

PIP



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London
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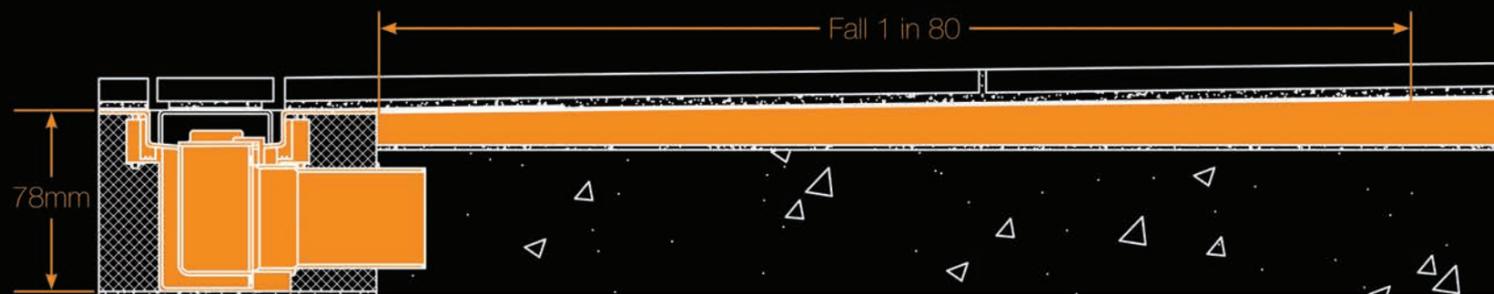
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The disastrous, if foreseeable . . .



... turn of events in Afghanistan have only added to this pretty febrile summer. For sure, there was the rank confusion surrounding the opening up of the UK's economy with a global pandemic still very much with us; but even that took a back seat to more headline-grabbing news on the world's climate. It's official: US scientists confirmed that last July was the hottest July since records began there 142 years ago, with global temperature reportedly averaging 0.9°C hotter than the 20th century mean of 15.8°C.

But it wasn't just stateside wildfires that had

us transfixed. With the highest European temperature so far of 48.8°C recorded in Syracuse, Sicily, fires ripped through Turkey, Greece and Spain too, destroying both lives and livelihoods. Of course, the UK may have watched the events with a certain detachment. With Covid travel policy changing almost daily and the only planes operating at capacity the ones leaving Kabul, Brits were left to holiday at home in jumpers and wellies to face August's cold fronts and biblical levels of rainfall. But we should all be flying less anyway, right? So perhaps the

rubbish weather here is just a case of our carbon chickens well and truly coming home to roost.

So it can only be with anticipation that we await the upcoming UN Climate Change Conference, to be held in Glasgow from the end of October, where we might hope to see evidenced some of the levels of international co-operation that have been so sorely lacking in the past 18 months. For in a society divested of a plan and engaged in knee-jerk policy-making, our hopes are – arguably – as probable as anything else. ●

Jan-Carlos Kucharek, editor

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HIROSHI IWASAKI

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SIMON KENNEDY

More online...

'This is just the beginning, this love affair with concrete has to stop'

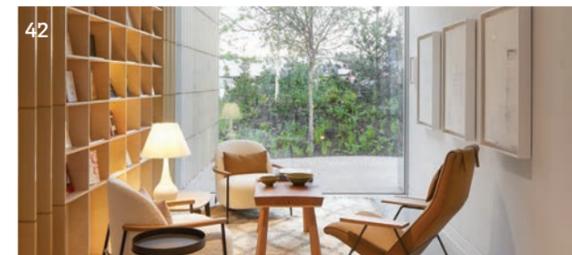
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The 520mm Wing basin in Brina finish for Whiteville Ceramics



Alaska Big Light fitting by Arkoslight



New OVO chair by Foster + Partners for Benchmark



Using the peel of three oranges, the Ohmie desk lamp by Krill Design

Cover image: Mies van der Rohe's Neue Nationalgalerie, Berlin, restored by David Chipperfield Architects. Photograph by Simon Menges



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The Forge, Upton Park, uses an innovative Blue40 Roof System that restricts and delays runoff from the site, equating to 60% of the equivalent green field flow rate.

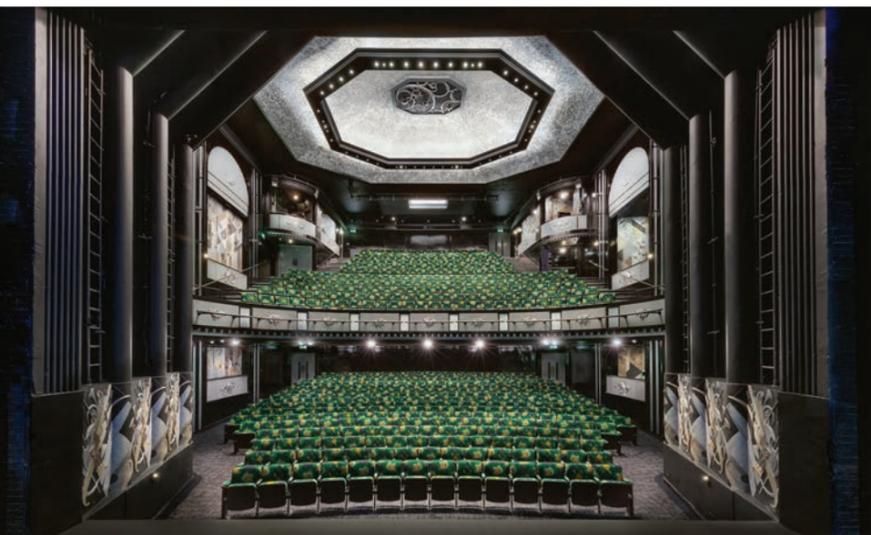
ARCHITECT: RM_A ARCHITECTS

Photo: Ben Luxmoore

Compendium

Extended interval

With London's Theatreland tentatively opening up after an 18-month pandemic hiatus, the pause at least gave architect Foster Wilson time to complete its multi-million pound restoration of the grade II-listed Trafalgar Theatre in the West End. Brought back to its original single, split-level auditorium – having previously been split into two theatres – the 630-seat revamp is a grand celebration of its art deco heritage. With an auditorium of black and silver, bronze and gold, even the new carpet is a replica of those originally installed. While you won't be able to see the new, efficient services provision – though you may feel it – the only goose bumps you should experience is when the actors serve up their rendition of 'December 1963, Oh, What a Night' from its current 'Jersey Boys' run.



PAUL KOZLOWSKI

Great wall

If you were bothered by money lavished on John Bercow refurbishing the Speaker's House at the Palace of Westminster, including a tidy sum on the wall coverings, read no further. But for those otherwise minimalist architects whose guilty pleasure is a decent bit of bespoke wallpaper, take a look at a detail from Italian firm Misha's latest range. With its name a mind-meld of 'Milan' and 'Shanghai', the silk fabric papers are hand-painted using age-old Chinese techniques, and skilled embroiderers to enhance the designs with textural and chiaroscuro effects.

Surf and turf

Fine dining might not be the first thing the Balearic Isles bring to mind, but Michelin-starred Spanish chef Martín Berasategui wants to change all that, opening his latest restaurant El Txoko de Martín in Palma. There are nods to local vernacular in the 600m² design with traditional wood, iron, stone and ceramics, and noting his past athleticism, Basque sports-themed murals form the centrepiece of the space. Artist Juan Chito's work was transferred onto Alpine White HI-MACS acrylic stone via 'sublimation... digital prints were transferred in a gaseous state to the solid surface.' Sounds like a Heston recipe...



DAVID SANDRON/SUBLIME, GROUP CONCORD



Working in zinc

SIG Zinc & Copper has announced that it has entered into an agreement to become a major UK distributor of the VMZINC range of rolled zinc roofing and cladding products. And given reported construction material supply shortages, this might be music to the ears for those wishing to get their hands on its Natural, Quartz-Zinc, Anthra-Zinc, Pigmento and Azengar products. Not a problem for Glasgow architect Cooper Cromar Associates, which specified its VMZINC Standing seam in Pigmento Blue when it designed its Forth Replacement Crossing building at Queensferry for Transport Scotland – all sourced pre-Brexit!



SIMON SLADE

For the birds

Birds concussing, or even dying hitting our increasingly glazed building elevations is a thing, so it's good to see suppliers taking action. UK glass firm Pilkington has developed AviSafe, a special glass coating with a UV-enhanced pattern that's more visible to birds than it is to humans, helping prevent such collisions while ensuring maximum transparency. Applied to the exterior of the glass, the coating can be used in combination with others, such as for thermal insulation or solar, safety and noise control – keeping human as well as the avian life happy.

Flame in name only
Given the Japanese cultural appreciation of all things natural, it's a surprise to hear that a Japanese designer has taken the time and trouble to create a product that emulates the look of a flame using just mechanical means. But perhaps not; look at all those timber houses so many live in. Hiroto Yoshizoe has produced 'Hymn' for Japanese lighting firm Ambientec, and while seeming slightly counter-intuitive (what beats a candle?), it has a Heath Robinson charm all of its own. Using LED technology, magnets and lenses, it creates its own concept of intimate, moving light that, curiously, manages to hold a flame to the real thing.



HIROSHI IWASAKI

Taking the reins

Built in 1898 by architect AW Wheatley to house work horses for the then city council's refuse department, Glasgow's historic Bell Street Stables in the Merchant City area, was redesigned in 1955 to make room for the city's police department until the 1980s. Now Glasgow Housing Association and Lowther Homes have given the building has a new lease of life, converting it into 52 mid-market affordable rented flats. It involved renovating the stone elevation, replacing all the windows and repairing the roof and rainwater system. Alumasc's Flushjoint, a range of extruded aluminium downpipes, were specified in the upgrade, with contemporary hopper heads and concealed spigots, which give a smooth, clean appearance to even this historic design.



MARISTOMBA

Estonia's Nordic fins

In time for the new academic year, Estonian architect Arhitekt11 has recently completed its Delta Centre for the University of Tartu, one of the most modern Nordic centres of digital technology, analytical and economic thought. The ground floor opens to the nearby park and river, with upper study levels clad in a delicate tracery of vertical 'Nordic Royal' fins. This alloy of copper with aluminium and zinc gives a stable, rich golden colour which oxidises to a matt finish; developing no green patina. Curious, considering the architect perceived the fins 'as a reflection and extension of the narrow, tree-lined parkland along the river.' Must be fuzzy logic!



TOM LEE

How to marry comfort and performance



Indoor environmental comfort depends on various factors – radiant and air temperature, air movement, air quality, noise, daylight and views, to name a few. Though they interact, we still tend to tackle them in silos. Parametric modelling can help navigate these often competing demands to support a holistic approach.

The Association of Noise Consultant's recently published Acoustics, Ventilation and Overheating Guide starts to address the interaction of overheating and noise. It tries to move noise targets towards a more nuanced view that includes natural ventilation needs (though air quality is dealt with as a limiting factor, driving buildings towards mechanical climate control).

Since noise and overheating mitigation call for opposing solutions on window opening, the guide – facilitated by dynamic simulation software such as IES and TAS – promotes the identification of the times windows need to be operated, which can then be correlated with the review of noise levels under more flexible targets. Design solutions such as acoustic attenuation panels and balconies can supplement that

approach. In urban areas, however, it is still very challenging to meet acoustic targets, so facade design needs to be well thought-through. One thing is clear: both comfort aspects benefit from limited glazing sizes – smaller is better.

However, with overheating/daylight, the latter benefits from larger window areas. This area has seen the publication of a recent standard, BSEN 17037, which takes a more flexible and site-specific approach. Unlike the traditional BRE method, its climate-based analysis considers location, orientation and seasonal variations. This should allow external shading to be applied to areas of a building which receive more sunlight, such as overhangs and balconies on south facades, without endangering daylight targets. The standard's view-out requirements prioritise glazing width, indirectly penalising full-height glazing, which can only be seen as a plus for overheating risk mitigation. Apart from industry standard software such as AutoCAD with MBS plugin, parametric tools can be useful here.

XCO2 has been using such tools at an early design stage to assess the interaction of

overheating, daylight and energy performance. Using Rhino models with Grasshopper to explore design variations, Honeybee for technical simulations and Butterfly for thermal comfort, we can quickly determine the ideal combinations of window size and configuration, openable areas, external shading configurations, glazing specification and even acoustic attenuation panel areas for different facade orientations. The approach opens up exciting possibilities for earlier, more effective collaboration between architects and specialists, resulting in environmentally optimised buildings. At masterplan level, these tools and Ladybug are used for insulation modelling to inform massing configurations.

This shows the usefulness of considering environmental comfort and performance holistically. Software tools and new methodologies can help produce well-rounded robust designs. For that, it is crucial to collaborate early with consultants and to make environmental comfort and performance project priorities. ●

Ricardo Moreira is co-founder and managing director of XCO2

Books

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Good Energy: Renewable Power and the Design of Everyday Life

Jared Green, foreword by Walter Hood. Princeton Architectural Press 256pp PB £30

The American author, who writes on the role of planning and design in solving the climate crisis, casts his net further afield with 35 examples of projects using solar, wind and geothermal energy to 'celebrate the thoughtful integration of renewable energy into daily life.' Breaking the book down into chapters on 'power' homes, community spaces, education, offices and generation facilities, there are copious project images and a project breakdown. With 16 US projects, it's good to see the Trent Basin residential development in Nottingham and Birmingham's Zero Carbon House make the cut – plus Nairobi's M-KOPA solar PV project, hopefully an exemplar for a technology making best use of Africa's most plentiful resource.



Adapt as an Architect: A Mid-Career Companion

Randy Deutsch. RIBA Publishing 220pp PB £32

PIP is usually averse to self-help publications, but architect, educator and speaker Randy Deutsch's fifth book looking at the profession seems sensitive to the idea of it as a vocation and is candid in its aim to enfranchise a lost generation of mid-career architects seeking to more rewarding working lives. Part I focuses on relevance and working smarter while Part II concentrates on doing something different that recharges your own career. Deutsch wants the book to read as a set of informal breakout conversations with 50 different mentors, with the end of every chapter having an 'Ask This' and 'Try This' section that motivates you to interrogate your own thinking. Providing a breadth of experience from practitioners in companies both large and small, the book is accessible and useful.



Environmental Design Sourcebook: Innovative Ideas for a Sustainable Built Environment

Will McLean and Pete Silver. RIBA Publishing 178pp £35

The authors both co-ordinate technical teaching programmes at the University of Westminster and everything about this book speaks of the additional skills they have gleaned as tutors. With chapters on human comfort, materials, methodologies and heating and cooling, the layouts for all are crisp and simple, with some beautifully curated images and diagrams building up their sustainability arguments. The building case studies at the end seem perhaps aesthetically rather than performance driven, but that would be in keeping with the book's seductive look. And while talking about how technology helps us drive the sustainability agenda, their best advice on a global scale is perhaps this: learn from the locals. This is a fascinating immersion in the world of environmental design.

