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FROM THE EDITOR

At COP26, the eyes of the world are looking to the UK to see a conclusive set of carbon reduction proposals at the end of this vital summit. One of many current issues is that poorer countries, having been hammered by Covid, will be seeking investment from their richer counterparts in order to produce the carbon savings urgently needed, to try and slow the rapid decline of our environment.

The solid examples of governments launching credible, far-reaching and nationwide carbon-cutting programmes may be depressingly few and far between (for example, Joe Biden's Democrats are fighting among themselves about how to implement his Green New Deal, when there is little time to take action).

So in this vacuum, it is left to corporations and industries to come up with the workable solutions in the short-term. While these may be piecemeal and uncoordinated in terms of how they sit alongside each other, at least they represent concerted efforts. With time so tight, everything counts.

Of course, every 'sustainable' alternative must be interrogated on its own potential drawbacks, and Lithium battery production methods, and now hydrogen production for boilers, have come under the spotlight for their not necessarily being the 'green panaceas' we would hope for. 'Green hydrogen' does exist, however, where the copious amounts of electricity needed to produce the gas can be sourced from renewable sources. If the required investment is made, it may be the practical answer for upgrading millions of installed gas boilers across the UK, alongside the attempts of the heat pumps lobby to move us away from fuel-burning solutions.

A fascinating pilot study on Orkney is experimenting with green hydrogen for powering boats, boilers and ovens, and will produce many applicable ideas across a range of sectors. Oil companies are said to be waiting in line to take charge of green hydrogen production on the back of its findings, although it may be that it's in such off-grid island settings that its use its most urgently needed if the current energy price crisis persists. It hasn't as yet been tested on a mass scale within the UK gas network.

Following the heating sector, the timber lobby has been mobilising around the net zero/COP26 agenda, fighting back against the attacks it has recently undergone post-Grenfell (despite there being no timber on that building's cladding). A network of developers, designers and investors was launched pre-COP26, to provide a fund worth millions of Euros to "scale-up timber construction." The Built by Nature initiative includes Arup, Lendlease and architects Bennetts Associates, along with modular housebuilder BokKlok, and will make grants of €50K-250K to "pioneering projects addressing barriers to building with timber." These could include "innovations in timber buildings, feasibility tests for large-city-scale projects, new business models, and data collection schemes."

Obviously there is strong scope here for UK architects to benefit, and CLT pioneer Waugh Thistleton has already engaged fully with the plan. Their multi-storey, and "pre-warrantied" residential project in collaboration with University College London fire engineers, is one of the first to win funding. Practice founder Andrew Waugh said that "we need to re-focus our efforts onto bio-based building materials," Going beyond timber, you can read more about bio-based approaches in our conference report on page 6.

James Parker
Editor

ON THE COVER...
Prague-based architects petrjanda/brainwork used principles of aircraft camouflage to hide a striking new home in its semi-rural setting in the Czech Republic

Cover image © BoysPlayNice
For the full report on this project, go to page 33

STIRLING PRIZE

Grafton Architects' Kingston University hybrid building wins Stirling Prize

What the RIBA called a "progressive new model for the design of higher education buildings" by Grafton Architects at Kingston University has been awarded the Stirling Prize for 2021.

The Town House project is a more dynamic approach to university library spaces, which better integrates the university with the town. It combines a library with a contemporary performance space and public circulation areas, and also creates a new 'face' for the university.

RIBA said the project "expertly captures the spirit of learning and the value of community cohesion," adding "Grafton Architects have designed a purposefully democratic and open space, as its name suggests. The building sends an important message to students, educators and the local community, that this is a place where everyone is welcome and valued."

Grafton Architects commented on the project: "We imagined a place where students would feel at home. This building is about people, interaction, light, possibilities. It is about connecting to the community, the passer-by, an invitation to cross the threshold; a three-dimensional framework with layers of silence and layers of sound."

Set back from the street, the concrete form includes a 200 metre, six-storey colonnade, with terraces and gardens above creating "shelves of connected public space." The facades are open at lower levels, "revealing views to the passer-by of the engaging activities taking place inside."

Internally, there's a 'public forum,' leading to an 'amphitheatre,' and voids and staircases above lead to social and study spaces. RIBA said: "Exemplary acoustic design enables the bustling public forum, quiet library, archive, dance studio and theatre to co-exist, and enrich the experience of the users."

The generous volumes enable "people, light and air to flow naturally through the building," and the "thermally-activated" concrete frame reduces operational energy use. The building is also designed to be highly adaptable for future possible needs.

Speaking on behalf of the 2021 RIBA Stirling Prize jury, Lord Norman Foster, said: "Kingston University Town House is a theatre for life – a warehouse of ideas. In this highly original work of architecture, quiet reading, loud performance, research and learning, can delightfully co-exist. That is no mean feat."

Kingston University vice-chancellor, Professor Steven Spier, commented: "We had an incredibly ambitious brief – to create a space for students that would allow them to benefit from knowing each other, a library to inspire learning, dance studios, and a softening of the threshold between gown and town."

Grafton Architects triumphed over a prestigious shortlist including Marks Barfield Architects, Stanton Williams, Groupwork, Ney & Partners and William Matthews Associates, and Carmody Groarke. It is the Dublin-based practice's first built project in the UK.

CONFERENCE REPORT

How to regenerate the planet

***ADF's* Laura Shadwell reports**

As part of the 'COINS future' seminars at UK Construction Week, organic building materials innovator Ehab Sayed from Biohm (pictured) looked at how the industry needed to adapt in order to "regenerate" the planet for a sustainable future.

Sayed told delegates that the earth is currently "marked by extraction and consumption," and that with predicted 40% population growth in the next 70 years, construction waste is expected to double by 2025 to 2.2 billion tons. He said that while the mantra 'reduce – reuse – recycle' was now well-known in the industry, a "lack of funding, resources and standardisation" meant this "could not be further from reality."

He said that his firm, which researches and develops bio-based materials, was "helping steer the bio revolution, by taking the full holistic picture into account." Biohm employs a closed-loop approach from consultancy through to waste management, he explained. An example of this is using mycelium (from the root structure of forest mushrooms) to grow materials for use in insulation products. "Insulation panels made in this way are not only deemed to be safer and healthier as they are a natural material, they are also just as effective from a thermal and acoustic standpoint as premium insulation brands," said Sayed.

Another use for fungi being explored is its ability to "biodegrade" plastic, he said. With a gloomy prediction of more plastic in the sea than fish by 2050, this "miracle natural waste disposal" needed to be embraced now.

Another initiative Sayed cited was ORB (Organic Refuse Biocompound), manufactured from "difficult to reuse or recycle" by-products from the food industry. This makes use of resources that would otherwise go to landfill, in products such as floor tiling and lighting. Sayed concluded: "We need to learn from nature."

In the same session, Pooran Desai of Oneplanet.com, who worked on the development of the 10 One Planet Living principles which have been adopted by the UN, discussed past projects which have embraced the ethos.

Highlighted projects included BedZED, the UK's first "zero carbon village," in Sutton, South London, completed in 2002. Claiming "all round sustainability" for the project, Desai said it continues to be "an inspiration for low-carbon housing developments around the world."

Also cited was One Brighton, a 2010-completed project in the city that's a mixed complex of 172 apartments, offices, community areas and cafe. The project includes highly insulated, triple glazed buildings and was designed with architects Feilden Clegg Bradley Studios with One Planet Living principles "at its heart."

NEW APPOINTMENT

HOK appoints sustainability specialist McGill

HOK's London office has named "highly qualified and experienced" architect Rob McGill as sustainable design leader in its London office, to lead the practice sustainable design efforts in European markets.

McGill brings 20 years of experience as an architect, and his career has put an emphasis on sustainability. He has participated in the design of projects in sectors including science and technology, healthcare, education, sports and recreation, residential and commercial.

McGill's expertise includes serving as the facade design and sustainability lead on University College London Hospital's Grafton Way Building; the UK's first Proton Beam Therapy Hospital, believed to have achieved the world's highest BREEAM interim certification score for its project type at the time. He was also project architect on the Roslin Institute at the University of Edinburgh, designed as a "world-class" genetic research facility in Scotland.

"Rob's experience providing sustainability and wellness strategies on complex projects will be invaluable to HOK and our clients," said Daniel Hajjar, managing principal of the London office. "It comes at a particularly relevant time as the UK prepares to host COP26, working to get the world back on track to meet the Paris Agreement."

McGill is a qualified Passivhaus Designer, and participated in the UK's FLUID Diversity Mentoring Programme, which seeks to improve diversity and inclusion in the AEC industry.

He commented: "Sustainability is key

to designing places that work for people both now and in the future. I'm thrilled to continue creating sustainable design solutions with the team at HOK."

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APPRENTICESHIPS

Arup: engineering exciting careers

Global design, planning and engineering firm Arup has welcomed a fresh intake of apprentices and newly qualified graduates to support its Nottingham team's work on a wide range of major projects. The roles "underline the company's commitment to the city and its continued growth in the region, as well as providing a huge boost for its successful apprenticeship scheme," commented Arup.

