happens all at once. As Graham Harle, global CEO of Gleeds, said recently about the need for R&D, the great danger is that a giant digital tech behemoth armed with big datasets, AI, and almost limitless processing power, does for clients 'in 24 hours' what might take Gleeds six months. That's a paradigm shift that few in the construction industry as a whole, let alone the architectural community in particular, could compete with.

#### Implications for architects

The proposed singularity mirrors the future plotted in the book *The Future of the Professions*, by Richard and Daniel Susskind, which predicted the professions' obsolescence through routinisation, automation, and mass customisation. That appears to be happening.

David Miller stresses the need for architects to 'get out of their own little bubble' and think of themselves as part of a much bigger built environment system. 'The danger is that the profession does not realise that it is all connected.'

Jaimie Johnston concedes that there are 'no signposts' and that architects are all 'explorers in the wilderness'. He advises practices to find the headspace to ask, 'If you knew everything that we currently know about technology, manufacturing and automation, what would you do with it?' ●

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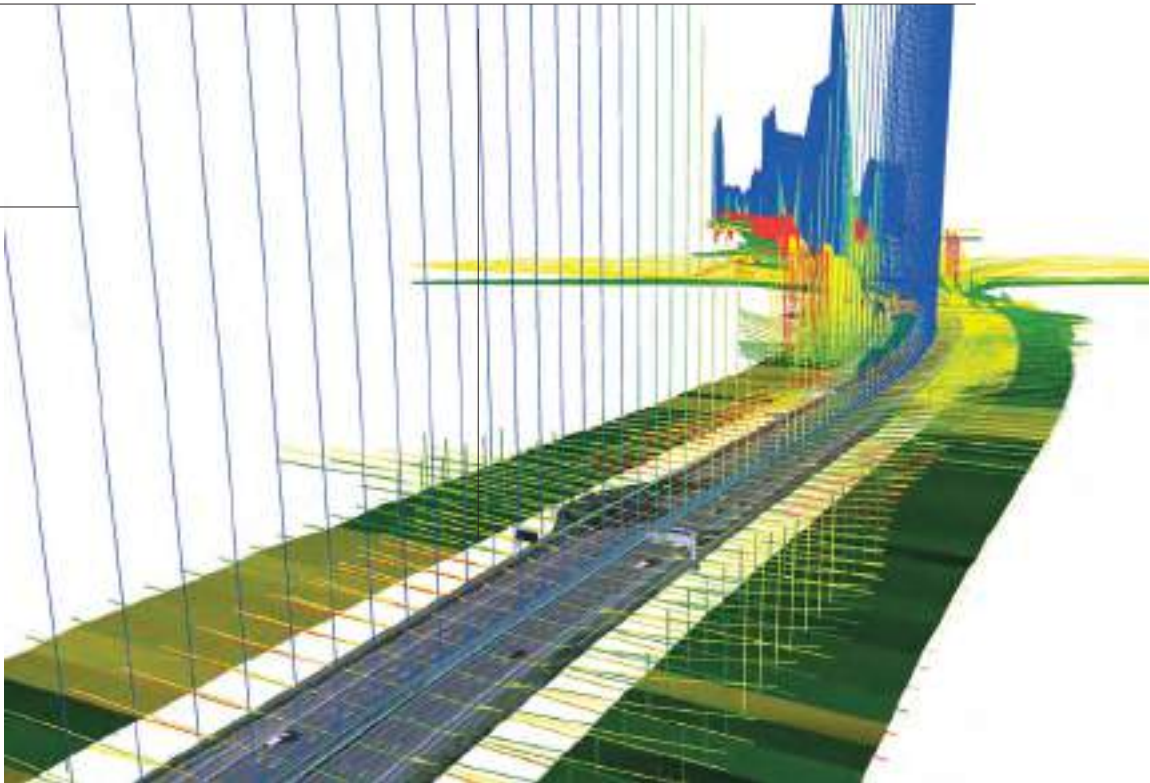




# Could AI be your superpower?

For generative design, automation needs a new breed of data-savvy architects to set the rules

Words: Matt Thompson



Automation is a vast generic descriptor that applies to many processes in both the physical and the virtual realms. A key principle is that it reduces or obviates the need for human participation. Provided it is properly verified and validated, and the return is worth the investment, it can add significant value. This is because it dramatically speeds up processes, improves accuracy and has the potential to bring down costs.

A prominent example of this comes from the Rapid Engineering Model (REM) software, developed for Highways England by Bryden Wood. It automates the design and location of overhead signage gantries for emergency slip ways by drawing down geo-located data from third-party sources. Bryden Woods’ Jaimie Johnston explains the advantages: ‘What traditionally took a team of people six months, our software can do in a couple of days. That’s not just slightly better – it’s a revolution.’

Depending on your perspective, this kind of thing either threatens to put people out of work or frees them up to concentrate on other value-adding refinements that cannot yet be automated. Either way, the correlation between increasing industrialisation and improving human wellbeing documented by organisations such as Our World in Data and

the SDG Tracker suggests that, on that front at least, it is a net good.

It is useful to distinguish between automation that allows the creation and elaboration of data (for example configuration, optimisation, generative design, BIM), and that which allows data to be translated from the virtual to the analogue or physical worlds (visualisation goggles, robots, 3D printing) or vice versa (sensors, reality-capture scanning and measurement technologies).

This article is about automation that allows the creation and elaboration of data for design efficiency and effectiveness. Beyond architectural and engineering design, this includes interoperability, project management, communication, reporting, and even regulatory and code compliance.

What links all these use-cases is data, the golden thread that, in a proposed singularity, is a virtuous spiral leading to ever-improving

Most building currently goes up without the intervention of any licensed professionals

**Above** A revolution in speed and accuracy for Highways England: The Rapid Engineering Model automatically generates BIM models. In this visualisation a section of motorway is overlaid with data analysis results showing gradient, curvature, verge width, side grading, visibility.

quality, value, and societal outcomes.

The world of Construction Technology (ConTech) demonstrates that processing power, while still a limitation, is large enough to admit some tantalising future prospects. The Boston Consulting Group predicts that by 2028, full-scale digitalisation could help the industry save an estimated 12% to 20%, equal to \$1 trillion to \$1.7 trillion annually.

### Onwards to singularity

The variety of innovation is breath-taking, leading inexorably towards the singularity. In this future, design will have switched from computer- to human-aided. The role of architects in design and compliance will increasingly distil into governance. Rather than designing and refining project-specific designs, they will continuously improve generic rules that underpin designs.

Some businesses – notably Speckle and Hypar – are already providing the enabling platforms. Anthony Hauck of Hypar explains, ‘We’re trying to capture the idea that

expertise can be recorded and reapplied in multiple contexts.’ If this looks like nullifying your business model, it shouldn’t. It simply allows you to reach more clients. After all, he says, ‘Probably the vast majority of building world-wide currently goes up without the intervention of any licensed professionals at all.’

The point is to step away from blank slates at project inception, which, says Gavin Pike of Bennetts Associates and the Get It Right Initiative, is a perennial problem. ‘Everyone’s continually reinventing the wheel, which is clearly wasteful,’ he says. Bennetts tries to improve the situation using information management processes but recognises how limiting it is not to cross-reference to others.

With a change of mindset as much as of contracts, the industry can overcome its copyright jealousy, which is seen as a small price to pay for the overwhelming value gained from others doing the same thing. While the professions are notoriously wedded to copyright, there are signs that commonality of purpose can break down those barriers. The Architects Declare movement shows willingness to collaborate for the greater good.

There are encouraging signs elsewhere too. The construction industry-sponsored

With a change of mindset as much as of contracts, the industry can overcome its copyright jealousy

**Below** Screenshot from the free, open-source PRISM app collates data about housing from around London to allow users to rapidly configure options on London plots.



i3P group already pools effort to enable critical R&D, while Sir Robert McAlpine recently convinced 25 other companies to share data through the Construction Data Trust.

### Don't have to be a mechanic to drive a car

The growing libraries of nuggetised expertise will provide verified bases to start from before the algorithmic design engines take over. In just a few keystrokes, generative design configurators such as Testfit or Spacemaker, or the free PRISM application developed by Bryden Wood, already allow you to rapidly build early-stage models compatible with Revit, churning out hundreds of viable options in seconds for instantaneous co-creation. David Miller of DMA says these apps are ‘fairly clunky’, but are likely to get better. Eventually, architectural, structural and MEP models will mostly be generated automatically, speeding up optioneering and consigning clash-detection to the past.

Although coding skills will have become a normal part of the practice mix during the transition, third-party visual programming user interfaces will catch up – probably a good thing given the breadth of knowledge architects are already expected to have. As



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**Right** Making the information shareable: this BIM model of a typical two bed flat was used to make three steel-framed volumetric units fabricated off-site. The scheme is for 130 homes for social rent and shared ownership.

Hauck says, 'You don't have to be a mechanic to drive a car. I don't think coding should be the end destination for our profession.'

