Products in Practice Sept/Oct 2019

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‘The past is never dead...

It’s not even past,’ said William Faulkner in Requiem for a Nun. The statement resonates on the 200th anniversary of the Peterloo massacre in Manchester, where last month a memorial was quietly opened to mark an event some say paved the way for parliamentary democracy. Designed as speakers podium by artist Jeremy Deller and Caruso St John, the lack of fanfare was due to complaints by the accessibility lobby about its 11 concentric steps. Manchester City Council says it will modify it, but one wonders why this wasn’t picked up before.

A thought that may be on the mind of Amin Taha, who finally won his appeal against Islington Council’s demolition order on his 15 Clerkenwell Close development in London, a case plagued by ‘missing documents’ that the council eventually conceded he had supplied. Apartments and offices stay, with no major change to the quarried stone exoskeleton.

A planning battle rumbling on involves the £100m UK Holocaust Memorial and Learning Centre near the Houses of Parliament. Won in competition by David Adjaye, Ron Arad and Gustafson Porter + Bowman, vacillation by Westminster planners has meant even London mayor Sadiq Khan has got involved, writing in support of this ‘powerful national statement’.

But I’m reminded of artist Gunter Demnig’s Stolpersteine or ‘stumbling stone’ brass cobbles. Inscribed with the names of Holocaust victims and first set in a road in Berlin in 1996, over 70,000 have been laid across 1,200 European cities. This poignant, silent monument falls foul of neither planning nor accessibility. ●

Jan-Carlos Kucharek, editor

MATT LIVEY

PETER LANDERS

More online...

Research to transform windows into transparent solar panels is mooted as a potential low-cost solution to South Africa’s constant power outages

Stephen Cousins on an alternative light bulb moment: ribaj.com/transparent solarpanels

JANIE AIREY

ALEXANDER FRASER

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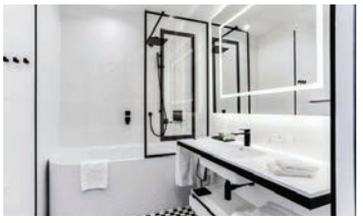
Illuminating inversions—James Wines’ Black Light for Foscarini



Kaldewei Meisterstueck Centro Duo Oval bath

Bert Frank’s Flagon chandelier – available in brass or nickel

One bowl, three levels with Blanco’s ETAGON sink

Cover image: Stairs at De Lakenhal museum, Leiden. Photograph: Karin Borghouts

Compendium

UPCOMING
London Design Festival 14-22 Sept, various locations
Timber Expo 8-10 Oct, NEC Birmingham
Lean Construction Summit 10 Oct, NEC Birmingham

Tree fold
A café and restaurant in Rogoredo, Milan has been blinged up with the help of Italian firm Wood-Skin, which produced the aluminium composite cladding finish sitting atop its ultra-flexible patented Wood-Skin core. Designed by local architect Alessandro Bombaci, the mesh sheets are tessellated together through CNC cutting in a factory, forming a flat surface that can be folded into a three dimensional one that effectively behaves aesthetically and functionally like a macro fabric. The effect is continued internally too, with the folded continuous plates forming both a mirrored ceiling and a folded counter top.

Top brass
Originating from Taiwan's robust metalware industry, Antou sees the office as a playground for modern workers and its smart and durable furniture always includes an element of fun. The M+ is a modular desk built from a series of standardised brass tubes that are fixed together using connectors, hinges and slide rails. It can be reconfigured and disassembled to fit different spaces and extra modules added, such as brackets for shelving or slides for a drawer. You can check it out at the London Design Fair in the Truman Brewery.

Not cheap but chic
There's a delicate sense of chinoiserie to the output of The London Basin Company, founded by mother and daughter Anna and Nathalie Callis. The pair look to traditional oriental and Middle Eastern patterns to decorate their high end, handmade porcelain bowls. To allow the bowls to be displayed to best advantage, for a fee they'll also make the gold or copper-effect steel bases and sit them on wood, marble or glass for you.

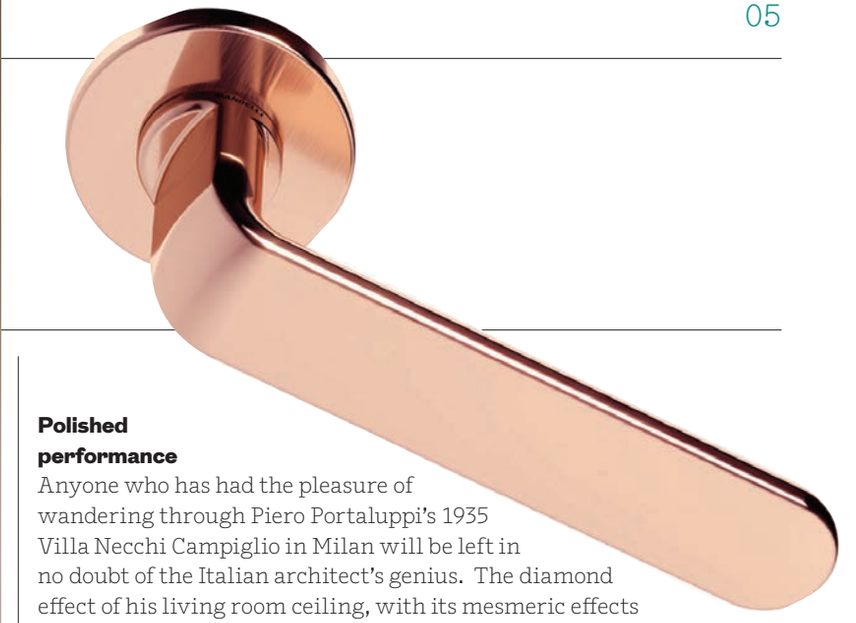
Blue riband
Killing two birds with one stone, Italian firm Radice Orlandini designstudio's Tape modular seat system for Baleri Italia is a lounge chair that converts into a chaise longue. With no other visible structure, the chair is formed from two rigid, material-covered cushions, one of which handily slides from under the seat to form a low side table or can be pulled out altogether to form an ottoman, allowing you to comfortably bounce while you lounge.

Wood-be winner

This year's Wood Awards, as usual, reflect the RIBA Awards in the shortlisted projects, picking up on some of the best timber buildings in the UK, not least the Stirling Prize nominated Cork House in Eton by Matthew Barnett Howland with Dido Milne and Oliver Wilton. Pictured here is the curious but compelling timber structure of Hannington Farm, Northampton, by James Gorst Architects, whose cranked plan form is derived from the contours of the site. The glulam frames forming its asymmetric roof pitches are lime washed and left exposed, helping with its monastic look. Winners are announced on 19 November.

Going underground

Visitors to Kensington Olympia are being invited to time travel by entering a decommissioned 1967 Victoria Line tube carriage featuring seating upholstered in recreations of fabric patterns used across the network from the 1930s through to the present day. The collection of seven velvet moquette designs was taken from the London Transport Museum archive and developed in collaboration with Transport for London. This follows on from the success of Underground, the first collaboration with TFL that launched at the London Design Festival in 2013 to celebrate 150 years of the London Underground. If you're interested in what it's actually like to plant your posterior on an underground seat, it's on show at 100% Design in September.



Polished performance

Anyone who has had the pleasure of wandering through Piero Portaluppi's 1935 Villa Necchi Campiglio in Milan will be left in no doubt of the Italian architect's genius. The diamond effect of his living room ceiling, with its mesmeric effects on the eye, is counterpointed as you move through into his stunning Winter Garden where double glass walls act as a form of giant plant vitrine – you wonder if the pleasure will ever end. Well, now you can retain a small aspect of that joy. Italian firm Mandelli 1953 is producing Portaluppi's PP33 door handle, designed in 1933 for the very same house. But with the kind of gusto the Italians are renowned for, they felt they could improve on its imperial bronze to offer it in polished nickel, polished chrome, matt black and polished rose gold. Que sprezzatura!

Dance hall days return

Erected as a mini-version of Blackpool's Pleasure Beach, the Spanish City in North Tyneside's Whitley Bay opened in 1910 as a concert hall, restaurant, roof garden and tearoom, with a ballroom added in 1920. Located near the town's seafront, it has a 180 foot long Renaissance style frontage and a curious 75 foot high dome flanked by two towers, each topped with copper Terpsichorean figurines. While the intervening years might not have been kind – the building closed in the early 2000s – the building was immortalised in Dire Straits' 1980 hit Tunnel of Love. Now it has finally got some love of its own, refurbished by ADP Architects with £10m in HLF and council funding. Proteus Facade's SC perforated TECU copper-coloured Patina was used on the extension block added at the rear, complementing the Spanish City's 'Dancing Ladies'.

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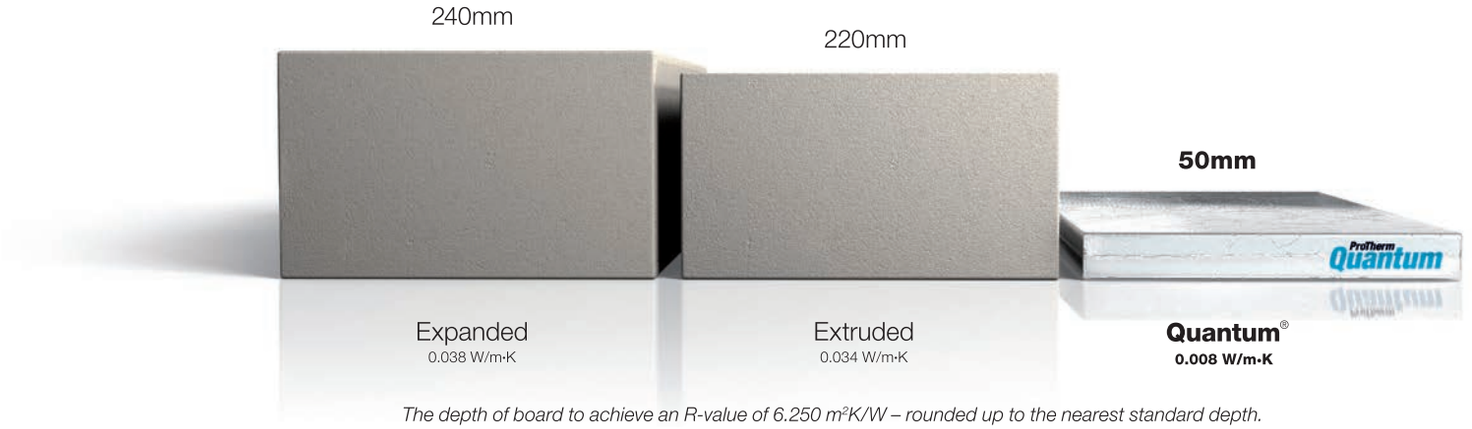

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Robot helps rein in home energy use

In early May 2019, the UK stopped using coal to generate power for a record-breaking two weeks. This is part of a larger story of dramatic reduction in the carbon dioxide emissions generated by the electricity industry in the UK, which are now at 32% of 1990 baseline emissions level according to a report released by the Committee on Climate Change in July. However, the same report has more sobering statistics about the UK's relationship to fossil fuels within the building and transport sectors.

In buildings this relates to the natural gas we use primarily for heating. There are about 25 million homes in the UK and only 30% achieve an energy performance certificate greater than C. Reducing heat consumption is vital to both reducing fuel poverty and the UK's commitment to decarbonisation. It's also extremely challenging. The number of houses where energy efficiency measures have been implemented has been consistently a fraction of the government's targets.

Digital technologies might allow us to increase the rate at which we improve the performance of our homes, in particular, as the cost of sensor technology and robotics reduces.

The key step in reducing heating demand is generally accepted to be improving building fabric. The company Q-bot has developed a robot which can crawl under suspended timber floors and apply insulation to reduce heat loss and improve air tightness to reduce cold draughts. The robot can also be used to survey buildings and source issues that affect energy consumption.

Identifying the sources of energy loss is key for the retrofit of building fabric. Thermal imaging technology is much cheaper now, which has allowed the Cold Homes Energy Efficiency Survey Experts (CHEESE) project in Bristol to develop a system for effectively surveying homes and identifying issues for owners to address. CHEESE is a community interest company whose intention is that the model it has developed can be replicated in communities around the country. This type of massive-small thinking, an accumulation of many small actions, is vital in reducing home energy consumption.

Heating controls are another vital issue. Central heating systems are generally controlled by the thermostat in one room. When the heating system is on, all rooms are heated irrespective of whether they are occupied or not. Atamate, an Oxford-based controls start-up, has developed an internet of things (IoT)-based infrastructure to allow independent control of heating devices in the home based on sensors in every room.

Completely decarbonising heating in the majority of homes will mean a switch to electricity-based heating, but the energy network is not designed to meet the capacity required. Using intelligent technology to control heating systems so that our houses become thermal stores and use electricity for heating at times that do not stress the network will be hugely important. ●

Dan Cash is a building services engineer and senior lecturer at the University of the West of England

Books

Buy at ribabookshops.com

Architectural Guide Moon

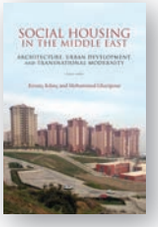
Paul Meuser. DOM Publishers. 368p PB £32

In this 50th anniversary year of the Moon landings, it's perhaps to be expected that finger-on-the-pulse publisher DOM would bring out an architectural guide on our nearest satellite a quarter of a million miles away. And it doesn't disappoint. While the notion might have started out a little tongue in cheek and unashamedly commercially-driven, the result is a joy to behold. The author has conducted research into all the craft sent out in history as part of the original American and Russian lunar missions, augmenting it with contemporary photographs, diagrams and memorabilia, adding China's, India's, Japan's and Israel's more recent missions. Pre-empting any reader scepticism for such a project in the context of the discipline, the author opens with Hans Hollein's 1968 essay 'Everything is Architecture.' And to allay any lingering doubts, he adds other expert accounts, lending gravitas to this reduced-gravity capriccio.

Housing Fit for Purpose

Fionn Stevenson. RIBA Publishing. 192p PB £30

The author, chair in sustainable design at the University of Sheffield, opens with a fictitious account by a project architect of a housing development and the post-occupancy evaluation that occurs. Although the scenario is made up, the problems she encounters, says the author, are endemic. So this book is a prescient and necessary call to action, split into two parts. The first calls for knowledge exchange between designers and users as a means of improving design and housing management, and the second provides practitioners with the knowledge to carry out effective evaluations. Some readers may find the scope of the problem daunting, but the book is broken down into manageable sections and is clearly written, arranged and illustrated. With the RIBA recommending that all its member practices carry out post-occupancy evaluation of projects after 2020, the author may well have done us all a favour with her efforts.



Social Housing in the Middle East: Architecture, Urban Development and Transnational Modernity

Kivanç Kilinç and Mohammad Gharipour eds. Indiana University Press. 330p PB £31

Marred by disturbing accounts of worker conditions in the Middle East construction industry, the residential debate often seems framed by the polarities of luxurious indulgence and relative squalor, so it's good to see an account of social housing in the region aim to address it in a balanced way. Gharipour and Kilinç, professors of architecture at the US's Morgan State and Turkey's Yaar Universities respectively, have expertly curated the authors for 11 essays in three sections. Part I looks at politics, agency and reform; Part II at history, including identity and nation; and Part III looks at design and construction, through comparative approaches with other nations and local practice. Covering Turkey, Egypt, Kuwait, Tunisia, Jordan, Iran and Israel, it's a worthy overview of an oft-overlooked typology in the region.

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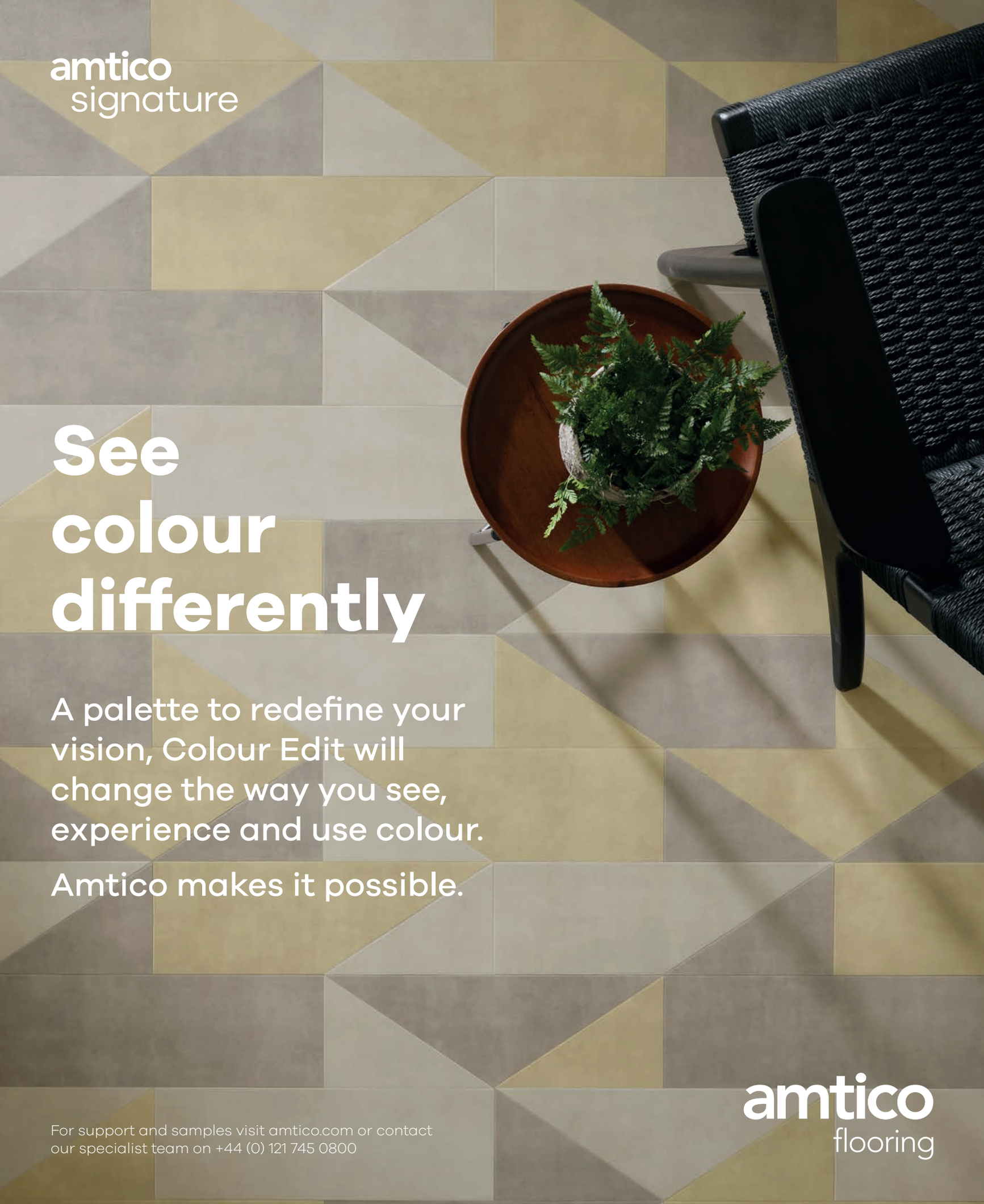
signature



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Made

What: Norbord SterlingOSB factory
Where: Inverness, Scotland

A cloud of steam emanates from the giant chimney of the Wet Electrostatic Precipitator, at Norbord's Inverness manufacturing plant. Known as 'the WESP' by those that work at the plant, nicknamed 'the cloud machine' by locals and loved by nearby Inverness Airport as a ready-made wind direction indicator, the Wet Electrostatic Precipitator is actually a highly efficient, low-energy filtration device. It has been installed at the Oriented Strand Board (OSB) factory to remove fine particles of dust and smoke and soluble organics from the factory exhaust systems and the flue of the biomass burner that provides heat to the plant.