Two recently recruited apprentice technicians and two new university graduates are now part of the 100-plus city team.

Four further Nottingham-based apprentices have also recently completed their part-time degrees with the company.

Arup's designers, planners, engineers, architects, consultants and technical specialists work across all aspects of the built environment.

The Nottingham office has been involved in many projects which "have helped shape the city and beyond in the last 30 years," including the Old Market Square redevelopment, the University of Nottingham Jubilee Campus and the expansion of East Midlands Airport. The team has also delivered the new Sandwell Aquatics Centre in Smethwick and is working on many local healthcare, education and manufacturing sector projects.

Arup, which has its headquarters in London, employs 6,000 people across 17 UK offices, and thousands more worldwide. It took on 14 apprentices and 21 graduates between its offices in Nottingham and Birmingham this autumn, and 245 graduates and 74 apprentices in total across the UK.

The Nottingham office recently saw colleagues Vicky Evans and Steve Fernandez promoted to directors of the global firm.

Pictured (Left to Right): New graduates Holly Townsend, Paddy Appelqvist, Gemma Broughton, Ross Bramley, Sean Chapman, Alice Lamb and David Simpson

HEALTHCARE

Approval for RCA's health centre in Peak District

A state-of-the-art, £10.5m new health centre will be built in the Peak District town of Bakewell after planning approval was secured. Designed and submitted by Sheffield-based architectural practice, Race Cottam Associates (RCA), the 16,000 ft² centre has been designed to provide healthcare services for approximately 5,000 people.

Set to be shared between Derbyshire Community Health Services NHS Foundation Trust and East Midlands Ambulance Service (EMAS), the new 'healthcare hub' has been designed as a "multi-purpose, accessible building," said the architects.

It will feature a new clinic, treatment

and waiting areas, administration offices, dedicated staff and client parking, and house a number of existing services including mental health, children's services, speech and language services, podiatry and physiotherapy.

Occupying a prominent position on the major northern gateway into Bakewell, RCA's approved design was carefully considered to reflect the area's heritage and ensure the health centre's modern aesthetic would not detract from the neighbouring, Grade II listed Newholme Hospital frontage, which is being retained. The Peak Park Design Guide helped shape the overall design, which includes a collection of "long strip buildings" with traditional gable end features. Locally sourced materials such as limestone and gritstone will also help the new healthcare hub blend with its surroundings.

The Bakewell healthcare hub marks the second Peak District scheme in RCA's current portfolio.

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ASK THE ARCHITECT

Rory Bergin, a regular contributor to *ADF*, is an architect and offsite specialist who set up and runs the Sustainable Futures team at HTA Design. He leads a specialist team of architects and engineers analysing building performance, and has overseen the sustainability aspects of many of the practice's key schemes. Here he explains what continues to drive him

WHAT MADE YOU WANT TO BECOME AN ARCHITECT?

I always liked making things and enjoyed doing practical things – carpentry and Airfix models for example! Architecture seemed to be the career path that offered me a nice mixture of the practical and the abstract.

WHAT DO YOU LIKE ABOUT IT MOST?

As an architect it's possible to make a difference, and to change people's lives for the better. I think we try to imagine people living the best kind of life, and the kind of places that would enable them to do that.

WHAT IS THE HARDEST PART OF YOUR JOB?

It's complex, and becoming more so, in some ways having ideas is the easiest part. Actually getting buildings delivered the way they were designed is hard – and getting harder. But architects are good at dealing with constraints, so we always figure a way through the problem.

HOW HAVE YOU ADJUSTED TO NEW WAYS OF WORKING SINCE THE PANDEMIC?

I have teenage children, so the pandemic offered us a time to reconnect. I now know more about gaming than I thought I needed to, but perhaps they also know more about my job than they did before, so perhaps that is a positive. The world of work is not as remote from home as it used to be.

WHAT IS YOUR PROUDEST ACHIEVEMENT PROFESSIONALLY?

Getting a book published last year on our work in prefabricated housing. It took a lot of work and effort, but once it's out there it's not going to go away.

WHAT'S YOUR BIGGEST CURRENT CHALLENGE?

Brexit seems to have pushed a lot of European graduates away from coming here to study and work, and that is making it hard to recruit young sustainability graduates. Hopefully the universities will step up and expand the number of courses, but so far this is not a career that seems to attract enough UK-based people.

WHAT SINGLE TECHNOLOGY, PROCUREMENT OR MATERIAL INNOVATION WOULD MOST BENEFIT THE MOVE TO OFFSITE CONSTRUCTION?

I am looking forward to manufacturers using smarter tools to cut down the amount

Hanham Hall, a 185 home zero carbon development in the suburbs of Bristol, built by Barratts and loved by the residents. Photo © Tim Crocker

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Savoy Circus, a prefabricated student building in a conservation area in west London, built in a factory in Bedford by Tide Construction and installed on site in record time

I think we try to imagine people living the best kind of life, and the kind of places that would enable them to do that

Rory Bergin, HTA Design

of material used in structures. Most columns contain a lot of redundant material, and we can't afford to keep on using more material than necessary.

WHAT'S YOUR CURRENT FAVOURITE SUSTAINABLE MATERIAL FOR BUILDINGS?

Ideally we would be using more cross-laminated timber in construction in the UK, but currently we don't have a factory to produce it here, so we need to import it, and our legislation on combustible materials is preventing many perfectly suitable projects being built with it.

WHAT'S YOUR BIG SHORT-TERM GOAL?

To get my house to low or zero carbon. It's a typical Victorian terrace so it's a nightmare to upgrade while living in it, but I have plans!

WHAT'S THE BEST BUILDING PROJECT YOU'VE BEEN INVOLVED IN?

The design and realisation of Hanham Hall is pretty high up the list; a lovely low carbon neighbourhood surrounded by a lovely landscape in Bristol. Perhaps I'll retire there one day!

IS ARCHITECTURE SOMETIMES MORE ABOUT BEING A GOOD DIPLOMAT THAN BEING A GREAT DESIGNER?

Definitely! Particularly when trying to persuade people to make more sustainable decisions. It's no use getting angry with people and being negative, you have to present the choices as positive ones and always talk about the benefits.

Rory Bergin is partner, sustainable futures at HTA Design

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SITE LINES

A natural train of thought

Irina Adam of Twelve Architects & Masterplanners describes an adaptive reuse project in Manchester which transformed a Victorian viaduct into a nature-rich public amenity

The rise in prominence of cities in the global economy over the past two centuries has led to an ever-increasing percentage of the world's population living in 'urban hubs.' The global urban population now stands at 56% of the total global population – over 4 billion people – a figure which rises to a staggering 84% in the UK (World Bank, 2020).

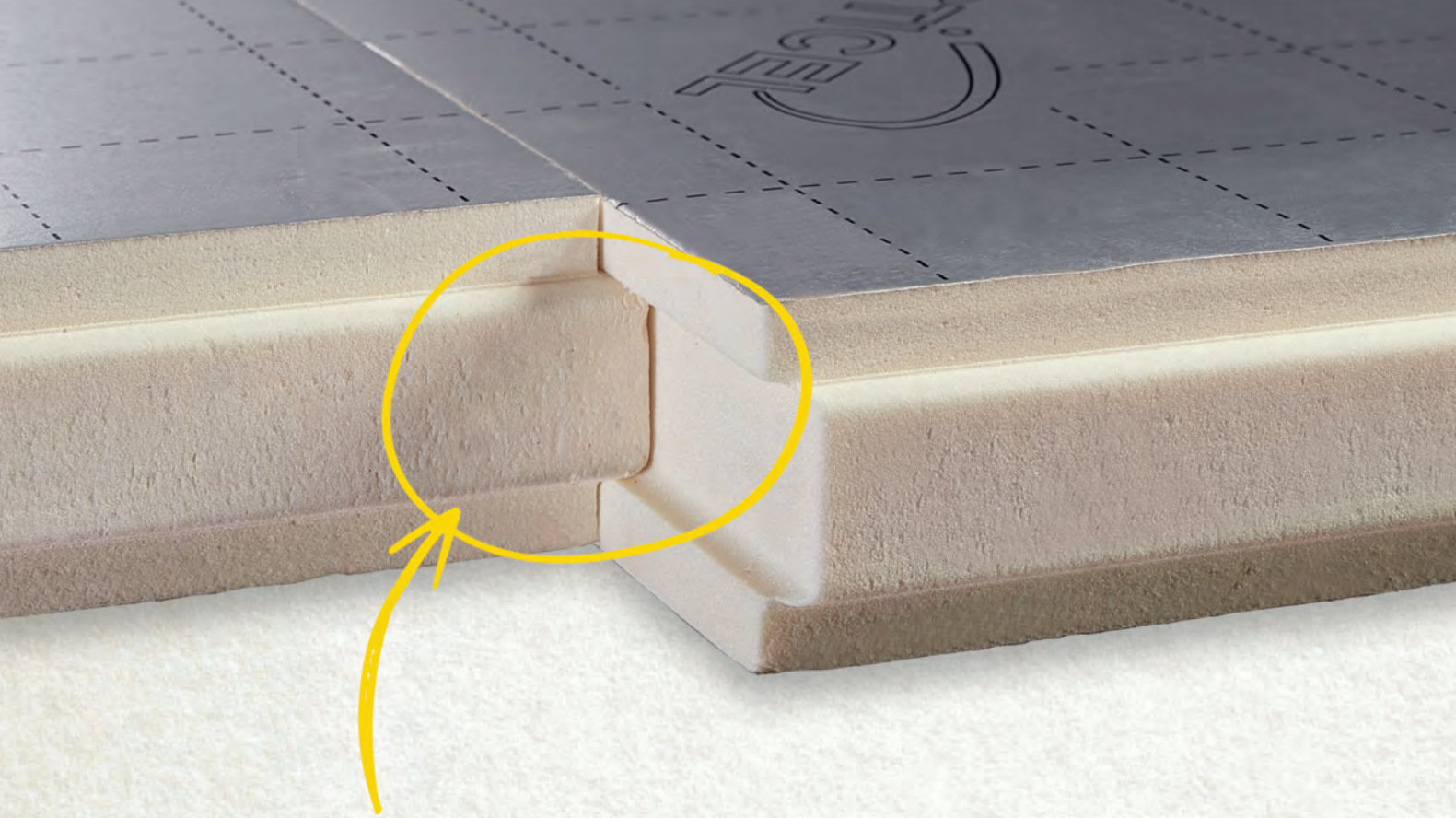
Manchester is the perfect example of this unplanned urban expansion, brought on by a boom in textile manufacturing during the Industrial Revolution. As more and more people migrated into the city from neighbouring rural communities to work in the cotton factories and shipping docks, green spaces had to be sacrificed to accommodate them.