Advertisement feature HI-MACS

HI-MACS brings colour, sustainability and hygiene to design

HI-MACS' sleek and hygienic finish reflects the light airy theme of an out-of-the-ordinary kitchen extension

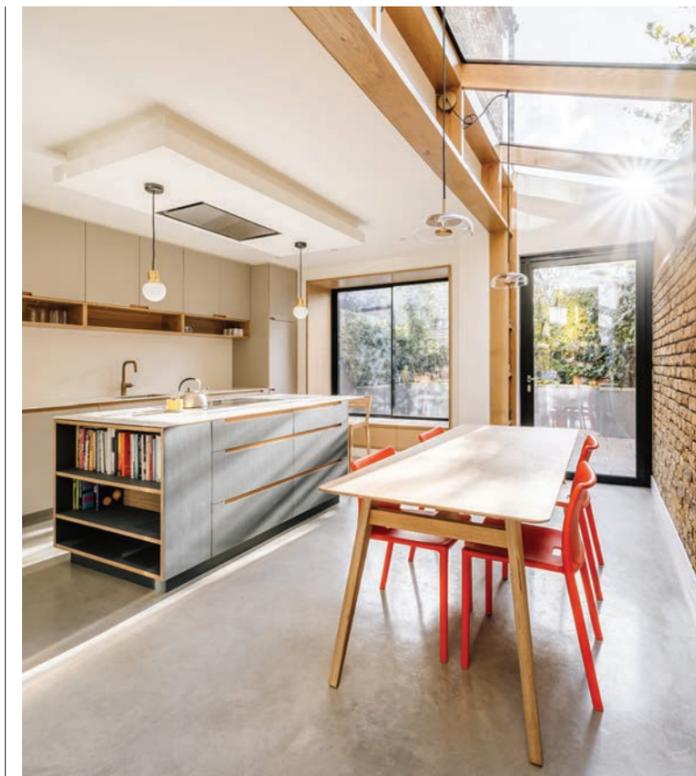
Material Works were commissioned to design a small addition to this Victorian terraced house in Stoke Newington, London. With both budget and space for extending limited, the challenge was to transform the dark and cramped kitchen into a bright, open space that would cater for a growing family. VOG Ltd was commissioned to design and manufacture this light-filled, contemporary kitchen, with a small side extension.

An extensive roof light was installed above the new addition, and the rear wall opened up with large sliding doors above a new window seat. Careful co-ordination of the restricted space allowed the inclusion of a kitchen island, topped with a HI-MACS work surface, still leaving space for a dining table. The robust polished concrete floor was offset by natural oak, used for the joists supporting the roof-light and for the window seat, creating an aesthetic that was at once both contemporary, practical and welcoming.

Contemporary handleless kitchen units are complimented by the Ivory White HI-MACS worktops, chosen as much for their ease of cleaning as their sleek, attractive finish. HI-MACS is the perfect material for kitchen worktops as it is non-porous, extremely easy to clean with just a wipe of a damp cloth and can be seamlessly joined meaning there are no cracks for dirt and germs to linger. With a 15 year guarantee when installed by a member of our Quality Club, HI-MACS offers excellent price to performance ratio. The full size splashback in HI-MACS behind the sink and preparation area adds to the feeling of spaciousness and calm.

'We requested something modern and more creative than the standard side return you see in the area. The designs were fantastic – a raised window with seat, oak beams, polished concrete and exposed brick,' says the client.

'The current health emergency reminds us how important hygiene and cleanliness are,' adds Martin Saxby, country manager at LX Hausys Europe. 'These are essential characteristics that require the use of only the best materials. Thanks to HI-MACS' resistance to dirt, viruses, bacteria and numerous chemical agents (internationally certified) it is the perfect material for wall coverings, furniture, work surfaces and other applications, where hygiene really counts.' ●



Left The new kitchen and side return. Below left Worktops, splash back and draining board in HI-MACS Ivory White.

GAUTIER HOUBA (2)



Information about the project

Architect Material Works Architecture
Kitchen Joinery & Design VOG
Location Stoke Newington
Material HI-MACS Ivory White S029 www.himacs.eu
HI-MACS elements Worktops and splashback
Structural engineer Foster Structures
Size 150m²
Area added 11m²
Area refurbished 20m²
Total cost £110,000

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Sky Pool



Left The Sky Pool seen from below. The 15m monolithic acrylic structure is clasped to the steel tubs either side by two steel tendons, visible on each side. **Below left** The two 3m-high sides of the acrylic structure act as beams carrying 150t water load over the void. **Below** Two 5m by 5m steel tubs are compressively clamped to the acrylic structure via two pre-tensioned steel tendons.

lighter than glass: 1.2t/m³ rather than 2.7t/m³; also, acrylic at the necessary thickness, was far more transparent than glass laminations and it was much simpler to join the component pieces together with transparent bonded joints.

Engineering concerns included the weight and hydrostatic pressure of 150t of water on the pool floor and walls, horizontal wind loading and differential vertical settlement of the two concrete towers, as well as the pool's skewed relationship to them. Add to this the intrinsic thermal expansion of the acrylic itself, and differential stresses between outside and pool surfaces and the engineer had plenty to consider.

Its response was a cast and bonded acrylic 'U' form made of six 356mm thick floor pieces and four 3m high 178mm thick wall sections, the latter acting as two enormous beams. This monolithic acrylic element is sandwiched between two 5m long steel 'tubs' sat on the two towers, containing steps, lighting and filtration equipment. Holding the three pieces together are two pre-tensioned steel tendons running between the steel tubs. These connect to a spring stack either side which accommodates thermal expansion and contraction of the acrylic of up to 80mm while holding the structure in constant tension to avoid leaking. The whole structure sits on 10 bridge bearings on the concrete towers, which allows them and the pool structure to move relative to each other.

Carried out by the world leader in acrylic fabrication, Reynolds Polymers in Colorado, USA, the monolithic design required the construction of a bespoke temporary oven to allow the completed structure to be repeatedly heated and cooled as part of the annealing process to crucially mitigate residual stresses in the acrylic bonding process. It was one of the most challenging designs the firm had worked on.

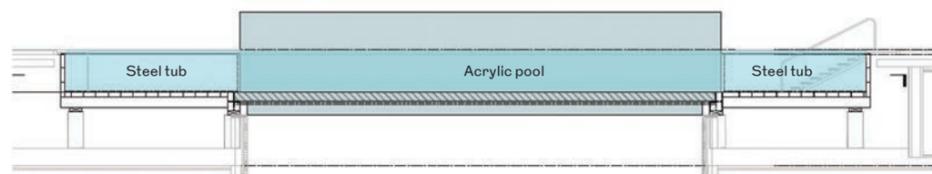
Transported to the UK by ship, delivered by Thames barge and hoisted into place in one day, the completed installation – shimmering blue, mesmerising and controversial – looks set to remain a talking point long into the future. ●

What Swimming pool, HAL Architects
Where Embassy Gardens, Vauxhall, London

The Sky Pool, spanning the space between two towers of EcoWorld Ballymore's Embassy Gardens in London, since opening this summer, became the unintended focus for wider discussions on social equality; but there is no taking anything from the fact that the pool itself, 10 storeys above ground, is an engineering feat, a close collaboration between architect, engineer and fabricator to meet the client's desire for a radical statement at its riverside development.

The requirement to fit a 25m pool at 10-storey height, and conflicting rooftop plant demands, spawned the idea of using the pool as a viaduct between the two buildings; it was also directly accessible from both towers.

Engineer Eckersley O'Callaghan was brought on board by HAL due to its expertise in the design of glass structures – notably with Apple Stores globally. But interestingly, the firm plumped for cast acrylic rather than glass, despite it having one quarter the working strength and 20 times more deflection under similar loads, says Brian Eckersley. This was partly because acrylic is less brittle and far



SIMON KENNEDY (2)

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Neue Nationalgalerie, Berlin, Germany

David Chipperfield Architects brought a 'very English solution' to Mies van der Rohe's signature glazed walls in its upgrade of his final project, balancing modern building codes with Mies' original detailing

Words: Jan-Carlos Kucharek
Photographs: Simon Menges

Designed from 1962 and completed in 1968, Mies van der Rohe's final building, Berlin's Neue Nationalgalerie, is one of the architect's late masterpieces; and in its uncompromising nature, can be read as a swan song to the conceptual purity of late Modernity. Conceived as a new civic monument to art, rising out of the post-war city's ruins, Mies chose the classical temple as his inspiration, creating a 'timelessly modern', luxuriously abstracted structure of black steel, bronze, glass and marble, raised on a podium of concrete and granite. But it was to prove as infamous as it was iconic, 'refraining from an ostensible functionality for the exhibition hall' that always left it a challenging environment in which to display art, as well as beset with technical problems from the day it opened – most notably condensation issues – that left it a notoriously ill-suited for the display of contemporary, let alone historical artworks.

So, when David Chipperfield Architects was appointed in 2012 by a client body led by the National Museums in Berlin and the Prussian Cultural Heritage Foundation to refurbish the

city's 50-year old problematic but much-loved museum to make it fit for the institution's centenary, the practice approached it with the same consciousness and delicacy as a picture restorer would approach an Old Master. For the firm, while almost pulling the building to pieces by degrees and remediating the structure, services and interiors, its stated aim was to make its intervention as near invisible as possible. And €140 million later, Chipperfield's forensic survey of the building, and surgical interventions on it, is evidenced less from what you see than what you don't. Practice partner Martin Reichart's summation, at face value, sounds like an under-delivery: 'There was no promise of new splendour, no promise of new qualities, no reinterpretation or aesthetic upgrade – merely the refurbishment of the last work by Mies in line with accepted conservation practices.'

And restoration decisions centred around making it fit for international shows while bringing it in line as much as possible with German building and sustainability codes. Functional and technical upgrades include

REINHARD FRIEDRICH



air-conditioning, artificial lighting, security and visitors' facilities: cloakroom, café and museum shop, as well as improving disabled access and art handling which all meant the dismantling and eventual replacement of 35,000 original components. 'It was all about preserving the aura and not about the reinstatement of an image,' says partner and project lead Alexander Schwarz. 'The refurbishment of the Nationalgalerie fundamentally accepted aging and traces of use in the existing building fabric, as long as they did not impair its visual appearance and usability.' So it was a given that a primary issue they would have to address was the endemic problems with the huge glass facade running around the upper exhibition hall.

And it was a problem on a grand scale. Each upper single-glazed pane was originally designed as 5.4m by 3.4m, with a total glazed

height of 8.5m. 'It was a fundamental aspect of the Mies aesthetic but it never worked well,' continues Schwarz. 'He built this kind of facade several times in earlier work but never of these dimensions, and there were a number of problems from the outset.'

To start with, Mies' corner mullion details, made of 130mm by 130mm hollow sections, were stiff, so thermal expansion could only run from the edges to the middle. A shoe detail at the interface with the oversailing roof, intended to hold the glass in place, also limited its ability to deform. With a similar vertical detail made up of a 40mm by 80mm solid steel frame piece and two 25mm by 45mm steel beads either side of the glass, with next to no tolerance, it was only a matter of time before the arrangement caused every original perimeter pane to shatter.

Upper panes historically replaced were also

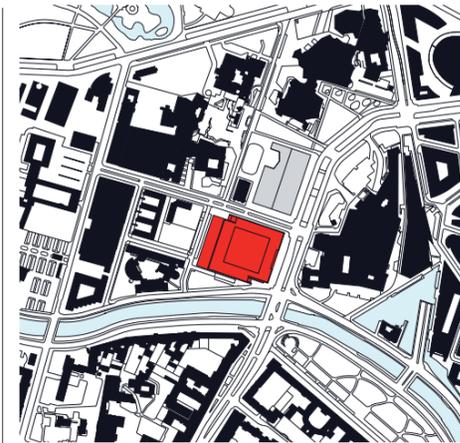
Main image In full glory: The restored east elevation of the Mies' Neue Nationalgalerie with St Matthäus-Kirche to the north. Podium, entrance and lower levels are now fully accessible.

Above The same elevation just after completion in 1968.





Left The west elevation from the sculpture courtyard with refurbished lower level galleries.
Below left Close up view of the north elevation showing the enormous roof held up delicately on Mies' 8.5m high, slender exterior columns. Previously two jointed panes, the upper glazing has been returned to a single sheet of glass.
Below Site plan with Hans Scharoun's Berliner Philharmonie to the north.

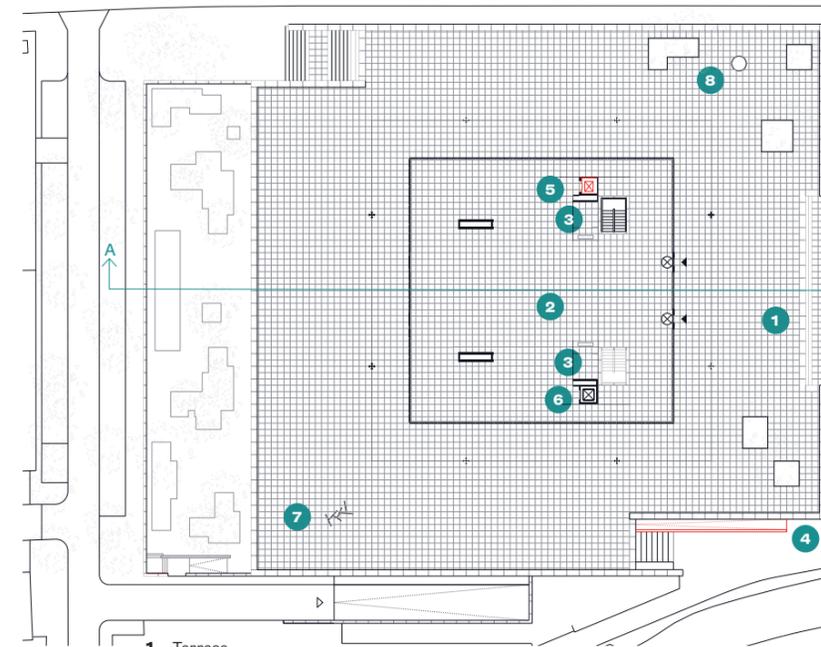


installed as half-width sheets with a joint rather than full width, minimising the cost of replacing what had been exorbitantly expensive panes to fabricate. In the restoration, full width upper panes were reinstated in line with the architect's vision. These were fabricated in China by JinJing, one of the few companies globally able to fabricate glass of these dimensions. But to accommodate the inevitable movement in the new iteration, three mullions at the quarter points of every glazed elevation were replaced by so-called 'expansion mullions'. These look identical to the originals but were constructed of two vertical shoes connected to each other by springs. The detail allows the huge glass panels to move in the order of 10mm per modified mullion, meaning that no change was needed to the original, stiff hollow steel corner sections.

Regarding environmental performance of the single glazing, the firm looked at two double glazed panel options that would have produced significant carbon savings, one with thermally insulated mullions. But, explains Schwarz: 'A double-glazed unit simply couldn't be integrated into the original Mies steel bead detail. We would have had to extend the mullion geometry and discard the original one as it could not have accommodated the increased width. Not surprisingly, Mies is completely unforgiving in the detail.'