'The WESP is a massive scrubber to clean the air extracted from points along the production line before it is released in to the atmosphere,' says Allison Day, process engineer for Norbord Europe. It is one of many environmental initiatives that Norbord has introduced at the plant.

When it opened in 1985, Norbord's Inverness mill was the first in Europe to manufacture OSB. Now, following a £110 million investment to increase production the plant is once again blazing a trail, this time as the first plant in the UK to use formaldehyde-free resins in the manufacture of OSB board. It currently produces a family of zero-added formaldehyde precision-engineered SterlingOSB boards in thickness from 9mm to 22mm, including: SterlingOSB Zero OSB3, SterlingOSB Zero Tongue and Groove, SterlingOSB Zero Site Coat, Sterling OSB Zero Fire Solutions and Sterling OSB Zero StrongFix

The binder that is used to coat and bind the flakes together cures at a lower temperature which reduces the amount of energy required in board manufacture. The production process also uses water as a catalyst in the curing process to harden the resin. 'The precise moisture level is critical for heat transfer to cure the resin in the board-forming press,' explains Day.

The timber too is sourced sustainably: all the SterlingOSB Zero range is manufactured using forest thinnings as the primary raw material. These are taken from sustainably managed UK forests. In fact, this mill was the first OSB plant in Europe to receive Forestry Stewardship Council (FSC) accreditation. The mill also uses timber chips – a waste product from the nearby sawmills – which are flaked for use in the dense core of the OSB boards.

Timber residue from the plant is used to fuel a biomass burner. This includes bark stripped from the logs at the start of the manufacturing

Left The site of Norbord's Morayhill plant outside Inverness, now with its £95 million investment.

process, wood dust extracted from various production processes around the plant, along with any timber residue and non-specification timber flakes. The burner generates heat for use in the drying and curing stages in board production – see panel, right. 'Moisture content of fuel is critical,' says Day. 'Too wet and it can kill the fire; too dry and it will combust too quickly.'

Even rainwater run-off from the facility's new building and the hardstanding is treated to minimise its environmental impact. It is treated in a new three-stage drainage system of reed beds to remove large particles, oily residues, fine grit and sediment from the run-off before it is allowed to enter the local watercourses.

As with all Norbord manufacturing sites, the Inverness plant is certified to ISO14001, the international standard for environmental management. ●

1 RAW MATERIAL

Timber from responsibly managed forests in the UK is delivered to Norbord's Inverness production facility by truck. The plant uses a mix of pine, spruce and birch to manufacture its OSB 3 boards. The timber is loaded onto the log deck for processing in the wood room. Logs are stripped of their bark before a pusher drives them into the strander where spinning blades tear them into the flakes that are the basis of OSB.

2 THE DRYER

A conveyor delivers the wood flakes to the wet bin, and they drop into the dryer below – a giant spinning drum by heated to 40MW supplied by the biomass burner. Dry flakes then pass through a cyclone (the same technology Dyson uses in its vacuum cleaners), where dust and fine particulates are removed.

3 SCREENING

Dust-free, the wood flakes pass to a primary screening machine which separates the flakes into two sizes: over 10mm for the board's outer layers and 4mm-10mm for its core. A conveyor delivers the flakes to their respective storage bins: two for the surface flakes, two for the core. In a separate plant, the fine particulates removed by the cyclone pass through a secondary screening process whereby the larger particulates are reclaimed and added to the core bin. The remaining dust and tiny particulates are sent to the biomass burner for use as fuel.

4 FORMING THE MAT

The smaller flakes progress to a blender where wax and formaldehyde-free resin are added. The wax acts as a coating and lubricant to ensure flakes are evenly coated in resin. The process is identical for larger flakes, but water is also added to increase their moisture content to help with heat transfer later. Coated flakes are then conveyed to the board forming line. First a layer of larger flakes is laid parallel to the conveyor. Next the first of two layers of core flakes is added, perpendicular to the surface layer to give the board its strength. Flakes in these two layers get progressively smaller the closer they are to the eventual core of the board. Finally the top layer is added, perpendicular to the core flakes to form the 'mat', or uncured board. An X-ray machine scans the mat to ensure it conforms to specification.

5 CURING AND COOLING THE MAT

The mat is sprayed with water to help with heat transfer before it enters the press. Steel belts enclose it top and bottom and are squeezed between platens to compress the mat. Oil heated in the biomass plant keeps the platens warm. Along the press 42 platen frames control heat and pressure to cure the resin and form a continuous length of board. As it leaves the press, the OSB is cut into lengths by a saw which moves diagonally at the same speed as the conveyor to give the board a straight cut. Boards are weighed and subjected to ultrasound to ensure consistency of product before being stamped with Norbord's branding, a CE mark and a code to ensure traceability. Finally, the still warm 'master boards' are cooled in rotating racks.

6 CUTTING THE BOARDS

When the master boards have cooled they are sawn into six standard-sized boards. The finished boards are then stacked and taken to the warehouse for distribution. The whole process from raw material to finished board takes about three hours.

Commercial sinks

Our new series looking at the nitty gritty of technical details starts with an assessment of one thorny aspect of washrooms

THE ARCHITECT
Andy Hill, director, John Robertson Architects

Because of the way plumbing works the convention is for linear arrangements of loos and sinks, around the stair and service cores. Wash basins are usually 'floating' elements in washrooms. Colours and materials do change with fashion but generally for commercial spaces we use a restrained palette of materials with mirrored panels at the end creating an illusory 'vanishing effect'.

When fitting out toilets in commercial spaces you have to make sure the procurement is right and you've nailed the detailing down – with something like a 'contractor designed portion'. In the past installers would install to design intent; but that's rare now. Fixing sink installations back to a concrete core is always better than a studwork frame.

Clients like bowl sinks within a countertop as they provide useful space between each basin – underhung, concealed basins are the most popular. Enamel basins chip but can be repaired whereas porcelain basins can be damaged with hairline cracks, requiring replacement. Pedestal basins and troughs are less popular because they need more space and a handbag shelf behind the unit where the taps spring off. Pedestal basins are specified in some higher-end, low traffic developments but are expensive and big on statement.

Always allow enough space for operatives to easily access pipes and valves below the sinks – considering how panels are designed and removed is important – especially in super loos where services need good co-ordination and the sink will usually be tucked in tight under the dryer.

We generally cantilever sinks off walls – they look especially good with glass backsplashes and the plumbing running behind them and sinks secured with steel straps underneath. In some offices we've specified long, shallow troughs but with low falls, they can drain slowly. We find troughs more popular with Square Mile banking institutions or West End offices than your average institution, who tend to be more conservative; but they certainly make for a more funky feel to washrooms.

IN DETAIL

ANKE SALOMON

Look ●●●●○
Ease of installation ●●●○○
In use ●●●○○
Maintenance ●●●○○
Cost ●●●○○
Overall ●●●○○

Sinks on countertop

Potentially large amounts of redundant stone or worktop out of site under basin.
Gives a hotel feel to a commercial washroom but check space plan efficiency.
Long, linear wash handbasin may be slow to drain.
Handbag and make-up space limited.
Long runs of sealant to rear of basin and sides to be avoided/reduced.
Mix of trades required or turnkey contract with specialist contractor.

Stand-alone pedestal sinks

Not common for commercial washrooms.
Very fashionable but will go out of style.
Good for boutique hotels or high-end restaurants for lower traffic WC facilities.
Less space efficient – check space requirements in the washroom.
Likelihood of a greater cleaning regime, especially to front and rear of pedestal.
Plumbing connections to underside or rear to be considered. Greater emphasis on install quality of visible chrome plumbing
No handbag or makeup space.

Look ●●●○○
Ease of installation ●●●○○
In use ●●●○○
Maintenance ●●○○○
Cost ●●○○○
Overall ●●●○○

Look ●●●●○
Ease of installation ●●●●○
In use ●●●●○
Maintenance ●●●●○
Cost ●●●○○
Overall ●●●●○

Sink underhung on counter top

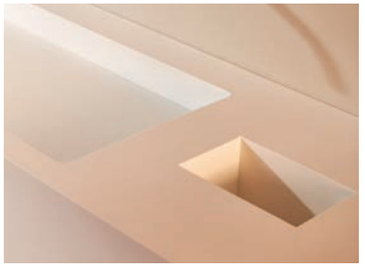
Most common form in commercial offices.
Brings 'hotel' feel to washroom. Also allows for tighter space plan.
Detail between basin rim and stone surround needs to be co-ordinated.
Stone top requires increased support.
Less splash to floors
Dark stone surrounds often stain with hard water marks. Cleaning regime important.
Selection of stone and veining important to suit shape and style.
Requires multiple trades or turnkey specialist contract.
Cantilever taps to be secure and no wobble.

MATT LIVEY

Left JRA's 120 Holborn, a mixed use development for client Zebulon. An industrial aesthetic was chosen for washrooms, appealing to a media led tenant.

Trough-type sink

The increased size, length and weight will require more co-ordination with adjoining supporting elements.
Tap height is important to avoid splashing and a continuous splashback will be needed.
The detail of the tap protruding through the wall may need a cover plate or surround.
Long troughs may take longer to drain.
The ability to replace damaged elements of the trough are limited and reduce flexibility.
No space for a handbag shelf or towels so a handryer may be necessary.
Plumbing beneath is likely to be visible so will need to be well executed in quality chrome finish.



Look ●●●●○
Ease of installation ●●○○○
In use ●●●○○
Maintenance ●●●○○
Cost ●●●○○
Overall

THE INSTALLER
Gordon Emms director, Brown & Carroll

We've fitted out washrooms with every conceivable arrangement of sinks and for us it's all about service integration and access. Generally, we handle stone or Corian undermounted sinks but troughs are gaining popularity. Stand alone sinks are more common in high-end restaurants than offices.

Joiners do the procurement usually – we get a schedule from the architect but these tend to lack the ironmongery. A well-considered specification is good to avoid variations – design intent drawings simply don't cut the mustard if you want to keep a handle on install costs.

Many contemporary washrooms have cantilevered sink runs, which need a steel support structure. This is best installed before wall screeding so must be co-ordinated during design by the architect. Preparatory work must be done so you can close the wall up before installing the sink, which means pipework needs to be in exactly the right position.

Unisex loos are leading to more self-contained cubicles with loo, washbasin, feature mirror and dryer. But these tend to be very tight spaces and need good services co-ordination. On a base build scheme, to deal with higher office densities we might map out possibilities for extending loos.

We do see impractical detailing – butting countertops directly into walls for example. Better to face a wall in the same material. It might be more work but it avoids the wall/ countertop junction and looks seamless.

THE FACILITIES MANAGER
Jake Castree property manager, British Land

I've been working in building management for the last 20 years and over that time the main issue with washrooms has been access. It's getting at the plumbing and access for the replenishment of liquid soap reservoirs when they are below the sink. It's important to consider the operatives who have to get to pipework as part of regular building maintenance; as for cleaners, they'll always prefer wall mounted soap dispensers.

Across our estate we mostly have long worktops with undermounted basins – we get the best tenant feedback for them and they are the easiest to maintain from a facilities point of view. We find it's better to specify the best materials you can. Good polished marbles and granites are easy to keep clean without resort to specialist products – unlike cheaper surfaces that can hold the dirt and so need them. We shy away from the specialist cleaner that can sometimes appear as part of a building's O&M Manual. We prefer just to wash with water. Don't specify patterns on countertops and matt black surfaces show up fingerprints.

A persistent problem is the location of hand dryers relative to the sinks – usually when they are installed at a later date. Minimising the distance between them ensures that floors don't get wet – with the possible hazards that might present.

PETER LANDERS (2)

Left At the Dyson Institute in Wiltshire cantilevers of 3m for each storey give a strong overall shape to the student residences against the green bund. **Above** Bedroom, washing and kitchen pods give a familiar sense of a house in the massing – though every room has its own front door.

Prefab cantilevered pods for Dyson

What: Student housing on Dyson campus
Where: Malmesbury, Wiltshire

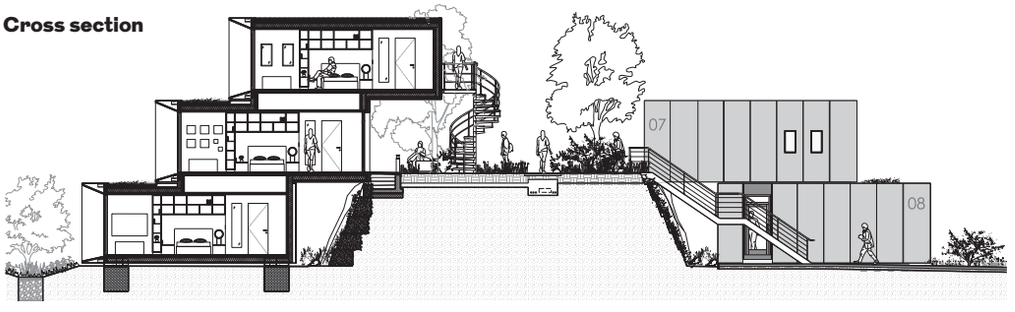
Stacked in a crescent, the new student housing for Dyson in Malmesbury, Wiltshire, is like no other student housing. Its precise boxes, arranged in clusters of three to six, look like the results of a manufacturing process akin to that Dyson uses for its streamlined Supersonic hairdryer and Pure Cool air purifier.

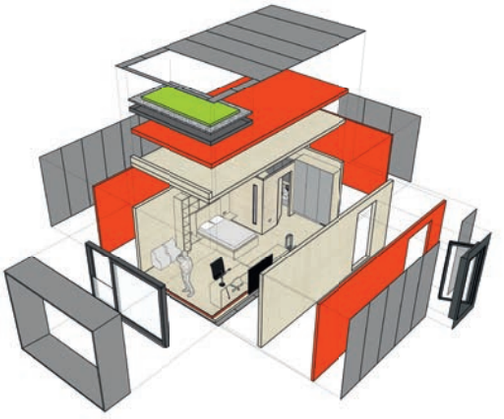
The plans started with a need for more engineering graduates that James Dyson felt unable to realise through conventional universities. 'I always complained there weren't enough engineers,' Dyson says. So he took up the suggestion from then minister of state for universities, science, research and innovation Jo Johnson, that he should start his own university. Undergraduates work and study on the Dyson campus. 'We pay them and cover fees for the four year degree and then they are free to leave.' Now students are housed in these pods.

Original designs by Wilkinson Eyre were for something more conventional along a corridor – until Dyson mentioned Moshe Safdie's Habitat 67. Dyson's 63 pods sit each side of a bund of earth displaced from elsewhere on the rapidly developing site. The clusters were pulled apart to give a sense of airy containment; two storeys at either end rise to three in the centre.

Reworking earlier buildings on the site Wilkinson Eyre had used CLT. It's sustainable and it fits the product design philosophy,' says Wilkinson Eyre director Yasmin Al-Ani Spence – to reconcile and rationalise design so there are no more materials than needed and all work really hard. The simple wooden box performs acoustically, thermally and structurally. 'You are always looking for the most economic and efficient solution.' Except of course for the cantilevers of up to 3m that transform all that efficiency with a little playfulness.

Cross section





The search was on for a contractor who could prefabricate the pods. A small but willing contractor, Invergordon-based Carbon Dynamic prefabricated volumetric 8m x 4m pods from CLT. These were driven from Scotland, two at a time, to the Dyson electric car site at Hullavington. An outer layer of aluminium cladding was added and the pods moved the 6 miles to Dyson's campus. Unfortunately Carbon Dynamic went bust, delaying installation of the pods until December (they were landed in the middle of the night to avoid heavy winds).

The stacking volumes cantilever out 3m towards the bund on the first floor and again on the second. CLT boxes are cantilevered a total of 6m with no support from steel, nor the bund below. It required some new calculations on the number of bolts.

'The bund itself is its own building,' says Al-Ani Spence. Wilkinson Eyre made sure it wouldn't slump with gabions, and mesh through which wild flowers are now being encouraged to grow. The relationship between the bund and first floor had to allow for around 50mm settlement, so access to these pods is by a drawbridge – with services slung beneath it.

Chris Wilkinson sees pods like these as a great hope. 'They have got to be the answer to the housing crisis; why are we still using bricks and mortar?' What is stopping that? 'Courage,' he answers: 'Now we have seen how easy it is, and where the problems are.'