Yet the human need for access to nature is important and must be addressed in any architectural plan. The coronavirus pandemic has served to illustrate how crucial our relationship with green space is for our mental and physical wellbeing. However, it has also underlined the significant inequalities in access to green space across Britain. Take one example – a recent report by the National Trust found 295 "grey desert" neighbourhoods of 440,000 people in the country, with no trees or accessible green space. The brief for the Castlefield viaduct project forms part of the National Trust Urban Places team's ambition to address these inequalities.

The human need for access to nature must be addressed in any architectural plan

Manchester must confront the inevitable pitfalls of its past rapid development and look to create sustainable living spaces, encourage healthy lifestyles, and build an even greater sense of local community and resilience. As architects, our challenge is to help achieve this without compromising the historical soul of the place.

If Manchester is somewhat lacking in city centre green spaces, one asset it certainly is not short of is heritage. Often known as the birthplace of the Industrial Revolution, Manchester's rich manufacturing history has left many traces throughout the city, particularly in the central district of Castlefield. Today, the legacy of over a hundred years of engineering innovation provides the



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backdrop to a vibrant urban space, filled with several popular bars, restaurants and an events arena. Above this, Castlefield viaduct (1892) towers unused and derelict.

A 'moment of joy'

The brief Twelve Architects was given by the National Trust was to create a "moment of joy" in the city, by transforming the viaduct into a nature-rich oasis. This was a concept we took to heart in our design narrative. Practice director Matt Cartwright and I, along with the rest of our in-house project team, are all Manchester School of Architecture alumni, so we took the opportunity to give back to the same city where we had once spent so many hours of our lives, wandering the streets with sketch pads in hand, reimagining its future.

We are working closely with the National Trust, Manchester City Council, and the local public to identify the best way to transform the viaduct and fulfil the brief, bringing our plans to fruition in the most meaningful way. Feedback gathered in a series of events informed our proposal for the temporary park that is to open to the public next summer. The aim of this first phase is to surprise and delight visitors, but also to test ideas and collect further community feedback to help shape the viaduct's long-term future. We welcome them into the magic of the viaduct's past, while inviting them to spark their own imaginations as to how this space could be transformed in the future.

The proposed visitor experience is curated into a series of zones, starting with a welcome space at the east end of the viaduct, where people begin their pre-booked tours. A living wall green screen will open to reveal a stretch of the viaduct in its 'existing form'; stark and imposing. Guided groups will then make their way along a fully accessible central walkway. The untouched surface of the structure will be reclaimed by nature, in sharp contrast to the live trams, trains and cityscape glimpsed beyond.

The brief was to create a "moment of joy", by transforming the viaduct into a nature-rich oasis

The existing viaduct leads to the 'secret garden' area, curated by the National Trust's skilled gardening specialists, with freestanding, modular planters in red corten steel, reminiscent of Manchester's iconic red brick buildings. Our proposal is to intersperse this route with six showcase plots where concepts can be tested. The plots will be used by local organisations to showcase their work, from community-growing initiatives to art installations and performances. Finally, an indoor events space shrouded in foliage will offer views of the west end of the structure, which will be left completely untouched – a window to the past.

The concept for the pilot takes direct inspiration from the viaduct's history as a railway structure. The designed experience references the effect people experience when travelling on a train, as objects rhythmically appear and disappear out of focus, allowing the eye to focus on close-ups of the new planting, which is then broken up by long distance views of the surroundings.

At Twelve Architects, we see the importance in utilising heritage assets as a base for revitalising communities. In the case of the viaduct, the structure presented a unique opportunity to bring nature back into the industrial heart of the city.

We are thrilled to take this design forward collaboratively with the National Trust, helping to combine nature with history to reshape Castlefield viaduct into a joyful urban park for Manchester's residents and visitors.

Irina Adam is project architect at Twelve Architects & Masterplanners

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VILNIUS RAILWAY STATION, LITHUANIA
ZAHA HADID ARCHITECTS

Zaha Hadid Architects have won an international architectural competition for the redevelopment of the Vilnius railway station complex and its surrounding area. Their 'Green Connect' proposal creates an integrated transportation hub with new civic spaces that are "enveloped by nature." The design incorporates a new public bridge that connects the Naujininkai district to the south with the city centre and Vilnius old town. The renovation and reuse of the original station creates a new 9,500 m^2 concourse bridge that is a contemporary reinterpretation informed by the existing heritage building. The composition of the bridge gradually transforms along its length; from the pitched roof defined by the existing neoclassical station's triangular pediment into softer geometries and volumes that reduce in scale. A linear skylight and glazed facades provide natural light and intuitive navigation through the concourse.

Designed as an "inhabited landscape," the terminal's outdoor amphitheatre and ramp lead to a public terrace on its roof. Relocating the car parking in Stoties Square to a new underground facility, the square and its adjacent park will become a civic space for the city with over 300 new trees and 4,000 m^2 of landscaping. The new concourse bridge is 46 metres wide and spans 150 metres across the railway platforms. Supported 10 metres above the tracks, the bridge's roof structure and the terraced landscape of the bus terminal are constructed in locally-sourced laminated timber that is lightweight, fire resistant and incorporates low embodied carbon. Nature-based solutions are integral to the design. Green roofs, landscaping and planting will lower temperatures in summer and provide heat insulation in the winter. Zaha Hadid Architects' design also incorporates energy production technologies and "depolluting strategies" to improve air quality within the adjacent neighbourhoods.

GALLERY 64, WASHINGTON, DC
BEYER BLINDER BELLE ARCHITECTS & PLANNERS

BBB has announced Gallery 64; previously the 2.7-acre site for Randall Junior High School in Washington DC. Located at 65 Eye Street, in the south west of the US capital, the project is for a new 12-storey residential building with 492 units of housing. It includes studio, one, two and three bedroom apartments, of which 98 are designated affordable, as well as 19 two-level, townhouse-style residences. Amenities include rooftop "gathering spaces" and a "resort-style" pool, plus a spacious lounge with fireplace, game room and fitness centre. The residences' interiors will have "clean modern palettes," and "oversized" windows. The former school buildings, originally constructed in 1906, will be redeveloped into the Rubell Museum DC, presenting contemporary pieces. A glass addition at the east wing will create an entrance to the museum, with a bookstore, café, and an outdoor dining terrace. The West Randall building will provide approximately 18,000 ft^2 of creative workspace. The architects commented: "The building's design complements the area's historic architecture with its verticality, 'rhythmic' dark facade – including a polished black granite base – profiled GFRC piers, bronze-tone metal detailing and charcoal-grey window frames." The project is anticipated to be completed by the end of 2022.

MARTIN MODERN, SINGAPORE
ADDP ARCHITECTS

ADDP Architects has unveiled the design for Martin Modern, an "oasis" centred around two, 30-storey towers in Singapore. With 15 gardens and lawns, the design "upholds the highest standards of sustainable architecture," said the architects. Standing on a 1.6 hectare plot, Martin Modern is surrounded by gardens designed by landscape architect ICN Design International. The structures are limited to a 20% of the site footprint, creating more space for greenery and access to nature. The project includes an aquatic garden and 'bio-pond' located between the two towers, along with "secret gardens" on the rooftop of each building. Designed by ADDP in collaboration with ipli Architects, Martin Modern's tower blocks are oriented to allow for unobstructed views toward the internal landscaped space, while the higher floors provide a distant view of Singapore's Marina Bay. Within each unit, generous window heights promote air ventilation, while private enclosed spaces (PES) and balconies allow for an extension of indoor-to-outdoor living space and a "seamless residential environment." Energy efficient air-conditioning, lighting and water systems are incorporated into all units and common areas.