In the end, the firm managed to convince the client that the optimum solution was to use mono-glazing made up of two panes of 12mm tempered white glass with a SentryGlas laminated interlayer, dealing with former safety

Upper Exhibition Hall plan



Ground floor plan

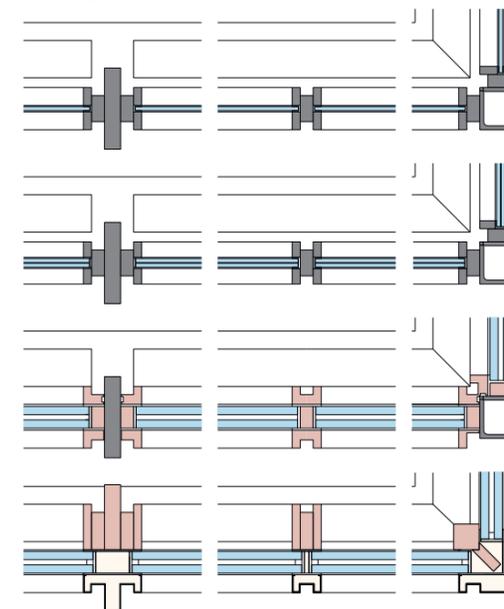


- 1 Terrace
- 2 Exhibition hall
- 3 Cloakroom
- 4 New barrier-free access
- 5 New visitor elevator
- 6 Freight elevator
- 7 Sculpture 'Têtes et Queue', Alexander Calder, 1965
- 8 Sculpture 'The Archer', Henry Moore, 1964/65
- 9 Staircase hall
- 10 Graphic art gallery
- 11 Smaller exhibition hall
- 12 Grand exhibition hall
- 13 Sculpture garden
- 14 Museum shop in the former sculpture depot
- 15 Cloakroom in the former painting depot
- 16 Visitor toilets
- 17 Café
- 18 Management
- 19 Deliveries, service entrance
- 20 Exhibition preparation
- 21 New art storage space
- 22 Central ventilation plant room

Section AA



Glazing: existing and options

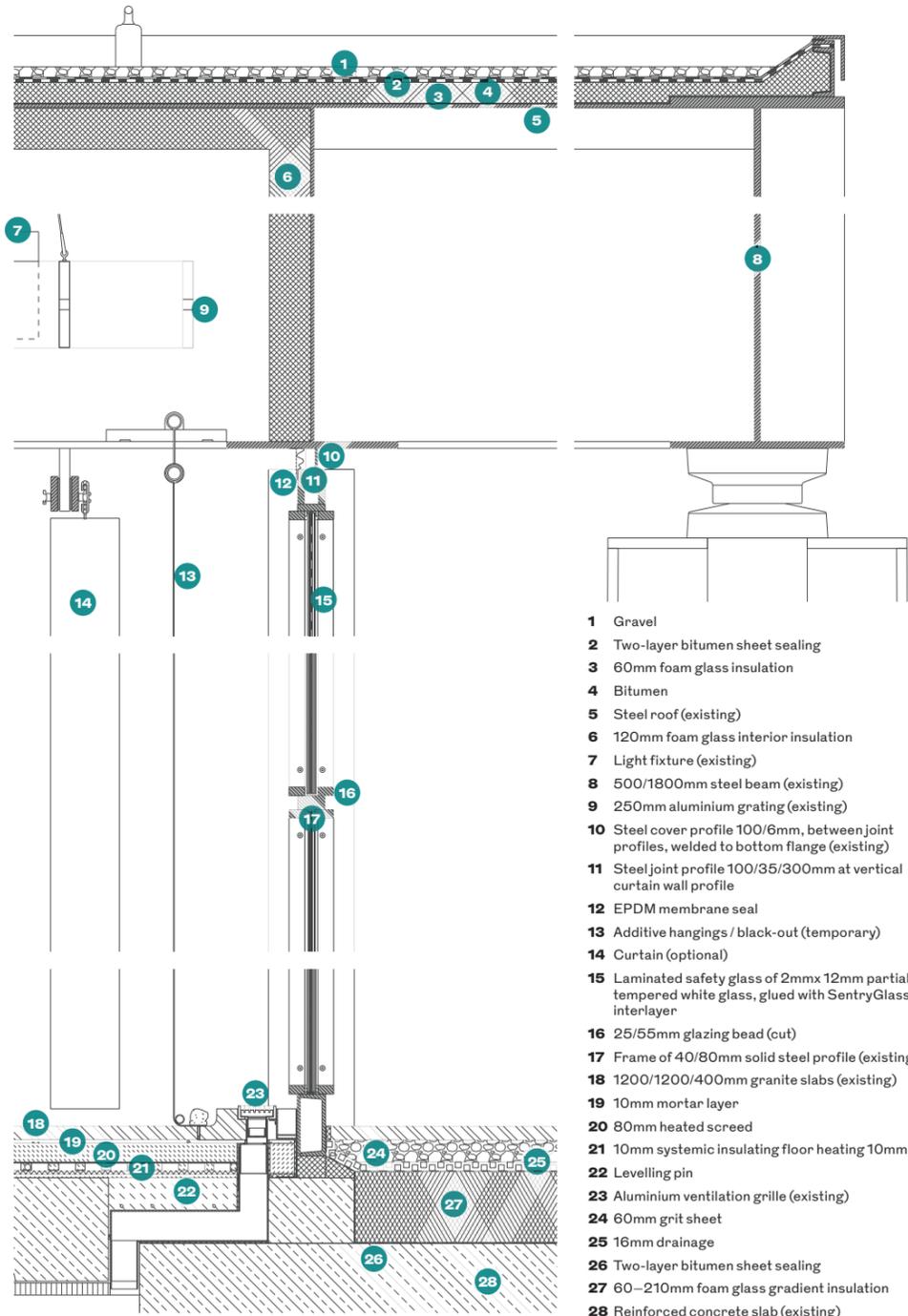


Right (Existing) solid steel profile and single-pane glazing made of cast glass without thermal separation.
Option 1 (implemented): Minimal modification with new laminated safety glass without thermal separation.
Option 2: Insulated glazing with adapted solid steel profiles
Option 3: 'State of the art' insulated glazing and thermally separated profiles.

concerns with float glass. Its increased width meant shaving away the internal face of the shoe, making no visible change to the original detail. Chipperfields stated that because the thermal properties of the glass have not changed, U-values are not at variance with the original glazing as installed.

So all was fine for the aesthetic, but less so for the condensation. While the construction was designed to be airtight and vapour-tight to prevent corrosion inside the profile joints and cavities, with its non-thermally broken construction retained, Schwarz concedes that even now, on about 10 days a year when the temperature drops below 4°C, relatively high internal humidity levels mean that condensation still occurs on the inside surface of the glass. With remediation of the resulting corrosion at the bottom of the mullions where they meet the drip tray, any condensation now is collected as intended in the drainage channel and drains away.

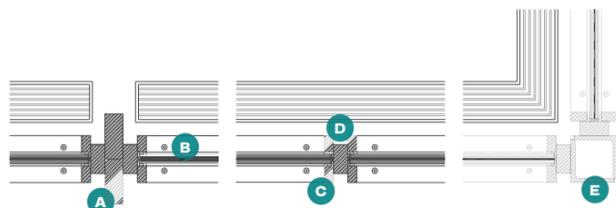
Facade section vertical



- 1 Gravel
- 2 Two-layer bitumen sheet sealing
- 3 60mm foam glass insulation
- 4 Bitumen
- 5 Steel roof (existing)
- 6 120mm foam glass interior insulation
- 7 Light fixture (existing)
- 8 500/1800mm steel beam (existing)
- 9 250mm aluminium grating (existing)
- 10 Steel cover profile 100/6mm, between joint profiles, welded to bottom flange (existing)
- 11 Steel joint profile 100/35/300mm at vertical curtain wall profile
- 12 EPDM membrane seal
- 13 Additive hangings / black-out (temporary)
- 14 Curtain (optional)
- 15 Laminated safety glass of 2mmx 12mm partially tempered white glass, glued with SentryGlass interlayer
- 16 25/55mm glazing bead (cut)
- 17 Frame of 40/80mm solid steel profile (existing)
- 18 1200/1200/400mm granite slabs (existing)
- 19 10mm mortar layer
- 20 80mm heated screed
- 21 10mm systemic insulating floor heating 10mm
- 22 Levelling pin
- 23 Aluminium ventilation grille (existing)
- 24 60mm grit sheet
- 25 16mm drainage
- 26 Two-layer bitumen sheet sealing
- 27 60–210mm foam glass gradient insulation
- 28 Reinforced concrete slab (existing)

Facade detail horizontal

- A Facade mullion, built up of two 50/125 mm solid steel profiles (existing)
- B Laminated safety glass of 2mm by 12mm partially tempered white glass
- C 25/45 mm glazing bead (cut)
- D Frame of 40/80mm solid steel profile (existing)
- E 130/130mm corner mullion, built up of steel angles (existing)



The strategy comes with caveats of course. On colder days, visitor access to the courtyard is curtailed to avoid adversely affecting already delicate heat and relative humidity levels.

But it is the effect of the new glass that Schwarz finds most striking, especially when combined with all the original glazing steelwork. Both moves, he says, have reinstated the unique, characteristic aura of the place. 'We are not used to single glazing anymore- and visually it's very different. You get twin reflections in double glazing- it has an unfocused quality – but low iron, uncoated single glazing retains its material integrity – is clear and see-through.' It is, he feels, a fundamental aspect of how the building is perceived. 'The crispness of this against the steelwork that bears the marks of age, somehow makes the museum so fresh again, and clearly not a copy of what it was before. There is a lot of innocence in pure glass and this strikes you immediately when you encounter it.'

Despite the compromised nature of the solution, Schwarz considers the decision to maintain the single glazing is one of the biggest achievements of the project. 'The fact that we didn't radically improve the performance of the facade after spending €140 million on the project is a difficult one for the German mentality to wrestle with but, together with the museum's directors, I think it was the most cultured decision we came to. In a sense, it's a very English solution,' he concludes, adding wryly, 'it's not perfect, therefore it works.' ●

Credits
Client Stiftung Preufjischer Kulturbesitz represented by Bundesamt für Bauwesen und Raumordnung
User Nationalgalerie – Staatliche Museen zu Berlin
Architect David Chipperfield Architects Berlin
Project control KVL Bauconsult
Executive architect BAL Bauplanungs und Steuerungs
Restoration consultant Pro Denkmal
Structural engineer GSE Ingenieurgesellschaft Saar, Enseleit und Partner
Services engineer Ingenieurgesellschaft W33 Domann Beratende Ingenieure
Building physics Müller-BBM
Acoustic consultant Akustik-Ingenieurbüro Moll
Fire consultant HHP West Beratende Ingenieure
Facade consultant DS-Plan
Lighting consultant Arup Deutschland
Landscape architect TOPOS Stadtplanung Landschaftsplanung Stadtforschung



MARCUS EBENER

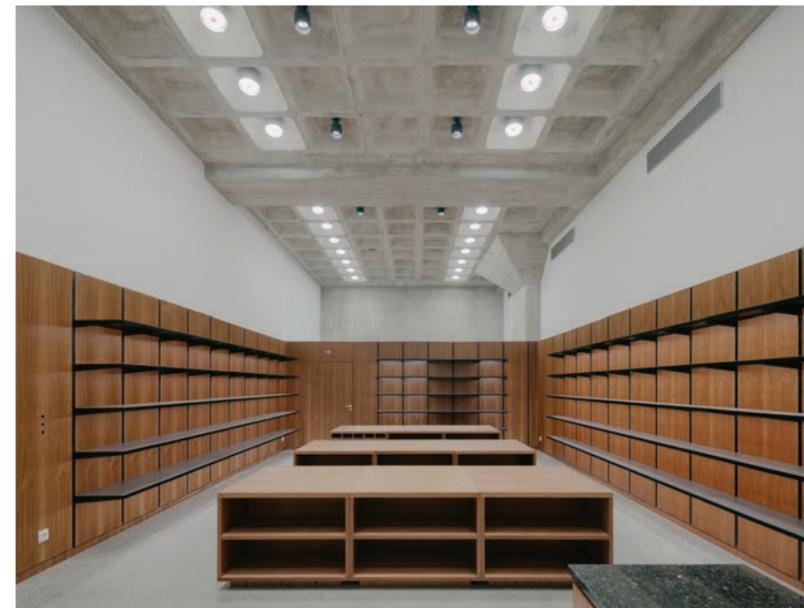
Top left The upper hall's oak veneer partitions were remediated and French polished where damage had occurred, notably near the floor. One of the marble piers now houses a new visitor lift.

Above Mies was as meticulous in the WC design as he was everywhere. Dornbracht and Laufen have reinstated all the original sanitaryware.

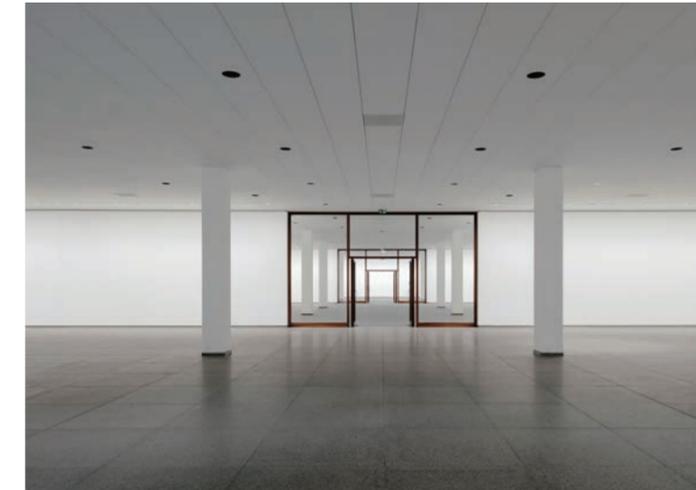
Left The new shop and garderobe space reveals the beautiful concrete ceiling coffers.

Below left Mies' original carpet and suspended ceiling layout, while replaced, was maintained.

Below The original grid ran from outside to in and interiors were reinstated like for like. 'Interestingly, anything exhibited there instantly seems transported back to the 60s,' notes Schwarz.



LAHORST SIEGMANN / LANDESARCHIV BERLIN



Preparing the golden thread for products critical to building safety

Fire doors are a key element in a building's passive fire protection. Door-Stop outlines what architects and specifiers should ask of product manufacturers to prepare for the golden thread.

One of the key recommendations from the Hackitt Review was that there should be a digital 'golden thread' of information for all higher risk residential buildings. With the aim of improving structural and fire safety, this must include information to enable someone to understand the products and services fitted into a building and the steps needed to keep both the building and its occupants safe, now and in the future.

A central element of the golden thread is that detailed information about the products, components and systems used within a building, including how they were manufactured, tested, certificated, installed, maintained or replaced, would be available in a single digital record.

With the new Building Safety Bill expected to be granted Royal Assent around April 2022, it is expected that most of the new building safety regime will become law before the end of 2023. The transition of the main regime indicates that the provisions for the golden thread will come into force within 18 months of Royal Assent.

Improving transparency and traceability

Fire doors and corresponding hardware are classed as critical to life safety products and information about them, including their materials, specification, installation, test results and accreditations will therefore need to be

Fire doorsets are shipped with copies of the full certificate, data sheet and installation instructions, where the primary test evidence of our product is listed

included within the digital golden thread.

When Door-Stop International tests its fire doorsets, manufacturing of the test sample is carried out under the witness of an independent third-party observer. They verify each component and the production process, to demonstrate that the doorset that is tested is based on standard components and controlled production processes, not a 'lab queen'.

The independent witness permanently marks the test doorset with traceability marks. These are then verified at the test house and recorded on the sampling report that accompanies the test report. This is done to prove

that the product that was tested was the same one that was witnessed in the factory.

One example of a product certified in this way is Door-Stop's new Fire and Security Dual-Certificated Doorset. It is a timber core product with GRP facings that is third-party certificated using a robust base of primary test evidence as the foundation for certification.

Door-Stop uses a bespoke digital 'Critical to Safety' production framework that records the multiple checks carried out on the components and manufacturing processes of each doorset. Fire doorsets are shipped with copies of the full certificate, data sheet and installation



Right The cottage style doorset with glazing in Painted Grey with a Dormakaba door closer and chrome trojan sparta handle.



instructions, where the primary test evidence of our product is listed. The traceability label affixed to each doorset means that stakeholders can easily find their way to the publicly available certification documents and datasheet. This is a vital link to help stakeholders manage, inspect, verify and maintain the product throughout its lifetime.

The role of certification schemes

Door-Stop has conducted in-depth research and development testing programmes to create the robust primary test evidence base that is used in its third party certification. It has run multiple tests across the range to understand not only what makes a door able to pass, but also the factors that will make a product fail, so we can really understand the vulnerabilities of a design.

The Door-Stop Fire and Security Dual-Certificated Doorset is accredited by Warringtonfire's Certifire and Certisecure under identical specification. This product range is also recognised by Secured by Design as dual certificated.