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De Lakenhal museum, Leiden

In a building that had been adapted and extended over 400 years, a project to restore and extend again demanded a thoughtful balance of old, new and seamless fusion of the two

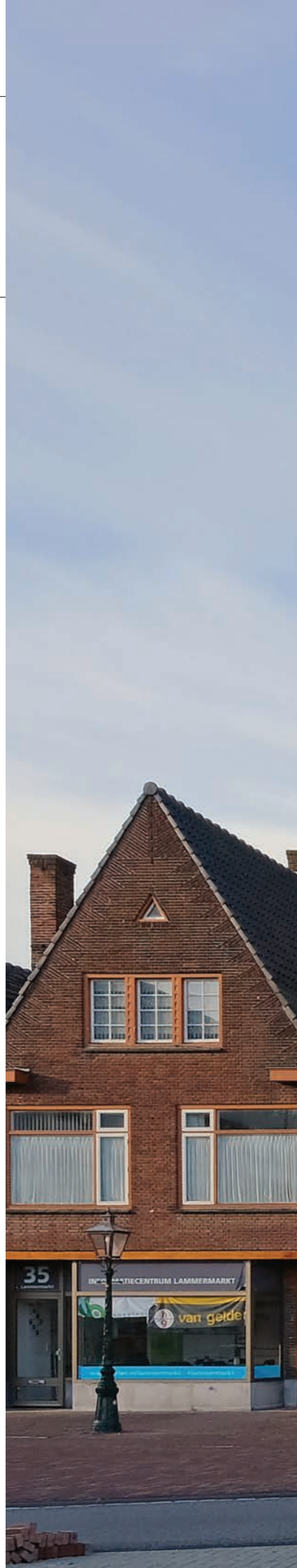
Words: Jan-Carlos Kucharek Photographs: Karin Borghouts

Built in 1640 during Holland's Golden Age by city architect Arent Van's Gravesande, Leiden's palatial De Lakenhal cloth hall was testament to the city's economic might and the renown of its main commodity. But if the impressive classical language of its facade spoke in power terms, its H-shaped plan was far more pragmatic, dealing with utility and process rather than civic and global stature. Merchants arrived by boat at its canal-side walled courtyard, submitting their goods to initial quality control in the open air or beneath the sheltering arcades of its two wings. From there merchants were received in the hall's ground floor vestibule and left to wait in De Lakenhal's northern courtyard, their goods taken to the first-floor trading hall to be sold.

Off this main trading hall four rooms served official and ceremonial purposes for the cloth guild: the Governor's Office, the Steelmaster's Office, the Brewmaster's Room to oil the wheels of business, and, perhaps most importantly, the Stamp Room. Here, cloth meeting the guild's quality standards was 'stamped' with a lead embossing of the city's coat of arms, making it tradeable globally. Visitors to De Lakenhal Museum will chance upon this motif all over Rotterdam firm Happel Cornelisse Verhoeven's new extension – with conservation and refurbishment by London's Julian Harrap Architects.

If these historical functions appear self-evident to the visitor, that too is due to the architects, as changing use and piecemeal addition in intervening years had rendered the original building almost unrecognizable. A public museum opened in 1870 in its attic storey, reached by a new stair in the north courtyard, the lowest flight of which was relocated when the new Harteveltzaal gallery was built two decades later. A neo-classical extension with its own entry, added to the museum's east wing, it compounded the spatial confusion with a warren of internal corridors. And when a 1980s steel and polycarbonate canopy clumsily enclosed the south courtyard, the building's descent from monumental via the

Right The south face of the De Lakenhal museum facing onto the canal.
Opposite The new extension containing the café appears as the only intervention. The north elevation articulates between the scale of the street and the admin floors above through the device of its corbels.



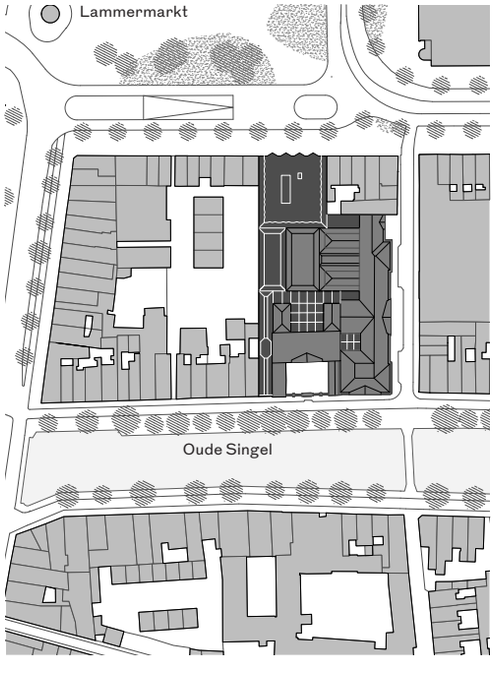
civic to the municipal was sealed.

The latest scheme, won in competition in 2013, extended the complex to the west and north. It created two new state of the art gallery spaces below stacked service and administrative functions for the museum, and had at its heart the notion of stripping away past additions to reveal De Lakenhal in its former guise – a task that HCV Architects felt was best addressed with Harraps' expert input. Under Harraps' reinstatement and reinterpretation of the past plan, legibility is created for visitors with the £16 million result revealing the south courtyard in its full glory and the stair and circulation in the north courtyard making way for an orientating, internal central atrium, the Achterplaets.

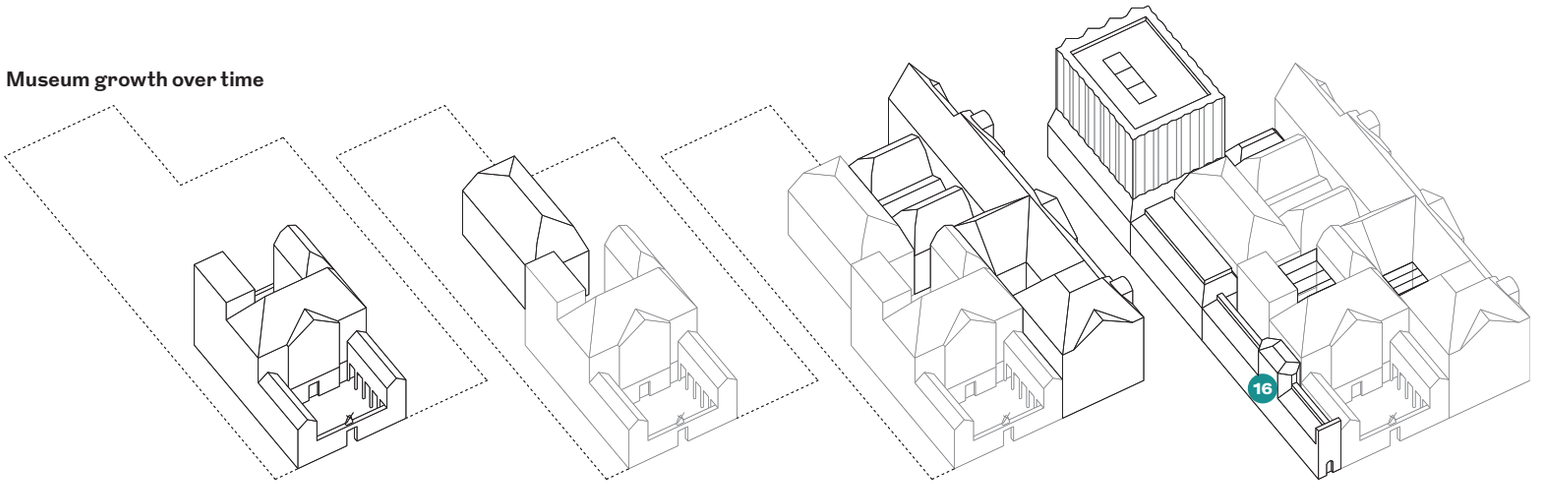
The museum's new, four-storey post-modern north elevation, overlooking the Lammermarkt public square, is the most obvious aspect of this transformation. But if it looks radically different to the rest of De Lakenhal, HCV was, says partner Paul Verhoeven, inspired by Gravesande's original design. 'While the concrete structure of its rear elevation is quite tall, we emulated his ideas to mitigate its scale with the Lammermarkt,' he explains. 'Where Gravesande used projecting wings to deal with the lower scale of the canal frontage and the taller palace behind, we have fused the two in our elevation.' Here, brick corbelling reveals itself by degrees from the facade of pale grey/green Petersen brick, delineating in negative the roofline edging the Lammermarkt, resulting in its angled window profile. Verhoeven adds that the decision to minimise surface modulation at upper levels was behind the gold powder-coated aluminium window sections, detailed to keep brick, glass and frame in line with each other. Seen together, there's a sense of almost defensive drama.

It's one aided by the complexity of the brickwork in its rusticated base which required thousands of hand-cast 'specials'. While keeping the museum's main entrance via the south courtyard was as much an emotional as practical decision, it did avoid any need for circulation from the Lammermarkt side. But even on this 'service' side of the building, there's robust dignity to the detailing. The steel access door for trucks delivering artworks was designed with artist Hansje van Halem and is counter-pointed by the smaller entrance to workshop and office floors above. Balancing the modulated triptych

Above The original vestibule is now the official entrance to the museum. New steel doors prepare visitors for the interventions within.



Museum growth over time



1640 (green)
Original building

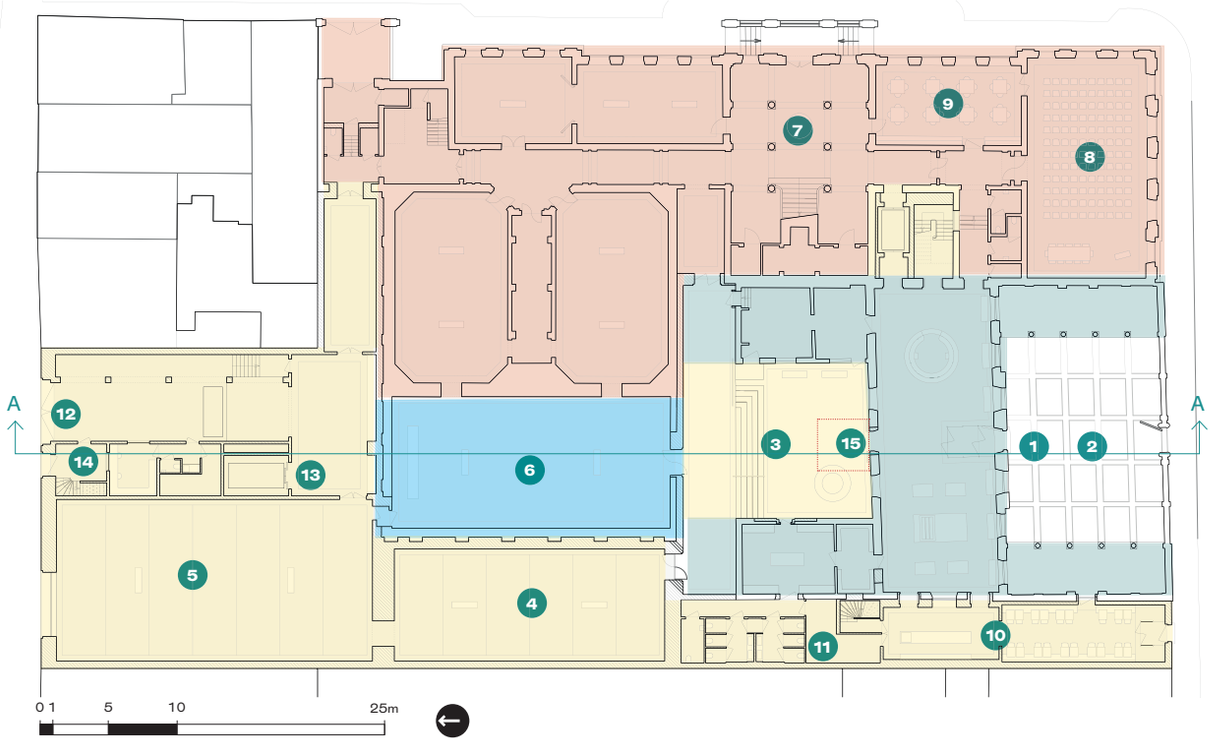
1890 (blue)
Harteveltzaal added

1928 (pink)
Papevleugel building

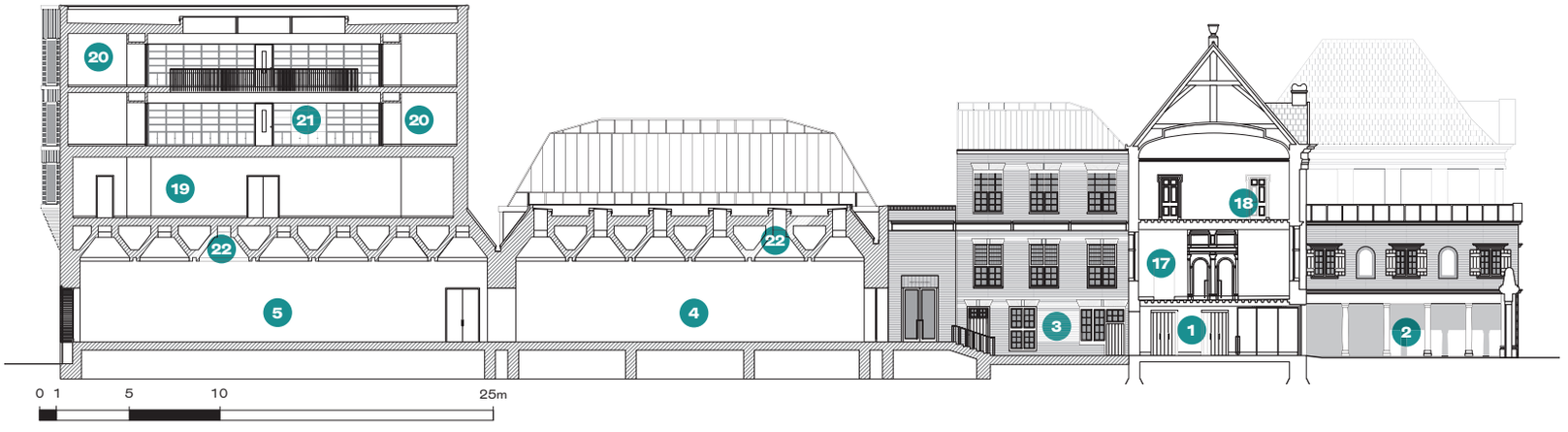
2019 (yellow)
HCV/Julian Harrap Architects extension/ refurbishment

Plan

1 De Lakenhal vestibule entrance
2 South courtyard
3 Achterplaets
4 New small gallery
5 New large gallery
6 Hartveltzaal
7 Papevleugel building (1928)
8 Refurbished auditorium
9 New education room
10 Cafe
11 Cloaks and WCs
12 Loading bay
13 Service lift
14 Admin entrance
15 Former position of Joristrap stair
16 New position of Joristrap stair
17 First floor old gallery
18 Second floor old gallery (former museum)
19 Gallery workshops
20 Office/admin
21 Library/breakout space
22 Concrete light funnels



Long section AA



Top The Achterplaets brings new purpose to the old north courtyard.

Above The large picture window in the new north galley looks out to the Lammermarkt. Overhead, HCV's precast light funnels add height and further illumination.

of openings is the large arched deep-set window that gives direct views in and out of the gallery – across to the 18th century De Valk windmill. The three arches reference its hemispherical cap, Verhoeven points out.

From outside, HCV's intervention is less obvious on the canal side, where the firm replaced an earlier extension with a narrow strip that provides a café and WCs accessed from street, courtyard or vestibule. It might be small, but it's articulated. 'Like the north elevation, we created a base plinth, mid section and crown. It's classical but in a modern way,' notes Verhoeven.

Internally, the biggest moves were reserved for the two new galleries and the north courtyard; revealing them necessitated wholesale removal of 150 years of random poché – including, controversially, the Joristrap staircase. But its snug repositioning behind the café was crucial to unlocking circulation, explains Verhoeven. Once more, Gravesande's north wings project visibly from his main block, forming three sides of the enclosed, rooflit Achterplaets, the north side of which has the entrance to the Harteveltzaal and HCV's new galleries. 'With the maze of corridors removed, the old north courtyard is the new orientation point for the

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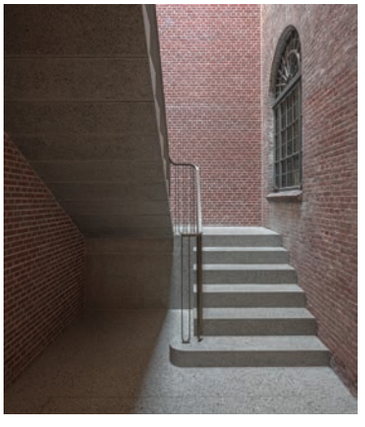
Above Ticketing desk and furniture were designed by HCV. Beyond, a new door sits in a 1929 architrave.
Above right A sensitive light-touch approach was used for the Harteveltzaal.
Right The muted greens and wall paintings of the Brewmaster's Room.
Bottom left Access stair from vestibule to the first floor galleries.
Bottom right The new café to the west of the vestibule.