EAST THIERS STATION, NICE
MDI ARCHITECTURE

MDI Architecture said it is "set to bring to life the interior of the 6,000 m^2 €100m East Thiers Station in Nice." Designed by Daniel Libeskind, the interior design also includes Agilité Solutions, Zatti Interiors, and ESA Engineering as partners. Once complete, the building will house the new headquarters of Hilton Hotels, and the offices of estate agent Les Agences de Papa. Inspired by "technological innovation and modernity, with a strong focus on eco-sustainability," the project – which is set for completion in July 2022 – will include flexible spaces designed to foster collaboration, commented the architects. It also includes a rooftop dedicated to recording podcasts as well as other business communications. The 6,000 m^2 project forms part of a wider 20,000 m^2 development – set to include high-end commercial space that will feature two levels of shops, a 120 room hotel, offices, a "sculptural" entry pavilion, a 200-seat auditorium, and a restaurant plus an open roof terrace with views towards the sea.

ILOT QUEYRIES, BORDEAUX, FRANCE
MVRDV

MVRDV has completed a "courtyard apartment building" in Bordeaux, providing 282 homes, including 128 for social housing. Part of a new neighbourhood of four buildings – designed alongside Joubert Architecture and Flint – the design completely occupies the site. The roofs are arranged into what the architects call "carefully calibrated slopes" to provide maximum ventilation, daylight, and sunlight, resulting in a large, irregularly shaped courtyard building almost 200 metres long. These slopes create interior spaces, which help to define varied apartments in a wide range of sizes. At 5,200 m^2, the large courtyard provides a "park-like space" for the residents. Located one storey above ground level, it also hides parking below. At its highest, the building rises as tall as nine storeys and at this point, a glass crown houses a restaurant. On all sides, the facades facing the street are lower than those facing the central courtyard. The project's street-facing facades present a "muted, cream-coloured palette," blending in with the surroundings, where the courtyard-facing facades are finished in a bright red, textured stucco. Large portals through the building connect the interior courtyard to the outside, introducing "flashes of colour."

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The new seminar from **Twinfix** will be of particular use for those who specify glazed canopies and walkways, as well as general overhead glazing, including roof lights, across a number of sectors, education, industrial retail and rail. The seminar will enable specifiers to make more informed decisions about the products used in overhead glazing situations. The presentation in particular focuses on the benefits of non- fragile roof glazing and includes details on the recommended test for polycarbonate roofing assemblies, ACR[M]001:2014.
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LAMILUX launch new website: www.lamiluxskylights.co.uk

LAMILUX U.K. Ltd invites you to visit www.lamiluxskylights.co.uk – the brand new website that's visually clean and easy to navigate around. Four simple headings direct you to the 'Rooflights' 'Smoke Ventilation' 'Access' and 'Passivhaus' overview pages, each detailing their respective available products within that category.

The new comprehensive website brings together all products from both the LAMILUX and roda family to promote the companies wide portfolio of thermally efficient rooflighting and ventilation solutions. The site features clearly displayed details of the new LAMILUX U.K. Ltd standard product offering, which has been selected based on the most sought after sizes and specifications. The new site enables visitors to download the specific data sheets and drawings for each standard product variant within the LAMILUX U.K. standard portfolio. Furthermore, if standard is not what you are looking for, the site links through to the LAMILUX product configurator where architects and specifiers can create their ideal product variation. Additional support and guidance can be offered to the user when a completed online enquiry form is submitted to the LAMILUX U.K. team of experts – who are on hand ready to respond to your enquiry. The website has been designed and created to help architects, main contractors and specifiers locate vital information, quickly and easily.

The site will be updated regularly with the latest news, product information and case studies, but don't take our word for it, type in www.lamiluxskylights.co.uk to check out the new website and see for yourself.

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Parkside and Strata Tiles become ISO 14001 companies

As **Parkside** and Strata Tiles work towards becoming net carbon neutral tile specification business in 2022, the companies have undergone independent certification for ISO 14001, the International Standard for Environmental Management Systems (EMS). Designed by the International Organisation of Standardisation (ISO), 14001 provides a framework for environmental management, so that companies not only comply with increasingly stringent environmental laws and regulations, but also to implement a robust environmental management system that leads to improved efficiency, quantify, monitor and control the ongoing environmental impact of operations. Dan Little, managing director, Parkside and Strata Tiles, says: "Becoming ISO 14001 certified organisations demonstrates our commitment to becoming tile specification businesses that lead the conversation in the tile industry becoming more sustainable. As part of our Sustainability Pledge to reduce impact through every part of our operation, ISO 14001 compliance ensures we have the systems in place to be able to constantly monitor and improve our actions."

www.parkside.co.uk www.stratatiles.co.uk

World first for Unilin Group: recycling of MDF and HDF boards

Timber is a renewable product and stores CO_2 as long as it is not incinerated. So the longer timber can be used and reused, the more our climate benefits. For the production of its MDF and HDF boards, **Unilin Group,** a global reference in interior design and the building industry, is deliberately opting for the use of recovered and recycled wood. Until now it was technically impossible to recycle the 100 million m^3 of MDF and HDF boards manufactured worldwide each year. Unilin Group has now developed a unique and innovative technology to reclaim the wood fibre from these boards in an economically viable manner and reuse them for the production of high-quality fibreboards on an industrial scale. Over time, this innovation will enable Unilin Group to keep 380,000 tons of CO_2 per year stored in the wood fibre that is given a second life through this new technology. Unilin Panels deliberately chooses to use recovered wood for its production. This is wood waste or wood that is no longer usable and is therefore saved from incineration. This means that Unilin Group is not cutting trees for production purposes in the first place, but is able to extend the life of waste material with a new application.

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The future of tall buildings

Executive Summary

According to international non-profit association The Council on Tall Buildings and Urban Habitat (CTBUH), maximising urban density in the form of tall buildings is a means to support 'more sustainable and healthy cities,' against the twin challenges of mass global urbanisation, and the effects of climate change.

This might seem counter-intuitive, based on tall buildings' extensive glazing and energy-hungry nature. The CTBUH is making a broad-based case for their continued place in the cities of the future.

New York City's Mayor Bill de Blasio was rumoured to be 'banning' future glass and steel skyscrapers. His reasoning was their being top of the list of urban carbon emitters – according to his office's research. However the rumours turned out to be 'fake news.' In fact, City Hall would only be introducing stringent environmental standards for such new buildings to adhere to.

Future predictions

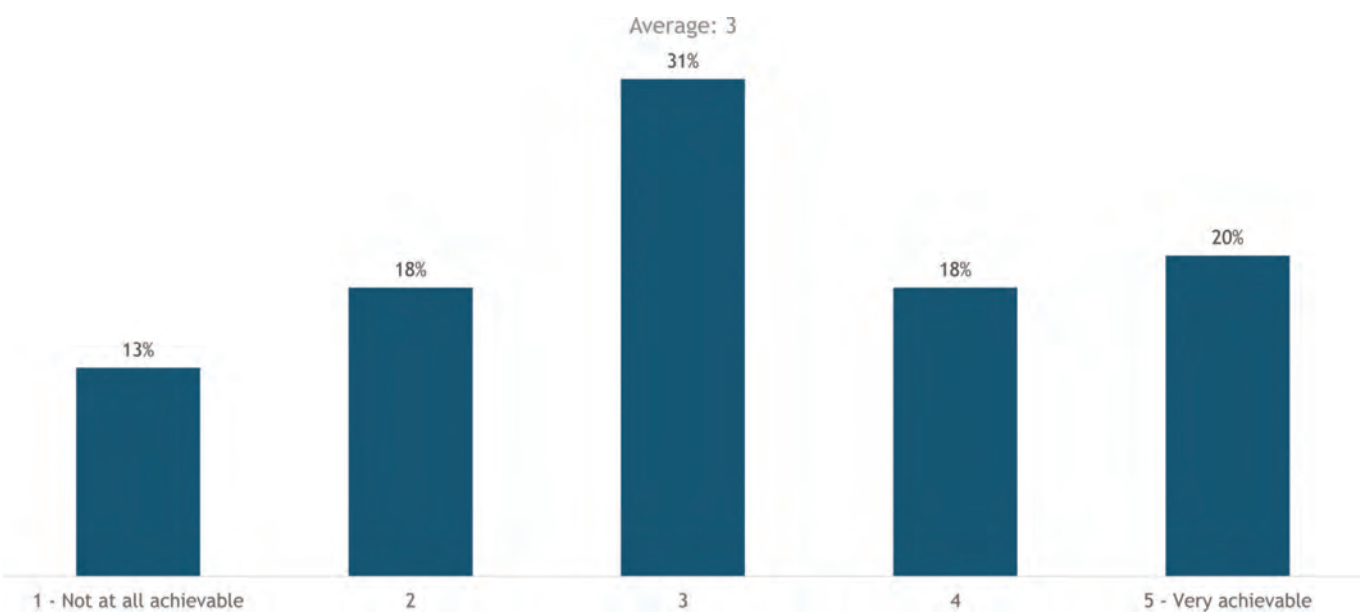
The CTBUH, founded in the US in 1969, says that in designing tall buildings, the relationship between 'policy, buildings, people, urban density, urban space, interior space, and infrastructure is key.'