One of the benefits that the Certifire and

Certisecure schemes provide is the publicly available digital register of all certificates and data sheets. This is useful for stakeholders who may need to access this information to verify specification at any time throughout the entire lifetime of the door.

The other benefit of these schemes is the collaboration with the British Woodworking Federation (BWF) and the BWF Fire Door Alliance and the unique tamperproof traceability labels that are provided with every product. Each label includes a unique sequential number, details of the manufacturer, and carries the relevant certificate number relating to the door that leads back to the digital 'Critical to Safety' permanent record of the individual doorset.

Looking to the future

Dual certification will continue to help Door-Stop give confidence to every single stakeholder in the fire door safety chain. And that's not just assurances about the manufacturing process, but also guidance on the ongoing maintenance of the doorset throughout the life of the product.

The level of detail in both the publicly-available certification documents and datasheets, and in the traceability label, form an integral part of the golden thread. Together, they play a critical role in ensuring a transparent approach to product testing and certification. ●



Top The four panel doorset in Poppy Red with an arched glazed panel, painted on both sides.

Above The cottage style doorset in Duck Egg Blue, fitted with a TS 008 rated security and fire letter plate, and a 30-minute fire rated UAP spy viewer.

door-stop
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Costed

David Holmes, associate at AECOM, provides supply and fix costs for a range of commercial and industrial doors and windows

The market for doors and windows in the UK is estimated to be around £6 billion. Demand is largely driven by construction output with both the newbuild and repair and maintenance sectors achieving significant market share. With the Green Deal rollout extended to end-March 2022, to encourage homeowners to upgrade energy saving components, financial and environmental benefits will contribute to the market's overall value.

UK manufacturers work hard to provide new products for the market, but this does not significantly increase customer demand because of the long replacement cycle of doors and windows.

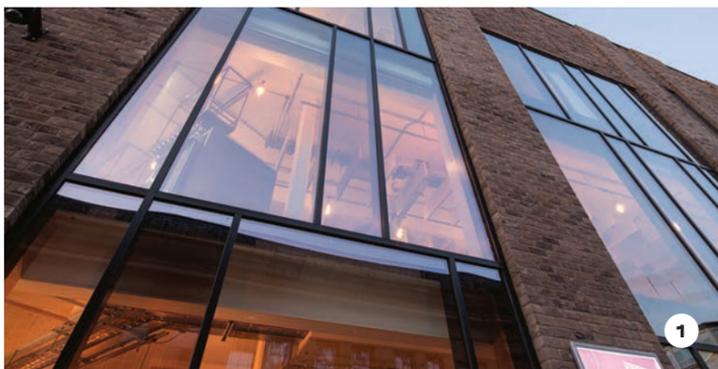
The following rates include prices for the supply and hang of doors and windows, complete with all frames, architrave, typical medium standard ironmongery set and appropriate finish. ●

Rates are a guide only and are Q2 2021 excluding VAT.

DOORS	
Softwood external doors	£ each
Standard external softwood doors and hardwood frames; doors painted; including ironmongery	
Matchboarded, framed, ledged and braced door, 838mm x 1981mm	580-700
Flush door; cellular core; plywood faced; 838mm x 1981mm	590-720
Heavy duty solid flush door	
Single leaf/single leaf; emergency fire exit	1275-1550 / 1750-2125
Steel external doors	£ each
Standard doors	
Single external steel door, including frame, ironmongery, powder coated finish	1025-1250
Single external steel security door, including frame, ironmongery, powder coated finish	2125-2600
Bullet resistant doorset	
Single, 1000mm x 2100mm steel doorset with decorative ply veneer	4250-5250
Overhead doors	£/m²
Single skin; manual / single skin; electric	160-200 / 300-360
Electric operation standard lift, 42mm thick insulated sandwich panels	230-275
Rapid lift fabric door, external, electric operation	980-1175
Dock shelters	£ each
Curtain mechanical shelter; extruded aluminium frame; two side and one top curtain; double-layered high-quality polyester, coated both sides	1275-1475
Inflatable mechanical shelter; hot dipped galvanised surface treatment, polyester painted, top bag with polyester fabric panels; side bags with polyester fabric panels; colour from standard range	4000-4600
uPVC external doors	£ each
Entrance doors; residential standard; PVCu frame; brass furniture (spyhole / security chain / letter plate / draught excluder / multipoint locking)	
Overall 900mm x 2100mm half glazed	520-630
Overall 900mm x 2100mm half glazed; WER A rated/coloured	530-640 / 590-720
Automatic glazed entrance doors	£ each
Automatic revolving door; 2.1m diameter, 2.2m high; clear laminated glazing; 4nr wings; glazed curved walls	31,000-39,000
Automatic sliding door; bi-parting opening 2.0m x 2.3m opening	9400-12000
Internal doors	
Rates include the supply and hang of doors, with all frames, architrave, typical medium standard ironmongery set and appropriate finish	

Standard doors		£ each
Cellular core; softwood; softwood architrave; aluminium ironmongery (latch only)		
Single leaf; moulded panel; gloss paint / Sapele veneer	325-390 / 360-435	
Purpose-made doors		
Softwood panel, lining and architrave; aluminium, brass or stainless ironmongery (latch only); painting and polishing		
Double leaf; four panels; mouldings	950-1150	
Hardwood panel, lining and architrave; aluminium, brass or stainless ironmongery (latch only); painting and polishing		
Double leaf; four panelled doors; mouldings	1950-2375	
Fire doors		
Standard fire doors; cellular core; softwood lining and architrave; aluminium ironmongery (lockable, self-closure); painting or polishing		
Single leaf; oak veneer; 30 / 60min fire resistance; polished	530-640 / 1525-1825	
Ironmongery sets, standard		
Stainless steel; euro locks; push plates; kick plates; signage; closures		
Office door; non locking; fire rated	335-410	
Standard bathroom door (unisex) / accessible toilet door	295-360 / 170-210	
Fire escape door	1850-2225	
WINDOWS		
Softwood windows (U-value = 1.6 W/m²K)		
Standard windows		
Painted; double glazed; up to 1.50m ² / 1.50m ² - 3.20m ²	475-580 / 355-430	
Purpose made windows		
Painted; double glazed; up to 1.50m ² / over 1.50m ²	680-820 / 580-730	
Hardwood windows (U-value = 1.4 W/m²K)		
Standard / purpose made; stained double glazed	1050-1275 / 1275-1575	
Steel windows (U-value = 1.6 W/m²K)		
Standard / purpose made double glazed; powder coated	640-780 / 890-1075	
uPVC windows		
Windows; standard ironmongery; sills and factory glazed with low E 24mm double glazing WER A rating		
	230-280	
Secured by Design accreditation		
	240-290	
Extra for colour finish to uPVC		
	66-79	
Composite aluminium/timber windows; U value = 1.5 W/m²K		
Purpose made; stainless steel ironmongery fixed windows up to 1.50m ²		
	300-360	
Fixed windows 1.50m ² - 4.00m ²		
	265-320	
Outward opening pivot windows ≥ 1.50m ² / 1.50m ² - 4.00m ²		
	730-890 / 320-390	

Specified



1



2



3



4

1 SF52 flexible curtain walling Senior Architectural systems

'Oh dash it all, Mark Carney, banker's banker and economic whizzkid!' 'What's up, Damien Hirst, creative monetiser of this parish?' 'That blimmin Mondrian. We do our seminal online interview about digital art investments, and now he's gone and gone transparent. The dastard!' 'But didn't he die in 1944?' 'No, he faked his death for the publicity. Now he's gone totally see-through. Look at this SF52 curtain wall he's done in Bolton! Even my drainage is completely hidden. Invisible art! Genius! But it makes Sotheby's art-shredding wheeze too damn obvious.' seniorarchitecturalsystems.co.uk

2 Vitra pivot doors IQ Glass

I was sitting there trimming my box ball planters, wishing that I had the kind of space that allowed one to sit and admire them come rain or shine, when it struck me: a magnetic weather sealing bar, which would rise to meet my courtyard doors as they closed, and which – with an integrated channel – would protect against driving rain, so allowing me to contemplate my beautiful box balls in comfort. Then I discovered that IQ Glass had already done it. And then it rained. And then the box balls caught blight anyway and died. iqglassuk.com

3 Lux slim pivot door Sieger

'Ah! Come in Mr Raffles. We operate an open-door policy here. Feel free to treat everything as your own! I see you admiring the Hirst on the wall...' 'A Hirst? Oh yes. But no: this door intrigues me... A Sieger Lux, yes? With thermal break, 7A to 9A watertightness, and that vast gassed glass? Surely you close it in winter? It has integrated three-point locking, you know. I am something of an amateur when it comes to locks and such. As for your, ah... art, madam: one only really tends to notice the good stuff.' siegersystems.co.uk

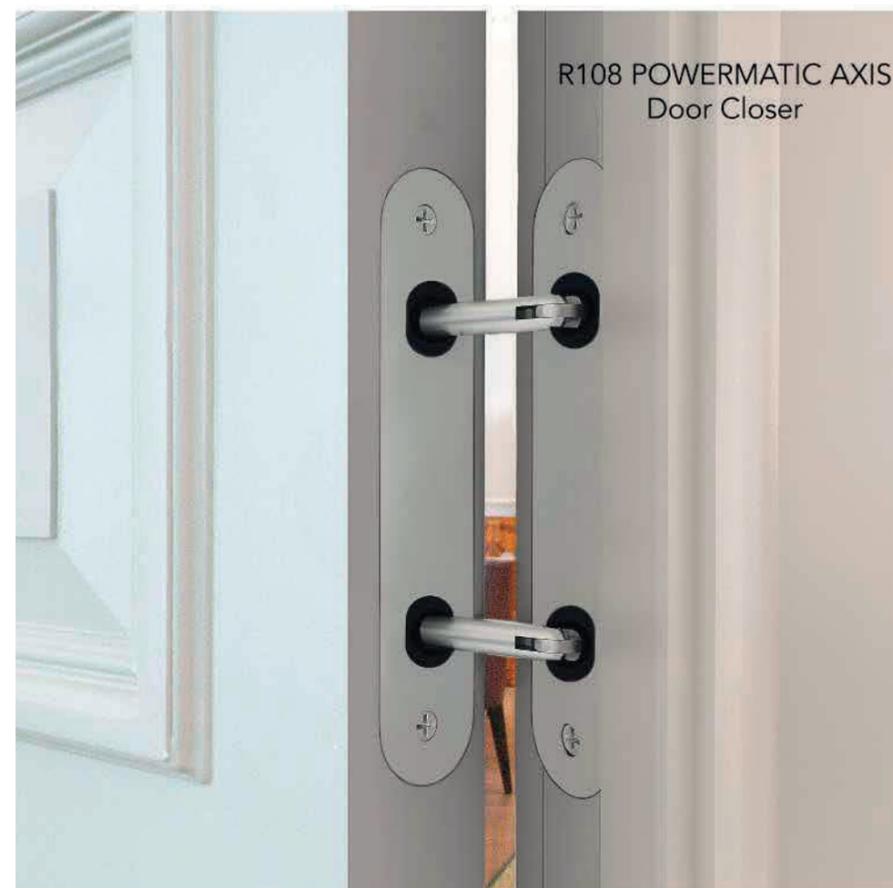
4 AA110 curtain walling Kawneer

'Lovely drop of the local Glyndwr Rosé 2019, lads!' 'Yeah, Bri! S'alright. I've only had two glasses and it's messed with me verticals.' 'Kewanu, son: have you not read up on where we're holding our Automotive Grommet and Boot Federation gala dinner?' 'Too busy selling the stuff, guv!' 'It's not your eyes; the curtain walling on this fine new Welsh bar we're drinking in slopes outwards by 20°! It was actually classified as roof glazing, yet still meets the crowd loading requirements. You gotta get Googling if you want to get on, lad!' kawneer.com

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The importance of choosing the right materials for education projects

Daylight and a comfortable temperature are known prerequisites for effective learning. Velfac offers systems designed to make the most of both

Promised government investment in education facilities should see growth in sector projects in 2021, both renovation and new build, prompting renewed assessment of product specification priorities. Despite budget constraints, better quality and more robust building products should be actively sought, as they are proven to deliver competitive lifetime costs over the course of their working life through reduced maintenance and repair costs. These products will often also deliver marked performance improvements and stylish and contemporary design. This is especially true for glazing, where an increased emphasis on natural light and better ventilation is driving demand for well designed, high quality windows able to maximise daylight while improving thermal performance.

‘The ability of modern building products to transform an indoor climate is particularly relevant for education settings,’ says Velfac commercial manager Kevan Woolf. ‘For example, window units featuring ultra-slim frames can increase natural light by up to 50%. If U-values are also low, then much larger windows can be installed in, say, student bedrooms to give the ideal balance of light and insulation, and large glazed screens become a realistic option for buildings of any size as they will easily maintain an even internal temperature.’

Good ventilation is also vital, he continues. ‘Talk to your window supplier to ensure the units you plan to install meet the needs of the building and its users. At Velfac, we help our customers develop facade-specific ventilation strategies by undertaking opening area calculations and advising on the ideal combination of opening units – manually or mechanically controlled –

The ability of modern building products to transform an indoor climate is particularly relevant for education settings



ventilation louvres and trickle vents.’

Product durability is obviously essential to keep maintenance costs low, and to withstand the demands of high traffic areas and multiple users, but not at the expense of style or design, adds Woolf. ‘The composite Velfac system is an ideal example of form and function combined. The external aluminium frame needs minimal lifetime maintenance and delivers a clean, contemporary facade finish and uniform sightlines. Internally, the timber frame can be factory painted from the full RAL Classic colour range to match internal finishes or to emphasise natural light, but a clear lacquer is often specified for educational projects as it provides a natural and welcoming finish. We also offer the option of different frame finishes inside and out, and find that a neutral internal frame is often complemented by a more adventurous exterior for greater design impact.’

The Velfac system has been installed in educational projects across the UK; here we preview three examples of its versatility. ●

Ewell Grove Primary School Ewell, Surrey

A self-contained, two storey extension to Ewell Grove Primary School provides valuable additional teaching spaces together with an impressive double-height hall. The new buildings also demonstrate the versatility of the Velfac system, allowing architect HLM to echo the detailing of the original 1916 school without compromising performance or quality, and at a competitive price. At Ewell Grove, both street-facing and inner facades feature large Velfac windows inserted into brickwork or scorched timber cladding. HLM architect Luke Riggall worked closely with the Velfac design team to achieve the design intent.



Bohunt School Worthing, Sussex

Extensive Velfac composite glazing ensures impressive design impact, maximum daylight and low maintenance performance at Bohunt School in Worthing. The newbuild ‘state of the art’ school, designed by ECE Architecture, comprises an impressive 6,000m² teaching block and 1,300m² sports hall which together provide a range of ‘dynamic learning environments’ for over 900 students. Velfac windows are installed across the school, bringing natural light and efficient ventilation into the three-storey teaching building – wrapped around an inner atrium – and to the two-storey multi-use sports hall.

Launchpad Building Penryn, Cornwall

Designed by architect BDP, the Launchpad Building provides a dedicated hub for Falmouth University’s ground-breaking post-graduate business incubation and acceleration programme, Launchpad, and also a link – via the new ‘Creative Bridge’ – to the Academy for Innovation and Research (AIR, completed in 2012). Velfac glazing is installed across the whole development (described as a ‘new front door’ for the University’s Penryn Campus) with large Velfac glazed facades Velfac create a highly distinctive local landmark, especially at night, while also increasing daylighting throughout the open plan interior.