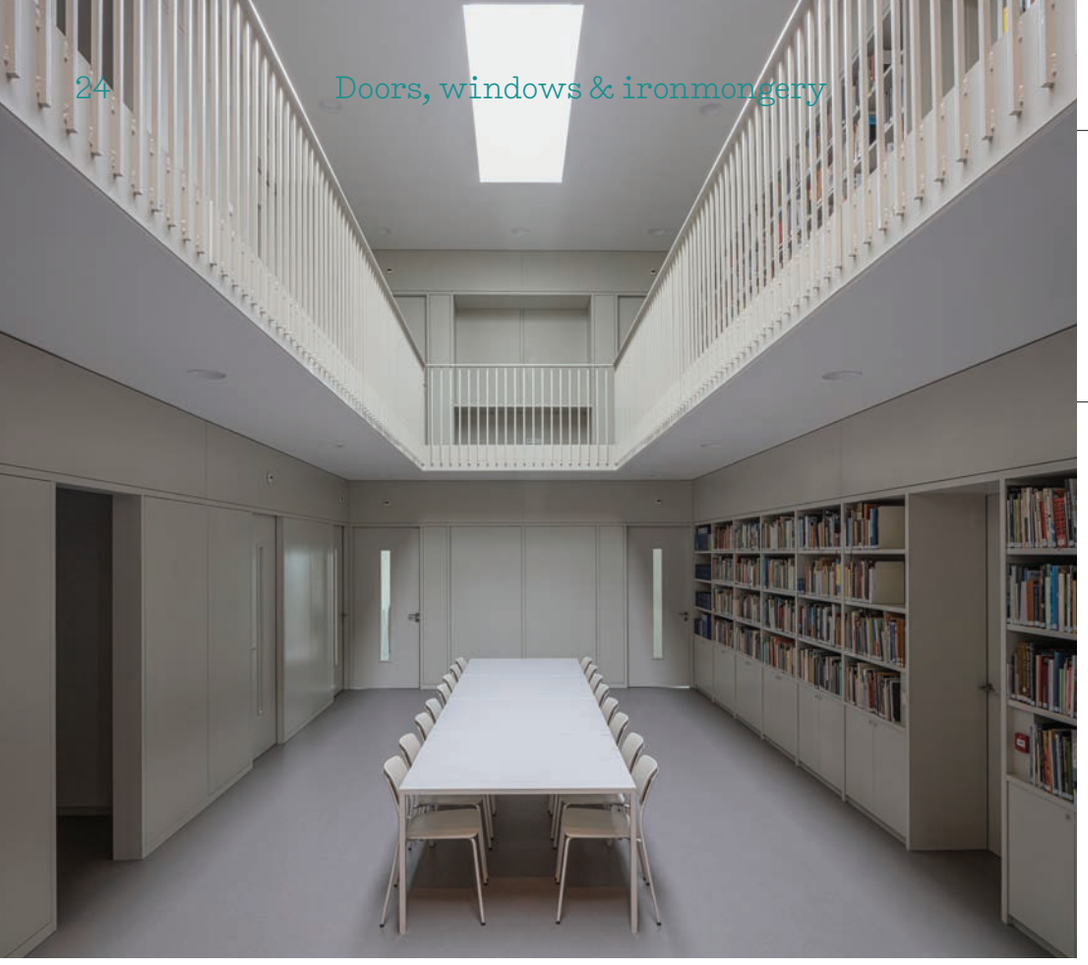


museum, letting visitors move easily into our block, the original building, Harteveltzaal, or the 1928 wing,' explains Verhoeven. Its 'intelligent roof' is formed of steel beams stretching its length, each alternate one containing a gutter for the double-glazed roof panels that run in a low zig-zag across it. High-level air feeds at the perimeter invisibly condition the space, exhausting out through De Lakenhal's ground floor vestibule. Voids between bricks on its north face aid acoustic insulation to leave this concrete-floored hard space comfortably attenuated.

The two sizeable new galleries are characterized by HCV's run of imposing precast concrete 'light funnels', which were craned onto site. At 11.7m and 8.2m long respectively, each 3.1m wide 1.7m high funnel is topped with in a glass panel, allowing artificial light to soak down to the galleries. And it brought additional benefits, says Verhoeven. 'The funnel design added height to the spaces, which gives them real loftiness. Not only that, but the smaller gallery, with no offices above it, can be naturally lit.' The upcoming Rembrandt exhibition in November may avail itself of this option.

The radical re-establishment of the two courtyards was part of the refurbishment strategy. 'Opening the south court and moving ticketing back into the vestibule re-established the space as the formal reception it was historically,' says Julian Harrap Architects' Robert Sandford. 'And opening up the north courtyard created a place of assembly as well as clearly distinguishing De Lakenhal's constituent parts.'

Distinguishing parts sums up Harraps' approach to the restoration of the old cloth hall – characterized more by creative interpretation



Left Upper level admin areas in the north extension above the main gallery have strong spatial components and a muted palette. **Bottom** The north elevation's brickwork required a number of 'specials' to generate its curious pixelated quality.

than by faithful restoration. To do it, the firm took a view on almost every detail, resorting to revealing past layers, 17th century prints and drawings and, at times, sheer gut instinct. But the firm always intended to make it subtly clear when it was intervening on old structure which, explains Sandford, accounts for the bespoke detailing on all the doors and windows. He concedes that very little of the original building remained, requiring forensic hunting through the building's reserve or contemporary records.

For instance, 1850 prints showed the walls and small doors of the four wings off the trading hall before they were opened out as large arches. 'The remodelling lost the meaning of why the wing rooms were smaller and more decorative,' says Sandford. 'With the help of the sketches, we rebuilt them as they were to their rough dimensions and with shouldered architraves.' Painted in three layers of mineral paint, the scale and feel of the original space is restored, helped by the replacement of parquet with a 'new' old floor of sourced English oak boards. Rebuilding the walls allowed duct runs to be optimized.

The firm made any new doors clearly modern, as gold powder-coated steel units. In one example a pair is set within twin timber arches that had been moved from the ground floor gallery to the trading hall above to access the staircase. Where doors were specified in existing openings, such as the vestibule's stair and lift access, there was another approach. 'New doors in a past alteration were done as a modern version of old panelled doors of the 17th century, with flush handles rather than traditional turn ones,' adds Sandford. It explains, he continues, the anomaly in the west vestibule wall, where the 'new' door into the 1928 extension looks the same as the other two but retains its large plaster architrave. 'We were always trying to make the distinction between what's "original original" and "original contemporary".'

As for the cream-painted Bentheim sandstone, it too got the Harraps treatment. 'Julian thought she had too much make-up on'

The same strategy went for the windows. Where they were re-revealed in the clear out of the north courtyard, Harraps looked to two windows with original hinges and ironmongery that had survived the overhauls of 1778 and the 1930s: 'Where we were reinstating windows in their original positions we used the original designs and ironmongery and had blacksmiths fabricate it for us. Contemporary windows used new ironmongery. Secondary glazing behind the old south windows used contemporary oak frames and ironmongery. It sounds confusing but they are subtle intricacies that reveal themselves to the viewer that takes the time to look.'

Harraps acted with the same confidence externally. Sizeable gaps between frames and brickwork were not re-pointed but filled with mortar, scored with a course line and 'painted' to emulate the brick tint. 'With limited means we were not looking at the academic exercise of faithful infill but using processes that allowed us to make the architecture read as a whole without seeing the point where we intervened,' says Sandford. 'It took a lot of thought and expertise.'

As for the cream-painted Bentheim sandstone, whitened since it became fashionable in 1653, it too got the Harraps treatment. 'Julian thought she had too much make-up on,' remarks Sandford. It too was duly stripped back to its bare ochre colour after removing a 'tenacious' layer of black patination. 'Revealed, we saw it was of fantastic quality and were loath to sandblast it, so we applied a thin tinted colourwash.' It picks the stone out elegantly against the red brick and gives a real sense of repose to the canal elevation.

Both architects, from PiP's visit, have more than fulfilled the brief they were set, creating a restored, energized and intelligible modern museum that is immensely popular with the public. In the month since it reopened more than 10,000 visitors have passed through its doors – up from 50,000 a year when it closed. De Lakenhal has impressed itself on the city once again.

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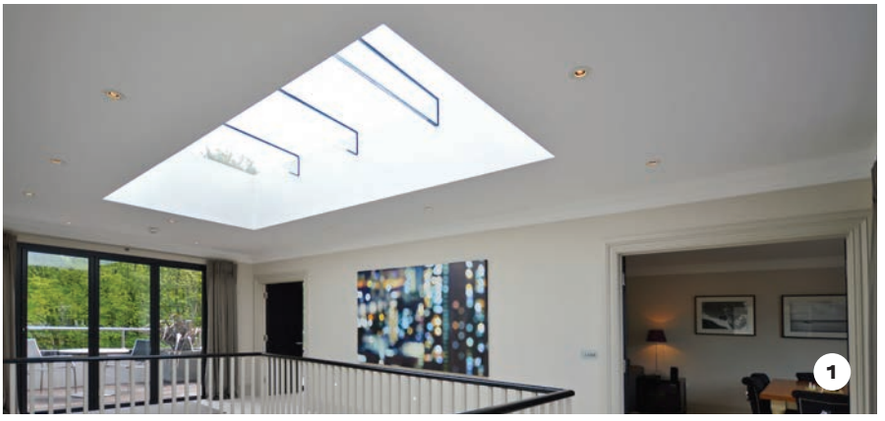

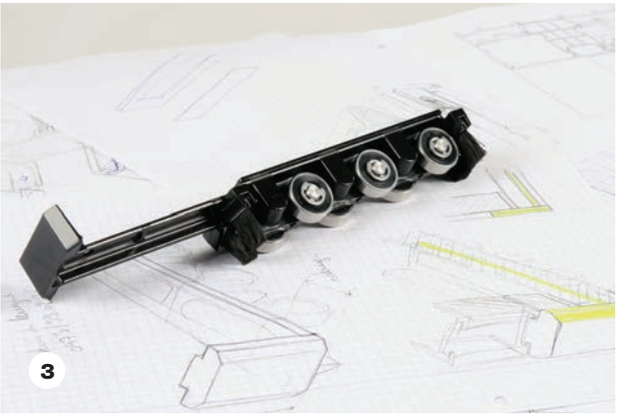

1
Ultraline glass rafter rooflight
Howells

Yesterday upon the stair
I met a man who wasn't there
He wasn't there again today
I thought that man had gone away
When I came home last night at 3
The man was looking down at me
From up among the Howells' glass rafters
Crying and pointing and rocking with laughter
'Just look at these! Their style and quality!
'They even guard from snow and burglary!
'I tell you now, I'm chucking in the business of invisibility!'
'I am broken!' he cried, sobbing; 'especially thermally!'
howellsglazing.co.uk

2
Aero Glide electric-opening skylight
Sunsquare

'We decided to invest our lump sum in a Harley Davidson, but thanks to Equitable Life, the 2019 Road Glide was out of the question – as were Street, Electra, Dyna, and even Super Glides.

'We settled for the £900 Aero Glide by Sunsquare, and I must say it's been great. It suits our budget, and while the ride extends no more than two feet along a single plane, and top speed is 1m/10s, it's smooth, comes with electric start as standard – and it's definitely safer.'

– Mrs I.M. Silhey, Jedwardshire
sunsquare.co.uk

3
Hi-Finity patio doors
Reynaers

Brexit preparations continue with the conscription Green Paper making its way through parliament, and the emergency purchase of new Eurotunnel freight rolling stock apparently signed off. This was done by a slightly confused Chris Grayling, who went with Reynaers' high-performance double wheel door carriages.

'IT'S ALL FINE', PM Johnson said yesterday; 'They'll still take the weight of even the most gargantuanly titanically gob-wobblingly enormous sliding doors! We'll just eat those!'
reynaers.co.uk

4
iMotion intelligent door operator
Tormax

'UNHINGED DOORS HAVE DONE BAD THINGS TO DONALD J TRUMP! UNFAIR!'
The Stable Genius' latest tweet storm seems prompted by the main entrance at an Oxfordshire golf club. Looking for tips to save his own flagging Aberdeenshire course, Trump stopped en route to his favourite hair-loss surgeon Tufty McLavish, but was repeatedly repelled by the iMotion 2202 intelligent door operator. The AC motor is microprocessor controlled, with leaf movement monitoring, auto adjustment for weather and footfall, and, of course, build-ups of dirt.
tormax.co.uk

To Hi-Finity and beyond

If you're after a room with a view, Reynaers' new range of patio doors could be just what you're looking for

Reynaers, the leading supplier of sustainable aluminium solutions, is announcing a series of new options for its Hi-Finity range of patio doors, including a manual lock and a double-wheel carriage. Hi-Finity patio doors are the epitome of modern design. They are structurally glazed and include an ergonomically designed handle and a concealed locking system.

Aiming to offer homeowners more choice than ever before, Reynaers has now introduced the new manual lock system, as an addition to the popular automatic option as part of the Hi-Finity range. The manual lock means that an electrician is no longer required on site during installation, giving the installer and the homeowner greater flexibility.

Another key feature of Hi-Finity is the doors' impressive size and weight, which can reach a

maximum height of 3.5m, a sliding panel weight of 750kg and a fixed pane weight of 1200kg. This is made possible as a result of Reynaers' specially designed wheelbase which ensures the fluid movement of the glass panes and allowing increased weight capabilities. It also presents the opportunity for homeowners and architects to opt for specialist window solutions, such as acoustic glass, to suit a variety of individual requirements.

Furthermore, architects and homeowners can rest assured when it comes to security. The Hi-Finity range is one of the first doors of its type to offer the PAS 24:2016 standard, which is a benchmark of quality and the latest standard for the enhanced security performance of windows and doors. The standard is applicable to the automatic locking system, so it is ideal for those projects where security is paramount.

Rebecca Cope, marketing manager at Reynaers Aluminium UK said: 'Our Hi-Finity patio doors are high-end products that beautifully complement any building seeking top levels of performance and security, while also taking advantage of the view to the outside. Building on the success so far, the latest updates we have introduced aim to further enhance homeowners' experience with Hi-Finity.'

Total invisibility

The Hi-Finity range also features ultra-slim frames that can be built into the structure of the building. This makes achieving floor-to-ceiling and wall-to-wall glass possible, offering homeowners uninterrupted views. Additionally, the interlock between door panels measures an incredibly narrow 35mm, and the frame and spacer bars between the panes are black, enabling the door to blend in and offer truly panoramic sights.

An example of the view offered by Hi-Finity is evident in the Syvota private villas, situated in a coastal city in northwestern Greece. Designed with infinite sea-views in mind, the private villas are built on the coast, offering residents a spectacular picture-postcard vista of glistening Grecian seas.

Until it was taken over in 2015 by the current owner, the project had sat unfinished for years due to the economic crisis. The owner wanted to create a tranquil, private residential family property. Dinis Real Estate and Development and Spinian de Sanchez exterior architect worked closely together to finish the redesign and subsequent construction, and incorporated Reynaers products to ensure that the project took advantage of the unique panorama. The project took 18 months to complete.

The villas are surrounded by solid brick and stonework to ensure complete privacy. The architect wanted to create unobstructed sea-views, and the client's first choice was the smooth and square finish that can be achieved from aluminum window framing. This suits the more minimal detail orientated design that is prevalent throughout contemporary architecture.

Produced in collaboration with local fabricator Simpas, the architect specified the motorised Hi-Finity sliding door system with double glazing and CS 77-HV 'Hidden Vent' system. The products brought both transparency and light to the villa's design. Hi-Finity, with its state-of-the-art, ultra-slim and structurally glazed door, offered the possibility of floor-to-ceiling and wall-to-wall glass. Moreover, the addition of CS 77-HV ties in well with the minimalist architectural style. The vent profile is invisible from the outside, concealed behind the outer frame, which keeps the lining to a minimum. The system has achieved the Swiss Minergie Component label, the sustainability brand for new and refurbished buildings.

The architect has brought together a fusion of traditional and contemporary design, resulting in a villa set in a tranquil location with enviable uninterrupted views. ●

Above Bringing the outside in with ultra slim Hi-Finity doors

Left Panoramic views from Syvota private villas

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Burgeoning cancer centres foster PBT promise

Proton beam therapy is the great new hope for cancer treatment, and the enormously complex buildings that house it are going up surprisingly fast

Words: Josephine Smit

'These are the most complex projects you'll ever get involved in'. Kevin Turnbull, director of JDDK isn't talking about major mixed use, high rise or station projects, but a series of low rise brick clad buildings. Modest they may look from the outside, but these are among a number delivering the very latest in cancer treatment: proton beam therapy (PBT).

PBT is an advanced form of radiotherapy, which uses a beam of high energy protons – small parts of atoms. Until fairly recently, UK cancer patients had to travel overseas to receive it, but now one NHS centre is already up and running – The Christie NHS Trust facility in Manchester – and in London the University College London Hospitals (UCLH) NHS Foundation Trust is developing a second. At the same time, specialist Proton Partners International delivered the first PBT treatment in the UK from its Rutherford Cancer Centre in Wales, and began rolling out a series of further centres across the UK, of which three so far have been designed by JDDK.

This advanced treatment brings fresh challenges for buildings that already call for intricate, highly efficient combinations of spaces and uses, and the provision of protective shielding for nuclear medicine. Put all this alongside the needs of patients, families, staff and stakeholders and a rapidly changing health landscape, and you see what Turnbull is getting at.

NHS pioneer

PBT technology delivers treatment with incredible precision, and the construction of the facilities housing it call for the same exactitude, as BBC television viewers saw in a programme about The Christie and UCLH facilities, The £250 million pound cancer cure, screened in July. UCLH's centre is housed in an 11 storey building, which has the added complication of having five storeys below ground.

The client wanted the building to maximise its Euston site, which puts it close to other UCLH medical services. Building height was restricted to six storeys by a view corridor, 'so the only way to realise the project was to push down as far as we could go', says Sheila Carney, director of Scott Tallon Walker Architects, the project's lead designer. The lowest two storeys house the PBT centre, with an interstitial plant room above. Level -1 houses day surgery theatres, with eight operating theatres and clinical support space. At ground level are the main public entrance and patient drop off areas, plus the main imaging department. Rising above are five floors of inpatient wards, including a 10 bed critical care unit and other support space. A central atrium separates the L-shaped building from a lower three storey courtyard building in the centre of the development.

Above Scott Tallon Walker's UCLH proton beam therapy centre in London. View to the main entrance.

The source of the proton beam is extracted from a cyclotron, which accelerates protons to around two thirds the speed of light. The beam is steered and focused by magnets to four treatment rooms where gantries deliver the treatment, rotating around the patient as they lie on a central table. The kit is massive and heavy: 'The cyclotron is the weight of a jumbo jet and the size of a family car,' says Derek D'Souza, medical physicist at UCLH NHS Foundation Trust. The gantries are three storeys high, and UCLH has one in each of its four treatment areas. And it must all be shielded for radiation protection.

NICK CAVILLE

Scott Tallon Walker was brought into the project team early, as the client was bidding to secure funding for the PBT centre. 'Three equipment vendors gave us technical information to allow us to test the design to see it would fit. We accommodated four treatment rooms plus the cyclotron – but we must have looked at 50 different design options in all,' says Carney. 'We then had a soft dialogue with the main vendors to check the designs, and after that designed three schemes to around RIBA Stage 2.5.' Further whittling down of the equipment supplier, as well as the contractor, continued until team and solution were decided. Since then the same personnel have been working on the project, which has aided understanding, says Carney. 'We've all been through the options and have a huge amount of history.'

The practice had previously worked on cyclotron facilities for radio pharmaceutical and good manufacturing practice production and so was familiar with the provision of nuclear shielding, but it sought specialist guidance and visited PBT facilities in locations from Dallas to Delft. D'Souza's team was on the visits too. 'The architects learned with us,' he recalls. 'We got to know them well and gave them physics lessons on the plane.'