With the return to something approaching normality after Covid, there will be intense focus on the future design of cities, with many people reluctant to return to densely populated areas for work. Tall buildings designers will need to work out how to both attract more risk-averse staff with not only Covid-safe environments, but also sustainability, wellness and amenities, and also keep clients happy when it comes to making the most of available land. In the words of the CTBUH, 'As the world's attention focuses on the future of cities and urban development after the impact of the pandemic, our mission becomes ever more critical.'

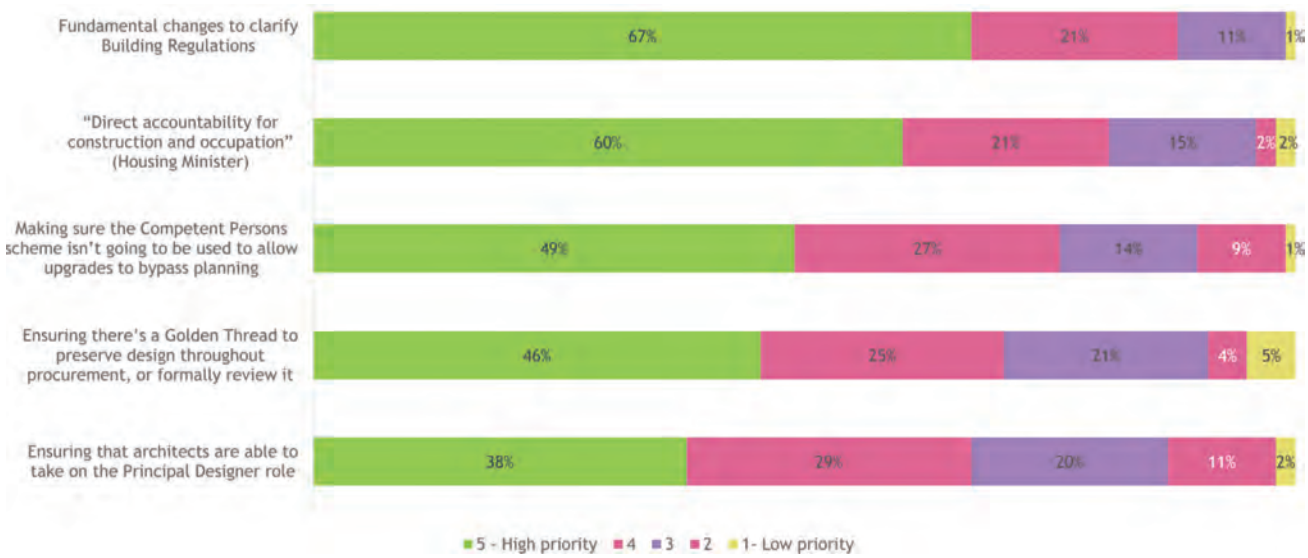
In its January 2021 report, the CTBUH admitted that Covid had hit skyscraper projects hard, with a 20% decline in completions in 2020 on 2019 (106 buildings over 200 metres being completed in 2020 worldwide). Stoppages onsite were clearly the main cause, but clearly financial concerns would have been a factor alongside worker availability and supply chains.

21st century development

By the end of the 20th century, relatively few 'supertall' (over 300 metres) skyscrapers had been completed – the CTBUH reckoned 24 were standing in 1999, but in the 21st century so far, at least one has gone up each year. In 2020, there were 132 supertall skyscrapers under construction globally. So beyond tall buildings, but supertall buildings have become the zeitgeist for major urban developers, trying to keep up with the extraordinary 830 metre 'megatall' Burj Khalifa in Dubai. Going beyond this into the somewhat ridiculous is the 1000 m+



"How achievable are passive design approaches in UK tall buildings in urban settings currently?"



"Which aspects of the post-Grenfell safety regime do you think requires the highest focus?"

Jeddah Tower, planned in Saudi Arabia, to a design by the Burj architect, Adrian Smith. However it seems to have been indefinitely stalled thanks to local political turmoil.

China has been instrumental to the mushrooming of tall buildings in the past decade, and the first time in five years that the tallest completed building was not in China was 2020, when the accolade went to the skinny residential scheme by architects Adrian Smith, Robert Forest and Gordon Gill – Central Park Tower in NYC, at 472 metres the US' tallest building.

A total of 26 supertall buildings were completed in 2019 alone, with 30 Chinese cities adding supertall buildings since 2000, but will this 'race to the top' continue?

We surveyed our readership of architects in order to find out where they saw the future of tall buildings design leading. These findings reveal the factors driving the likely makeup of future structures in terms of use classes and tenants, design challenges such as around acoustics and glass facades, and whether passive design approaches are suitable. It also looked at the future viability of supertall buildings, and the accountability agenda for building safety post-Grenfell.

UK architects & tall buildings

A handful of UK practices have seen heavy involvement in the design of tall buildings worldwide, such as Atkins and Foster + Partners, with individual UK architects making their presence increasingly felt in prosperous locations like Dubai since the middle of the 20th century. Atkins alone has designed and engineered over 50 buildings over 250 metres tall, most of which are in the Middle and Far East, with architects like Tom Wright from the firm coming to prominence (he was the man behind the 321 metre sail-like Burj Al Arab hotel in Dubai). In 2008 he designed the Bahrain World Trade Center as a more sustainable tall structure, two towers joined by bridges holding large turbines.

Fosters is now about to complete 425 Park Avenue, in New York, a stunning 262 metre boutique residential scheme. Rogers Stirk Harbour recently completed a typically stylish, 23-storey tapered steel office building, the practice's first residential building in NYC.

In the UK's major cities, and particularly London, the urge for high-rise is continuing at an exponential pace, largely unabated by Covid and climate change. According to New London Architecture's 2021 annual review, a startling 587 buildings over 20 storeys were proposed for the capital, and there's a continued presence of overseas architects in tall building design in the capital.

Introduction

Tall building designers arguably face a critical crossroads – will they continue to be a major focus for investment in the difficult context developers now face? What is the realistic case for widespread urban tall buildings post-Covid, and in a climate change-averse world?

ADF and Edge Insight surveyed architects to find out their views on the future of tall buildings (33% of respondents being at director level, and 26% architects currently practicing).

Challenges

Mixed use

Our survey homed in on some of the key factors which were facing architects looking at tall buildings design in the coming years. One of the simplest and yet most impactful recent changes which looks set to continue is the move to a emphasis on mixed use rather than purely commercial space in a post-pandemic future.

According to 85% of our respondents, tall buildings would be 'predominantly mixed use' in future, which will continue the current trend of mixed use in many schemes across the UK and worldwide. However, it wasn't just being driven by an economical sustainability argument of maximising expensive land (58% said this was a 'very important driver'), combined with a 'post-pandemic move away from urban office space' (28% – very important).

Of our respondents, 54% said that a 'very important' factor was that mixed use could offer better and more attractive design at street level. Respondents also

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believed (67% total saying it was 'important'), that mixed use could offer a 'more attractive and lively proposition' for both residents and office workers and clients.

When it came to the new office-averse post-covid dynamic, 28% said this was 'very important' in driving mixed use rather than purely office-occupied tall buildings.

Supertall reaches a crossroads

China banned 'supertall' buildings over 500 metres in July 2021, based on safety concerns around building quality following a 'wobbling' supertall building incident in Shenzhen this year, but also thought to be due to issues around aesthetics and sustainability. The Chinese government, has also severely restricted constructions over 250 metres.

Given this about-face, our respondents were asked whether they thought buildings on this scale were still viable globally, and responses were somewhat mixed. 42% thought that yes, building up to and beyond 500 metres was still achievable, however 58% said it wasn't. Comments were made such as 'post-pandemic we should be reassessing everything...building high is all about maximising profit for developers' shareholders, nothing to do with creating healthy, successful towns and cities.'

Sustainability

The question was asked as to whether tall buildings clad in glass represented a 'sustainable future option' for architects, clients and communities, due to their cooling requirements. There was a resounding 'no' from our survey respondents (60%). Although New York's Mayor may have required new glass buildings on such a scale to have carbon offsetting, they're still flavour of the month globally when it comes to tall buildings, despite rising energy costs.

Some respondents explained their voting 'no' by saying alternatives such as timber cladding would be better from a sustainability perspective, however another said using recycled glass should be considered, as it's possible to use on facades, although a further comment was that it was difficult to do so.

Impact of disasters

Disasters occurring in tall buildings tend to seize the national psyche, partly due to the numbers of people affected and the high-profile nature of such events. The stigma caused can last for decades, and the lessons for designers can be painful. The 9/11 attacks were of course very different to what occurred at Grenfell Tower, but the impacts for design were in their own way equally deep. Our survey respondents generally believed that the World Trade Center attacks did 'change the world in terms of attitudes to building tall in major Western cities." However the ratio was only 55% in favour versus 45%.