Information management expertise, on the other hand, will have become a core professional competency. By itself, data is insufficient. To become useful, it must be clearly defined with rules for how it can be used, and have a common generic structure.

In a data-centric world, architects must define as well as solve problems. This was the 'big penny drop' for David Miller. 'Everything has to be set up so the baton can be picked up by others at different points and the information remain accessible and interoperable.'

Too often, the value of data is lost because, despite looking good in the geometric model, it is in fact eccentrically structured, producing what information evangelist Emma Hooper of Bond Bryan Digital calls 'pretty-bad modelling'. Adhering to the new ISO 19650 series of standards governing BIM and its guidance (which she is involved in writing), will fix a generally chaotic picture.

The rules governing information are generic, leading to a glut of business tools useful for administering projects or offering 'single source of truth' platforms, such as Viewpoint, Procore, Kreo and Plannerly to name a random selection. The Centre for Digital Built Britain (part of the Construction Innovation Hub) is even exploring the possibility of encoding regulations, the long game being to enable automatic compliance-checking.

The ultimate expression of the singularity will come when reliable AI and machine learning mature. Fed by big data harvested from the digital twins of buildings and infrastructure in use, they will turbo-boost generative design engines. As well as baking in buildability and closing the performance gap, this feedback will enable optimal sustainability and other critical public goods. An early example of this emergent area is WeWork's 'neural network' which predicts meeting room utilisation – estimated to be 40% more accurate than human designers.

Computers cannot yet mimic the intuitive leaps that humans are capable of. Gavin Pike does not think it will happen any time



soon, but concedes that, if it does, there's a risk that clients might forget the benefits of 'the architect's governing eye'. Autodesk's Kyle Bernhardt puts a much more positive spin on it. He thinks AI is all about enhancing the intense creativity of architects, gracing them with a completely new 'superpower'.

Get the principles right and there is almost no limit to how far automation can go. Without trivialising the ingenuity of the technological innovation involved, the only things holding it back, in the virtual realm at least, are processing power, permissions and syntax.

#### Implications for architects

The automated future means rethinking business as usual. If it hasn't already happened, the designs of the future will almost certainly be crowd-sourced. As David Miller says, 'Your baby is actually a shared endeavour. That takes a mind shift, which clashes with how architects are trained.'

As generative design matures, architects' involvement will be in partnership with the software provider, either directly or by taking advantage of their open-source platforms. 'If there's a glitch in the project model,' says Jaimie Johnston, 'you don't fix

the model; you fix the rule set so it only ever gets better.'

While it will relieve the drudgery of reinventing wheels, generative design will also reduce the number of hours you can charge. This time can be redirected into better early-stage optimisation with the help of configurators. Johnston again: 'It makes lots of options appraisal easy so you will get more and better architectural variation.'

Emma Hooper identifies those 'pretty-bad models' and the BIM information exchange at Stage 4 as the big problem. The space between design and site is 'a black hole that sucks down information,' she says. Her advice is to adopt the ISO 19650 series, always think about the end use and work backwards from there to make your output optimally robust and useful.

Gavin Pike recommends focussing on standardising digital approaches right across the design supply chain. 'Anything less than that makes a mockery of the whole process.'

Architectural drawings will cease to have any value. David Miller sees this as a major challenge for the profession as gratification from the 'visual endorphin hit' of a beautiful working drawing has to be delayed until the building is complete. ●





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## Same, but different

With MMC shifting construction from the site to the factory, mass customisation offers variety. But how to manage it?

Words: Matt Thompson



'The singularity' envisages a switch from mainly traditional on-site construction to mainly modern methods of construction (which go by various names including pre-fabrication, volumetric, modular, offsite manufacture) using design for manufacture and assembly (DfMA). In it, all that is left for the contractor to do is to prepare the ground and assemble the modules as they arrive on site.

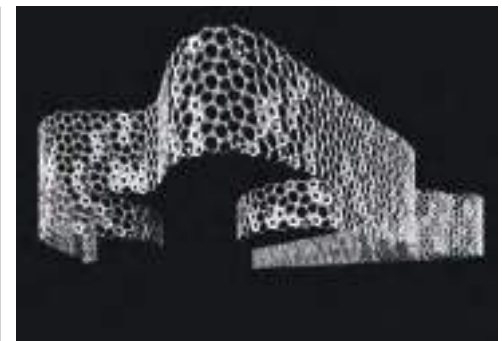
The pre-manufactured value (PMV) of this move is well-rehearsed – safer, faster, less wasteful, better quality, more sustainable, and so on. Extracting the fullest possible benefit from it is less well understood, however, presenting designers and the supply chain with significant but exciting challenges.

Maximising PMV requires architects to value engineer their own output. It requires design to a level of detail that is capable of

being manufactured. It means tessellating standardised kit-of-parts components to fit a standardised structural frame. It means early-stage planning in collaboration with the whole supply chain to optimise off-site production, delivery and on-site assembly along a purely digital workflow.

In short, it means emulating the 50-year old manufacturing revolution that has transformed, for example, the automotive industry, with the benefit of being able to learn from its mistakes. The laggard, inefficient but vital construction industry will be transformed.

Of course, there is an elephant in the room. Construction has innate physical constraints and the baggage of centuries of stubborn habit and bureaucracy standing in its way. These legacy roadblocks are real and, in many instances, important facets of the



**Above** Halfway to mass customisation. Art facade 'The Sound That Light Made' (2015) at Brisbane Quarter, Australia, shows what is possible when existing manufacturing capability from the automotive industry is subverted to construction. Pattern generation, visual impact and control of the amount and distribution of different panels types were modelled digitally (above). The physical components were fabricated directly from the digital model before installation (top).

ALEX KNOX, ARTIST; GANHUI CHEN, LECTURER IN ARCHITECTURE, SWINBURNE UNIVERSITY OF TECHNOLOGY; UAP, CONSTRUCTION



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## Intelligence Tech Digital revolution

**Right** Glass fibre reinforced concrete (GFRC) 'tusks' form a support frame for the GFRC cladding panels to line tunnels for Crossrail.

**Below** The digital model for designing linings to tunnels for Crossrail was used to drive component manufacture, logistics and assembly.

governance checks and balances that hold the built environment accountable to the stakeholders it serves.

Perhaps the most important consequence of these roadblocks has been to require that, to a greater or lesser extent, every new building or asset is a one-off prototype. Unfortunately, this fundamentally holds back the standardisation required to make the singularity happen. To bastardize Henry Ford's alleged quip about Model Ts, offering any colour of building so long as it's black is a non-starter.

### Individualising the prototype

A newer concept is changing all that: mass customisation. It allows you to satisfy multiple different customer needs from the same production line and supply chain without unduly affecting the (low) unit cost. Also called personalisation, made- or built-to-order, the concept is already mature in many areas including – you guessed it – the automotive industry. David Miller of DMA has a growing and mixed experience of this nascent concept. 'Mass customisation is about being intelligent about what it is that you break down into a system. Do as much offsite or in factory conditions as you can.'

Bryden Wood's Crossrail project to design and apply linings to tunnel walls exemplifies how this might look. Starting from accurate digital scans of the tunnels, the architect's design – a panel-and-ladder frame system using SolidWorks software – directly informed manufacture. Because one CNC machine was able to produce a variety of different moulds for the panels, it was possible to get a bespoke solution from a standard process. Working from accurate scans allowed a design to fine tolerances and minimised the overall variety of panel shapes. With the ladder frame accurately in place, the sequenced panels went in much more quickly than predicted, with no on-site workarounds needed.

The idea comes with compromises, as Jane Burry discovered when her team at the Swinburne University of Technology tried



BRYDEN WOOD (2)



Important to resolving the mass customisation paradox is the concept of platforms, a physical system with a digital twin

to take its bespoke FABPOD into production. 'Disappointingly, our best viable mass customisation offer boiled down to three options: cheap, standard, and expensive. It was a real revelation to me: architecture-to-product design is not a continuous spectrum – we have different ways of looking at the world.'

Globally, the industry and its investors sense that the confluence of technology, innovation, motivation, and societal need has hit a sweet spot. Starting with housing, they now hope economies of scale will allow more customisation without affecting commercial viability. Indeed, the sector is predicted to grow rapidly, reaching an annual value of \$215 bn by 2025, equivalent to around £167 bn.

Recent deals include Japanese firm Sekisui's hook-up with Urban Splash, Goldman Sachs' investment in TopHat, and Softbank's gargantuan \$865 million punt on Katerra. Even the UK government is getting involved, with Homes England backing Ilke Homes to the tune of £30 million.

One danger, of course, is that the fixed overheads of a manufacturing model can't so easily flex with property cycles. Another is that you just transpose what happens on site to the factory without fundamentally rethinking how value is added. This leads to what Daniel Hall, assistant professor at ETH in Zurich calls the 'mirror trap'. His academic research identified three ways to escape:





**Above** Modules on the production line at the Ilke Homes factory in Knaresborough, North Yorkshire: safer, quicker, cleaner, more sustainable.  
**Left** Architecture as product design: a module being craned into Ilke Homes' Hawthorne Avenue development in Hull.

spin-off, vertical integration, or digital systems integration. Katerra, Blokable, Project Frog and Boklok, for example, are experimenting with some of these.