The cyclotron and treatment rooms sit in a maze-like concrete bunker some 56m long by more than 20m deep. Each treatment room is around 8m wide by 10.5m high by 4m long, with walls ranging from 2-5m in thickness. These walls have a huge amount of services running through them with extraordinary precision, says Carney. 'The angles of ductwork couldn't be more than 35°. We made modular ductwork units and worked closely with the equipment vendor, because when you're working 30m below ground you cannot go back and redo things – it had to be right.'

The project was modelled in 3D BIM, an approach promoted by the architect ahead of the 2016 government mandate. Kevin Bates, director at Scott Tallon Walker, says: 'We were already set up to do it and were keen to push BIM as a way of designing, integrating and co-ordinating all the major equipment. It has been crucial in areas like services penetration through gantry walls, representing the clinical areas and helping clients understand the building.' D'Souza confirms the latter: 'Seeing how building and equipment merged in BIM was very helpful for us. It was also useful for the equipment manufacturers to see clashes.'

The equipment has been lowered into place, although the facility will not open until 2020. It will stay there for several decades, says D'Souza, with allowance made for maintenance. 'Hardware can go through lifts or lift shafts and we have extra conduits for cables.'

When the building is complete passers by will see a layered facade, which has an outer veil combined with a sophisticated unitised cavity glazing system, itself layered to accommodate patient controlled blinds. Between the external and inner layers there is a walkway to allow access for maintenance and cleaning without disruption to those inside. Floor-to-ceiling glazing in patient bedrooms and garden terraces are among features that will help humanise and enhance the clinical environment, the architect having drawn on the experience of patients who have had PBT overseas to create a positive environment.

WILL WALKER/NNP

Above Clatterbridge Cancer Centre for the Royal Liverpool University Hospital by BDP.
Below The space-age interior of a PBT gantry at JDDK's Rutherford Cancer Centre in Wales – as heavy as it looks.

Learning from repetition

JDDK came to its first Rutherford Cancer Centre project, in Bedlington, Northumberland, with a track record in the hospice sector but, like most in the UK, little knowledge of PBT. 'It has been a massive learning curve for us,' says Turnbull. 'Especially if you bear in mind that our first project went in for planning just eight weeks after we were appointed.' Since then it has worked with the same client, Rutherford Estates, on projects in Reading and Liverpool, and has a fourth in the pipeline.

Its centres have a cyclotron and single treatment gantry, plus radiotherapy equipment, which sit alongside chemotherapy, diagnostics, imaging and other services. The centres' common aesthetic comes from the client's aspiration for design consistency and patient needs, says Turnbull. 'We work from the patient perspective. This is probably the most stressful part of a patient's life, so factors like natural light and stress-free wayfinding are extremely important.'

In these centres the bunker can appear dominant. 'We basically have a 30m x 15m x 11m high concrete box. You can't hide it, so it's a question of how you treat it,' says Turnbull. 'We

JILL TATE

Above JDDK's Rutherford Cancer Centre in Wales.

have a welcoming front elevation, with equipment and vaults to the rear – at all three sites you drive past the vault.' Two removable panels in the roof allow for equipment to be installed. The architect draws on the expertise of radiation protection advisers and specialist equipment providers in designing bunkers, as well as using BIM for its projects. 'Equipment manufacturers produce site planning guides of technical parameters. We had a document of around 150 pages,' says Turnbull. That learning never stops, he adds. 'There can be small technological advances that make construction and operation more efficient and provide greater futureproofing. You might find out that a project in Madrid puts a cable six feet to the right and achieves greater efficiency, for example.'

In its projects Rutherford Estates has used a range of bunker constructions. Northumberland and Reading have sandwich panel construction, with prefabricated concrete outer and inner layers filled with a granular material. Liverpool has an in situ concrete shield with traditional rebar, and linear accelerators for radiotherapy on the Reading project are shielded using a heavy block solution.

The ongoing working relationship promoted by Rutherford Estates has allowed JDDK to enter an informal partnership with structural and civil engineer Fairhurst and electrical and mechanical consultant Desco. The architect sees numerous benefits coming from collaboration, not least the fact that it has worked under traditional contract arrangements for two projects. 'We've provided comprehensive information and worked with a host of specialist suppliers, so are able to add value,' Turnbull says. It is also carrying out research projects, evaluating nine alternative vault configurations to see how rebar can be minimised, and looking at ways of limiting energy consumption. Post-occupancy evaluation from the first projects is starting to inform current work. Rutherford Estates continues to build expertise on UK projects, and the working relationship is allowing JDDK to offer its services outside the UK, alongside other members of the design team, cost consultant boydengroup and Rutherford Estates as project manager.

Complex and caring

Even without PBT facilities, cancer centres can be immensely complex buildings, with design and delivery needing to respond to shifting operational and care priorities. The Clatterbridge Cancer Centre NHS Foundation Trust is delivering Liverpool's first cancer hospital on a tight site beside the Royal Liverpool University Hospital. Originally the building was planned to have eight storeys, but the transfer of the hospital's haemato-oncology service gave the potential for the centre to treat blood cancer on the same site as solid tumours.

In response its architect, BDP, grew the design by three storeys. The triangular floor plans are packed with a jigsaw of uses, including six radiotherapy bunkers, chemotherapy, surgery, outpatient and inpatient care with 101 ensuite inpatient rooms, plus dedicated facilities for teenagers and young adults and bone marrow transplant. 'We probably restacked the building a dozen times to get everything in place and get daylight in,' says Ged Couser, architect director of BDP. The latter is achieved using glazed facades and two atriums: a larger triangular space extending down to the lower ground radiotherapy waiting area, and a second smaller area extending up from level 2. The base of the building is peeled back to make space for a winter garden, while upper levels step back to give terraces, backed by social spaces.

You might find out that a project in Madrid puts a cable six feet to the right and achieves greater efficiency, for example

Inside, the building is designed for future care needs. 'We have soft spaces – meeting rooms and office space – interlaced with treatment spaces,' explains Couser. Softer spaces can be adapted to provide additional imaging facilities and two more radiotherapy bunkers. The building also provides space for clinical trials that could shape future treatment. 'Research and treatment professions are having to work more closely together,' says Couser, who is also designing a dedicated research facility for The Christie NHS Foundation Trust in Manchester, to replace its fire damaged Paterson Building, which will include shared collaborative space for the two.

The cancer centre is under construction by Laing O'Rourke and due to open next year, but its curving prow is already starting to earn it the local nickname of 'the liner'. Far from hiding cancer care from view, the design is deliberately transparent, and the glazed facade, terraces and garden give patients a connection with the natural world. The facade also has a deeper significance, explains Couser: 'Original conversations focused on it being a crystalline expression of the cancer treatment taking place inside.'

The project is funded by the NHS and the government, with a public appeal contributing £15 million. The early choice of the unitised facade and firm cost control are helping the delivered building remain true to its concept, says Couser: 'We've had a really good relationship with the cost consultant, Arcadis, to make sure things we are suggesting are affordable. We have been able to remain consistent because we've had that advice.'

Quite rightly Couser – like others working on such projects – is proud of the building and the environment it will give patients and staff. 'It will have spaces that are beautiful and calming,' he says. And in a medical environment increasingly dominated by advanced technology, that is important too.

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When space is tight, how do you make the most of it?

One answer could be for schools to be more integrated into their neighbourhoods and cities

Words: Ruth Slavid

It is rare that the questions constitute the best part of a seminar but this is what happened at the recent PiP event on education. This was not because the individual speakers had not been good – they had provided numerous inspirational examples – but because of the nature of the first question and the person asking it.

The questioner was no less than Crawford Wright, head of design at the Department for Education. He asked why it was that, although the guidance on the amount of outdoor space needed for school buildings carries the same weight as the guidance on indoor space, everybody tends to ignore the former while paying due attention to the latter. 'How do we get people to believe in it?' he asked.

Sharon Wright, consultant with The Learning Crowd, gave the practical answer that 'often the money has run out when you get to that part of the project'. She also cited a speaker at a conference that she recently attended in Australia who said that children should be allowed to play in the street. 'The idea is that children have a right to be outside,' she said.

This is particularly relevant to her own work since, along with Helen Taylor, director of practice at Scott Brownrigg, she has written a book called High-Density Schools that looks at the way that school design can and should change when space is at a premium. The pair examine four new typologies for schools: high rise, mixed use, repurposed buildings and schools dispersed over several sites. They look across the globe in their book and identify not only the form that schools can take, but also their relationship with the city. 'We see opportunities in terms of how schools can become part of a new neighbourhood and city,' Taylor said.

At the same time, these projects require careful attention to detail. For example, 'staircases are a big deal for schools – they are where a lot of bullying happens'.

JACK HOBHOUSE

Taylor provided a whistle-stop tour through a number of schools. Perhaps most radical were the distributed schools of Espoo in Finland where, with good transport links, children take themselves from one site to another. 'We would love to see these ideas here, that the city is a really friendly place for children,' she said.

Carol Lees of Hawkins\ Brown concentrated on a single school, Ivydale in the London Borough of Southwark. It is one of four that the practice designed for the borough, each different because of the varying constraints. Ivydale was expanding from two-form to four-form entry, on an additional site that had views to the existing school. One reason it was so successful, Lees said, was that 'the teachers were really engaged'.

The children were involved in the development of the design, which uses the theme of a 'fox in the forest' for some of its visuals, and makes generous use of green glazed brick to created house-like structures on the outside. This is echoed in the central multi-purpose hall on which the team worked carefully to ensure it had daylighting and was not a black box. There is a wide stair at the centre for interaction and informal seating.

It is also a school that should satisfy Crawford White since, said Lees, 'it has a fantastic amount of outdoor space'.

Daylight was one of the concerns at Ivydale, but for Simon Inch it is the primary one. He is specification development manager at Velux Commercial and he cited the work that Peter Barrett carried out at the University of Salford on 'clever classrooms'. This showed that the right environment can lead to a 16% improvement in learning.

As a result of work like this, the government has improved its specification for daylight values in schools and Velux has introduced a 'daylight visualiser' to show how to achieve or exceed these standards.

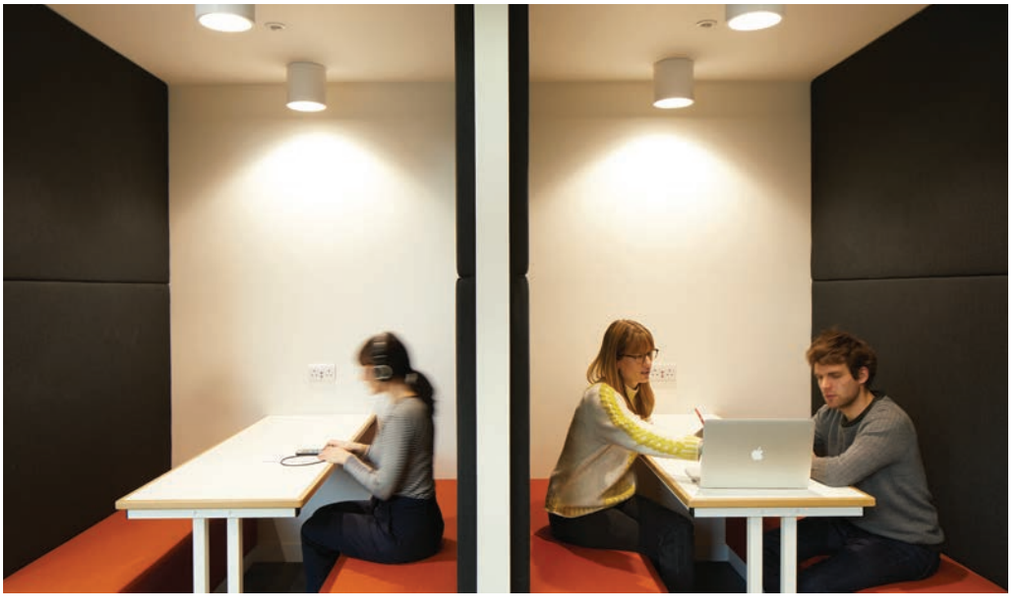
At Trumpington Regional College near Cambridge, the company was involved in a study of how to control glare. It was able to show that some proposed strategies just did not work. In the end it had two workable solutions, either of which would have performed well technically, but one of which was considerably less expensive than the other.

Similarly valuable nitty-gritty advice came from Alistair Lambie of Kingspan Insulation, who explained in detail the available guidance on thermal comfort and daylighting in the learning environment.

There were another two case studies, one involving the Big Data Institute that Make Architects designed in Oxford and the other on the extension to Streatham and Clapham High School in south London, designed by Cottrell & Vermeulen.

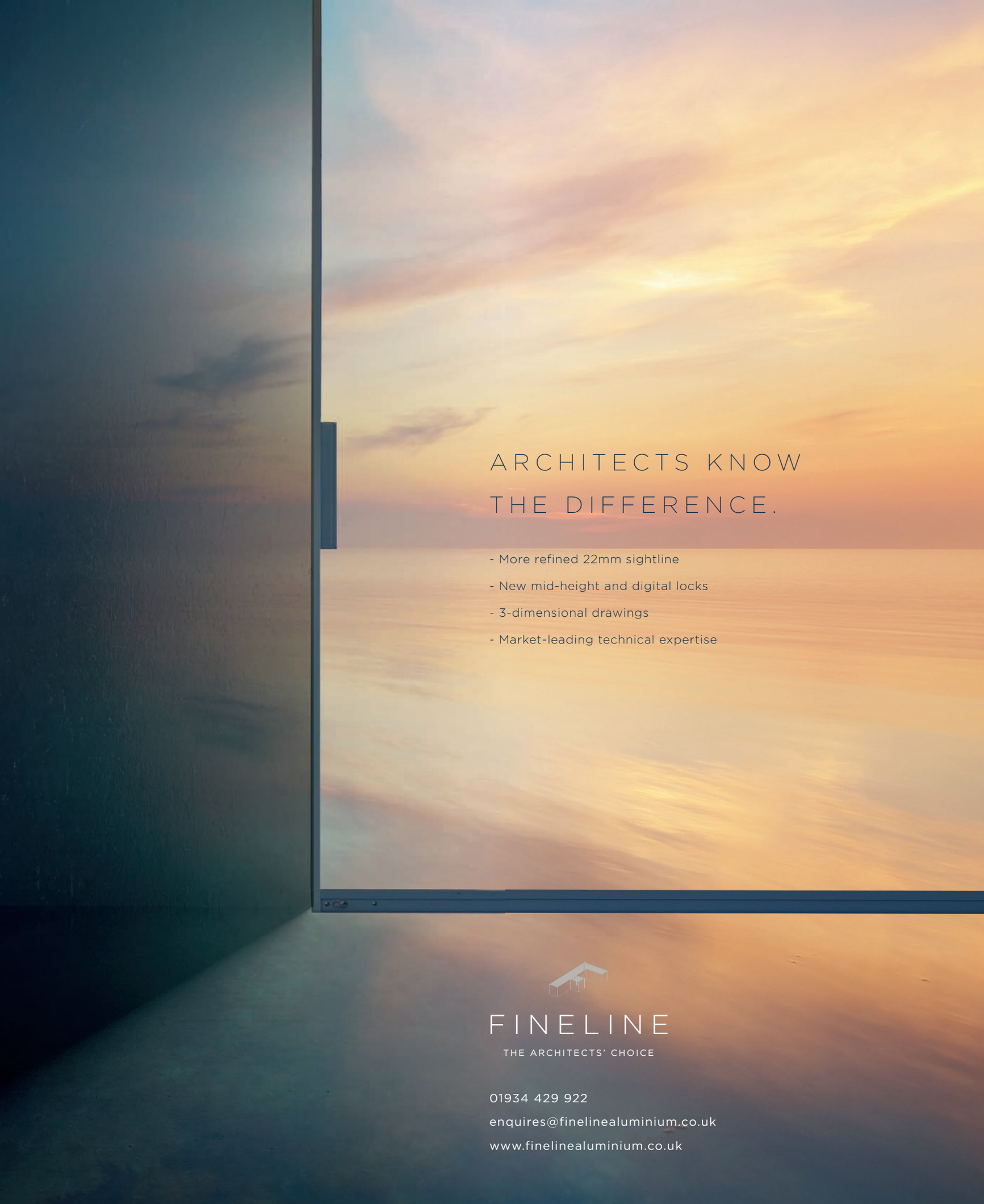
Both showed that while understanding of general principles is key, every building also has its own specific needs and constraints. And, of course, that we need more outdoor space available to students, whether in playing fields, as part of a high-rise development or, more radically, within accessible cities.

Staircases are a big deal for schools – they are where a lot of bullying happens



Above Kingspan helped tailor thermal comfort to the specific needs of the Big Data Institute by Make.
Left Teachers and pupils were 'really engaged' with Hawkins\ Brown's development of the design at Ivydale primary school.