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Life sciences throw developers a lifeline

Commissions for life sciences buildings could rise as the UK aims to develop the sector, but don't underestimate these specialist buildings, warn experts

Words: Josephine Smit

The UK as a science superpower: that's the ambition prime minister Boris Johnson set out in a growth plan for the life sciences sector, published this summer. Even allowing for Johnsonian hyperbole, this is a sector that has for some years been on the up, having been backed by the government in its 2017 industrial strategy. And globally the sector is attracting huge interest from investors, aware of its prominence and resilience through the pandemic.

That has pushed a niche sector associated with universities, research institutes and pharmaceutical majors into the property mainstream, with property agents even warning of a shortage of laboratory space. As a result, a property industry that has seen portfolios and projects plunged into uncertainty by the pandemic is now looking to life sciences as a lifesaver for development, and in repurposing everything from shopping centres to office blocks.

Historically, public and private sector clients have taken quite different approaches to life sciences, with the former bringing the same rigour they apply to science itself. 'In higher education there can be very particular demands in what clients are seeking to achieve and a lot of conflicting demands, particularly around how a facility will operate,' explains James Eades, partner with Nicholas Hare Architects. 'Client teams are generally multi-headed, building users are similarly diverse – and a lot of the work is in urban centres and on challenging sites and in and around existing buildings.'

By contrast, private developers conventionally work in science park settings, where their speculative buildings must appeal to a range of occupiers, says Eades, whose practice has worked with both client groups, including developer MEPC at its Milton Park science park in Oxfordshire. He wonders how new entrants will make their way in this environment, feeling 'it will be interesting to see to what extent the commercial developer/investor market can recognise the importance of what science space looks like'. He explains: 'Developers need

We're getting asked: 'can you do science in this building?' – but that's like asking if you can you do sport in a building

to understand the capital cost outlay for a life sciences occupier. It is about a building being appropriately designed for its target market and, until tenants come along, there is a risk they may build the wrong space or over-specify.'

A 'feeding frenzy' is how Matthew Jones, partner with Hoare Lea, describes current market interest, which has seen his company carry out recent feasibility studies for numerous potential conversions. 'Science is broad in scope, but sciences can be completely different,' he says. 'We're getting asked: 'can you do science in this building?' – but that's like asking if you can you do sport in a building.'

From an engineering perspective, Jones says it is possible to convert buildings for

science uses that appear far from ideal, as long as they are in the right location. 'To create value, there need to be a lot of scientists in proximity to knowledge, so that can often trump the functional requirement,' he explains. 'The conventional wisdom is that science buildings in higher education will have slab-to-slab heights of 4.2m or 4.6m, but we have put people in a building with ceiling heights of as little as 2.3m, because that building is close to the Crick Institute in London.' Developers' biggest challenge, he believes, comes in deciding what science capability to put into a building: 'Most developers are looking for a model that's affordable and, as you ask a building to do more things, the cost increases'.

Making buildings work for sciences

'Commercial science is a relatively new market for urban developers and they are struggling to understand the building and its servicing – and therefore the cost, level of fit-out and rent that's achievable,' is how David Lewis, partner with NBBJ sums up the evolving picture. A change in the way big business approaches R&D is also

having an impact, says Lewis: 'Big companies are now cutting in-house R&D budgets and instead investing in life science start-ups. That has implications for the type of space provided, because start-ups have limited funds so fit-outs might need to be different and start-ups will have limited equipment, so there could be potential to provide areas for equipment that could be shared.'

In the commercial science sector, Dariusz Umrigar, science and higher education director at NBBJ, says, 'There are probably only half a dozen knowledgeable developers of scale that have done science space regularly.' Like others, the practice is receiving requests from developers to assess existing buildings and projects in design for repurposing, a proposition that not only relies on the science use envisaged, but also on a building's practical potential in areas including services, slab-to-slab height, vibration control, acoustics, daylighting and operational logistics. In its responses, the practice draws on experience in complex science facilities, including Guy's and St Thomas' NHS Foundation Trust's adaptable estates strategy. The strategy was a shell-and-core design approach that was sufficiently flexible to enable either healthcare, life sciences or office use of a building, taking on

The key is to create not a fully adaptable building on day one, but a robust shell and core that can be adapted

board servicing requirements and its appeal for different users. The building developed under that strategy will be used for healthcare, but could change in future. 'The key to this and a project we're working on is to create not a fully adaptable building on day one, but a robust shell and core that can be adapted,' says Lewis. 'It's about anticipating what tenants may need,' echoes Umrigar, 'but not actually delivering a complex facility, to keep options open both for flexibility of tenants and so tenants can grow.'

NBBJ's Life and Mind Building at the University of Oxford has been designed for multiple laboratory types so it can be reconfigured to meet future demands of scientific learning and research. This is the university's largest new build to date, bringing together its Department of Experimental Psychology and new Department of Biology, which combines

zoology and plant sciences. Alongside these, the building will house the new Ineos Oxford Institute which works on antimicrobial resistance. Biology requires wet labs, while experimental psychology needs dry labs and to accommodate visitors attending for research and therapies. The building's layout was also influenced by VAT rules governing construction.

'Teaching space attracts VAT but research does not,' explains Umrigar. 'So, with a fixed budget, that became fundamental to how we mixed activities. There is a wing of space that is primarily wet-lab driven but it has been designed to be easily adapted for more office based activity if needed, to safeguard the university's long-term interests.'

NBBJ has already successfully repurposed existing buildings for science uses – notably The Works on the Unity Campus just outside Cambridge, which was completed early last year for client Howard Group. An industrial shed that once housed a car body repair business was stripped back to its precast concrete frame, reclad and had an upper storey inserted, to create 63,000ft² of flexible office/lab space – including a central, atrium-topped social street – for multiple tenants. 'The scheme hits the nail on the head commercially,' says Lewis.

Above right An exercise in repurposing existing buildings for science use, NBBJ's completed Works building at Unity campus, outside Cambridge. **Right** Pulling together a number of Oxford university's clinical departments, NBBJ's new Life and Mind Building (LaMB) will be a major addition to its estate.



NBBJ



NICK GUTTRIDGE



Learning from a megalab

The UK's largest repurposing project for life sciences is the new Rosalind Franklin Laboratory, in Leamington Spa, justifiably known as the megalab. Developed as part of the government's pandemic response, the facility allows around 2,000 staff to process vast quantities of Covid tests rapidly. It was created in a relatively new warehouse for the purely practical reason that it needed to be in service fast. 'We were working at an ultra-fast pace, which I've never encountered in laboratories,' says Gary Clark, science and technology lead at HOK's London studio. 'On a normal project the works below ground are the main risk, and after that comes the external envelope. This approach cut out long lead items, so we were effectively building a box within a box. Site storage was in the middle of the building and construction continued around the edge, 24 hours a day.'

The warehouse had the required space – 10m from floor to roof, and a 200m long by 100m wide floorplate – but inevitably came with constraints. 'The foundations could only take a certain weight, for spans and punch loads, and we had to work round the existing column layout,' says Clark. Laboratories are on the ground floor, with plant on a newly inserted first floor. To ensure laboratories could be installed efficiently and achieve their containment level 2/3 certification, the project team – led by Mace with WSP as engineering lead – collaborated with laboratory system manufacturers Middas and Asgard Cleanroom Solutions to develop a kit of parts.

On the outside, the building has changed little. 'For speed, cost and embodied carbon we didn't want to change much, although we have suggested a few measures for the future,' says Clark. Exceptions include rooflights added to create a pleasant environment for staff who may be working long hours and a glulam modular entrance canopy.

The project team started work on the laboratory in October and a RIBA stage 3 design was delivered 10 weeks later in mid-December. The contractor started work the same month, the first laboratory lines were handed over in May and the full facility went live in July. 'We had to overlap the RIBA stages and do briefing, design, construction and supply chain engagement at the same time. Everyone was focused on a common objective,' Clark says of the experience.

Delivery has broader learning for construction, being an example of the more

The architects were involved in the delivery process, taking part in two daily client meetings and twice weekly presentations



Left HOK's Laboratory in Leamington Spa is a quick-build megalab dealing with mass Covid testing, which went live this July. **Below** The Rosalind Franklin building challenged HOK to deliver highly serviced lab spaces in a very tight frame.

collaborative, streamlined and outcome focused approach advocated by the government's Construction Playbook, with design undertaken in Revit and transferred directly to manufacturers. The architects were involved in the delivery process, taking part in two daily meetings with the client and twice weekly client presentations, while a client-backed project charter promoted collaborative behaviours. But the kind of collaboration that delivered the megalab can only become more widespread if professions can escape the confines of insurance liability, says Clark: 'Project insurance is desperately needed to cross the boundaries of liability. It is something the government needs to think about.'

While this project was exceptional, it adds to the buzz of excitement in property circles around life sciences. Hoare Lea's Jones, however, is cautious. 'The market desperately wants science to be the answer, but it won't happen at the scale developers want. Most property agency advice is based on the rear view mirror. This is an emerging market with no rear view mirror and that makes it difficult to give answers,' he says. 'There is currently a search for a formula for science. We did some work looking at that a while back, but came to the conclusion there is no single answer'. This may not be what the property industry wants to hear right now, but it could be a useful reality check. ●



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

Talk to a firm actively developing greener products in its eco-friendly research centre.

www.kerakoll.com

KERAKOLL
The GreenBuilding Company

Lifting the veil on R&D with fibre-cement facade manufacturer Equitone

With the advent of a new original texture, Equitone invites exploration into how products are made with architects and how Lunara is bringing the moon down to earth

Equitone's newest material, Lunara, is evocative of the surface of the Moon. It launches on 21 September 2021.



Bringing a new texture to the market is a serious business for Equitone. Initial research can start more than 10 years before a material reaches specifiers, going through a series of different iterations and reviews. The R&D team can be working on several materials, colours and ideas at the same time.

The initial idea for the texture we now know as Lunara began 12 years ago. The original concept was for a 'brushed' texture. It would need to be in keeping with the other materials in the Equitone family, loved by architects for their through-coloured and natural appearance.

Market research, workshops and testing are integral to product development. Equitone regularly invites architects from all over the world to visit one of their two factories (in Belgium and Germany) to take part in the process. Secrecy, of course, is important when remaining innovative and relevant. Architects won't necessarily know what they are working on, but it is all-important to Equitone to involve the specifiers of their materials at all stages of the product development process. The insights gained are used to validate concepts and prototypes for their potential in the real world from both design and practical perspectives.

Testing also plays a major and rigorous part of the development process. Third-party tests and verifications are sought for all materials in the Equitone range and any new product must match the unwavering emphasis of aesthetics and safety of the existing materials to even be considered for launch. The tests include accelerated outdoor erosion, Euroclass Fire Standards and material density, as well as meticulous tests in the factory with over 20 test production runs in just one year. Equitone also values transparency and applies for both BBA and EPD certification.

So how is Lunara made?

Well, that would be a secret, but what can be divulged is that Equitone has again created an extremely tactile and high-performing material, distinct from the rest of the Equitone range, yet with the same ease of use and design freedoms that Linea, Tectiva, Natura and Pictura offer.

The surface, reminiscent of the craters on the surface of the moon, was named Lunara by architects invited to preview the materials. The wells in the surface enable the material to react to light and shadow, more subtly than Linea, but still as playfully. The Lunara panels are formed using a Hatschek process, before mechanically creating the texture and then steamed using an autoclave. Equitone materials are not coated (except for the

'I like the name; it feels old, of another world, like sedimentary rocks with fossils in it... Mysterious, ancient, even a little alien'

– architect Shane O'Toole on seeing Lunara for the first time



coloured Pictura range) but use hydrophobation to protect the panels and their natural texture, colour and fire rating.

And, as specifiers have come to expect, the surface is made in a way that no two boards are ever the same, providing an unpredictable and organic sense of the material. Boards come in two sizes: 2500mm by 1200mm and 3050mm by 1220mm and 10mm depth. Available in Pebble and Hessian colours, and fixed using either rivet or secret mechanical fix, Lunara offers the same design flexibility, cutting, routing and perforations as the rest of the range. ●

EQUITONE

Lunara launches in the UK on 21 September 2021.
For more information or samples visit
www.equitone.com



Three bespoke bathrooms

A hammam, Conran-era colour and an eclectic mix of styles inspired three small rooms where you can soak up the atmosphere

Words: Pamela Buxton

Anyone for a flamingo pink basin? Or a green concrete bath? Expressive bathrooms are alive and well judging by the projects featured over the next few pages. In these, we feature three bright and bold bathrooms realised through deft use of retro elements and imaginative, bespoke design.

In two of the projects, concrete plays a starring role. MW Architects has incorporated twin cast pink basins into a mid-century modern cabinet as part of a lavish 9m long space. At Studio Ben Allen's The House Recast, the 2.5m long, the serene, hammam-inspired bathroom may be small but it is high on impact thanks to its extensive use of green concrete panelling and bespoke basin and bath. In Charles Holland's house, the similarly modest-sized bath and shower rooms are a triumph of retro sanitary ware, vintage wallpaper and bold colours, with a playful tiling reference to Superstudio thrown in for good measure.

The House Recast, London

'Essentially we were playing a lot. The whole thing is a box of surprises,' says Ben Allen of his practice's The House Recast, a transformed end-of-terrace Victorian house in north London that won the main prize at this year's New London Architecture's Don't Move, Improve! Awards.

He's certainly right about the remarkable bathroom, a tranquil, top-lit space inspired by a Turkish hammam. The new room, part of a two-storey rear extension, is small in space at 1.8m wide by 2.5m long but big on impact courtesy of the vivid green concrete that not only forms the bath and basin, but also lines the floor and lower wall.

Studio Ben Allen was keen to limit the material palette to create an elemental feel to the interior and minimise distractions – even the mirror is folded away into the wall. The solution was specifying floor and wall precast panels of pigmented concrete from Concreations, which also cast the bespoke sink and basin, the latter inspired loosely on those in hammams. The same panels form two benches, one extending from the side of the bath, the other as a plinth for the basin. Drainage slots are incorporated into the floor.

The extensive concrete was the main material cost for the bathroom at £16,400 (excluding



Opposite The hammam effect is reinforced through the creation of a vaulted ceiling of painted MDF. **This image** Hand-made water spouts are counterpointed by off-the-shelf taps, stripped of their chrome coatings to reveal the brass below.

The architect sourced bent brass pipes and other components and worked with a metalworker to turn them into the finished fittings

VAT). It was complemented by intentionally quite primitive-looking spouts for the basin, bath and shower. For these, the architect sourced bent brass pipes and other components and worked with a metalworker to turn them into the finished fittings. For the cross-head handles, the practice stripped back Dornbracht chrome taps to reveal the brass underneath.

The distinctive ceiling is the other key feature. The clients were interested in a skylight, and the architect responded with a series of

ceiling louvres that screened the Velux window and filtered the light.

'The idea for the vaulting was to give a greater sense of enclosure and connect with the idea of the hammam, although these were often domed,' says Allen, who feels that ceilings are often an underused resource in architecture.

For The House Recast, these were created simply by the contractor in MDF and painted, along with the plasterboard walls, in moisture-resistant paint. The louvres also house lighting. A single window above the bath is shielded with a CNC-cut screen on the exterior or created in waterproof MDF. This forms part of a larger expanse of salmon coloured painted MDF cladding the rear extension.

Credits

Architect Studio Ben Allen

Structural engineer Entuitive

Selected suppliers Concreations (interior concrete panels, basin and bath) Fish Fabrications (metalwork)

Sanitaryware Dornbracht



Left A yellow, 70s ceramic sink and high-end, red Vola fittings clash not only colours but also luxury with the discarded.

Right Conscious kitsch and trompe l'oeil effects make the extraordinary of the ordinary.

Below Facing the mirrored bath panel, a large circular mirror creates a doppelganger effect.