#### Get on the platform

An important part of resolving the mass customisation paradox is the concept of platforms, a physical system with a digital twin. Bryden Wood, which has been advising the UK government about the issue, defines platforms as 'integrated systems made from components (products or sub-assemblies manufactured by a range of suppliers) with known interfaces that can be combined in a consistent and well-defined way to create high performing assets.' Not only was it involved in a project that produced a universal connector – SEISMIC – it has also developed a number of generic structural frameworks to suit building types needing different clear spans to underpin the system.

The notion is seen to have immense social, economic and environmental benefits, and so the newly established Construction Industry Hub is exploring the idea with the Manufacturing Technology Centre. They have invited product suppliers to develop 'kit-of-parts pre-engineered solutions' that combine digital, design and manufacturing principles, supported by 'a clearly defined dataset describing attributes and performance criteria'. The example they give is 'plug-and-play mechanical and electrical components that fit into a manufactured, insulated and finished wall panel' which can be installed on site 'without the need for traditional crafts and trades'.

Across the pond, ProjectFrog is leaping ahead. It has just released a piece of software called KitConnect in collaboration with Autodesk that aims to enable the digital flows necessary to bring this systematisation into being. According to vice president Mike

Eggers, the system standardises how kit-of-parts information is organised so that it can be easily understood by anyone who subsequently encounters it, regardless of their role or the tools they use to discover it.

Beneficial though moving offsite is, it won't have the required impact on productivity unless it is scaled up. In the realm of grand publicly funded social and industrial infrastructure projects, it should really offer extra value. The taxpayer will get more for less and the sector's capacity will more likely be able to meet the major projects capital pipeline.

There will surely be teething trouble around intellectual property, standards, and rules, to say nothing of aesthetics. Nonetheless, with so much impetus behind it, as the UK government's MMC tsar Mark Farmer put it recently: 'The genie is out of the bottle. Change is coming.'

#### Implications for architects

One of the first things Farmer was keen to stress after his appointment as the MMC tsar in November 2019 was that architects should learn much more about MMC systems and DfMA. 'The design profession doesn't need to see it as a threat if it thinks intelligently about how it interfaces with technology and manufacturing principles,' he said.

David Miller is clear that architects should influence what the mass customisation options are. 'If we don't engage, the system will produce ugly boxes. If we do, it could be quite special.'

Emma Hooper, information specialist with Bond Bryan Digital, thinks early collaboration is the root of success. 'It's not separate disciplines any more, but people with different bits of knowledge that you need to piece together at the right time.'

Cambridge University's Dr Michael Ramage, director of the Centre for Natural Materials and academic advisor to the CDBB, wants architects to reframe how they think about design. 'Work out what you can do for a construction factory that is different to a site. Ask yourself, "If I never printed a drawing again, how would I get my building built?"'

Andrew Anagnost, CEO with Autodesk, is convinced that more and more buildings will be fabricated off-site. Success will come if you have to have 'tight quality control, model-based processes, tight flow control, and good logistics planning; you start to look like a manufacturing company,' he says. ●

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## Can we close the whole-life data loop?

Share your building data in digestible form and whole life design could let you better manage buildings, track reuse, share lessons and answer questions we've not yet thought of

Words: Matt Thompson

We have a deep reserve of computing power at our fingertips. Astonishing innovations in digital automation afford us never-before-seen design capabilities. The case for switching to advanced manufacturing principles is compelling.

But in all this there is a crucial missing link: whole-life integration. If the industry continues simply to spew out projects without understanding how they perform in operation, it can't improve. It will carry on shooting in the dark, aiming for good long-term value but never knowing if it hits. For an industry that generates 9% of UK GDP and 40% of carbon emissions, this looks like an oversight.

On many functional levels, of course, the industry is already extremely effective. Unfortunately, this is no longer good enough. With need outstripping the industry's capacity to deliver and global threats galloping towards us, our social, economic and environmental stability is at risk, alongside ageing infrastructure, urbanisation and growing populations. Public opinion, investor pressure, and stringent regulations are forcing the industry to address its increasingly hard-to-justify carbon footprint and contribution to natural resource depletion.

The singularity response is to create 'digital twins' of assets and close the data loop. This means designing with the building's operation and end of life in mind. Too often, the farthest horizon for design is handover, storing up trouble for later. It's the difference between cradle-to-gate and cradle-to-grave or, better, cradle-to-cradle boundary conditions

that are considered in Life Cycle Assessments.

A cradle-to-cradle system diverts materials from landfill by designing-in adaptability and reuse, an important stepping stone to a circular economy. Championed by the Ellen MacArthur Foundation and the EU, practical tools that can help you to make the right design decisions for circularity are still maturing. Once again, turning the physical into data is key. As BAM's group director of

**Below** Digitising an existing barn allowed new insertions to be accurately modelled. Here a CNC-cut CLT element fabricated off-site to fine tolerances is lifted into the barn at Anstey Hall, Cambridge, avoiding complex temporary works and breathing new life into the heritage structure.



sustainability Nitesh Magdani puts it, 'Material without information is waste.'

Fortunately, the EU's Building as Material Bank project tackles the issue, introducing the concept of materials passports. Cambridge University's Dr Michael Ramage, director of the Centre for Natural Materials and academic advisor to the Centre for Digital Built Britain, describes a precursor example of how this might work. Microtec makes digital twins of logs to optimise their milling. 'Every plank is tagged and tracked through its life. While it's still in a building, you can find a home for the timber before demolition, yielding economic and sustainability dividends.'

Information from assets in use has three useful destinations. It can cycle forward to benefit the facilities manager. It can bounce out of the construction ecosystem to inform business, public policy, and the third estate. Or it can cycle backwards to validate design and allow lessons to be shared.

Gavin Pike, associate director at Bennetts Associates a member of the Get It Right Initiative (GIRI, a UK construction industry group dedicated to eliminating error), is frustrated that capturing lessons does not happen more often: 'Some clients don't see the value. The learning is never reinvested.' Repeating mistakes costs the industry £10-25bn per annum, according to GIRI.

Post occupancy evaluations are important in tackling the climate emergency, but say little about other value indicators: occupant wellbeing, worker productivity, patient recovery rates, educational outcomes, local economic impact, and so on. David Miller of



BLOKABLE



DMA says such quantitative feedback ‘would allow architects to argue for design on the basis of evidence rather than gut feeling’.

Change is coming

There is a groundswell of change underway. The UK Government is acting under its Transforming Construction agenda, and the whole-life value of public assets is one of the main focuses of its innovation funding drive.

The CDBB has laid out a vision for a National Digital Twin. The idea is that public infrastructure assets will all have interconnected operational avatars from which performance and value can be monitored. Governed by the Gemini Principles, CDBB says it could release £7 billion of benefits per year.

Tech companies are on the march too. Although their focus is smart asset management, the potential for other destinations for their data is tantalising. Their tools are connected sensors, secure Internet of Things ‘edge’ technology, and AI-powered facilities management software.

Blokable, for example, pre-installs connected Bloksense hardware in its prefab building system, which reports to an Insights Dashboard designed to help owners minimise maintenance, repair, insurance and other costs with alerts, usage monitoring, and trends. Iotium’s edge tech allows automated on-site sensors to connect securely to cloud-based applications. In the offices sector, Sensat, Cohesion and Thoughtwire promise proprietary digital twins to, respectively, ‘build a more sustainable future’, ‘optimize portfolios’, and ‘orchestrate data

Above The BlokSense Insights Dashboard is pre-installed in a hardwired system built into the Blokable Building System, equipping community and property managers with software tools to monitor safety and performance, manage access, and improve comfort.

from people, processes and connected devices’. ClearEdge 3D and Airsquire capture as-built buildings digitally.

Making sense of the tsunami of data will rely on AI, the one feeding the other in a virtuous spiral of increasing usefulness. With iron-clad information security and benevolent human governance, the resulting intelligence has unlimited potential to refine our actions for the good of people and the planet.

The applications of this intelligence are limited only by our imagination. Within the construction ecosystem, one can imagine it tracking materials to optimise end-of-life strategies for buildings and to calibrate their residual value. It could improve the next generation of platform components. It could inform regulations, codes and benchmarks, perhaps even updating them automatically. It could provide the evidence to strengthen

Making sense of the tsunami of data will rely on AI, one feeding the other in a virtuous spiral of increasing usefulness

town planning decision-making, dovetailing nicely with Royal Town Planning Institute research into better, more accountable benchmarks. It could help to automate the design and compliance process and even, says Michael Ramage, provide answers for questions that we haven’t thought to ask yet.