FINE. FINER. FINEST.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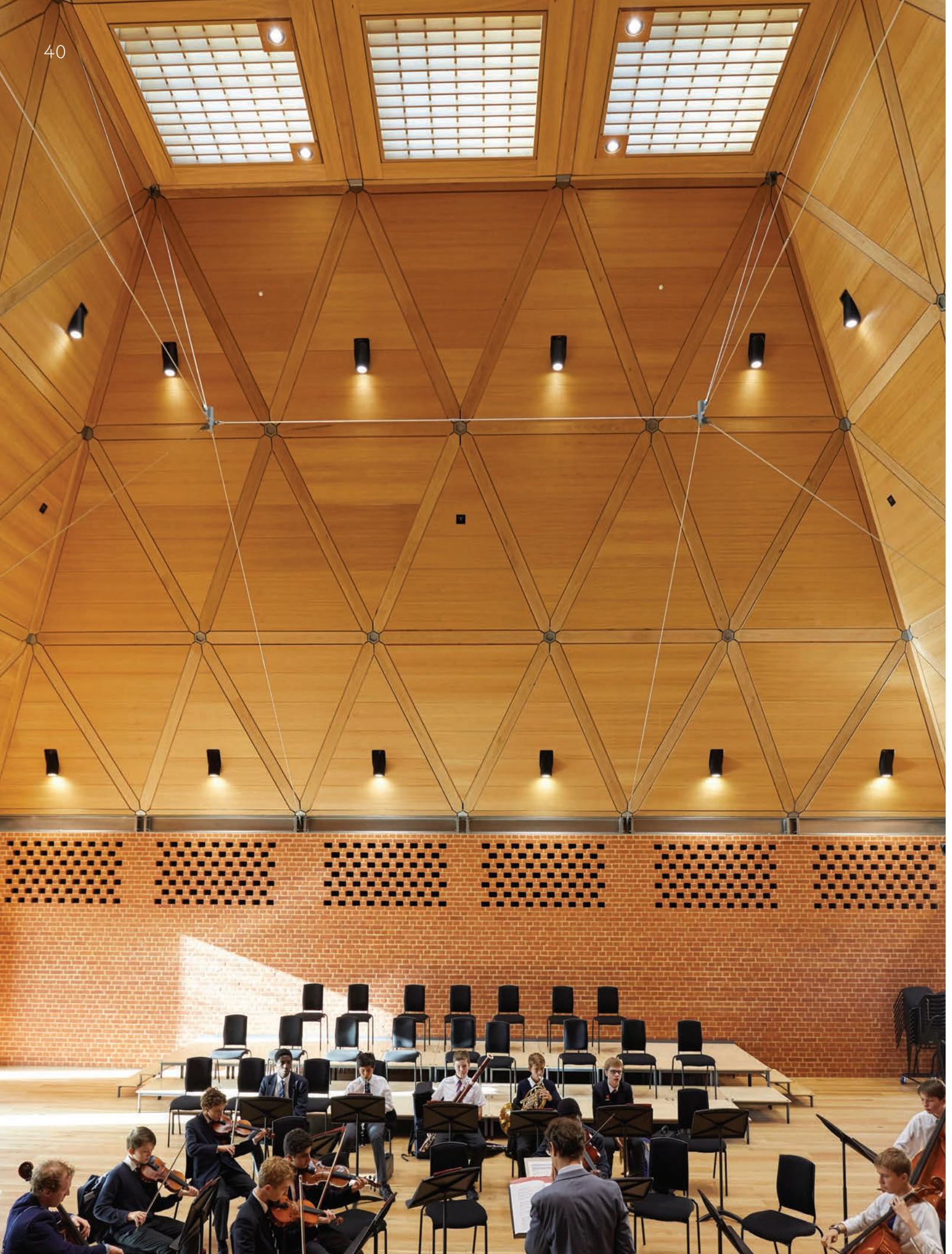


Left High notes: the triple-height volume results from acoustic requirements.
Below Roof tiling reflects the triangulated structure within.

King's College School, Wimbledon

Hopkins' second school music building was a tall order, literally: to achieve the volume necessary for a natural acoustic space, the only way to go was up

Words: Pamela Buxton Photographs: Janie Airey

Recently awarded an RIBA National Award, the music building at King's College School Wimbledon is the second school music facility designed by Hopkins Architects.

This one is a cracker inside and out. Designed with a nod to the arts & crafts buildings found within its West Wimbledon Conservation Area location, it has a distinctive, steeply pitched roof over the main auditorium. Externally, this is covered in hand-made, clay roof tiles in a triangulated pattern that expresses the structure. Inside, the glulam roof is exposed, with the geometry of the structure further emphasised at the rear of the hall. Here, the triangular infill panels are subdivided into further triangles by detailing configured to provide the optimum acoustic conditions for the music activities that take place within the space.

Commissioned to design a new music building at the edge of the campus, Hopkins came up with three linked volumes. The largest is the main performance space, which seats up to 200 and can accommodate a 70-piece orchestra. A second volume contains music classrooms and a rehearsal space while a third houses offices and cellular practice rooms.

The triple height volume of the auditorium was driven by the sound requirements for the natural acoustic space. According to project consultant Adrian James Acoustics, unamplified music requires long reverberation times of around 1.3-1.5 seconds when the hall is occupied. This can be achieved with a combination of a large volume and strong reflections off the side walls.

MIKE TAYLOR, AHOPKINS ARCHITECTS

Another acoustic consideration was the sound of the mechanical ventilation system

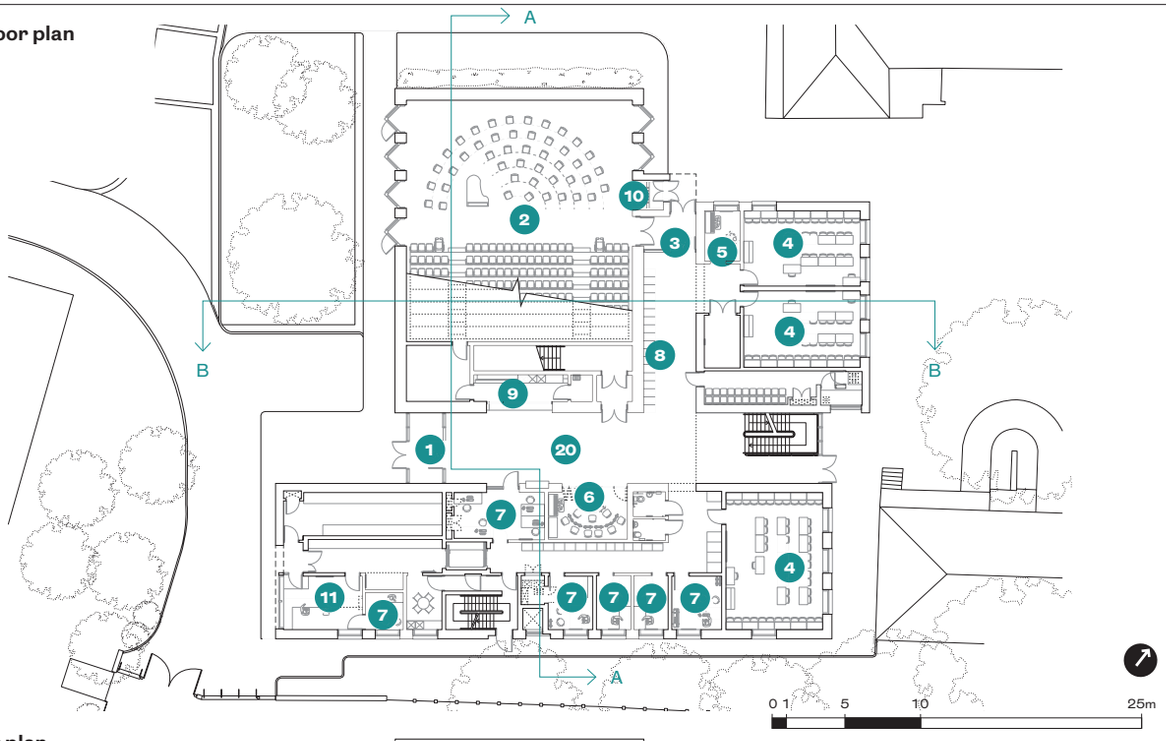
'The challenge was getting the volume we needed for the acoustics in a way that fits properly on the site – that's why it's such a tall space,' says Hopkins associate director Tony White.

Hopkins achieved this with a combination of a steel framed lower structure topped by a triangular glulam 'lid' that forms the roof structure. The glulam structure is supplemented with unintrusive tension rod supports. White says that as well as controlling the loads, visually these add 'a bit of sparkle'. This timber structure – which has an eighth of the embodied energy of a steel-structured roof – sits on an exposed steel ring beam. With the help of an acoustic model of the hall, the acoustics were then tuned to the desired degree of diffusion and reflection, with the use of American white oak for the surface of the glulam and the matching oak infill panels with CNC-cut slots as required.

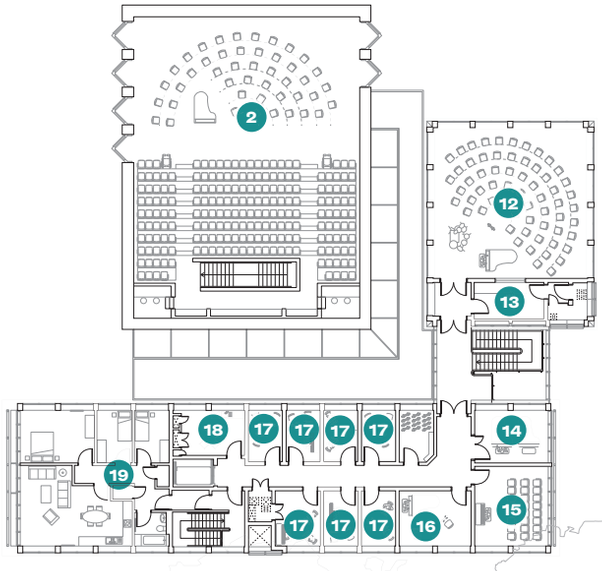
'Because we had a timber lid that could partly reflect, partly diffuse or partly absorb, we had the toolbox in place to provide what the acoustician needed,' says White.

The bulk of the oak veneered infills – those on the flat roof and the sloping roof soffits – have smooth surfaces to give the necessary reflection required for natural sound. These are sealed airtight to the glulam beams to prevent an air

Ground floor plan

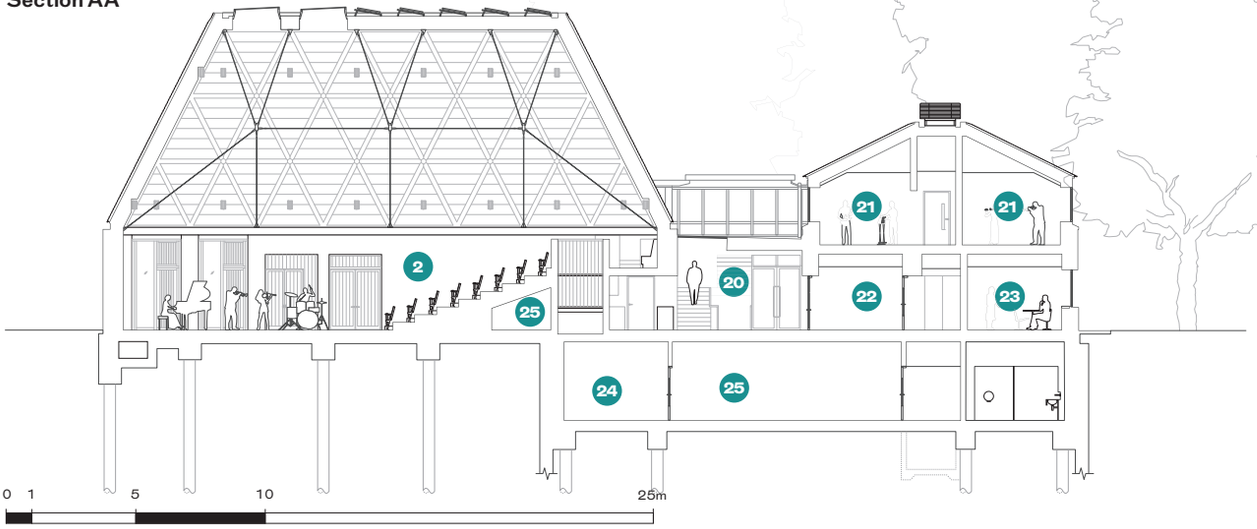


First floor plan



1 Main entrance
2 Auditorium
3 Performers entrance
4 Music classroom
5 Practice room
6 Exhibition / breakout area
7 Music office
8 Instrument lockers
9 Cloakroom / bar
10 Organ
11 Porter's lodge
12 Rehearsal room
13 Control room
14 Piano room
15 Singing room
16 Strings room
17 Practice room
18 Staff room
19 Caretaker's flat

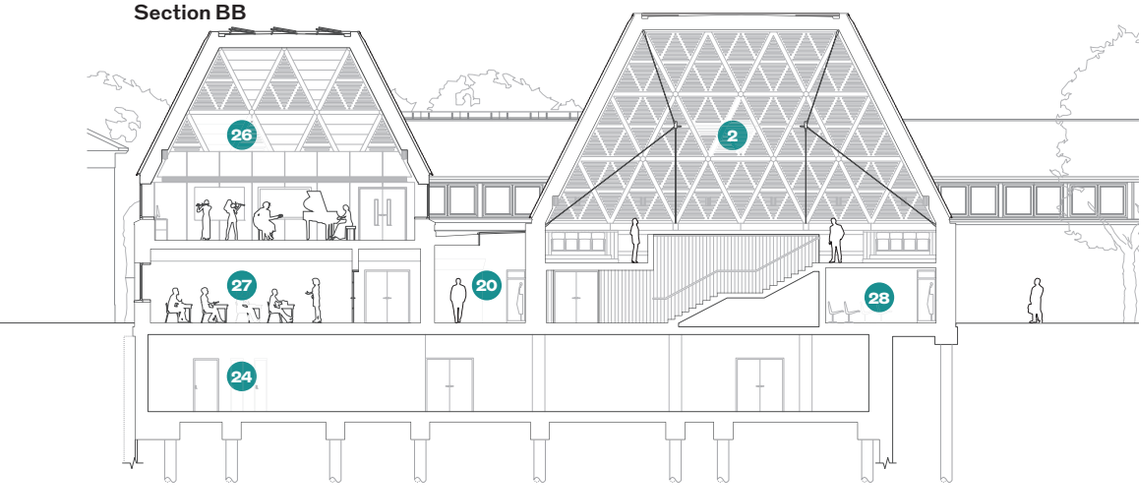
Section AA



20 Foyer
21 Practice room
22 Exhibition / breakout area
23 Office
24 Plant
25 Storage
26 Rehearsal room
27 Classroom
28 Chair store and cloakroom

Above Fixed seating has precisely calculated acoustic absorbency.
Left Unusually there is a view out. Perforated brickwork acts as vents for low-velocity air handling.

Section BB



path for sound to enter the void behind the panels. The rear wall is quite another matter, and is instead designed to diffuse the sound. Here, Hopkins worked with joiner Decor Systems to create panels with four triangular sets of rounded horizontal slots in different depths as acoustically required. This was achieved with a build-up of four, 25mm layers of MDF with the facing layer veneered in American white oak. The acoustician specified shallower wells of 25-30mm in the centre of the panels with deeper wells of 75-90mm towards the corners of the triangular panel. The lower row incorporates an elliptical aperture for a concealed downlighter.

These acoustics of these rear panels is calculated to take account of the absorption properties of both the brick walls at the lower level of the auditorium, and the fixed, upholstered seating from Race.

Another acoustic consideration was the sound of the mechanical ventilation system, which needed to operate with low air velocities and low turbulence to achieve the low background noise level required by Building Bulletin 93 performance standards for the acoustics of school buildings. This ventilation method is assisted by the use of header-sized extraction openings in the brick stage wall.

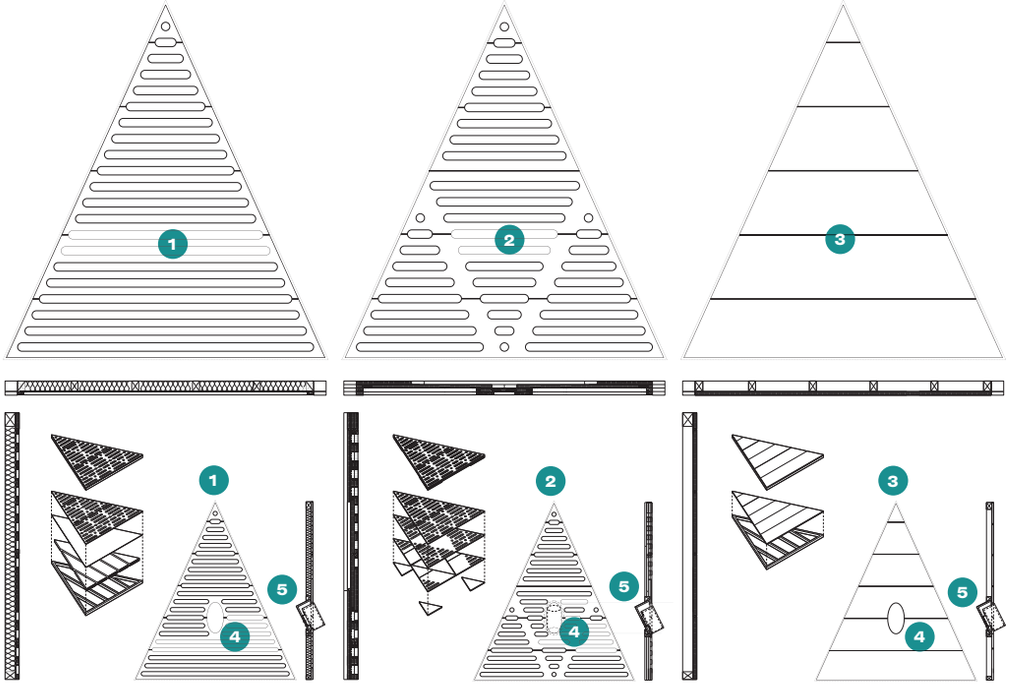
The design theme of the auditorium was carried through into the walls and ceiling of the large classroom/rehearsal space on the first floor. This is covered in similar triangular and square ceiling and wall panels. Here, the smaller volume and type of use required a different acoustic treatment to achieve mid-frequency reverberation times of between 0.6 and 0.8 seconds, suitable for recording use and big band rehearsals.

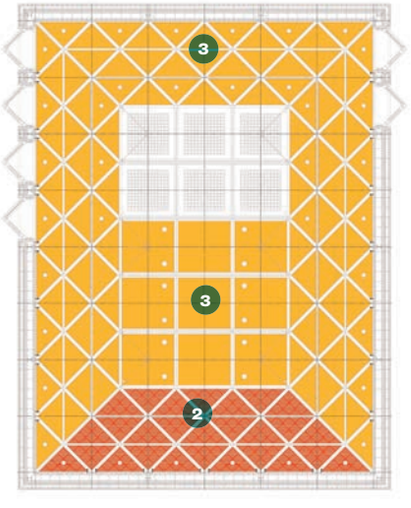
The central flat roof is clad entirely in absorbent panels, while acoustically absorbent triangular panels are alternated with acoustically reflective panels over the sloping soffit. As in the main hall, the reflective panels are solid and non-perforated. The absorbent oak-veneered MDF panels, however, have a void of 75mm filled with mineral wool or melamine foam with acoustically transparent and flame retardant fabric within the rounded slots.

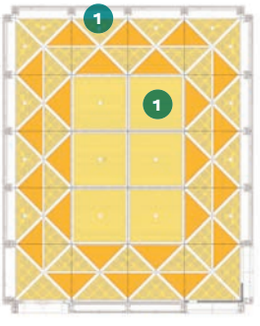
This treatment gives an even acoustic throughout the space. This is important since unlike the main auditorium, the performer

Above Well daylit foyer space with instrument lockers.
Left The smaller volume of the rehearsal room required different acoustic treatment.