This is corroborated by research from the CBTUH this year, which showed that 84% of the current array of 200 metre buildings across the world were constructed post-9/11, and the average height of the 100 tallest buildings have increased by 14% since the towers came down. However, with the original WTC largely constructed of steel, the CBTUH revealed that only 9% of the current 100 tallest buildings were all-steel, compared with 39% in 2001.

New York, the ultimate skyscraper city, has been building tall buildings with a vengeance in the 21st century. As well as Central Park Tower, recent additions include One Vanderbilt Place (a 427 metre office scheme completed in 2020), and an even skinnier residential tower built at 432 Park Avenue in 2015 (425 metres).

Daniel Liebskind's 541 metre One World Trade Center, at its completion in 2012 was the tallest building in the Western Hemisphere, and the ultimate architectural statement of defiance of the terrorist attacks, erected on the same site.

Grenfell Tower, albeit only a 'tall building' by London standards, being above 15 storeys, catalysed a major review of procurement, Building Regulations, and accountability. We asked "which aspects of the post-Grenfell safety regime should receive the highest focus,' and the largest amount of votes were for the 'fundamental changes to clarify the Building Regulations' around safety,' currently under discussion at Government level.

The UK industry has been taking stock of the horrendously dysfunctional nature of aspects of construction, such as fragmented supply chains and as a result, accountability, against a backdrop of weak specification enforcement, confused Building Regulations, and value engineering.

Lack of 'policing' in the industry seems to have led to an utterly unforgivable result – nearly 100 deaths in one tragic fire, to add to those at Lakanal House and other buildings. We need a robust, nationally enforced, materials and construction testing regime, one which doesn't allow sub-standard product assemblies to be put on buildings. It appears that this is now being addressed, with a 'Responsible Person' initiative to ensure one person looks after safety in specifications, but the entire building procurement system needs shaking up.

Solutions

Sustainability

Timber is of course the ultimate sustainable solution when it comes to constructing multi-storey buildings, but the Government knee-jerk response to Grenfell Tower saw it effectively ban timber construction over 18 metres in the UK, being a combustible material. This is despite decades of experience and studies to show that the manner in which timber burns means it isn't necessarily a higher risk than other cladding or frame materials.

The Government's 'Net Zero Strategy,' announced at the end of October 2021 in the run up to COP26 in Glasgow, was hammered by architects for 'totally lacking in ambition.' However, it did include something of an about-face in explicitly backing timber construction on sustainability grounds generally, although the material is banned over six stories in the UK.

We asked our survey respondents to pick the main obstacles they perceived for designing tall timber buildings currently, and the front-runner by some margin was 'fire safety' (69%). Next in line were planning authority/clients' acceptance (44%), availability of materials (40%), structural shrinkage/expansion (38%), timber volumes required for performance (34%), and cost bringing up the rear with 33%.

Facade innovations

We also asked the survey group their views on the innovative passive design technique of 'solar activated facades' for tall buildings.

Our sample was broadly supportive (86% versus 14%), but some offered objections, such as that the UK's climate wouldn't support a completely solar facade,

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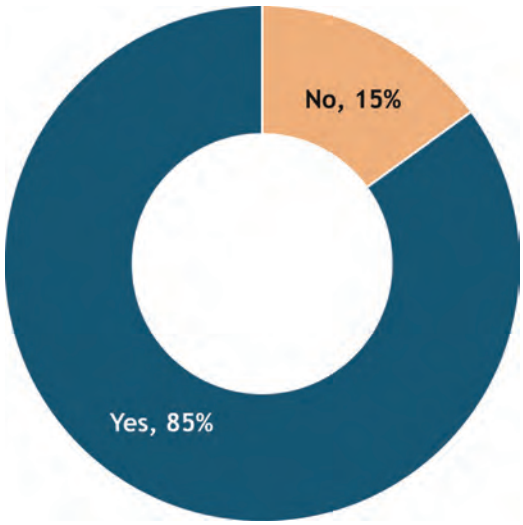

"According to the Council For Tall Buildings and Urban Habitat, 49% of tall buildings globally in 2020 were mixed use. Is mixed use going to become the dominant 'use class' for tall buildings?"

and one commenter said that in urban clusters they may not be viable because of overshadowing from adjacent buildings, and maintenance and lifetime performance issues.

Closed cavity facades are a recent innovation being seen on tall buildings which greatly enhances the insulation potential of double-skin facades. The approach sees dehumidified air supplied to an internal cavity between glazed units, at the same time avoiding condensation.

Many of our survey respondents fully agreed that these systems were a realistic sustainability investment for 'mainstream construction' in the UK, but offered caveats such as that it needs 'a bit of design input from the whole team' to achieve. One commenter said such facades would be 'likely to dramatically increase overall cost,' and another expressed worries on 'quality control during construction.'

Wellness & Biodiversity

The issues around achieving high performance, efficiency and maximum daylight combined with good environmental quality in terms of air quality and other wellness factors have long been a difficult balance to strike for architects of tall buildings. However the problems of mitigating noise problems simply resulting from the vast structures themselves, which partly result from systems used to improve the environment such as air conditioning, can be even trickier to fix.

However, while our survey respondents reported a good number of issues causing noise challenges for designs to mitigate using acoustic solutions, out in front was sound coming from occupants themselves (31% said it was a significant challenge).

Urban clusters

Should tall buildings remain the default option for 'high-value' urban clusters, despite the range of the challenges they face and present, or should a more medium and low-rise be explored? Our survey respondents were split on the issue – 51% said yes, tall buildings should be used, and 49% said no.

Comments made by respondents included, on the 'pro tall buildings as the default option' side: 'density has value,' and 'I'd rather build up than out.' Views in the opposing camp included 'people don't want to live in tall buildings.'

The Grenfell legacy

Our survey asked respondents what they believed the 'highest priority aspects of the post-Grenfell safety regime' were. All of the proposed priority factors received solid support, but most respondents picked 'fundamental changes to clarify the Building Regulations' as their highest priority to address (67%).

The other key priorities were 'direct accountability for construction and occupation.' Then came 'making sure the Competent Persons scheme isn't going to be used to allow upgrades to bypass planning (49% of respondents.)

Lastly, ensuring the Golden Thread would be present to "preserve design throughout procurement, or formally review it" was seen as a priority by 46% of respondents. And when it came to architects' roles, 38% thought that establishing their ability to take up the new Principal Designer role to sign off safety was crucial for future projects.

Conclusion

Our survey of architects and professionals, many of whom are involved in the design of tall buildings, showed that the building typology is likely to remain a major part of future construction, however there will be changes to the look, performance and content of such schemes.

Tall buildings are likely to be predominantly mixed use in future, for aesthetic as well as business reasons. In the post-pandemic world, offering users a range of amenities, as well as the ability to actually live without an expensive and energy-hungry commute, is likely to be key to bringing them back to cities.

Supertall buildings will continue to be prevalent as the ultimate tall buildings 'statement,' however China will not be putting up any more 500 metre-plus behemoths, and many of our survey respondents regarded structures in the 250-500 metres range as inappropriate, given our global energy-reduction priorities.

UK architects have a notable presence in the upper echelons of the tallest buildings. With a huge number of tall buildings planned for London alone, if realised this represents a major revenue stream for the industry.

There is no sign of tall buildings falling out of favour among developers. However, the pandemic has shifted the place of urban centres in the value equation, so project speculators must make an ever stronger case for their development.

There's mounting scepticism about the viability of tall buildings in the light of the need to drastically cut carbon. Genuinely sustainable approaches may be needed to mitigate these concerns, to ensure such structures have a fully accepted place in our future urban planning.

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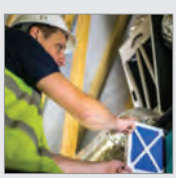
A grand return

What's been called the UK's biggest festival of construction, London Build, returns in style to Olympia London's Grand Hall for a live experience on 17 and 18 November focusing on key issues such as diversity



Titon manufactures and supplies an extensive range of whole house ventilation products including units with heat recovery at its Manufacturing Division in Suffolk. As a UK based manufacturer with over 45 years' experience, Titon also invests heavily in research and development, which enables the company to use the latest technology to keep its products both innovative and cost effective. **Stand E43**

Much more than just your average construction event, London Build is regarded as one of the best construction exhibitions around the globe. This year London Build features 250+ exhibitors, 300+ speakers across six stages, 200+ CPD sessions, exclusive free-to-attend networking events including Meet the Buyer, Women in Construction and Diversity in Construction, Humans of Construction Gallery, a range of entertainment, and much more.

London Build is hailed by the organisers as the "ultimate platform for networking and connecting with thousands of senior-level decision-makers, buyers and influencers from across the UK's built environment." Visitors have the chance to get involved with major UK construction projects and connect with industry experts and senior representatives from government, architects, major developers and housebuilders, and tier 1 contractors. London Build plays host to six conference stages:

- The Future of Construction
- BIM and Digital Construction
- Fire Safety
- Diversity and Inclusion
- Sustainability
- The Built Environment Hub.