Jaimie Johnston of Bryden Wood admits that collecting data about people in buildings is ‘a bit Big-Brotherly’ but does relish the prospect of a building that learns automatically.

David Miller is sceptical that commercial jealousies and intellectual property concerns won’t get in the way. ‘The data’s actually got a value, so I suspect it won’t happen,’ he says.

Gavin Pike is more optimistic. ‘With Architects Declare, there’s a rejuvenated purpose to encourage collective action. That may well drive more sharing.’

Let’s hope that happens. Closing the data loop in these ways will complete the proposed singularity, delivering, as CDBB director Andy Neely puts it, ‘A perfect utopia of a successful society enabled by data to be efficient, sustainable and enabling people to flourish.’

Implications for architects

Neely recognises that the Transforming Construction vision might appear ‘unachievable’ but does not think that should stop the attempt, and he encourages industry leaders, including architects, to engage with the CDBB.

Miller favours the direction of travel but thinks much of the profession is unprepared. ‘Machine learning and AI is going to come at us quite fast. It’s a difficult change, and you can see the resistance building already.’

Ramage savours the prospect of being able ‘to make use of someone else’s proven expertise’, which will accelerate improvements in how the industry operates.

Bryden Wood has written about the potential for more creative freedom from a truly circular industry. ‘If architects didn’t have to build everything with a 60 year life span, if the building was likely to be re-purposed in 20 years, this gives unprecedented freedom in design, and a much greater level of flexibility within the urban landscape.’

Securing data to inform design will almost certainly mean changes to how buildings are designed in the first place. Cordless Consultants warns that there are ‘multi-faceted complexities involved in designing and deploying a smart building’; architects will have to accommodate them. ●

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Kaldewei steel enamel is exceptionally robust, tough but with an extremely smooth

Above Kaldewei Conoflat shower surface, Miena washbasin and freestanding Meisterstueck Classic Duo Oval bath  
Below Kaldewei Nexsys shower surface, Silenio wash-basins and freestanding Meisterstueck Incava bath



surface that shows not even the tiniest scratches despite frequent use, leaving no place for dirt or bacteria to settle. Aggressive and ecologically harmful cleaning products, therefore, are unnecessary, ensuring that Kaldewei bathrooms remain as beautiful as they day they were installed.

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## Active Buildings: even better than passive

Active Buildings cost more to build but long term savings of money and to the environment make them a necessity

Words: Joanna Clarke

**Below** PVs on the Active Building Centre. Thanks to the centre's electric vehicle plug in they have powered one Nissan Leaf for 20,000 miles.



ACTIVE BUILDING CENTRE

How we generate enough electricity to meet a rapidly growing demand is a conundrum which is starting to influence how we design buildings. The move towards a decarbonised grid means we are looking to simultaneously divest ourselves of fossil fuels, from coal fired power stations and gas heating, and shift towards green renewables. At the same time our move towards electric vehicles is creating more demand, posing challenges for demand management on the electricity grid. Active Buildings, which not only generate their own energy but store it for release later, could potentially provide one answer.

Ever since designing the first Active Pod in 2014, I have been on a remarkable journey in government-backed innovation centres SPECIFIC and The Active Building Centre. Together we have been able to bring the concept of Active Buildings to life. These will support societal shifts in the energy sector, releasing pressure on the grid and saving consumers, landlords and business owners money on their energy bills.

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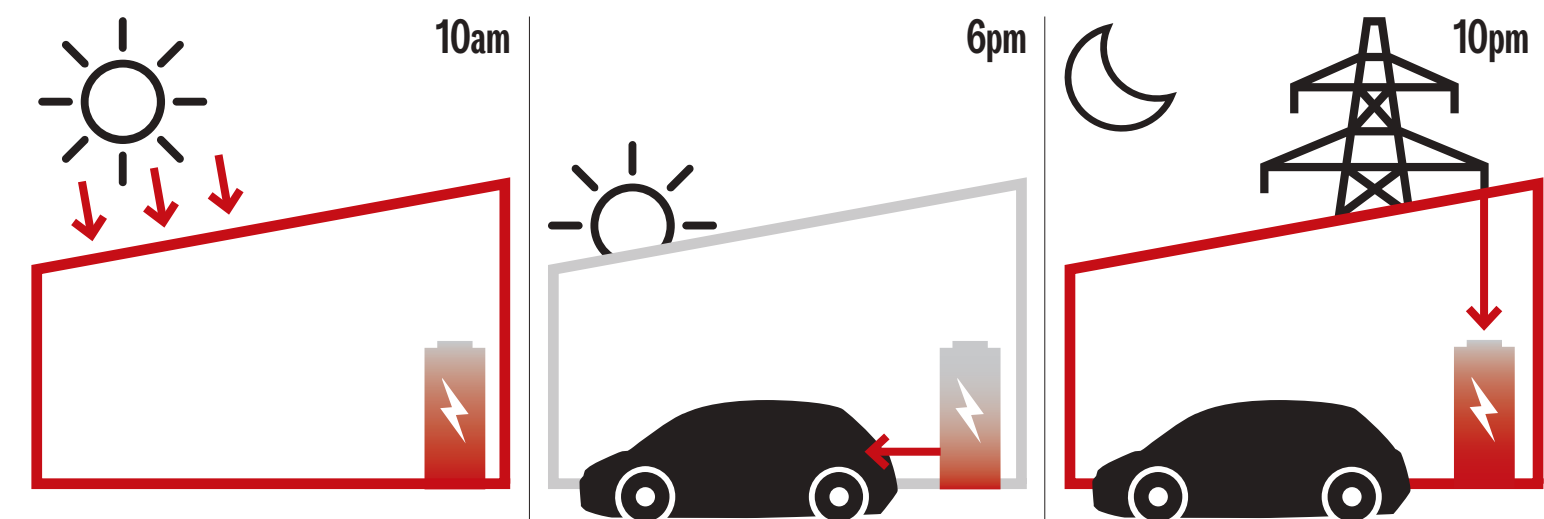
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Over the last three years, using data collected from both the Active Office and the Active Classroom at Swansea University – both of which use the Active Building concept – we have been able to monitor and evaluate the effectiveness and potential of technologies for Active Buildings. We have moved up in scale from a makeshift hut (the Pod) to a fully-fledged Active Housing development of eight houses and eight flats by Pentan Architects. It is the first of its kind and has an integrated PV roof, transpired solar collectors (TSCs), battery storage, air source heat pumps and mechanical ventilation and heat recovery (MVHR) systems. Residents are set to move in during the first half of 2020. Not

only have we moved up in scale – data shows that operational carbon emissions from the Active Office were 3.5 times less than those of a standard office building of the same area.

### Active distribution

Many architects are aware of how energy is captured through renewables such as solar or wind power, but how it is reserved long-term and distributed piecemeal according to need?

To manage energy in our two test Active Buildings, both have electrical (battery) and thermal storage capacity. We combine energy storage with smart controls to link export and import of energy to climate predictions

**Above** Through the day: energy captured, stored and released with occasional help from the grid.

**Below** Active Housing, eight houses and eight flats by Pentan Architects.



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The RIBA Journal March 2020



and grid activity. Data capture from the systems enables us to optimise the performance of systems and develop predictive control strategies for the energy distribution. Our goal is to get to a point where we choose when we import and export energy based on the carbon intensity of the grid, or energy tariffs.

There are different strategies for energy export. We can choose to export when carbon intensity is otherwise high, reducing dependence on gas or coal, and import at times when the UK's running off renewable energy. This can be complemented by sophisticated battery systems which can be charged using renewables. Our work with Swansea University perfectly captures this.

Another strategy we have tested is to charge our batteries during the day from solar energy and discharge into the university's embedded electricity network at times of high electricity consumption and when the university is on a higher tariff, for example between 17.00 and 20.00, saving the organisation money by reducing use of high tariff energy. It's led to significant savings, helping offset the initial investment in incorporating the technology.

Substantial savings

Active Buildings also offer huge potential for supporting mass electric vehicle (EV) adoption, aligning with the UK government's strategy for there to be no new petrol or diesel powered cars and vans from 2040, as part of its Road to Zero Strategy. Professor Dave Worsley, founder of SPECIFIC and the Active Building Centre, has covered 20,000 miles in his Nissan Leaf over the last 12 months, all powered by energy generated through PV panels on the buildings – effectively, free fuel.

Change will be gradual and both business and consumers will need to be incentivised by our policy makers in order to absorb the upfront costs associated with rapid internal combustion engine scrappage and electric vehicle introduction. It is easier to start with newbuilds, whether that be warehouses, schools, housing or offices, before focusing on the challenges of retrofitting existing structures.

Unfortunately, design decisions usually come down to initial capital cost, and this often stems from the client side. However, if architects are armed with all the right infor-

Dave Worsley covered 20,000 miles in his Nissan Leaf over 12 months, powered by energy from PV panels on the buildings

Below The Active Office uses 3.5 times less than standard office buildings in the same area.



mation and knowledge, they can educate clients about the advantages of Active Buildings.