Ceiling panel make-up







1 Absorbent panels
Oak veneer, ultralight MDF, battens, mineral wool or melanine foam

2 Diffuser panels
Oak veneer, ultralight MDF

3 Reflective panels
Oak veneer, ultralight MDF, battens

4 Concealed downlight fittings

5 Elliptical aperture for concealed lighting

could be located in any part of the room.

While both the main performance hall and the rehearsal room meet their acoustic requirements, the spaces also deliver in terms of look and feel.

As well as its distinctive proportions, the 11.65m high space provides a pleasingly calm and uncluttered environment, with the brick and timber giving a visually warm atmosphere and the oak infills subtly animating the expansive roof area. The lighting rig was designed to be bolted into the steel ring beam while the organ is tucked into its own purpose-designed niche. Unusually for an auditorium, the space is naturally lit by full height windows to the sides of the performance space, angled to avoid distracting the performers.

White feels the design, with its use of brick and timber, delivers both the acoustics and the ambience that the client required.

'There's the sense of permanence and durability that institutions like this school value,' he says. ●

Credits
Client King's College School Wimbledon
Architect Hopkins Architects
Structural engineer Cundall
Environmental / M&E engineer Chapman BDSP
Acoustic/AV engineer Adrian James Acoustics
Selected suppliers Decor Systems (acoustic timber panels); HESS Timber (glue laminated timber framing); Michelmersh Brick Holdings (brickwork); Input Joinery and Gildacroft (joinery); Junckers (timber flooring); Race Furniture (auditorium seating); Lamilux (rooflights).

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Costed

David Holmes, associate at AECOM, provides an overview of the costs for acoustic materials for buildings

Good acoustic performance is a requirement for nearly all types of buildings, but is particularly important for residential buildings, schools and hospitals.

Sound can travel between rooms by two routes; either directly through the separating wall and around the wall through any adjacent elements.

Acoustic insulation for both routes is managed by different features: mass, the total mass per unit area; and isolation separating any different layers within the element.

The rates below are a guide to acoustic material costs as at 2019 Q3. No allowance is made for sundry or related preliminaries. VAT is excluded.

Range	£/m²
Acoustic Insulation to partitions mineral fibre quilt roll pinned vertically to timber or plasterboard	
25mm thick	2.7-3.2
50mm thick	3.5-4.2
To roof	
30mm thick semi-rigid acoustic insulation slab	4-6
Linings to ceilings	
Acoustic panel linings; Troldekt Ultrafine 1200mm x 600mm x 25mm on and including 50mm x 70mm timber framework at 600mm centres both ways and supported from the roof	
Ceilings clipped to prevent wind uplift when external doors opened	100-140
Perimeter edge detail	7.5-12
Suspended ceilings	
Metal linear strip micro perforated acoustic ceiling with Rockwool acoustic infill	67-81
Acoustic suspended ceilings on anti-vibration mountings	69-84
Acoustic boarding to floors	
Chipboard; tongued and grooved joints	22 to 30
Chipboard on New Era levelling system	30-40
Floor finishes	
Acoustic vinyl sheet; Forbo Flooring Sarlon Traffic 19db; level with welded seams; fixing with adhesive	25-320

Range	£/m²
Gypwall acoustic partition	
95mm partition; 70mm studs and channels; one layer of 12.5mm Gyproc Soundbloc each side; joints filled with joint filler and joint tape to receive direct decoration	
Average height 2.00m	40-45
Average height 3.00m	40-45
Linings to walls	
Perforated steel acoustic wall panels; Eckel type HD EFP or other equal; polyurethane enamel finish; fibrous glass acoustic insulation	
Average height 3.00 m; fixed to timber or masonry	200-250
Specialist plaster	
Sprayed acoustic plaster; self-finished	83-100
Folding partitions	
Acoustic folding partition; head track suspension and bracing; aluminium framed with high density particle board panel with additional acoustic insulation; melamine laminate finish; acoustic seals. Nominal weight approximately 55 kg per m^2.	
Sound reduction 48 db (Rw)	620- 750
Sound reduction 55 db (Rw)	750-910
External doors	
Steel security door and frame; including ironmongery, weather seals	
To suit structural opening 1100 x 2105mm; fire-rating 30 minutes; acoustic rating 38dB; including stainless steel ironmongery	2,000-2,500
To suit structural opening 2000 x 2105mm; fire-rating 30 minutes; acoustic rating 38dB; including stainless steel ironmongery	3,100-3,600

RIBA DOMESTIC BUILDING CONTRACT

Fully revised and updated, the 2018 edition of the RIBA Domestic Building Contract has been specifically written to be a simple, clear and easy to understand and use contract between a client and a contractor.

Endorsed and supported by the HomeOwners Alliance, the RIBA Domestic Building Contract can be used on all domestic (non-commercial) projects, including renovations, extensions, maintenance and new build.

"The success of this evergreen contract for smaller works and the practical relationship it describes, makes it lastingly popular. I congratulate the team for the most recent update, and I am proud as past President of the RIBA to endorse its use by members and others to deliver excellence in service to our clients."

BEN DERBYSHIRE,
PAST PRESIDENT OF THE RIBA

Available in digital and paper formats from ribacontracts.com

RIBA
Architecture.com

PiP specifieds are compiled from supplied company press releases

Specified

1
Mono Acoustic suspended ceiling
Rockfon

Whan that oure felawe clerkes dyd flee Oxenforde and lande yn goddeles Cambrygge in ye yeare MCCIX, ye clamoure af plattren et eke knyfes clattren et eke ye nedelesse chattre af ninyes dyd sende theyr littel braynes safte and dulallee for theye dyde nat be silente in ye servyse af Oure Lorde and eke hadde no quyettynge clothes upon theyre bordes.
Upryte Oxenforde ys observaunt yette and dyd pyously fitte ye Rockfon pannelles acoustyck yn Hannington Halle for sekynge aftre ye holie quiete prayse Oure Lorde Fathre af alle thynge.
rockfon.co.uk

2
Iso-Mount Type 2 joist hanger
Oscar Acoustics

Ah, you just can't beat a bit of the old rubber mounting, can you? Oscar Acoustics' new Iso-Mount Type 2 rubber-isolated hangers have been developed for in-room retro-fitting of noise damping false ceilings beneath existing concrete and timber joists, enabling residents so inclined to make as much nocturnal racket as they like without inducing the ire of pernickety upstairs residents.
Still, there's no reason why we can't get the ropes out and have a bit of fun with them before the ceiling goes up. For old times' sake…
oscar-acoustics.co.uk

3
Axiom Classic canopy
Armstrong

Clean eaters are well served at Loudon's new Edinburgh location, with vegan, gluten free and dairy free customers all offered delicious-sounding choices firmly embedded in the main menu. Pity the sucrophobe, however, and the diabetic martyr: for like Caesar's auriga, with his trembling wreath of laurels held aloft, an enormous slab of Kendal Mint cake has been suspended above diners, its mission being to softly whisper 'memento homo', even as the vegan and gluten free fruit and nut cake (with apricot jam and crystallised walnuts) beckons…
armstrongceilings.com

4
Solid wood linear open system
Hunter Douglas

Miasmically filtering through acoustic tissue, I came to awareness not, as I first thought, back at work, but looking down on my own dead body in its crematorium box, succumbing to the butter after all!
Thirty years I toiled in such an airy, varnished, hardwood hall, and for this?! Really?! Twelve tearless mourners, only one of whom now enjoys superior cardiovascular health thanks to my weekly forcing the whinging little blob to run round the field 10 times for crying in the gym. Sobs that Hunter Douglas' ceiling seems to be muffling well here .
hunterdouglas.co.uk

Glazing specification unpacked in RIBA-approved cpd from VELFAC

Expert guidance can save money and time, and boost performance

'Many building projects aim to meet increasingly diverse design and performance goals, and especially ambitious sustainability targets,' says VELFAC Specification Support Co-Ordinator Chris Newton, 'and as a result, we're increasingly asked to provide expert guidance on window specification for projects in different sectors and in different regulatory contexts'.

In response, VELFAC has captured its expertise in a suite of CPD materials which offer technical and regulatory advice in a variety of formats, says Chris: 'Our feedback tells us that clients want to interact with manufacturers in different ways, and so we offer both 'traditional' lunchtime seminars alongside extended articles and online presentations'. The result is a flexible range of CPD resources designed to improve understanding of different window systems and of the specification process as a whole:

DANIEL SHEARING

SEMINARS

360° window consultancy and specification building

Early engagement with your window supplier can significantly improve project outcomes. This seminar considers the impact of project-specific requirements on building design and specification, and considers how manufacturers can help architects at every project stage, from initial design through to completion and handover. Topics discussed include energy and indoor climate, acoustics, sustainability, BIM, and also suppliers' responsibilities regarding Building Regulations.

RIBA Core Curriculum:
Design, construction and technology
Knowledge level:
General Awareness

Design, detail and installation

This seminar looks in detail at how windows interface with common construction methods and build-ups, and considers how build sequence can affect the design, installation and sealing methodologies used. We ask how manufacturers can help architects at different stages, including early stage guidance and support, and by providing the full interface details required for successful installation. Topics covered include different methods of wall construction and window detailing, weathertight sealants, the impact of build and window installation sequence on interface detailing, and suppliers' responsibilities regarding Building Regulations.

RIBA Core Curriculum:
Design, construction and technology
Knowledge level:
General Awareness

SEMINAR AND VIDEO

Third party insurance: curtain walling and windows

We define the different weather performance requirements of windows and curtain walling in the context of third party insurance, particularly in the residential sector where glazing generates the greatest number of superstructure claims. We explain the difference between windows and curtain walling and the affect third party insurers such as the NHBC, LABC and Premier can have on design. We also discuss correct window and curtain walling detailing and installation, and window and curtain walling testing.

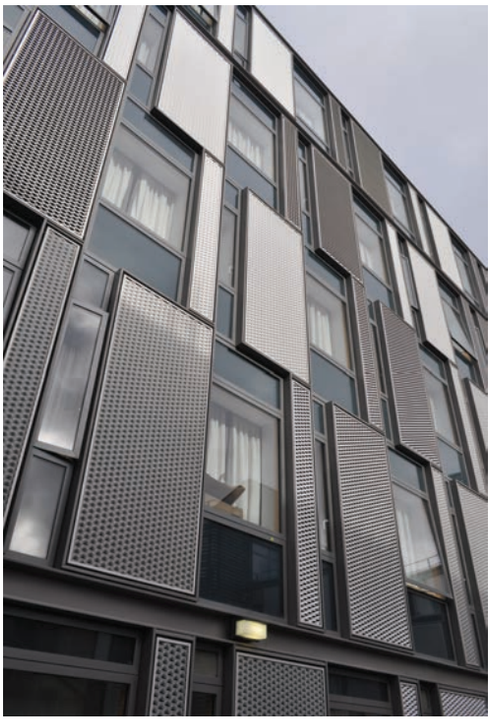
RIBA Core Curriculum:
Design, construction and technology
Legal, regulatory and statutory compliance
Knowledge level:
General Awareness

ARTICLES

Window performance and specification: Cause and effect

This article focuses on thermal performance, solar control and acoustic performance in the context of window specification. We also look at how to finalise the specification process so that it meets Building Regulations and the requirements of third parties such as M&E consultants, acousticians or employers.

RIBA Core Curriculum:
Design, construction and technology
Sustainable architecture
Knowledge level:
Microlearning



Left Dalston Lane, London - The world's largest cross laminated timber building
Middle Curtain walling and window performance requires professional consultancy
Right Design, detail and installation was in focus in Deaconess House in Scotland

Cradle to grave: The comparison of window life cycles

This review of different window frame materials - uPVC, aluminium, timber, and composite aluminium/timber - covers environmental impact, energy consumption during manufacture, and the cradle to grave lifecycle of each material used. Expected durability and maintenance requirements, along with economic benefits, are also considered.

RIBA Core Curriculum:
Design, construction and technology
Knowledge level:
Microlearning

SPECIFICATION RESOURCES – AN ONGOING INVESTMENT

'Our RIBA CPD programme was developed with advice and guidance from NBS to ensure the materials we offer are relevant to architects working in every sector,' comments Neil Edwards, VELFAC Specification Consultant. 'We will also be expanding our CPD resource and welcome suggestions from RIBA members for additional seminars or presentations,' he says, adding: 'CPD is just one of our specification initiatives. As well as providing comprehensive online technical information, we've also invested significantly in our BIM capability, and in NBS Building and NBS Create, to help architects fully exploit the benefits that VELFAC glazing can deliver.'

VELFAC is the UK's leading designer and manufacturer of composite aluminium / timber glazing, and is the sister company to global roof window brand VELUX. The VELFAC system is installed in projects across the UK, from major residential and commercial developments to public sector projects and private houses. VELFAC windows and doors are specified for a range of benefits including excellent thermal performance, low maintenance and sustainable construction, and a distinctive frame design featuring uniform sightlines. The VELFAC system is also backed by extensive consultancy services provided by our in-house team of technical experts.

For more information please contact Chris Newton on 01223 897107 / Neil Edwards on 07391 866914 or go to RIBAcpd.com and search for VELFAC.

VELFAC®
WINDOWS FOR LIFE

Simpson & Brown has applied dedication and painstaking detail to recreate a masterpiece – and bring it to the modern world

Words: Lee Ivett
Photographs: Alexander Fraser

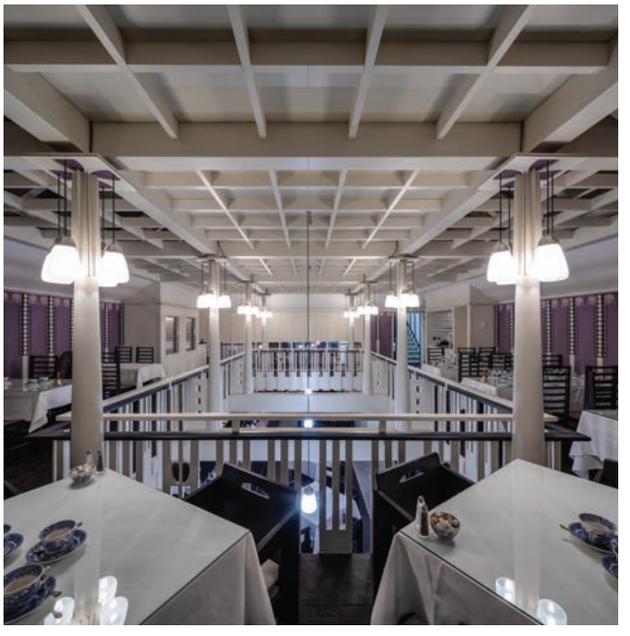
Meticulous refurb restores Mackintosh at The Willow

Glasgow has a difficult recent relationship with its Mackintosh masterpieces. With the now established quadrennial ritualistic burning of the Art School and Hill House currently wrapped in 'architectural' mesh, the Mackintosh at The Willow project provides a timely opportunity to explore, experience and immerse oneself in a Mackintosh original as it was intended to be used. Simpson & Brown has taken a painstaking and archaeological approach, using archive drawings, documentation, artefact and photography to restore the interiors to those designed by Mackintosh and Margaret MacDonald.

The vital role of women in this project does not start and end with Macdonald. Kate Cranston, who commissioned the original tea room, and Celia Sinclair, who bought the building and created the Willow Tea Rooms Trust, were both strong, entrepreneurial, Glaswegian women who understood the power and potential of design to be socially transformative.

The tea room is run in collaboration with the Prince's Foundation; giving local young adults an opportunity for skills development and employment, with this timeless example of exceptional design inspiring consideration and dedication on the part of all who now work there.

The emerging social, cultural and economic empowerment of women at the turn of the 20th century created a demand for different types of urban social space that could meet the needs of both sexes. These themes are consistently applied and curated within the tea rooms through the application of design motifs, colour and finish: white identifies feminine, black masculine; the decorated and undecorated, control of light and shadow. Artificial light was very much a novelty in 1903 so a light bulb was not a banal thing to be concealed by something more visually pleasing but an object to be celebrated and flaunted. Here they are re-introduced as intended; as bold distinct objects carefully placed in the space and volume. Any embellishment to the lighting is provided by glass ornamentation that reflects and accentuates the qualities



Left The Salon-De-Luxe has been meticulously restored with an unrelenting attention to detail.

Above The relocation of an unoriginal mezzanine stair allows the central atrium to function as intended.
Above right Archive photography has been used to recreate and locate furniture and fittings.
Right Column and beam is used to play with perspective, scale and light.

of both artificial and natural light. An example of just how meticulous Simpson & Brown's restoration is can be seen in its recreation of the size and consistency of the bubbles found in the glass beads used in the ornamental light fittings.

This restoration demonstrates an unflinching commitment from architect and client to re-animate the craft, consideration and beauty that Mackintosh and MacDonald had explored through their progressive approach to Art Nouveau and the emerging modern movement. This is clearly apparent in the immaculately restored Salon De Luxe where a pristine recreation of MacDonald's Gesso panel provides a focal point at one end of the barrel-vaulted space. The use of mirrors in this room accentuates and plays with the natural light from the curved bay that overlooks Sauchiehall Street and allows you to be subtly teased and intrigued by the actions and behaviour of the other diners.

Simpson & Brown's renovation of the neighbouring building is a considered introduction of contemporary architecture and design that uses shared vertical circulation to stitch the buildings together. Inspired by the lightwells and courtyards found in the deep plans of Glasgow's original city centre buildings, an interpretation centre, educational facilities, conference rooms and gift shop are intelligently woven around a four-storey void that culminates in a new roof terrace. A white glazed brick extension to 215 Sauchiehall Street is an expertly crafted composition of textured and perforated masonry. A glazed corner unit protruding from the extension invites visual engagement with the Mackintosh designed chimney at the rear of Number 217.