Charles Holland bathroom, Deal

'It's quite a DIY project,' says Charles Holland of the new bath and shower rooms he designed for his own home in Deal, Kent.

Low budget it may be, but as you'd expect from Holland, the ex-FAT founder responsible in collaboration with Grayson Perry for the House for Essex, the results are anything but banal, from flamingo pink sink through to bright orange taps and Superstudio-inspired tiling, not to mention vintage tropical-patterned wallpaper.

The house is one of a pair of 1860s, semi-detached houses originally built to house military chaplains. As part of ongoing improvements, Holland tackled both the bath and shower rooms, and used them as a test bed for his long-held interests in pushing the boundaries of current taste, and exploring how taste changes and loops back into fashion.

'We're interested in old DIY books and where ideas come from, and disappear to. The death of Terence Conran prompted renewed interest in what he was doing in the 50s, 60s, even 80s. The invention and pleasure in bathrooms is quite amazing, and makes you think that current tastes can be quite anodyne,' says Holland.

He refers to the vivid room as 'almost an imagination of what a Richard Rogers bathroom would be like in 1972'.

'I really love colour and the visceral pleasure you can get from that,' he says.

Star of the show is the Harvest Yellow hand basin. This was sourced from Broken Bog, a company specialising in discontinued sanitary lines from decades ago, often in retro colours more strident than is customary today. Avocado green is only the tip of the iceberg – if you're looking for a Flamingo pink bath tub, this might well be the place for you.

The hand basin is teamed rather gloriously with the one luxury item of the room – twin Vola HV1 taps in orange with a matching trap.

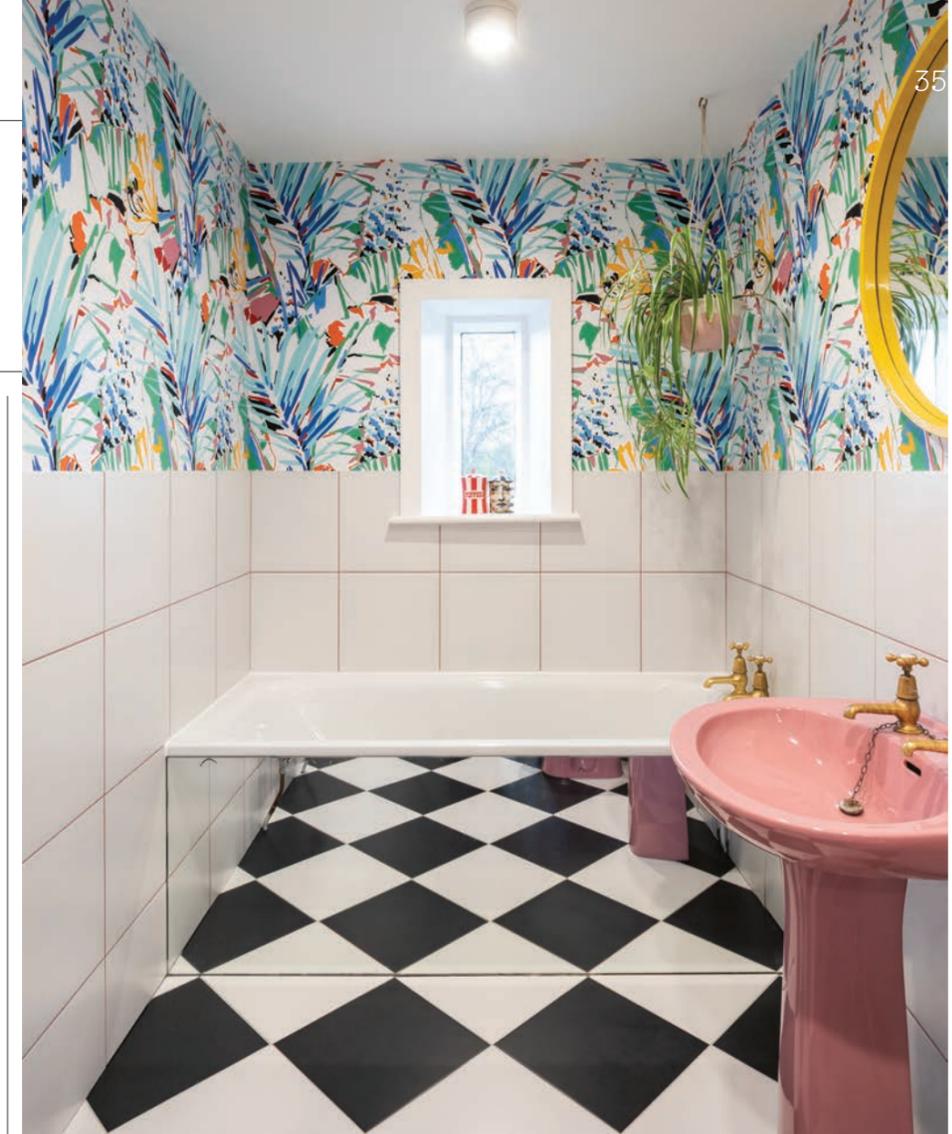
'It's worth spending a bit of money on the things that need to work really well,' he says.

The colour doesn't stop there – a well as a Traffic Red towel rail from Column Rads, the shower room features a Sorrento Blue toilet, also from Broken Bog.

The colourful ensemble is offset with white floor and wall tiling – inspired by the endless grid of Superstudio's Continuous Monument

ANDYMATTHEWS ©

ribaj.com



– with dark green grouting.

The small bathroom features a pink hand basin from Broken Bog, but even this is overshadowed by the 1970s tropical American wallpaper, sourced from eBay. The idea, says Holland, was to channel a 'glamorous Miami hotel' vibe, helped also by a mirrored bath panel and black and white chequerboard ceramic tiled floor. Set at 45° with grey grouting, this is reflected back in the bath panel and a large oval mirror opposite to give an infinity illusion.

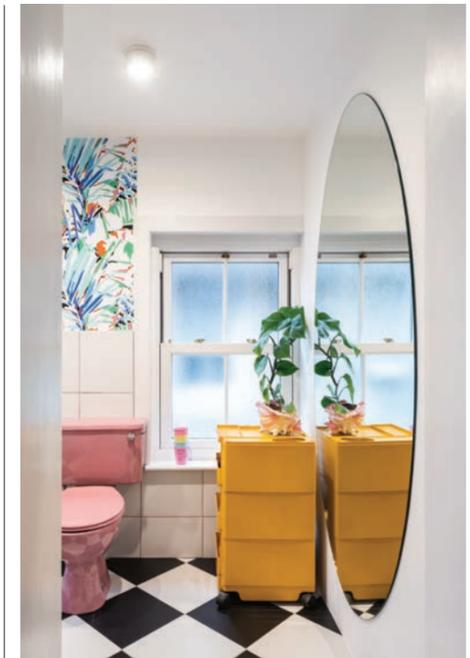
This time the taps are classic brass from Aston Matthews' Tradition basin and bath pillar taps range. Previously specified in the House For Essex, Holland likes them for their archetypal, neither old nor new quality.

'We're using mostly quite inexpensive things and trying to do playful things with them,' he says.

Credits

Design Charles Holland

Selected suppliers Aston Matthews (bathroom basin taps); Broken Bog (sanitary ware); Column Rads (shower room towel rail); Vola (shower room basin taps)





The juxtaposition of cast concrete with mid-century modern creates the showcase vanity unit in this eclectic bathroom.

FRENCH + TYE

White House, Highgate, London

Measuring some 9m in length and resplendent with twin sinks in pink cast concrete, the generous bathroom at the White House is not what you'd expect to find in a Grade II listed early 18th century London house. Indeed it nearly took a very different form – it was only when MW Architects stripped away the plasterboard ceiling in what was intended to be a dressing room to reveal timber rafters and another metre of head space, that the decision was taken to swap uses and turn it into a lavish bathroom instead.

The master ensuite bathroom is part of an extensive refurbishment of the whole house, which was once, many years ago, a pub. MW Architects has renovated it throughout, and had scope for more radical change in the outrigger, which was a later extension. Here, above a re-located new kitchen, is the bathroom.

The discovery of the room's additional height gave scope for ample insulation to increase its thermal performance. And while the eye is drawn up to the stripped back and stained beams, there is plenty else competing for attention.

The most unusual feature is the concrete vanity unit, which has been custom-made and incorporated into a mid-century modern sideboard with a mirrored cabinet above. MW Architects was inspired by the circles on the doors and commissioned twin circular basins, which were cast in a silicon mould in a concrete tinted to match the pale pink of the facing wall. These are inset in a plinth on top of the cabinet, with the plumbing concealed within the cupboards, which otherwise remain functional for storage.

'Concrete isn't a perfect material. The benefit is that when you make something bespoke, you get tiny imperfections that just add to the overall look,' said project architect Clare Paton.

The basins are half way down the length of the bathroom. To one side, a reeded glass panel partially screens views of the wet area at the far end without losing sense of the expansive length of the room. This area contains both a shower and an elegant white bath with encaustic cement tiling above in a white and turquoise bold geometric pattern.

'We kept the tiling to that area as the pattern is very bold and we knew it would be a bit

overwhelming everywhere,' says Paton.

Specified from Victoria & Albert, the 2.4m long Barcelona bath exactly fits the width of the room.

Another reeded glass panel screens the toilet nearer to the entrance of the bathroom. Throughout, the architect specified a porcelain floor tile from World's End Tiles, chosen for its concrete-like appearance and value for money. A Vogue heated towel rail was specified in a brass finish.

The result is a combination of contemporary, vintage and heritage components.

'Neither the client nor we wanted the finishes to be too matchy-matchy, or of one particular style – the rest of the house is such a mixture. We tried to capture the best of old and new,' says Paton. ●

Credits

Architect MW Architects

Engineer Watkinson & Cosgrave

Contractor All in One Building & Property Services

Selected suppliers AXOR (taps); Fabco (shower screens);

Mortise Concrete (concrete sinks and counter); Terrazzo

Tiles (wall tiles); Victoria and Albert (bath); Vogue (towel

rail); World's End Tiles (floor tiling)

Beautiful wetrooms give a luxury residential property in Kent a five-star finish

A stunning residential project in Longfield, Kent, saw multiple wetrooms installed and stylishly fitted with Schlüter-Systems products, creating both level entry access and a uniform look.

The development, led by Daniel Berry of ATD Design Solutions, began with a smaller specification of one en-suite bathroom. However, once the work began and the homeowners saw the quality of work and systems involved, they requested further work to be carried out, including additional bathrooms and the uncoupling membrane Schlüter-Ditra-25 in the downstairs living area.

The low height drainage system Schlüter-Kerdi-Line-G3 installed in each of the bathrooms ensured simple level access for an area which would be far trickier to achieve using a standard drain. This was particularly apparent in the initial en-suite, which was specified with a two-way fall in the shower. The feature was stylishly developed with flush transitions, coming together by first screeding the shower floor and then using Schlüter-Kerdi-Shower-LTS sloped shower board to create the required fall. U-shaped channel profile Schlüter-Deco-SG made the attachment of a glass screen possible without damaging the waterproofing layer under the tiles.

Berry commented: 'When a bespoke area is specified within a wetroom, I find that it makes the most sense to use products from the same manufacturer where possible. With the two-way fall in the shower, this meant using Schlüter's drainage system and shower board, both low in height and ideal for the task at hand.'

Underfloor heating provided a sense of luxury and warmth to the bathroom floors, and using the Schlüter-Ditra-Heat-Duo electric heating system made this easy. While offering low assembly heights, the benefits of a system like this one include sound reduction and fast warm-up.

Schlüter's profile trims were used in abundance in the bathrooms due to the variety of textures and finishes in the range. This meant the tiles could match perfectly for a seamless finish.

'The use of the various profiles, including Jolly, Quadec and Finec, really enhanced the overall look of each bathroom,' added Berry. 'This, paired with the reassurance that the tiles will be protected, made the decision to use



Schlüter's profile trims a simple one.'

A notable use of the Schlüter-Dilex profile was carried out in the open plan living area where the floor tiles met the patio doors. To allow for perimeter movement, Dilex-BWA was installed in the colour black. Not only did this offer the flexibility required for the tiles to sit against the patio doors, it also perfectly matched the colour of the door to offer a harmonious finish.

'I am always impressed with the quality of Schlüter's products and services,' concluded Berry. 'Whether installed behind the tiles or to help protect them on the surface, I can rest in the knowledge that whatever has been specified will stand the test of time.'

This high-end residential project has showcased some fantastic examples of Schlüter products in situ, demonstrating how they can help construct features such as the two-way fall in the shower and offer reliable protection of tile and stone installations, thanks to the range of profiles available. ●

Above left A beautiful bathroom created with the help of Schlüter products.

Top right Dilex-BWA profile trims were used where the tile floor met the patio door, matching the colour to produce a uniform finish.

Above right The two-way fall was installed with the help of Kerdi-Shower-LTS sloped shower-board.



Find out more about the products and services available by visiting www.schluterspecifier.co.uk

Canada's Riobel is ready to enrich the European brassware market

If you want a stylish tap that works well, get a plumber to design it. So thought Riobel founder Mario Bélisle, whose 'inside out' designs look good too

There are few more competitive industry sectors than the European brassware market. From German giants to English artisans there is abundant choice. So it would be easy to dismiss the chances of a Canadian brand succeeding on this side of the Atlantic. Especially one established by a plumber called Mario.

Introducing Riobel, a business that has thrived by doing things differently. Riobel is based in Québec, a fiercely independent province where European avant-garde meets North American flair. Its rich cultural life imbues the city with an instinctive creativity. When third generation plumber, Mario Bélisle, became frustrated with the taps he was given to fit, it was natural for him to try to do better. Approaching design from a plumber's perspective, he identified problems around installation, maintenance and reliability that he felt he could address.

Although Mario designed his taps 'from the inside out', he had an architect's eye for beauty and form, and from the beginning his designs had a distinctive edge. Today Riobel offers a unique range of award-winning brassware: sculptural, geometric, simple yet bold. ●

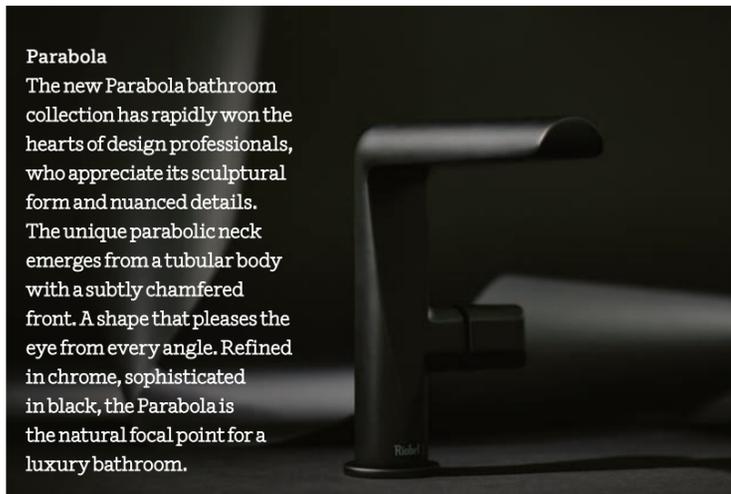
BATHROOM COLLECTIONS



Venty
Venty epitomises Riobel's unique contemporary style. Sharp angles softened by organic curves, with sophisticated and delicate touches. The subtle tilt of the neck and finely pointed handle convey an elegance so often missing in modern design.