Whether local authority clients or private developers, they need convincing that the extra upfront cost will be worth the effort in terms of the whole life of the building and its carbon footprint. It can be a tricky argument to win. Every building is different and it can be challenging to incorporate all the technology needed to create an Active Building. Further, as technology advances, systems can become redundant remarkably quickly, and a fear exists among built environment professionals of incorporating solutions which will soon become outdated.

One obvious solution is robust legislation or regulation to ensure Active solutions are considered early in the design process. Sometimes compulsion is necessary to encourage better practice.

Active Buildings are proven to help balance energy import and export, easing demand on the National Grid and directly contributing towards net zero carbon in buildings. The inclusion of two or three technologies could shift your building to playing an active role in your clients' bills and reducing its impact on climate change. ●

Joanna Clarke is head of design at the Active Building Centre

ACTIVE BUILDING CENTRE



About 10% of the UK's carbon dioxide emissions are directly associated with construction (Green Building Council)

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Robert Adam essay  
83

Sun seeker –  
Parting shot  
90

71

# 3: Culture

## We need to talk

As a voice of the profession, we thrive on its conversation



Hugh Pearman Editor

How splendid it was to jump on an LNER express at King's Cross and – with a lot of wind-generated power that day humming down the catenaries to reduce our carbon production – speed to a meeting in Newcastle on Tyne. No conventional meeting: this was hosted by that fine practice MawsonKerr, among whose many accolades was the RIBA MacEwen Award in 2019. Its studio is in Charlotte Square, a modest survival of the old city in Grainger Town, just inside the original city walls, a short walk from John Dobson's magnificent central station.

There the RIBA editorial panel assembled. We meet periodically to discuss what's going on at the Journal and our various associated publications and activities, online, in print and live. We receive views and suggestions as you'd expect, getting feedback on what we do. What works well, what could be improved or scrapped, what new avenues we might explore. We ask questions too. Our chair Mark Kemp, from PLACE architects in Launceston, Cornwall, is adept at taking the temperature of the profession – how business is going with the others in the room, what are-

as of work are expanding/contracting, how to smooth pathways into the profession.

It behoves us to know what the concerns of our members are. For this reason our editorial panel contains a number of practitioners from around the country as well as us editors/publishers and representatives from the Institute. Apart from being useful and engaged, they are an invigorating bunch to work with so I'm going to name them. After Mark with his Westcountry and national experience, step forward Úna Breathnach-Hifeárnain (one of our Rising Stars) of McGregor Coxall in Bristol; Grace Choi of Grace Choi Architecture, Newcastle; Yoshita Marriott of rg+p in Leicester; Chithra Marsh of Buttress in Manchester; and Natalia Maximova of Sheppard Robson's Manchester studio.

For our Newcastle meeting we were joined not only by Will Mawson and Dan Kerr of MawsonKerr but also by a pair of early-career guests from the region, namely Shannon Walker of GSSArchitecture and Jennie Webb of Medical Architecture, along with Amanda Kahn, director of RIBA North East. What, we asked, were the issues facing those entering the profession? It's not giving away any secrets to say that the work/life balance was to the fore but so too was the question of which way to progress in architecture – as a general practitioner or as a specialist?

Then there were the matters of technical competence – fire protection in particular – seriously addressing climate change, and social mobility: the burgeoning apprenticeships route into architecture is strongly supported. It wasn't just us journo's listening: panel member Adrian Dobson, the RIBA's executive director of professional services, was pitching in too.

It was an invaluable real-time encounter. In February we also ran a broader online survey of members canvassing your opinions of what we do. We really want you to email us with your views, no matter how trenchant: do so at [letters.ribaj@riba.org](mailto:letters.ribaj@riba.org). It's good to talk. ●

Our chair Mark Kemp is adept at taking the temperature of the profession



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In a room showing portraits of bewigged nobles and ladies in their finery, it is fascinating to learn about the role of portraiture as a powerful expression of female identity

Pamela Buxton sees power and illusion at play at the Tate: [ribaj.com/powerandillusion](https://ribaj.com/powerandillusion)

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## Dream ticket

What links the Met's HQ buildings and Kublai Khan's stately pleasure dome?



Will Wiles

Where, exactly, is New Scotland Yard? The police headquarters wanders through central London, like a building in a dream. Most people, I would guess, still picture a bland mid-century office block with a revolving triangular sign outside it, a familiar backdrop to decades of outdoor press conferences. But since 2016 the Met has been in another New Scotland Yard, a refurbished neoclassical building of 1935. And here's when things begin to get a little weird: this building adjoins the original New Scotland Yard, a slightly feverish pseudo-Jacobean creation of the late 19th century, which now houses government offices.

Still following? Good. Because there's another kink. The original New Scotland Yard, all cupolas and banded brick and stone, is now called the Norman Shaw building, after its architect. Not a lot of buildings get named after their architects, and until recently there was another nearby: the current New Scotland Yard, which was formerly the Curtis Green building, after William Curtis Green.

Just to tie things up with a neat bow, Shaw taught Green at the Royal Academy Architectural School. The experience provides a valuable bit of advice for educators working today. In an autobiographical note written to accompany a 1949 monograph, Curtis Green remembers Shaw as 'too kind to be really helpful', only making remarks such as 'a beautiful drawing' about his students' work. But

When he came across a 'particularly revolting design' he would say 'I dreamt about your design last night' and move on

**Below** New Scotland Yard, formerly the Curtis Green building, revamped by AHMM.



when he came across a 'particularly revolting design' and no words of honest praise could be found, he would say 'I dreamt about your design last night,' and immediately move on.

This masterpiece of faint praise reminds us that dreams rarely involve much in the way of architecture. Let me clarify that. Dreams, naturally, are filled with buildings and rooms and places, which are the products of architecture. But they contain little of the process of architecture, the coherent organisation of space. One of the signature qualities of dreams is the illogical or variable interior, and the cinematic cut rendered in architectural space – we pass through a door in our childhood home and emerge into a wholly different place and time. When real buildings are called 'dreamlike', they are generally being described from afar, not inhabited: the Norman Shaw building, like a lot of the more fanciful works of the late 19th and early 20th centuries, has heady, oneiric qualities when seen from the other side of the Thames, and is a routine place within. When the language of dreams is applied to interiors, the connotation are more negative. Endless corridors, illogical layouts, mazes of dead-ends. These are the qualities of a nightmare.

Is it even possible to design a building in a dream? I find that dreams often furnish what I imagine to be exquisite plots for novels, but when they are dragged into the cold light of the morning they are a mess of non sequiturs. What dreams excel at is atmosphere and imagery and unexpected combination. In literature, the most famous dream building is Kublai Khan's 'stately pleasure dome' described in Samuel Taylor Coleridge's poem Xanadu, which had come to the poet in an opioid sleep.

But the Argentinian writer Jorge Luis Borges relates a strange coda to Coleridge's dream dome. A Persian history from the 14th century, translated decades after Xanadu was written and certainly unknown to Coleridge, states that Kublai Khan 'built a palace according to a plan that he had seen in a dream and retained in his memory.' So perhaps it can be done.

'The first dream added a palace to reality,' writes Borges; 'the second, which occurred five centuries later, a poem ... suggested by the palace.' He continues: 'Perhaps an archetype not yet revealed to mankind, an eternal object ... is gradually entering the world.' It's these mystical lines that come to mind when I consider the peregrinations of the police HQ. ●

Will Wiles is an author. Read him here every other month and at [ribaj.com](http://ribaj.com)

### DESIGNING IN YOUR SLEEP

'Is it even possible to design a building in a dream?' I ask in the adjacent column. Well, is it? If any of the Journal's readers have had this experience, please do write in, and I will put together another column proving myself wrong: [wpwiles@gmail.com](mailto:wpwiles@gmail.com) or the regular letters address.



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Greenway Architects and Photography Tony Murray

# Ethics are imperative

‘Red-line-itis’ must end: architects can lead on ecological, ethical development



Alan Jones

It is not business as usual in the development and property industry. In late 2019 Mark Carney, then governor of the Bank of England, described climate change as shifting from being a corporate social responsibility to a corporate financial risk. 2020 started with the World Economic Forum meeting in mid-January, focused on a cohesive and sustainable world. On 1 February Carney took the role of United Nations Special Envoy for Climate Action and Finance. The greatest proportion of attendees at the annual MIPIM international property event in mid-March were investors and financial institutions. In November over 30,000 delegates are expected to attend the UN Climate Change Conference (COP26) in Glasgow.

Green accounting, climate risk analysis and mitigation are increasingly common phrases in the financial media and within the sustainability reports of investors and leading development companies. Mark Carney has begun to set up frameworks that stress-test banks and investment houses for exposure to risks caused by climate change and delivering zero carbon. The expected change from voluntary to mandatory for financial disclosures of climate related finance risk will push the management and investment of funds into more considered approaches towards a net zero emission global economy.