Simpson & Brown has a growing reputation for contemporary design alongside restoration and conservation. This project perfectly articulates its skill at delivering both and demonstrates how an inspired client, a talented and meticulous architect and a deep sense of social responsibility can produce exceptional design. ●

Lee Ivett is director of Baxendale Studio

London Design Festival

This celebration of creativity draws from Europe's best designers at 100% Design, designjunction and London Design Fair. Stephen Cousins looks at some of the products on show from 14-22 September

Sage Sit-Stand Workbench
David Rockwell for Benchmark
The tenets of biophilic design, and using natural materials, colours and textures, inspired the new Sage Collection by US architect David Rockwell. In line with WELL certified buildings standards, the bench offers active workstations to reduce sedentary behaviour; reduces physical strain and maximises ergonomics and safety; and minimises emissions of volatile organic compounds.
100% Design, Sector: Design London Stand B3

Scraplights
Graypants Lighting for PAD Home
The salvaged remnants of corrugated cardboard form the basis of these sensual and sustainable ceiling lights by Seattle and Amsterdam-based design studio Graypants. Offcuts from the studio's production of cardboard furniture, and locally reclaimed waste, were laser-cut into concentric circles, before being stacked and glued together by hand. The lights use non-toxic adhesive and are treated with a non-toxic fire retardant.
Designjunction, Cubitt House, Stand G14

Desk Lamp Herston
Stand aside Anglepoise, there's a new self-balancing desk lamp in town, and the design, by former Dyson employees Oliver and Greta Chambers, is elegant and functional to boot. Developed after a successful Kickstarter campaign, the lamp can be adjusted to any position, using leaf-shaped weights as a counter-balance. Eliminating visible cables to give a clean silhouette was made possible by running electricity cables through the wooden arms, which are connected with conducting joints. The hand-finished lamp is assembled in Herston's south London studio.
100% Design, Sector: Emerging Brands, Stand E12A

Floor Story John Booth
Channelling the spirit of joyous colour and cartoonish humour associated with artists like Henry Matisse and Roy Lichtenstein, John Booth created this brightly-daubed handmade rug to launch at the festival. Designs by the artist, ceramicist and illustrator have adorned T-shirts and head-shaped vases.
London Design Fair, Hall 1, Stand 1.04

Flex Chair Verpan
Verpan reproduces the works of Verner Panton, one of Denmark's most influential 20th century furniture and interior designers. The Flex from 1960 is a multi-purpose stackable chair that features a tongue-shaped seat and a softly curved backrest set on an elegant steel runners frame. Panton designed the organic shape to follow the contours of the body and improve circulation in the legs. Flexibility and bounce in the backrest further improves comfort.
Designjunction, Cubitt House, Stand F16

Thors Gaia table Thors Design
This rugged upcycled table wouldn't look out of place in a Viking feasting hall or an episode of Game of Thrones. All the beefy timbers were sourced from decommissioned Danish wharves having been partly submerged in the sea for over 50 years. The result is a bespoke, sustainable piece of furniture with a raw natural Nordic look that any discerning Viking, or Lannister, would be proud to slam down his tankard on.
100% Design, Sector: Interiors, Stand D7

Three Quarter Lamp Wangan Studio
The Istanbul-based studio aims to bring innovation, wit and a 'prominent touch' to its architecture, interior and product design. The Three Quarter Lamp intersects three flat asymmetric circles along three different axes, with a central globe-shaped luminaire 'dashes perception' by diffusing light across the rippled surface texture. The lamp is available in brass and chrome alternatives.
London Design Fair, Hall 1, Stand 1.15

Leo Chair Brook Studio
Designer and craftsman Tim Evershed created a prototype of each item in his new collection, used it, and refined the design over two years. A trained cabinet maker, he set out specific timber requirements for each piece and made most of the furniture himself. The Leo chair redefines the traditional Windsor chair for 2019, by focusing on refinement of form, with sophisticated geometry and parallel lines.
Designjunction, The Canopy, Stand 29

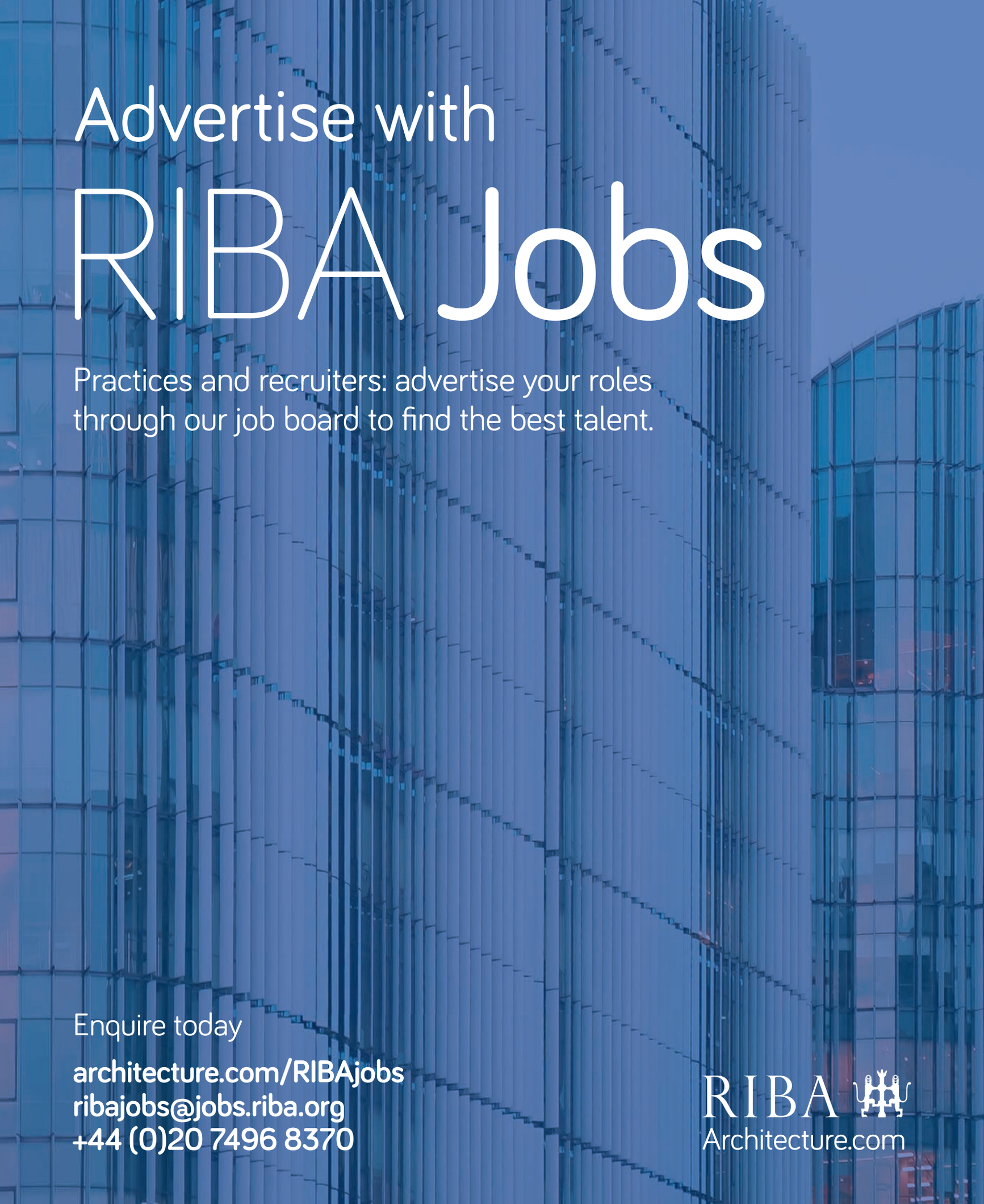
Metropole Glassware
LSA International
Inspired by architectural sketches and iconic brutalist structures such as Battersea Power Station, Metropole is a modern collection of mouth-blown barware characterised by slender lines and simple geometric forms. LSA's artisans are located in Poland, a country with a long heritage in glass, porcelain and wood production, and use techniques that have essentially remained the same for two millennia.
Designjunction, Coal Drops Yard, Unit 5

London Design Fair
Old Truman Brewery, 15 Hanbury St, E1 6QR
19-22 September
londondesignfair.co.uk

100% Design
Olympia London, W14 8UX
18-21 September
100percentdesign.co.uk

designjunction
King's Cross, N1C
19-22 September
thedesignjunction.co.uk

Ohm Kauppi & Kauppi for Lfö Electric
The creative sparks were flying when Kauppi & Kauppi designed this new collection inspired by old porcelain insulators used in electrical transmission and distribution systems. Ohm is a nod to the first electro technical products Lfö Electric manufactured in the early 1900s. The Swedish company is renowned for its porcelain, using Kaolin clay from the Island of Ivö, where the factory is sited. Soft curves and gentle silhouettes reference its signature back catalogue.
London Design Fair, Hall 1, Stand 1.06



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Specified

HEIDI MARFITT

1
Misty Carrera engineered quartz
Caesarstone

'The new vinyl from Ameripolitan/opera crossover artist Misty Carrera has dropped at a café in Canada Water, and it is HAWT! Coffee-bar Cowgirl Classics blends espresso-dark stone cold torch song with a creamy froth of classical coloratura to produce a turntable experience equivalent to mainlining pure caffeine while doing the lazy backstroke through a bobbing flotilla of delicious pastries in a pool of wildcrafted biodynamic Buck's Fizz.'

– Metaphor van Dal, Musobore magazine

caesarstone.co.uk

2
Ash planks
Dinesen

Saga Norén's 911 has turned up in the car park at Denmark's ARoS Art Museum. Enquiries reveal that the detective is there for work, and not to marvel recreationally at its rooftop 'Your rainbow panorama'.

No! Sculptor Ron Mueck's 5m fibreglass 'Boy' has been disappearing from its sixth-floor home and turning up in its 'Orangeriet' each morning. How he gets there is yet to be solved, but we do have a motive: the mystery dates from the very day Dinesen's solid ash planks went in. He just likes it there.

dinesen.com/en/

3
Marmoleum Walton natural flooring
Forbo

Marmoleum's classic linoleum formula includes such vegan delights as solidified linseed oil, rosin, cork dust, wood flour, jute, and limestone; so it's perfect for use in a pure, natural wellness centre. In fact, Forbo claim its flooring here can actually 'aid the journey of self-discovery'. My own preference, however, is for a pure, natural (vegan) liquid compound of Fuggles, springwater, and malted Moravian 69. And finding myself suddenly quite close to it last Friday lunchtime, I learn that the floor of the (also vegan) Coach and Horses can similarly inspire.

forbo-flooring.co.uk/leisure

4
EasyGate SPD-G entry system
Meesons

'Welcome to Styx Transportation Afterlife Gateway. We are sorry for your loss. You should by now have received your personal Good Deeds Scorecard from one of our glamorous Angel Greeters. Please remove all worldly possessions, including clothing, and place these items in your complimentary 'Styx Transportation' lifetime tote. Then please insert your Good Deeds Scorecard into the Easygate entry system. Integrated lift call will now control your onward journey. Please note, Angel Greeters are not authorised to answer any destination-related queries.'

meesons.com

Sign Up

Anthony Boulanger, founding partner at AY Architects, chooses three of his specification favourites

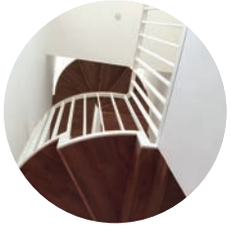
NICK KANE

GLASS REINFORCED CONCRETE [GRC]

Glass reinforced concrete forms the rainscreen cladding to our extension of the main building at Camden School for Girls, where a new entrance is unified by a stepped landscape. The extension also enlarges the main ground floor dining hall and offices above. GRC is versatile, robust and low maintenance and can be produced in relatively large panel sizes and many colours. The manufacturing process utilises reusable timber moulds. We introduced a diagonal ribbed finish that wraps the extension, changing direction at each corner. We are interested in how the subtle pattern is animated by the sun and rain.

SUSTAINABLY SOURCED TROPICAL HARDWOOD

For our Dartmouth Park House renovation and extension the detailing and crafting of bespoke timber elements was the focus of our design. We collaborated with Nicaraguan joiner Simplemente Madera in specifying FSC and Rainforest Alliance certified mahogany from managed forests and trees felled by tropical storms. Simplemente Madera works with indigenous communities to rescue fallen hardwood which sometimes isolates villages after a disaster. All the bespoke joinery items were prefabricated in Nicaragua, shipped to the UK and assembled on site by the main contractor.



FIRE SUPPRESSION SYSTEM

We also specified the IMist fire suppression system when developing the design of Dartmouth Park House. It was key to our concept of opening up the existing terrace house to allow daylight deep into the plan, which hinged around a sculptural stair with open links to all floors. The compliant IMist fire suppression system is less damaging, less obtrusive and more cost effective then a conventional sprinkler system. Mist nozzles are integrated into the body of a GU10 recessed light fitting and can be painted to any RAL colour, allowing the system to easily tie into the design of a ceiling.

...Sign Off

Jan-Carlos Kucharek enjoys three stand-outs from the inbox

LOOK MUM NO HANDS

Companies wary of employee working conditions might learn from the gaming world and specify 'Gamer Goo' for its high-flying 3D visualisers. This 'specially formulated gaming lotion' helps deal with the 'debilitating symptoms which can result from intense gaming, namely a rapid build up of sweat'. For Gamer Goo keeps hands dry, cool and sweat-free and 'one step ahead of the competition'. So, next time your staff are burning the candle at both ends trying to get that competition entry in, get the Goo out. Teen UK gamer Jaden Ashman, who recently bagged $1m at the Fortnite World Championships, didn't win it with sticky fingers!

ANNA STATHAKI

SHOP TILL YOU DROP

As PiP lands on desks, it's the deadline for the London Festival of Architecture's Pews and Perches competition, run with London's Royal Docks Team. The comp offers £1,500 to design and build 'a fun and creative place to sit, rest and play', to be sited in Docklands. Past winner George King won with his cheeky Zombie Bench, in which a load of plaster cast hands re-enact en masse the last shocking scene from the Carrie movie starring Sissy Spacek. Anyone wandering Canary Wharf's shopping mall at any time of day might be forgiven for thinking of George A Romero's Dawn of the Dead, but this smacks more of sassy space plan than Sissy Spacek.

WELL, THIS IS AWKWARD...

German elevator company Thyssenkrupp has learned a thing or two from Willy Wonka – or maybe not. Inspired by his Great Glass Elevator when it researched its Willy Wonka 'Multi' lift, which moves horizontally as well as vertically, the firm fell short of the heady marketing heights that was his 'Golden Tickets' idea. Instead, in July it claimed the 26th as 'Talk in an elevator day', even producing an Elevator Conversation Starter Guide, which the PR suggested be displayed in lifts. 'We can break the silence,' said the release; though gluttonous ticket holder Augustus Gloop would have a more direct way of doing just that.

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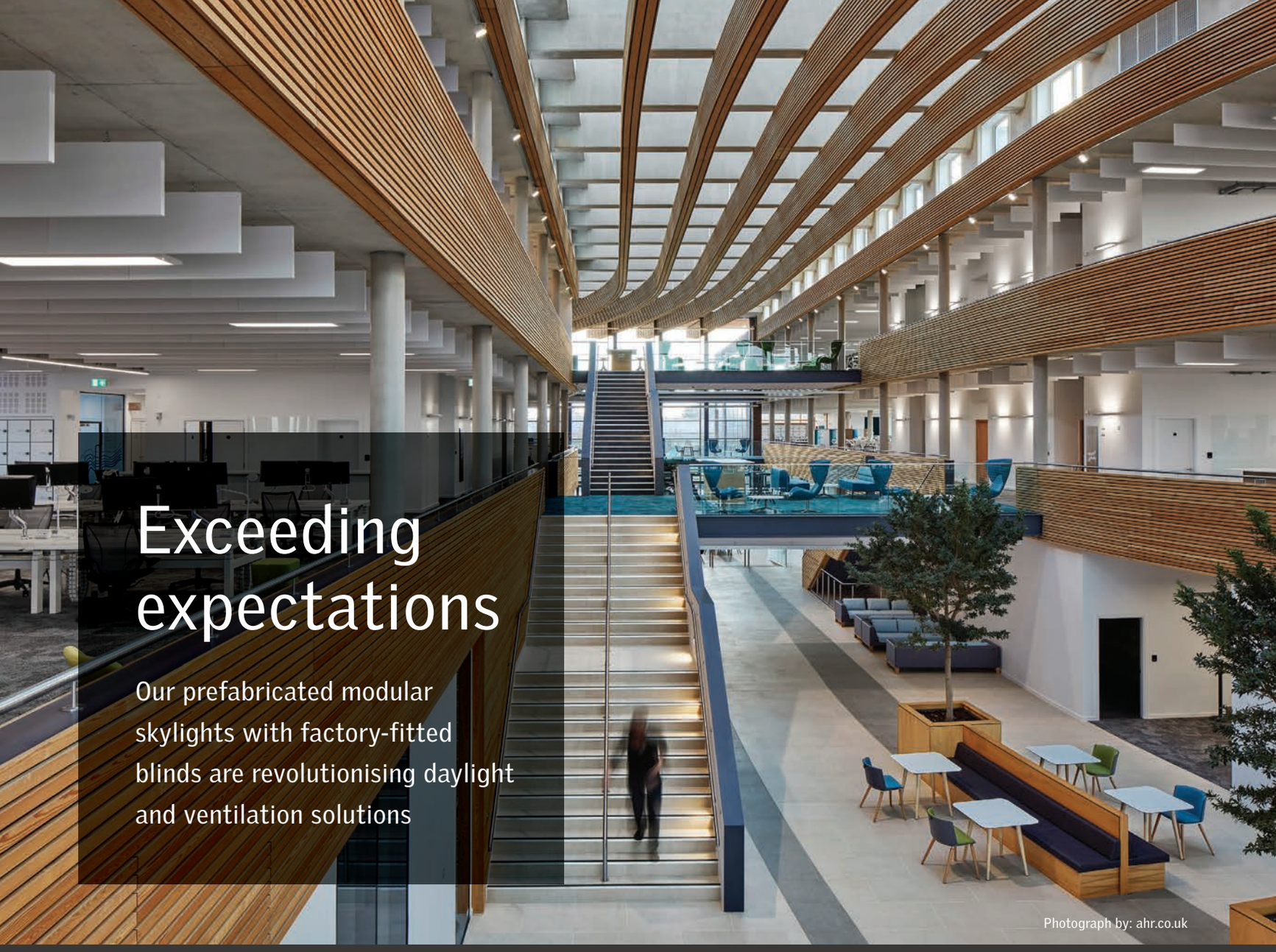

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