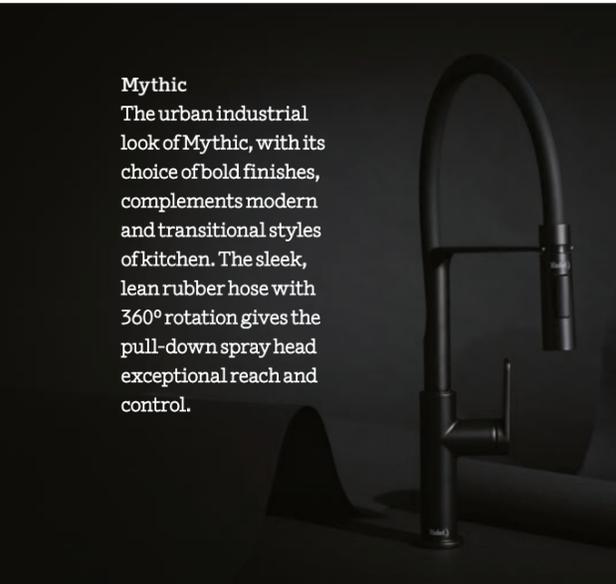
GS
The GS is an example of Riobel's mastery of geometric forms. The tubular shape of the GS has perfect proportions, exhibited in every component from the basin mixer to the shower valve.



Parabola
The new Parabola bathroom collection has rapidly won the hearts of design professionals, who appreciate its sculptural form and nuanced details. The unique parabolic neck emerges from a tubular body with a subtly chamfered front. A shape that pleases the eye from every angle. Refined in chrome, sophisticated in black, the Parabola is the natural focal point for a luxury bathroom.

KITCHEN COLLECTIONS

Mythic
The urban industrial look of Mythic, with its choice of bold finishes, complements modern and transitional styles of kitchen. The sleek, lean rubber hose with 360° rotation gives the pull-down spray head exceptional reach and control.



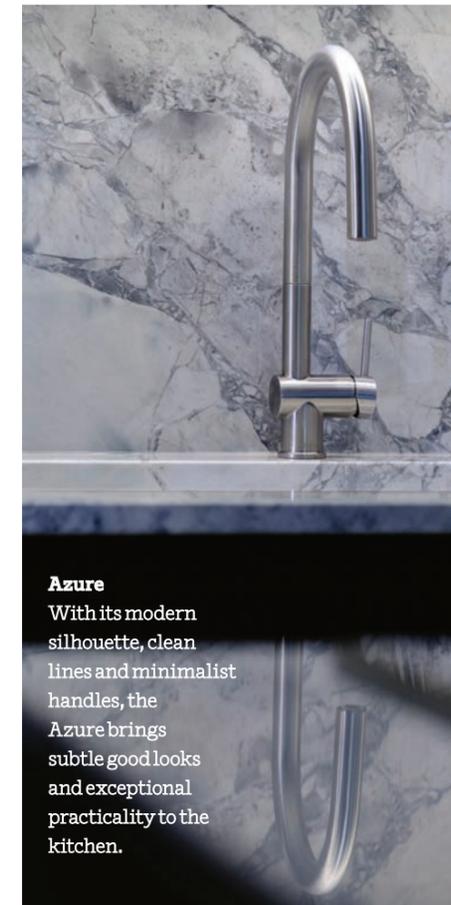
Solstice
The award-winning Solstice is a sleek and chic kitchen tap, a modern minimalist design of perfect proportions. Its fine lever control is effortless to use, and also benefits from a pull-down handset with Boomerang™ technology.



Trattoria
A stylish choice for a working kitchen, the Trattoria offers a wide choice of options to suit any kitchen design. Select an arched or 'square' spout, then choose from polished chrome, stainless steel, brushed gold, or black finish to make the distinctive profile stand out.



Ludik
A striking sculptural design. Ludik's bold angularity and balanced proportions create an iconic form, suited to a wide range of kitchen styles. Precision engineered for high performance, the Ludik features a pull-down handset with Boomerang™ technology, including a two-jet-spray and integrated swivel.



Azure
With its modern silhouette, clean lines and minimalist handles, the Azure brings subtle good looks and exceptional practicality to the kitchen.

Riobel®

Riobel will join familiar brands Victoria + Albert baths, Perrin & Rowe and Shaws of Darwen in a new portfolio called the House of Rohl. This new entity aims to make specification easier, encouraging selection from across the brands to create unique spaces and providing long term support to clients. www.riobel.design

Specified



1



2



3



4

1 Via Maestra 'Paesaggi' tiles Panaria Ceramica

Welcome, dear Billionaire, to Mars Earth! Mr Musk is waiting to greet you, so please proceed to your carboic cleansing cubicle for Stage One Sanitisation. Your personal cleansing area is lined with Paesaggi stone-effect tiling, imported all the way from Italia, Terra. Please rub your naked self liberally against these elegant tiles to take full advantage of their PROTECT® line silver ion shield, which reportedly kills up to 99.9% of Terrestrial bacteria on contact. You will then be escorted to our new viral flushing lounge for your luxurious bleach drip, UV blast and complimentary Prosecco.

panaria.net/

2 Wing Edgy eco efficient WC Whiteville Ceramics

We apologise for an error in the last issue where author Erica Jong was associated with the water-saving Vortex flush. 'Wing' refers to the sanitary range, and not to a character in Jong's 1973 novel 'Fear of Flying'. 'Edgy' does not imply these WCs are unsuitable for family use. The wording used should have read 'rimless flush', referring to a system of horizontal and vertical nozzles which create a vortex, thus efficiently, quietly, and thoroughly flushing without splashes and undue profligacy. It is, however, accurate to describe the Vortex flush as 'the purest thing there is'.

whitevilleceramics.co.uk/

3 Old Split Oak veneer Rotpunkt

We arrived at The Old Split Oak expecting a quirky historical pub-with-rooms with all the trimmings that Shakespeareland is famous for. Our host Mr Falstaff turned out to be a skinny gentleman and quite miserable. His partner Nell Quickly (the Instagram pilates lady) welcomed us to their private kitchen for fancy tea and edamame nibbles. There were no ash heaps, pecking chickens or piles of bones. Gutted. Worst of all, as well as being clean, modern and stylish, this kitchen is 100% carbon neutral and made with 90% recycled timber. Ruined our weekend.

★☆☆☆

rotpunktuk.com/

4 Contrast MD079 towel warmer Vogue UK

'Oh, hey Grace Coddington, I just love your new bathroom. It's so... Vogue.' 'Well, thanks Anna Wintour, it's got... something, hasn't it? These exclusive over-50s places that normal people aren't allowed to know about are always so nicely done. Check out the wall mounted MD079 towel warmer. It's a hybrid product with the option of electric or plumbed fuel. This 1.5m tall one produces 2627 BTUs at 50°, consuming only 770W to do so.' 'Retirement's changed you, Gracie love. Still, that's actually quite cool.' 'No, darling, it's actually quite hot.'

vogueuk.co.uk/

Sound solution: wastewater and acoustics

Geberit's Sophie Weston explores the importance of taking a whole-building approach to acoustic performance, including drainage

As the world continues to get noisier, building designers, specifiers and contractors have an increased responsibility to consider acoustics in their projects. However, current standards offer vague recommendations and little guidance for designers, which can lead to missed opportunities. A new Geberit white paper has revealed how a taking whole-building approach to acoustic performance, including drainage, is central to creating a peaceful environment.

In a YouGov poll recently commissioned by Geberit, more than half (52%) of homeowners said unwanted noise in their home had a negative impact on their wellbeing. Yet one of the biggest challenges until now has been that internal acoustics in building design is mainly concerned with heating, ventilation and air conditioning, with little or no consideration given to drainage.

Those familiar with the relevant standards on building noise will note that they mainly centre on mechanical noise from HVAC equipment. BSI's British Standard 8233:2014 Guidance for Sound Insulation and Noise Reduction in Buildings simply states that water systems including hot and cold water services and waste pipes 'are not to cause disturbance in normal use'.

This poses a challenge, particularly when research shows that building occupiers and users are affected by bathroom noise too. For instance, our poll showed that more than a quarter (26%) of homeowners are regularly affected by bathroom sounds including the toilet flushing, drainage and pipes. Yet there is still very limited information or guidance in UK regulations on the impact of noise from public health services such as wastewater.

The onus, therefore, is on the industry to take the lead. This means taking a whole-building approach – to extend the scope of noise beyond just HVAC and consider the choices required to deliver a full system approach to reducing building noise.

Instead, architects, specifiers, building designers and M&E contractors should be breaking the silo approach and asking the right questions around product specification to provide better outcomes for clients, developers and end-users.

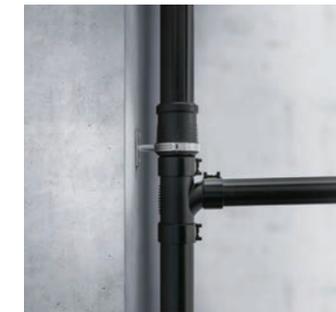
At the heart of this lies product choice.



Above Bathroom 05 A Acanto Series guest bath.

Top right Silent-db20.

Above right Duofix concealed cistern Sigma21 with iCon WC.



Solutions

Effective solutions are readily available – acoustically optimised pipework such as Geberit's Silent-db20 range, for instance, inherently uses more dense materials. It is a proven solution and when combined with rubber and plastics where possible for decoupling and dampening, these products will not transmit sound as well as less dense materials.

When considered alongside effective building insulation, low-noise mechanical climate systems and other acoustic performance measures, it provides a whole-building solution which addresses the needs of occupiers and adds value for developers. This is precisely the type of holistic approach needed to achieve objectives in spite of vague regulations. ●

Highlighting the issue

Poor internal acoustics affect wellbeing. In a recent poll of 2,037 homeowners by YouGov, commissioned by Geberit in April 2021:

- More than a quarter (26%) of respondents said they were regularly affected by bathroom sounds
- Almost a fifth (19%) blamed water, which includes toilet flushing, drainage and pipes
- More than half (52%) said that these unwanted noises at home have a negative impact on their wellbeing.

GEBERIT

For more information,
visit www.geberit.co.uk/acoustics

Maggie's Centre, Southampton



AL_A creates spaces of reflection and contemplation with privacy boxes, open-plan spaces and ceramic walls within a new densely-planted glade

Words: Will Jennings Photographs: Hufton+Crow

'In general, hospitals are not patient-friendly. Illness shrinks the patient's confidence, and arriving for the first time at a huge NHS hospital is often a time of unnecessary anxiety.' So wrote Maggie Jencks in her 1994 text *A View From The Front Line*, after her diagnosis of returned and new cancers. From her thoughts emerged the Maggie's Centres, adjacent to but separate from hospital buildings, in which anyone affected by cancer can seek support.

AL_A has completed the latest Maggie's at Southampton General, a typically labyrinthine accretion of wards, services and parking across a swathe of the city's northern suburbs. Having been presented with the small site of a redundant house and garden marooned in a car park, the architect proposed to reconfigure vehicular access, eking out more space to enable its idea of a New Forest glade.

Inspired by a series of photographs of a framed view onto four seasons of foliage in a book by Jencks on Chinese gardens, AL_A composed a form with a similar tight relationship to dense, enclosing landscaping – sinking the site to create a small surrounding mound that buffers it from the cars and monotony outside. Architecturally, the building has two key elements: four rectilinear ceramic walls which



Above Interstitial spaces offer moments of calm and respite away from the main hospital.
Below The ceramic fins are designed to shimmer and play with changing light over the day.
Bottom Stainless steel cladding plays with the planting, reflecting and rippling.



penetrate the building envelope, dividing areas of the garden as well as having internal spatial uses; and four small boxes enclosing staff room, counselling room, quiet room and WCs.

Materiality is key to both elements. On those four right-angled walls, a rhythm of glazed fins captures, ripples and reflects light. Formed of structural ceramics, they continue AL_A's use of the material at Lisbon's MAAT museum and London's V&A extension. Working with Cumella of Barcelona, the architect developed four types of ceramic block which simply stack one on another to form external-to-internal walls, with a system allowing insulation where required, structural re-enforcement, and moments of sightline – for instance allowing staff to observe if a visitor enters the building.

The wall grid is offset from the site and car-park, so the entrance directly addresses the route from the oncology ward, architectural-ly supporting the physical and psychological journey as approaching visitors may still be digesting news of a diagnosis. From the trees, the building is designed to appear in a welcoming light, with the face of the ceramic fins glazed in light pink and blue, set against an Inox-Color manufactured dimpled stainless steel sheet that wraps the external faces of the private

Opposite top An oculus above the central dining table is at the heart of the open-plan interior.

Opposite bottom Ceramic fin walls provide a continuity between the inside and out.

Above Glazing acts as a picture frame, turning the interior into part of the landscaping, and making the view out part of the room.

boxes. Once inside, a user looking out may see the fins' reverse side, clay tones gently reflecting a ripple of light from the glaze, offering a warming sense of enclosure.

A low-maintenance concrete floor throughout is polished with a radial process that plays with light in a similar way to the external steel cladding. A single oculus light, carefully placed off-centre to maximise the path of the sun, focuses on the central shared table as a space of sharing food and conversation. Elsewhere, the four walls divide the building into various smaller spaces for individuals or groups, while the four boxes offer sound-insulated privacy for separation, contemplation, and counselling. For visitors undergoing long-term treatment, AL_A has created a space of withdrawal that will subtly play with the seasons, using a simple toolkit of elements to carve a reflective space within the tarmac, clutter and anxiety. ●

PiP specified are compiled from supplied company press releases

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Specified



1
Dekton 4mm and 8mm sheets
Cosentino

'Nothing says executive washroom like a vast expanse of smooth, professional, textured grey, does it? Every morning I pull up my Bianchi and come in here for a quick post-ride shower, and I look at these Dekton 4mm Kreta walls, and the 8mm Lunar floor, and I recall the material's carbon-neutral lifespan, its ultracompact production from 20 minerals, and its UV, scratch, stain and thermal shock resistance. And I say to myself, I say: 'Col mate, you've arrived.' 'So what do dayglo booty shorts say then, Colin? What do your Mamilian Lycra skimpies say?' cosentino.com

2
Synesthesia marble-effect slabs
LEA Ceramiche

[Phone rings] 'Hello? Hello? Yes? This is Marilyn? Oh! Mrs Kennedy! Yes... yes... No! He did say that - but - Mrs Kennedy, I turned him down! I don't want to live in The White House! I love my new little bungalow. I've just fitted the kitchen out in LEA Ceramiche laminated porcelain slabs, Mrs Kennedy. They remind me, actually, of the big onyx lighter on the President's desk. They are resistant to stains, and scratching, and completely impermeable. And, Mrs Kennedy, they repel dirt can withstand a lot of heat - and some, I've heard, like it hot...' leaceramiche.com

3
Aluminium cell ceilings
Hunter Douglas

'Welcome to The End of the Universe! Milliways diners, please dock your ship with our automated valet Marvin, and make your way to your table. If you are viewing the cataclysm from our foyer, the stars of the galaxy are arrayed overhead, clearly visible through our open, light, corrosion-resistant aluminium cell ceiling. Please take a moment to appreciate the way the installation masks the plenum and frames the space - if you'll pardon my pun. This ceiling's amazing durability is about to be demonstrated. Stars will explode in 4... 3... 2...' hunterdouglas.co.uk

4
Dormakaba horizontal sliding walls
Style Partitions

'They've escaped! The Typical Teenage Trio! They've escaped from the Indigo Eat and Smile enclosure in the Human Zoo!' 'Dammit! That trio was one of the last non-breeding sets in captivity! They must have pinched the keys to the premium milled locks on the easy-to-operate dormakaba horizontal sliding walls! Get Style Partitions on the phone - and fast! They're exclusive UK distributor now, they'll know what to do.' 'Hold on... I've spotted them!' 'Where? Oh, on their damn phones, with a Dirty Burger - three feet from where they woke up.' style-partitions.co.uk

1 Education

A masterclass in making better places to learn in

A preview of the issues raised in RIBA's education webinar offers some useful points for study

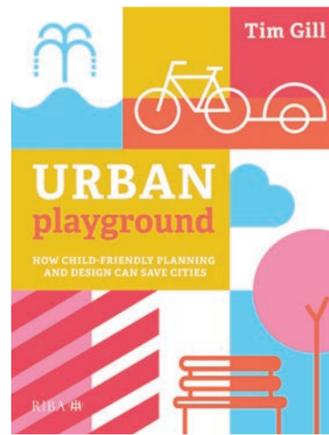
Words: Michèle Woodger



ERIC DOUMA LANDSCAPE ARCHITECTURE

'A good building facilitates the educational process,' begins this webinar chair Jan Carlos Kucharek, and indeed, a well-designed school is itself a pedagogical instrument, with interstitial spaces as important as classrooms in shaping the learning environment. What follows is an exploration of how collaboration between architects, consultants and manufacturers results in trailblazing schools, and a learning curve for those that design them.