As it becomes increasing transparent

how and where funds are invested, pressure will further increase on executives and directors to act to mitigate climate change for the good of their company, investors and the planet. The penny is dropping that investment in property has to be carefully considered, ethically and sustainably.

Some companies have been working towards such a goal for years. Developer Landsec, for example, issues an annual sustainability report, showing increasing awareness and action in relation to responsible, ethical, low carbon development while also creating social and economic value. Its Victoria Street development by Lynch Architects illustrates how longer life structure and finishes have combined with enhanced public ground floor realm to deliver a greater, and higher quality, civic contribution than normal. Its increased design life, as a result of the greater exposed mass structure and corresponding facade, surely showed planning confidence in the long-term quality of the proposal.

Greater reliance on natural ventilation, thermal mass, natural light and shading and astute material choices will have appealed to a broad range of discerning ethical investors, creating the completed project that a major blue chip tenant was keen to occupy, through alignment of an ethical and environmental building with its own declared ideals. High level ethics and advanced financial and risk awareness will have contributed not only to a top down drive for sound environmental

**Below Victoria Street development**  
by Lynch Architects.



credentials and an ethical sustainable development but also bottom up – with an ethical ecological development and enhanced staff facilities surely helping to attract and retain employees – the informed and discerning users and occupants of this Landsec project.

I will be at MIPIM 2020, and the RIBA stand will demonstrate how chartered practices can mitigate the impact of buildings on the environment and create social and economic value, especially by working with the RIBA 2030 Climate Challenge. At a moment when the world has reached a tipping point in its response to climate emergency and environmental degradation, development clients are increasingly aware of how this threat must be addressed in each and every project. Everyone must go beyond the site plan and ‘red-line-itis’ and respond responsibly to the broadest of range of contexts – that is why chartered architects are essential – from large scale strategies to fine detail delivery. ●

[@alanjones2008](mailto:president@riba.org)

## DISCIPLINARY SANCTION: EXPULSION

Following a hearing on 29 November 2019 an RIBA Hearings Panel found that Andrew John Priestley (John Priestley) of London was found to have breached:

**RIBA Byelaw 4.1** in that he behaved in a manner considered to be unacceptable in a professional person and contravened the Royal Institute's Code of Professional Conduct.

**Principle 1 of the RIBA Code of Professional Conduct** in that he failed to act with impartiality, responsibility and/or truthfulness at all times in his professional and business activities; and was party to statements he knew to be untrue, misleading, and/or contrary to his professional knowledge.

**RIBA Byelaw 4, Appendix L Para 3.4** in that he failed to co-operate with an investigation under these procedures.

This matter arose following a hearing at the Central London Magistrates' Court on 14 December 2018 where he was convicted of three counts of the criminal offence of misusing the title 'architect'. He was issued a fine of £3,000 and a further £3,140.64 in costs and surcharges.

Further, following a hearing at the Central London Magistrates' Court on 7 June 2019, he was convicted of three counts of the criminal offence of misusing the title 'architect'. He was issued a combined fine of £4,500 and a further £1,661 in costs and surcharges.

In accordance with the RIBA's Disciplinary Procedures made under Byelaw 4.3 (Appendix L to the Regulations), the committee issued Mr Priestley with an expulsion from RIBA membership effective from 4 December 2019.

ILLUSTRATION: HOLLY EXLEY

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Dorte Mandrup has set up her Copenhagen office so she is freed from admin to be closely involved in all its designs. If you want details, she knows them

Words: Eleanor Young Portrait: Volker Renner

# Details, details

As I wait for Danish architect Dorte Mandrup inside the RIBA at 66 Portland Place, her retinue arrives ahead of her. When Mandrup herself comes through the doors I ask if she has been finishing a quick cigarette – and she laughs. No, she gave that up, she chews gum now, and lots of it. It is the way she talks, informally, throughout a long afternoon and evening lecture in London earlier this year, lightly giving away a little more of herself than you ask of her.

When Mandrup takes to the stage for her RIBA lecture it is no surprise that she chooses to focus on her landscape buildings. Powerful shapes in dramatic landscapes mean that the images of these coastal projects are instantly Instagrammable, appealing to the Dezeenification of international architecture. The Icefjord Centre in Greenland that projects out over a granite outcrop in a boo-

merang curve to peer over the calving nose of the Ilulissat Glacier; the Whale which surfaces above a promontory in Norway with a grey skin of natural stone forming a new piece of landscape; and work along the reserves and mud flats of the North Sea coast, a visitors' centre with thatched roof and walls, and a lightweight office perched on a WWII concrete bunker turned exhibition space.

But she is keen to talk about the landscape, design, craft and materials that have formed them. And she can do this in detail. After the recession, as she was rebuilding her practice, she hired as CEO a lawyer and economist who is professionalising the office. Dorte Mandrup Architects now has a staff of 70 and its founder is free to do what she does best. 'Now I am only designing,' she says. 'That is good for the office as I am not good at other things... I like to be in

the process the whole way through.'

That means meeting once or twice a week on every project once it is under way – more when pulling together competitions. It means engaging closely with facade details: 'They are more and more difficult with airtightness and insulation... You can see if people haven't been working with the detail.' So when questions come, at the end of Mandrup's lecture, on where the waste goes from the Icefjord Centre, she can explain Greenland's lack of sewage system as well as the best advice on dealing with birds pecking at the thatched roof of the Wadden Sea Centre (children take just as much apparently).

On the practice website you can see a remarkable number of competition near misses, like LA Brea Tar Pits museum in Los Angeles where they reached the last three, and a holocaust memorial museum in the



**Left** Dorte Mandrup: taking on northern European landscapes from her base in Copenhagen.



Ukraine for which they came second. ‘You can see all the wonderful projects going to waste, but you put it into your backpack,’ says Mandrup. The effort takes some toll though. ‘When I was at Henning Larsen you needed a plan and section. Now you need pictures of everything, client and jury are relating directly to the renders and it is all about a render that will capture. But you need an idea of detail, otherwise it doesn’t come alive.’

Mandrup had a few false starts on her career, studying medicine and art before architecture. And being an architect has not always been easy. ‘It was very difficult to establish ourselves. I was teaching half time and I would spend a long time on drawings, my then business partner was a little bit older than me and he wanted to make a living from it.’ He left. The work eventually started to pay off in the early 2000s. Mandrup was making a living from it before the financial

Now it is all about a render that will capture. But you need an idea of detail, or else it doesn’t come alive

**Below** Render of the Icefjord Centre, Ilulissat, Greenland, currently on site 250km north of the Arctic Circle. Its section twists so the roof can also be used as a viewing platform. This and the boomerang plan reduce the snow load by shedding it.



IMAGE BY MIR

crisis: ‘I was paid every month.’ But Denmark’s architects were hit hard in 2008. ‘After I was not paid for four years, I sold my house and lent the money to the practice,’ says Mandrup. She had to live off that capital too. ‘We had to say goodbye to a lot of staff, going from 45 to 17. Very hard as in 2008 you knew people were not going to get a job afterwards. Then I just wanted to do architecture, to do competitions and try to win.’

She has built a strong body of work in Denmark, from a series of low cost nurseries to IKEA’s Hubhult in Malmo, which on its 2015 opening was claimed as Scandinavia’s most sustainable office building with a BREEAM outstanding rating. Based in Copenhagen, one of the most proactive cities on climate emergency, and with a strong design interest in materials and nature, it is hardly surprising that Mandrup takes sustainability as a given. She does a fair bit of



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international travel – including for chairing the judging of the Europe-wide Mies van de Rohe Award – with a creeping sense of guilt.

‘The possibilities of materials, I am pre-occupied with that,’ she says. ‘A glass house is one of things I would like to do but can’t, it’s not ethical. There are materials that are amazing and beautiful, like copper, where there is very little resource left. And concrete has an allure – but you need to be very careful using it.’ A recent competition saw a hybrid structure of concrete and brick for the base and CLT above. ‘This kind of choice needs to be taken.’ Despite the pleasure of timber the practice has met resistance; people like to do things they have always done. ‘It is silly, we can’t keep doing it,’ she says. ‘Sustainability is about knowledge... there is not just one answer.’ She wants to talk about not building something you don’t need and being careful in space and area, as well as the importance of reuse – as at the reworking of Carlsberg’s Mineral Water Factory that the practice is completing this year.

Danish architects are a force across Europe and beyond, from Schmidt Hammer Lassen, which has just won a library building for Bristol University, to the ubiquitous BIG of Bjarke Ingels. Mandrup has no ambition to grow to this scale or that of her architectural heroes Herzog & de Meuron. ‘Growth is not everything, we could expand to 90, maxi-

**Right** Wilhelmshaven Trilateral Wadden Sea Heritage Partnership Centre, due for completion in 2021. Historic bunker wrapped in a glass veil.

**Below** The sharp reed thatch of the 2017 extension to the Wadden Sea Centre, in Jutland, Denmark at the edge of a Unesco protected intertidal zone.