Diversity on show

Each year the show has been held, thousands of professionals attend to learn about the latest developments, innovations and case studies. Leaders driving change in the UK's construction industry will feature at the Diversity and Inclusion stage, where visitors can hear a wide and diverse range of speakers on how the UK's construction industry is striving to be more inclusive.

The Built Environment Hub will host Diversity in Construction, a networking session where visitors can make connections and feel inspired. Here they will get the opportunity to meet a panel of diversity champions from all across the UK's built environment, who will be discussing the key issues surrounding diversity and inclusion within the construction industry.

The Built Environment Hub is the place to go to expand connections, providing the chance to network with thousands of attendees at exclusive free-to-attend events, such as Women in Construction, claimed to be the largest meeting of women working in the UK industry. This session offers professionals the chance to learn from a panel of established experts, discussing the untapped opportunities for women working in construction.

At the Future of Construction Stage, visitors can hear all the latest news on developments, innovations and project opportunities in London. The BIM and Digital Construction Stage sees panellists discussing all things digital, as they highlight the latest trends and innovations in digital construction, while visitors can learn from fire experts from leading contractors, civil engineers, industry bodies and more, as they discuss fire regulation, legislation and innovation post-Grenfell, on the Fire Safety Stage. Finally, the Sustainability Stage features sustainability experts from leading contractors, engineers, architects and developers, with panels discussing topics that include COP26, Net Zero and Healthy Buildings and Spaces.

London Build is free to attend and promises to be two fun-filled days of high-level content, networking opportunities, and fun entertainment.

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Leviat to exhibit at London Build 2021

Certain to make a major impact at this year's London Build exhibition is **Leviat,** a new name in the building industry, but a company with more than 275 years of combined construction experience behind it. Leviat brings together some of the world's most well established and most trusted connecting, fixing, and anchoring brands, including Ancon, Halfen, Helifix and Isedio. Innovative product developments from each of these brands will be showcased on the Leviat stand (F32). This exciting line up of new products reflects Leviat's expertise, skills and reach across a very broad spectrum of construction commitment.

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LONDON BUILD 2021 STAND NO F32

New president of SWA is announced

Kris Bennell, Contracts Director of Associated Steel Window Services (ASWS) is the new President of the **Steel Window Association (SWA).** He has been handed the reins after Darren Lloyd of Govette Windows completed a six-year tenure at the helm of the progressive association. Kris is already enjoying his role and comments: "The SWA is a great source of information for architects and consumers alike; and we are just launching a new website to make accessing our members easier. We are also constantly evolving, developing and testing our products to keep us at the forefront of the building and the all-important refurbishment industries."

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BUILDING
PROJECTS

LAZY HOUSE
ZLÍN, CZECH REPUBLIC

Hidden in plain sight

A new private residence overlooking a valley in the Czech Republic offers a seamless blend of expansive sight lines and privacy, but also a design that subtly disguises itself in its hilly site. Jack Wooler spoke to project architect Petr Janda

The designers used the gradient to enable a potentially multi-generational arrangement with a guest section dug into the hill, and a main living area above

Through close collaboration, a project to design a 'porous' private residence overlooking the Zlín Valley in the south west of the Czech Republic evolved from a basic brief of a family living space, to being an "open part of its context," with its interior volumes continuing into the garden, and the surrounding urban area.

Developed between 2006 and 2020, the steeply sloping 1400 m² plot offered both challenges and opportunities. The team utilised the gradient to enable a potentially multi-generational arrangement with a guest section dug into the hill, and a main living area above.

While visually contrasted with the local vernacular, Lazy House's Prague-based architects petrjanda/brainwork utilised principles of aircraft camouflage to blend the project into the landscape. The design maintains privacy due to its unconventional layout, which rotates the square floorplan to avoid sensitive rooms facing towards the valley, while retaining daylighting, and using strategic planting.

During the scheme design, the practice worked on all design aspects of the property, from bespoke detailing throughout to the "carefully curated" exterior, which includes a pool and wine cellar. According to practice owner and MD Petr Janda, this fine tuning led to a "comprehensive partnership," and the creation of an "authentic design."

The 'Lazy' plot

The practice was first approached by the original investor, with whom Janda has had a "long-term, friendly relationship," he tells *ADF*.

Later in the process, the plot changed hands, but this new client reportedly proved just as collaborative, allowing "the completion of the house in a form that further developed the original concept in many layers."

The site itself is part of a new urban district of Zlín, created by the conversion of former allotment gardens into residential development, with the land divided into six plots, and connected to the existing urban infrastructure by a new road.

Lazy House's plot resides on the highest part of this district, underneath the nearby forest. The house's inverse orientation offers an "excellent view, year-round," according

to its architect, with sightlines both to the woodlands and Zlín's residential area, sitting below the site.

The site's topology is analogous to that of Mediterranean villas or the hills of Los Angeles, however according to Janda, the distinctiveness of this location was a strong inspiration. The practice intended Lazy House to encompass the "essential archetype of a house that benefits from the uniqueness of its location."

Approach

Entering the plot from a gate at the front of the property, visitors are first presented with a paved driveway, above which is the house's glazed front facade.

The architects describe the form as a "compact solitaire on a square floor plan, with a slightly rotated layout." The exterior follows the "contour logic" of its surroundings, while the interior "turns towards the long sightlines towards the city centre and beyond."

Appearing as a single storey house from the rear, the lower floor of the house is sunk into the hillside, the wall with the garage door being perpendicular to the longitudinal axis of the site. The first floor above this is prism-shaped, and is cantilevered above the house's frontage.

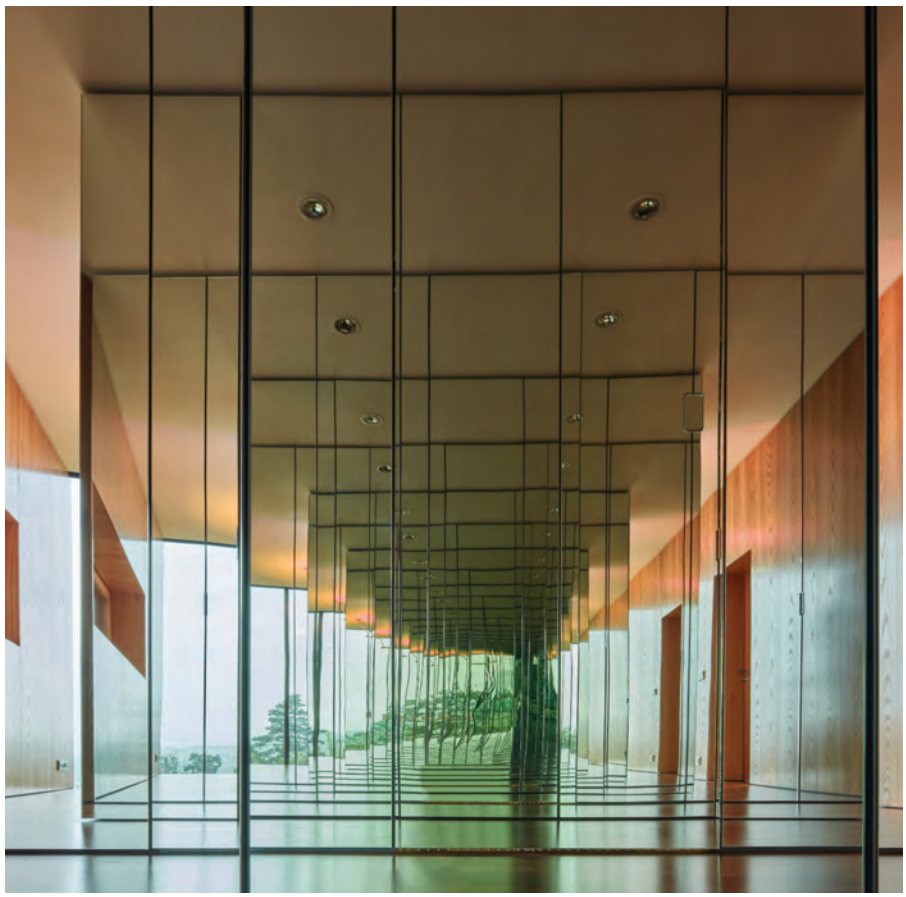
The main 'first floor' living floor is visually connected to the sky through its mirrored moiré facades, and appears to 'levitate' on its corten base, set into the slope. The metal exterior is then balanced with the soft timber-lined interior visible through the envelope, with colourful accents of cast light that blend together during the evening.

The house is covered with a green roof, which Janda says "returns the missing part of the garden cut off by the house's footprint," and also offers a fully glazed roof studio in its centre. From above, the green roof "merges with the garden city," leaving the plot appearing almost untouched – in a move inspired by aviation facility design.

Internal layout

Visitors enter through the ground floor two-car garage on either side. From there, there is dedicated access to the main living floor and a separate entrance to the guest apartment that can be used for visiting grandparents, teenagers or others.

Entering the guest apartment, the space is designed as an open layout, centred on the social part, with a kitchen, dining and living room attached to a bedroom with its own walk-in-wardrobe, bathroom and toilet. The apartment also has its own terrace, with a separate garden.