Beginning the lesson, Tim Gill, author of *Urban Playground: How Child Friendly Planning and Design Can Save Cities* (RIBA Publishing, 2021), discusses the relationships between schools and their urban contexts. Using global examples



(Freiburg, Rotterdam, Vancouver, Oslo...) he identifies successful urban planning strategies enabling children to navigate their environment.

There are clear benefits from implementing child-friendly features such as safe green spaces, traffic-free zones and varied activity spaces in the public realm – economic, sustainability-related, health-based and more – which should inform school building initiatives, design and management. A good relationship between schools and the wider public realm improves children's understanding and engagement, 'staking their claim as full citizens of their communities'.

Cobham Free School in Surrey has its own story: formed in 2012, its disparate year groups are finally united under one roof – a postmodern 1990s former office block refitted and extended with two extra wings by Stride Treglown. Justin Lewis of Rockwool describes how Rockwool Hardrock Multi-Fix (DD) was used for thermal insulation, fire protection and acoustic insulation on the new blocks, which contain a 520-seat auditorium, dance and sports halls. Hefty



JONATHAN SUISSON/SHEPHEARD EPSTEIN HUNTER



HUNDVEN-CLEMENTS PHOTOGRAPHY

regulatory compliance (BS 6229, BB 93 and BB 100 etc) were met. Streamlining the job for the roofing contractor with a single insulation product resulted in a safe and cost-effective outcome.

Sapna Shah, associate at Shephard Epstein Hunter, describes her practice's work at University of Leicester School of Business – part of a £500 million masterplan. Inheriting the project from another practice as Stage 3 (but returning it to Stage 2) gave the architects themselves a lesson.

The client required an autonomous school with a cohesive identity and improved teaching and breakout areas suitable for corporate engagement. Shephard Epstein Hunter made significant and sensitive refurbishments to the site's historic buildings, undertook extensive landscaping improvements and reworked the newbuild designs, resulting in complex

Left above Naturalistic school yard at De Klimop Elementary School, Rotterdam.

Left below Shephard Epstein Hunter's University of Leicester School of Business offers a contextual response to one of the founding buildings.

Above The green roof is a fundamental statement at Scott Brownrigg's Centre for Agriculture and Biosciences International in Egham, Surrey.

Below Marks Barfield Architects' University of Cambridge Primary School, part of the huge North West Cambridge master plan.

structures, detailing and materiality: copper cladding; staggered gable ends; an oval pavilion requiring curved lintels, windows, balustrades and parapet; dog-tooth brick features and so on. These required subcontractor and specialist input. The intricacies of the project and its specification form some of Shah's crucial take-away lessons.

A field trip with Jonathan Lowy of VM Zinc takes in multiple school buildings, at home and abroad, with zinc standing seam roofs, fascias, soffits and rainscreen cladding – from the Victorian neo-gothic Charterhouse school and 14th century Winchester College on one hand, to Architecture PLP's ultra-modern auditorium at Pimlico Academy on the other. Traditionally grey but with numerous options, the possibilities afforded by this versatile material are boundless.

'Exposing the construction ingredients' so that children can understand how their environment was physically put together was a guiding principle for Surman Weston, designer of MacEwen 2021 Award Winner Hackney School of Food. Tom Surman discusses the transformation of the disused caretaker's house into a food education centre. A tight budget of £300,000 necessitated targeted spending on areas of greatest educational impact: on the outside a masonry-paved kitchen garden with



MORLEY VON STERNBERG

vegetable-planters, fire pit, pizza oven and dining/teaching area under a café-style awning; on the inside, a focus on the central kitchen area. Everything else received a 'non-precious, craggy, loose-fit' approach: exposed trusses, galvanised conduits, an agricultural water-butt, brick infills unashamedly announcing their presence, all enabling the children to situate the architecture in the context of the food they are growing.

On the topic of gardens as educational tools, Chris Roddick of Bauder considers the practicalities of green roofing using the huge sweeping green roof Scott Brownrigg's Centre for Agriculture and Biosciences International (CABI) research facility as a case study. Access for watering and weeding, insulation, waterproofing, and structural implications all come into play. A successful system needs committed maintenance; yet the rewards pay off, as biophilic design reduces stress, improves cognitive function, creativity and wellbeing and expedites healing – all beneficial in a teaching environment.

Rounding off with Marks Barfield Architects' circular University of Cambridge Primary School, founding director Julia Barfield discusses the design of this pioneering university training school (UTS) which integrates a primary school and kindergarten with the university's department of education.

A circle has 'no dead ends' she explains, 'everyone feels part of a whole'. Classrooms are connected via the 'learning street'. The central courtyard functions as a play area and as a performance space. Segments of the circle are connected to provide covered outdoor learning spaces, and interior space can be flexibly rearranged to accommodate future changes in use. 'The school is very cutting edge in terms of [its teaching ethos] and hopefully the architecture helps that', says Barfield of her achievement. The same can be said of all the architecture showcased in this webinar. ●

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2 Offices

We can make the changing office a better place to work

Office buildings were adapting to changing work patterns before Covid-19 struck. As people trickle back, architects and suppliers discuss ways to make workplaces for the future

Words: Michèle Woodger



With coronavirus lockdowns now handed their P45 by the government, those of us still working from home are left wondering what shape 'normal office life' will begin to take. This webinar brings together six experts to discuss how products, materials, designs and social trends are facilitating sustainable and inspiring office architecture today. The case study examples are pre-pandemic, yet seeing how they fared in 2020 illustrates how flexible office design enables employers to navigate unpredictable challenges.

Amy Frearson's recently published book *All together now: the co-living and co-working revolution* (RIBA Publishing 2021), co-authored with Naomi Cleaver, is presciently timed. The book looks beyond traditional models to redefine the co-working space typology, delving into

more nuanced live-work hybrids that offer a sustainable balance of sociability and privacy. Frearson took the freelance plunge just before lockdown, she says, and was consequently forced to re-examine her own working practices while interviewing and writing about that very topic.

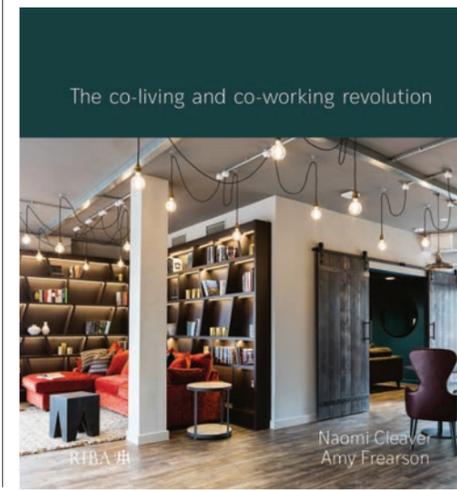
Working preferences have changed, but outdated models persist. Touching on issues such as chronic loneliness, mental wellbeing and flexible working, Frearson illustrates, with Europe-wide examples, how creative and adaptable co-working spaces benefit local professionals, working families, digital nomads and the wider community.

Successful co-working environments enjoy an optimal balance between visibility (to counter loneliness and promote community) and privacy

(for wellbeing and professionalism) so acoustics which permit welcome hubbub but not intrusive Zoom calling are essential. Oscar Acoustics' Ben Hancock explains how spray-applied acoustic finishes help make workspaces more amenable to the noise-sensitive.

To support the shift in working behaviours and to create a dynamic office layout, while accommodating a variety of uses throughout the day, requires constant adaptation. But many offices don't lend themselves to adaptation, fixed partition walls being one limitation; products such as SonaSpray can offer a convenient and cost-effective solution, coating profiles with ease and doing away with the need for suspended ceilings so as not to impede the flexible rearrangement of space below.

Acoustic attenuation was also key to ArchitecturePLB's 2016 project for pharmaceutical company Promega UK, situated close to the M27 motorway on the University of



The co-living and co-working revolution

Naomi Cleaver
Amy Frearson

RIBA PUBLISHING

JAMES NEWTON



The workhorse of any office building is its restroom

Southampton Science Park (albeit also near a meadow, arboretums and a farm). The client requested an aspirational, bespoke and homely offering, considering itself 'a soft-touch employer with good employee retention' says Joshua Reay, senior and project architect. This ethos is evidenced in the architectural response; the new facility is split into two wings joined by a glazed entrance, enveloping a landscaped courtyard. It sits within a walled garden sinking into existing site levels with the office element floating above, combining flexible office space, storage, distribution aspects and laboratories under a playful, sculptural roof. This holistic and wholesome environment accommodated socially distanced employees successfully in lockdown, providing the desired 'home away from home'.

The workhorse of any office building is its restroom. At the Hilton's UK headquarters, the decision to eschew a full refit and instead use 3M Di-Noc architectural finishes to spruce up the existing avoided sending waste to landfill, in line with Hilton's environmental strategy; wrapping

the doors in high-quality and durable film was an efficient and cost-effective solution. Non-porous, easy-clean surfaces help maintain hygiene in high-use areas. If today's high-maintenance cleaning regimes challenge product durability, Luke Morgan refers us to a similar refit at the Hilton's Miami headquarters, installed in 2009 and still fully functional, demonstrating that this inventive product is long-serving and reliable.

Ryder Architecture's Tombola House (2018) in Sunderland is the first phase in what the online gaming giant hopes will become a new waterfront campus along the Wear. As architect Ronnie Graham explains, the £7 million project is intended as a landmark, with a flexible and socially rich environment to retain staff and attract graduate techies from Sunderland University. Taking cues from industrial port and quayside buildings, Ryder designed an imposing triple-pitched-roof brick structure (Ibstock) with a strikingly minimalist electro-chromic glass facade (Saint Gobain). A grassy courtyard functions as public realm as does the landscaped waterfront.

An uncluttered and low-density interior belies a sophisticated MEP strategy, including radiant panels in the roof hidden by a Hunter Douglas ceiling and pipework for heating and

Far left Architect Autori's Mokrin House in Mokrin, Serbia, for client Terra Panonica; 1800m² of co-working space and community facilities on a regenerated estate.

Left Ryder Architecture's Tombola House has not only been popular with users, it has helped reinvigorate the Sunderland waterfront.

cooling integrated into precast concrete panels. The work environment is comfortable and appealing; and Tombola has also commissioned work on the neighbouring listed Rose Line building (its original office) and an adjacent building in pursuit of its campus ideal.

From a landmark roof to an under-performing one, roofing specification manager Luke Morgan at Rockwool discusses Pringle Brandon Perkins and Will's Sussex House, American Express' UK head office. The roof forms a means of fire escape and required minimum 60-minute fire resistance and thermal performance to comply with Approved Document L2B. Triflex ProTect liquid membrane (vermiculite) waterproofing system was applied with Rockwool Hardrock Multi-Fix (DD), providing all-in-one thermal and fire performance; the mineral coated glass tissue fleece ensured compatibility with the chosen waterproofing system, simplified the overall design, achieved on-site efficiency gains and increased confidence in the performance of the roof, making it safer for all concerned.

Clocking off, it's clear that the pandemic has acted as a catalyst for changes already under way in the workplace, in terms of flexibility of spaces, longevity, sustainability, mental health and wellbeing, hygiene and safety. The office needs its job description reappraised; opportunities for architects and product manufacturers abound. ●

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Hugh McEwen, partner at Office S&M, details three of his procurement favourites

FRENCHANDTYE



SMILE PLASTICS

We see waste materials as being valuable in and of themselves, instead of using a recycled version that aims to recreate its virgin form. This is because we want each material to tell a story, as Smile Plastics do. Sheets of Smile Plastics are fused together from various waste plastics; this worktop (left) is made of white plastic milk bottles and black drainage pipes. We used a range of waste materials in Mo-tel House, based on conversations with the client about re-use. She founded Onloan, an online clothes subscription service that tackles fast fashion by lending. In this way, her interest in reuse was carried through in the story told by the materials of her new home.

MIRRL

We use colour as a building material, in the same way as bricks and mortar. On top of its spatial properties, colour contains immense meaning. For Upside Down House we installed a bespoke Mirrl worktop in the kitchen and bathrooms. Mirrl is a solid surface material on a birch plywood substrate. It is highly resilient, long-lasting, waterproof, food safe, and repairable. Mirrl was chosen by the clients because it reminded them of New Zealand pua, or abalone. Meanwhile, the purple of highland heather and the lush green of mountains represented the client's Scottish and Kiwi heritage.

AIRLITE

Architects can have an impact on the climate emergency and can increase awareness. As part of Shape Newham, a community-led initiative creating 18 public space projects in eight town centres, residents in Little Ilford highlighted pollution to us. Our Pollution Gate shelters residents from pollution and the weather, and provides 'nudges' for us to act more responsibly. The entire sculpture is painted in Airlite, which acts as a photocatalyst to turn pollution into harmless salts. So this little gateway will clean the air that passes over it, and help everyone to clean up Newham. The Pollution Gate is coated in five Airlite colours.



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...Sign Off

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



CHIM-CHIMNEY

Our appetite for 'urban experiences' knows no end. It began with the London Eye (even though the 'down' bit at the end offers little more than catching your face the camera as you're bursting for the loo); and the less said of Westminster's Marble Arch Mound the better. So it's with some reserve that we await the 2022 opening of IMG's 109m high Battersea Power station 'Chimney Lift', offering 30 people at a time 'breathtaking, 360° panoramic views' of the city. Probably not unlike those afforded to poor 12-year-old sweep George Brewster RIP, the last unfortunate to get run up a chimney in 1875; though at least he didn't fork out for the privilege.



MAKE PUPPY BEG

Last month Guggenheim Museum Bilbao launched a crowdfunding campaign to raise funds to restore the inside of Jeff Koons' 12m high floral sculpture, 'Puppy', which sits outside its main entrance. Turns out upgrading its steel skeleton, internal watering system and geotextile fabric will cost around €100,000, to make it fit for the future. Now, outside any national collection of art, the general public probably wouldn't bat an eyelid at being asked to stump up for an acquisition, but since its Wiki citation puts the collective worth of the Guggenheim assets at around \$US250bn, could its directors be, ahem, barking up the wrong tree?



'HOW MUCH DOES YOUR BUILDING WHOOP, MR FOSTER?'

As urban zoos globally reinvent themselves as humane and relevant, at London Cedric Price's grade II-listed, 1965 Snowdon Aviary is being stripped of its 3800m² of transparent metal mesh panels in a multi-million pound overhaul by Foster + Partners, to house the zoo's Colobus monkeys. As a result, its name will be changed to 'Monkey Valley'; a rebranding that would surely not have impressed one of modern architecture's most sharp-witted visionaries. In honour of Mr Price's quotable 'If technology is the answer' line, we take the liberty of appropriating Buckie's question to that above.

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