IMAGE BY MIR

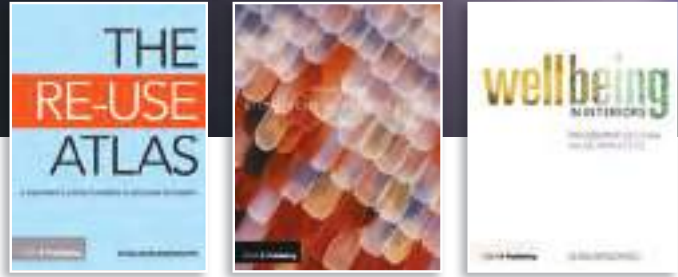


mum of 100,’ she says. ‘Beyond that you can’t oversee the design.’

Another thing that sets her apart from these peers is her gender. She has spoken out against being labelled as a ‘woman architect’. But yes, she does see that it has been a harder journey for her, with contractors, clients and other professionals primarily men and the preference for working with people like you. ‘It is hard to talk about without sounding like a victim,’ she says. But in fact she doesn’t. Her clarity and, at times, unexpected frankness make her a persuasive ambassador for a connected Danish European architecture. ●

See Mandrup’s RIBA Vitra talk at [architecture.com/whats-on/vitra-talk-dorte-mandrup](https://architecture.com/whats-on/vitra-talk-dorte-mandrup)

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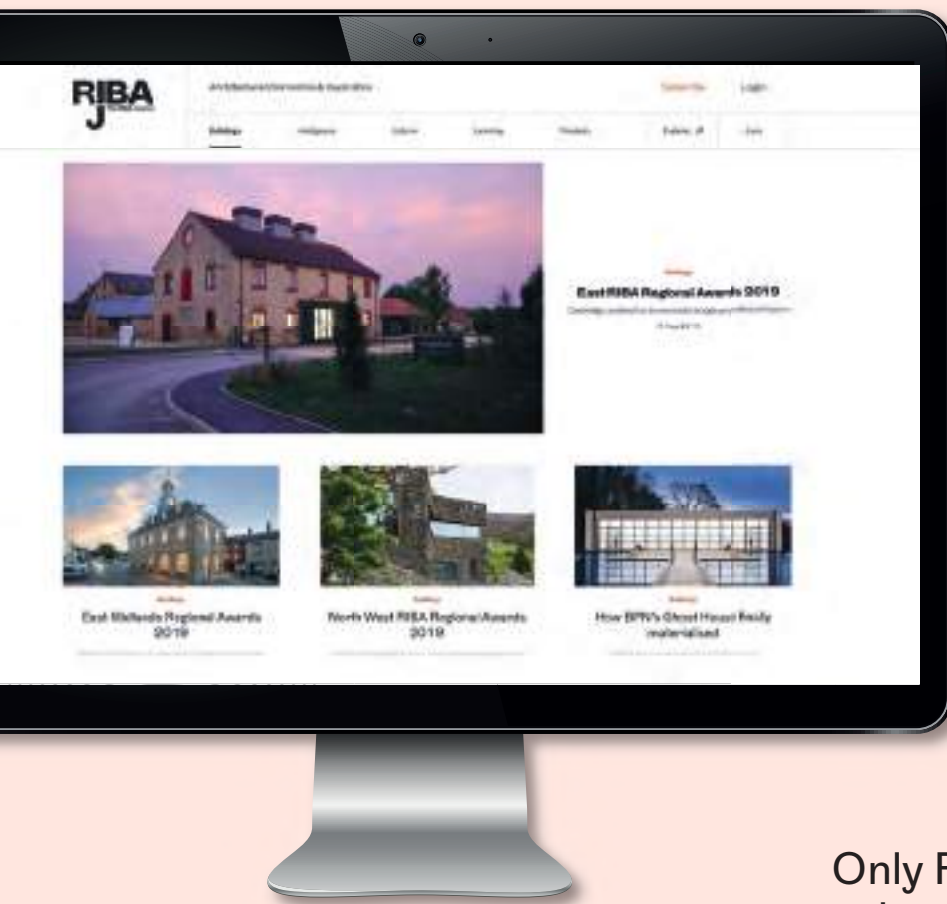
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### Culture Essay

## Modernism is another tradition

The profession would do well to acknowledge this, and that the community they design for might have traditions of its own

Robert Adam

Like all large heterogeneous groups, architects split themselves up into different factions. On each side of one of the most familiar divisions, members call themselves ‘modern’ or ‘traditional’.

This split goes back to the pioneers of modernism. Le Corbusier declared, ‘There is no longer any question of custom, nor of tradition.’ By the late 1940s, adherents of the variously-named new movement just called themselves ‘modern’. Jürgen Habermas, the philosopher of modernity, wrote, ‘Modernity revolts against the normalizing functions of tradition.’ And today the idea persists that tradition is the antithesis of what Habermas called ‘The Modern Project’. The sociologist Mike Featherstone records how ‘the modern becomes a praise-word and the not-modern becomes reduced to the blame-word tradition.’

As modernism became the established position of the vast majority of the architectural profession over a century, the idea that it might in some way be traditional has emerged. Renzo Piano could describe his work as, ‘a mature and totally new balance between ... the future and tradition,’ or John Allan’s book on Berthold Lubetkin, could be subtitled ‘Architecture and the Tradition of Progress.’ The dilemma is, however, clear. Tradition had to be qualified with approved words such as ‘future’ or ‘progress’.

Claiming to be traditional while maintaining a position that is definitively anti-traditional is a problem. To have a tradition of being radical is possible but a tradition that



fights the very idea of tradition sits somewhere between an oxymoron and recognition of a battle perpetually lost. The mere fact that there is an ideology that can trace a clear line of ancestry for a hundred years and has physical expression with recognisable features, does suggest that there is something traditional about modernism today.

As the concept of tradition lies at the heart of this dilemma, it would be useful to understand it better.

Tradition has been given a bad name in the arts. It is often misrepresented as just history. But history is history and will always remain so and traditions happen today. They are also described as an attempt to restore the past. Restoring the past is not only impossible but the desire to do so would be a modern idea, traditions do nonetheless have a strong relationship with the past. There may be an attempt to copy something directly – to make a facsimile such as Mies van der Rohe’s Barcelona Pavilion – but generally they do not or simply cannot do so.

Traditions can change and evolve. Charles Dickens’ Christmas is not ours but there is a recognisable continuity between them. What matters is that the activities or the representations have an ancestry that has clearly been handed down and that this is understandable to those that take part.

As traditions are defined as something handed down from generation to generation, the question must be: how many generations does it take to make a transmitted practice into a tradition? The accepted sequence is three generations though this is not necessarily birth-to-procreation generations but can

**Above** Mies van der Rohe and Lilly Reich’s 1929 Barcelona Pavilion, rebuilt in replica in the 1980s, began a modernist tradition of the free plan and floating roof that led to Mies’ own Farnsworth House and many buildings by others.

RIBA COLLECTIONS/ROLAND HALBE

Tradition is often misrepresented as just history. But history will always remain so and traditions happen today



be of a community or practice. So in a school it might be three five-year academic generations but defining generations in architecture is a bit more difficult. Possibly the time of education to the start of practice – say eight to 10 years – or the time from education to teaching – say 10 to 15 years.

There is a history of attempts to shortcut this time span. Traditions have frequently been invented, that is given a false ancestry. Eric Hobsbawn's *Invention of Tradition* records some of these with a degree of cynicism but fails to acknowledge that their persistence and power remain, even when the invention is known. It is only necessary for those that adhere to the invented traditions to accept that there could be a convincing ancestry. This made-up ancestry has to be very explicit and so inventing a tradition with novelty is unlikely to succeed until it has been practised for three generations.

It will follow that traditions must in some way always be recognisable and particular. They cannot be hidden, as Richard MacCormac once described his work to me. Often as not, they are ceremonial or symbolic but they are always more than simply pragmatic and functional. In architecture they tend to be decorative or formal. That does not necessarily mean cornices and arches, it can simply be some feature that is particular and has a pedigree that is recognised by those who identify with that particular history.

If we take some of the great icons of early modernism we can easily find their ancestry today. Most obvious are the successors of the line of inheritance that comes from Mies van der Rohe's Farnsworth House. Long, rectangular, flat-roofed and glass-walled houses abound, are found from continent to continent and are regularly given awards. Quest House by Ström Architects in Dorset, the Bluff House by Rob Kennon in Victoria, Australia, and the LM Guest House by Desai Chia in New York State leave no doubt as to the international architectural tradition they represent.

Cities around the world are populated with the tall flat glass-walled office blocks also pioneered by Mies van der Rohe. The expressed gridded frame of Chadwick Hall by Henley Halebrown and Allies and Morrison's 2 Pancras Square owe their origins to Corbusier's *Unité d'Habitation*.

This is not limited to building types. Horizontal strip windows and glass walls,

The familiar binary of 'modern' and 'traditional' is, in reality, one set of traditions ranged against another



NICK KANE

for example, are signals that the designer follows a stylistic tradition. Indeed, the dogged insistence on the use of glass walls, in spite of their poor thermal performance, is indication enough that these types and features are not chosen just for their practicality, however much their designers may claim it, but are decorative references to a particular history.

The consistency of these and other, sometimes less obvious, types and features among the architectural community indicate something more than just individual inspiration or influence. These are recognised by members of the community collectively and follow the final definitive characteristic of traditions: traditions are one of the means by which a community identifies itself. Families have their own traditions, as do clubs, villages and towns, as well as nations, religions and professions. The architectural profession has one dominant ideological tradition, that of modernism or the desire to be conspicuously up to date.

It matters little that the original principles of modernism were anti-traditional; in reality that is very hard to achieve. It is more likely that it will be the rejection of one set of traditions in favour of another.

The familiar and now rather passé binary of 'modern' and 'traditional' is, in reality, one set of traditions ranged against another. As traditions are a key part of the identity of a community, it is the identity of the architectural community against the identity of the community that associates itself with other historical architectural types. Much as architects are often upset if their orthodox design principles are denied them, so the community for which they design can be upset if their traditions are transgressed. ●

**Above** Adam identifies Henley Halebrown's Chadwick Hall at Roehampton University as being in the exposed-grid tradition of Corb's *Unité d'Habitation* series.

Robert Adam's latest book, *Time for Architecture: On Modernity, Memory and Time in Architecture and Urban Design*, is published in April.



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## Obituary

# Robert Millar Maxwell 1922 – 2020

Architect, teacher and writer active in the UK and USA who was still writing at the age of 97



Robert (Bob) Maxwell, architect, academic and occasional jazz pianist, died suddenly on 2 January in his beloved Aix-en-Provence, basking in the sun, having been on good form during the Christmas/New Year run of parties and having just finished a chapter he was contributing to a book. He was 97, and had been

closely involved with the development and interpretation of architecture throughout the entire post-war period and well into the 21st century.

Maxwell was born and raised in Downpatrick, in the year that Northern Ireland was created. From there, at the start of the Second World War, he went to the Liverpool School of Architecture, finally graduating in 1949 after war service in the army. As an Ulsterman he had not been conscripted, but had volunteered in 1944 in the hope, he said, of getting to see the baroque churches of southern Germany as part of the army of occupation. Instead, he was posted to India, on his way to fight the Japanese. Atom bombs having suddenly terminated the war in the east, Captain Maxwell instead immersed himself in the culture and history of India, developing a lasting respect for the country and its people.

At Liverpool he had met and made friends with Colin Rowe, a huge academic influence; James Stirling, who asked for Maxwell's help with his thesis drawings; and Douglas Stephen. There he also met his first wife, fellow architect Margaret Howell. Beginning his working career with Hugh Casson on the Homes and Gardens Pavilion at the Festival of Britain, he was later sacked by Casson's partner Neville Conder for 'undue formalism' and moved to the practice of William Holford.

He also did private house commissions but teaching

and practice were intertwined: he became a year master at the Architectural Association in 1958, moving after four years to the Bartlett where he taught for 20 years. From senior lecturer, he moved on to reader and professor.

In the early 1960s he had joined the London County Council's celebrated architects' department, where he was in charge of a group designing the extensions to the Royal Festival Hall. Then it was back to private practice; as a partner with Douglas Stephen he participated in the design of the silvery Brunel Centre in Swindon, apartments in Highgate and a hangar for Concorde in Bristol.

He made the transatlantic leap with four stints as a visiting professor at Princeton, after which he became dean in 1982, remaining there for 11 years. He returned to London, teaching the history of modern architecture at the AA from 1994 to 2006. Officially retired that year, he continued to lecture internationally as well as at the Royal Academy where he was part of the Architectural Forum group devoted to increasing the profile and knowledge of architecture there.

A great essayist, reviewer, contributor to books and collator of architectural criticism, and noted for his *Sweet Disorder* and the *Carefully Careless* published by Princeton in 1997, he was a writer of clarity, avoiding jargon. He also wrote monographs on two of the AA circle of architects, James Stirling and Rick Mather. In 2016 came his autobiography *The Time of My Life in Architecture*. 'After all,' he wrote, 'I knew whatever there was to know about me.' But he framed this with contributions from friends and colleagues, offering different viewpoints of the same periods in his life. This framing of one part by another was to him not just architectural: it was 'the essential ingredient of mannerism', the acknowledgment of doubt and ambiguity.

Maxwell is survived by his three children by his first wife Margaret (marriage annulled 1973), Melinda, Amanda and Robert, by five grandchildren and by his second wife, architect Celia Scott. ●

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ELECTED 1964, PONTEFRAC

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ELECTED 1968, ELY

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ELECTED 1983, WITNEY

To inform the RIBA of the death of a member, please email [membership.services@riba.org](mailto:membership.services@riba.org) with details of next of kin



# Exchange

**Data cap**

Further to the welcome article on sustainability data required for RIBA Awards (February 2020, page 52), a minor correction re paragraph 3: for projects over £1 million, embodied carbon data is not mandatory.

And on a general point of interest, the RIBA 2030 Climate Challenge target for whole life embodied carbon is up to 300kgCO<sub>2</sub>/m<sup>2</sup> and our Cork House (RIBA| September 2019 page 8 and January 2020 page 38), which is made largely of carbon-sequestering cork and wood, achieved just under this at 286kgCO<sub>2</sub>/m<sup>2</sup> (according to the WLCA by Sturgis Carbon Profiling).

**Matthew Barnett Howland, CSK Architects, Windsor**

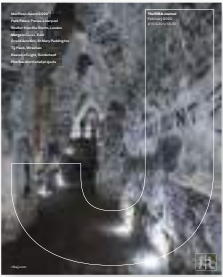
To clarify: On embodied carbon for projects over £1 million the narrative is mandatory and the data is optional – Editor

**Sustaining sustainability**

I’ve just read the article in the RIBA|J regarding the RIBA Awards sustainability criteria (February 2020, page 52), which is very well presented and set out. Hopefully it is being read and digested by those high-level members of the profession you mention, as I write.

The change in atmosphere and urgency around addressing climate change has been very clear over the last year. I gave a briefing to the RIBA Awards judges on the sustainability criteria last month, and the level of support and enthusiasm for sustainability as a core part of good and responsible design was really noticeable compared to previous years. I’m looking forward to a milestone year for sustainability in the awards and the industry at large.

**Alex Whitcroft**  
**Kin Collective, London and Bristol**



**Clouded glory**

Regarding the Rising Stars Award 2019 granted to Hugh McEwen last October (RIBA Journal, November 2019, page 124), is the RIBA aware that his achievement is indistinguishable from that of Catrina Stewart, his long-time collaborator and the co-director of their practice, Office S&M? Their achievement certainly merits an award but the fact that it goes to McEwen alone is bemusing to those that know them and should be embarrassing to the RIBA.

If the award (and the RIBA) is to be taken seriously then it is the duty of their judges to carry out the minimum level of research into a candidate, to give credit where credit is due and to avoid embarrassing a community. I know that it was given in good faith but it is important for the RIBA to realise that it comes across as offensive to many people in their wide circle of friends.

**Jerome Flinders, by email**

Eleanor Young, executive editor, responds: thank you for raising this issue. Rising Stars is an RIBA Journal initiative aimed at identifying emerging talent.

Hugh gave full credit to Catrina Stewart in his entry and his interview and she is credited in the first line of the piece.

It is of course true that individuals frequently collaborate to produce their best work. We have accepted a joint nomination in the past to recognise this. We have also had more than one entry from individuals within a single practice.

This award was free for both Hugh and Catrina to enter individually if they had chosen to, or to request to enter jointly.

**Correction**

Light in a dark place (RIBA|J, February 2020) states that there was a murder on the opening night of the Margate Caves at a neighbouring property. There was a police presence that night at a neighbouring house (for reasons not known), but the murder happened a month after the opening.

**Something to get off your chest?**

We welcome letters but retain the right to edit them: letters.ribaj@riba.org  
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I’m looking forward to a milestone year for sustainability in the awards and the industry at large

Alex Whitcroft

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The photographer Alastair Philip Wiper visited Odeillo in 2012 to document the striking architecture of the furnace in large-scale colour images. Wiper’s work focuses on contemporary industrial and scientific buildings and offers a new interpretation of the ‘Functional

Tradition’, an appreciation of the design of vernacular working buildings developed in the pages of the Architectural Review from the 1930s and epitomised by the photographs of Eric de Maré in the 1950s and 60s. Separated by more than 50 years, the differing perspectives of the two photographers emphasise our changing attitudes towards industrialisation and its impact.

This photograph is on show in Forms of Industry. Wiper has also photographed Trombe’s first attempt at building a solar collector, in 1949 (RIBA J May 2017). ●

**Justine Sambrook**

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