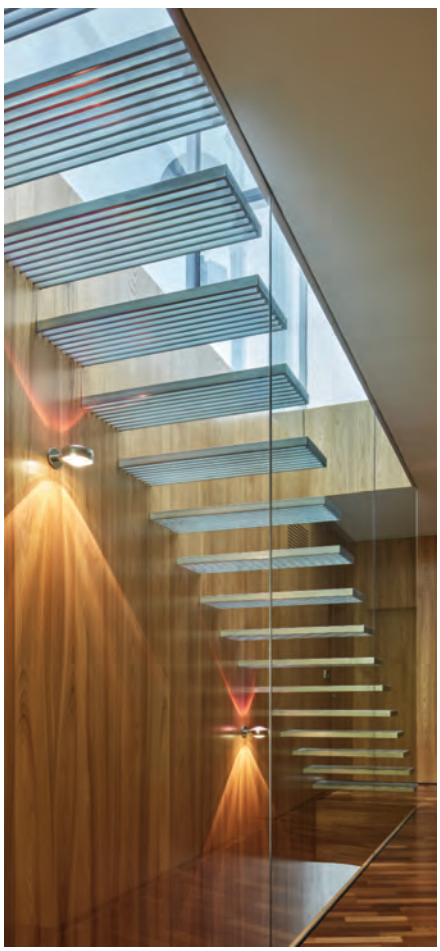
Heading back into the garage, and moving up towards the main living area, a single flight staircase ascends to a view of the garden, and into the central social zone. This is a communal space with a kitchen, dining room and living room, running across a large part of the house's footprint.

Based around this zone are the 'quiet' areas, all accessible from the central hub, with the parts for parents and children separated. These quiet rooms are in corner positions around the perimeter of the layout so that they all benefit from either the view of the city or from contact with the garden.

One such quiet area is the 'parents' zone,' which consists of a bedroom connected by a walk-in wardrobe and a 'secret' door to its own bathroom. The children's zone on the other hand has two bedrooms with a bathroom and toilet between them. There is also a glazed study with bookshelves, a terrace with an indoor garden, and a pantry integrated into the kitchen.

Materiality

The building has a monolithic, reinforced concrete structure with high-performance



insulation. This is then clad with materials that the architect says "naturally support the composition of the house," with a fully glazed north and south facade with large format 'metallised' triple glazing, and the neighbour-facing facades made of stainless steel.

The lower floor, including the garage door, is faced with pre-weathered corten steel sheets, which is intended to reflect the earthy tones of the garden and the entrance gate.

The "silky" surface of the stainless-steel elements are intended to complement the reflections of the extensive glazing, which contrasts with the more natural, wooden interior. This consists of large elm veneer facing on the walls, built-in furniture and solid Iroko floors, and corten sheets.

According to Janda, the overall impression is intended to be that of a "continuous flow of space" throughout the interior, "culminating in the individual layout epicentres, using glazed elements to add rhythm to the surface of the walls by the reflection of light."

In order to "give this materiality depth," the architects specified a high level of detailing, including that individual elements such as the wall sheets be laid out in a non-repeating way, and that there be seamless connections on all edges and parts. In addition, the detailing on the floor and terrace boards should be directed in the same flow of the house and its envelope, and there would be "careful tension between the natural and modulated light."

When making these material choices, the architects closely considered environmental impacts – using glass and steel produced using environmentally friendly, recyclable methods, and employing mostly local wood (or certified tropical wood that is planted, not logged, in nearby forests.)

A 'living being'

Janda explains that the practice was keen to place emphasis on "connecting the house's architectural and spatial qualities with the currently available technological principles," and as such it has been specified to be a low-energy dwelling. Along with the sloping terrain, this reportedly led to the name 'Lazy House.'

The architect uses biophilic principles to describe the design's holistic sustainability approach, saying it "fuses with the context in both close and remote symbiosis."

Pursuing the analogy of the house as a body, he describes its insulation as the building's "muscles," heating as "blood circulation," ventilation system as "lungs and trachea," water distribution and sewage as "a digestive system," wiring as its "nervous system," and so on.

In more prosaic terms, the building has whole-house controlled ventilation with heat recovery, combined with underfloor

heating connected to a heat pump from two earth boreholes located under the slab – with 'reverse operation' used for cooling in the summer. The exterior air conditioning inlet comes into the space next to the cellar at a depth that avoids risk of freezing, which enables the air to be heated before it is recovered.

Ventilation is distributed from the plant room which is located next to the garage, and in the floor structures towards the exhaust outlets into the plenum boxes. Vents are in the form of "almost invisible" slits in the edges where the floors meet the floor-to-ceiling windows. The recirculation then works through the inlets in the bathroom ceilings and the slits between the ceiling and veneer panels.

The garden hill

The practice's design influence stretches past the house's four walls. Around the dedicated stone pathways towards the back of the plot a wine cellar is buried, and there's a swimming pool with a covered 'grotto' terrace in timber.

The curved form of the grotto is the dominant feature of the garden, composed of graduated, rotated larch planks. This doubled as formwork for a hidden reinforced concrete shell sunk in the terrain and joining the grotto, creating a "cave" cut into the slope.

The pool is constructed of stainless steel, and utilises an edge overflow with a gutter, copying the slope of the adjoining terrain and creating an endless surface effect. The pool cover is hidden under a bench made of stainless steel rods immersed in the pool.

On the other side of the hill, the wine cellar is an adaptation of the original brick vaulted cellar (a relic of the original allotment on the site), and equipped with interior steel waxed shelves for bottle storage. The cellar's roof is covered with Irish moss, growing through reinforcing slate structures that copies the smooth shape of the hill.

The garden then flows around these elements as a "smooth carpet," creating hidden bays protected from the outside that allow for panoramic views over the city, with vegetation protecting the site boundaries.

Privacy is further maintained by tall bamboo plants and grasses "organically connected" to the undulating terrain, complemented by several solitary woody plants selected due to their changing appearance during the year. The garden is also irrigated by the subsurface groundwater, and from a drilled well and a reservoir hidden in the space above the grotto.

Success

According to Janda, the practice's main focus throughout the project was "interconnecting physical and metaphysical layers of the project, resonating form and content, and engaging sculptural methods with the concept."

Is perhaps in this that Lazy House's success is best realised, with the project inherently tied to its surroundings, while standing as a sculptural form in its own right, together with its garden 'grotto.'

The practice attributes much of its success on the project to the "absolute freedom" given by the client in the design process, "justified through an honest, non-dominant dialogue."

"Thanks to this," says Janda, "we achieved results that exceed the expectations of both parties, and are not just an imprint of the intended vision."

A mark of the client's satisfaction with the project – which endured a 14 year development process – is how Janda has gained a close friendship with the owner, so much so that they continue to tackle maintenance together, as well as other additions to the house. This, he concludes, serves to "develop and deepen its integrity." ■

The curved form of the grotto is the dominant feature of the garden, composed of gradually rotated larch planks, which doubled as formwork for a concrete 'cave'

Norcros Adhesives makes possible a stunning heritage restoration

Norcros Adhesives has been sinvolved in a successful refurb of Milverton Hall, an imposing country mansion near Leamington Spa, which has recently been restored to an impressively luxurious standard.

The building comprises eight spacious flats and two coach houses, separate from the main building, combining classic exteriors with contemporary internal comfort. The tiled areas, with which Norcros Adhesives was involved, totalled 1,100 m² and were quite complex due to the age of the building and the uneven nature of the floors. A floating acoustic floor was involved, which had quite a lot of movement and required considerable bracing prior to tiling.

The deflection in the floor was the major challenge. Working with the main contractor, Trendgrey, and the tiling contractor, Cladding Components, Norcros Adhesives was able to fix the problem by using Norcros Pro Ply Board and S1 adhesive.

Due to the complex nature of the project, Norcros Adhesives prepared a full M40 specification for Cladding Components, whom they have also worked with successfully on previous projects.

The porcelain tiles on the ground and first floors were fixed with Norcros Rapid Grey S1 Tile Adhesive, while Norcros 4 into 1 Wall & Floor Tile Grout and Norcros Permalayer Anti-Fracture Matting were also used.

Wall tiles were a mix of porcelain and mosaic, fixed with Norcros One Part Flexible Tile Adhesive. All adhesives were supplied by Trinity Tiles.

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BUILDING PROJECTS

CAPITASPRING SINGAPORE

Singapore's central park

A major mixed-use skyscraper with a difference is approaching completion in Singapore's central business district – the facades of this richly diverse 'vertical city' by Bjarke Ingels Group opens up to reveal generous and highly usable green spaces. James Parker reports

In the heart of Singapore's financial centre, a new tower is approaching completion which marks a big departure from the norm, by integrating residential, hotel and office space using a capacious, naturally ventilated and green atrium, 17 storeys up. The design for CapitaSpring by BIG (Bjarke Ingels Group) also opens up facade elements to reveal these spaces, delivering a strong contrast with the otherwise strict geometry of the building.

According to Singaporean-American Partner-in-charge from BIG, Brian Yang, the project represents the practice's maxim of "building things for people and communities, not necessarily for manifestos of our own." So, while this is a tall building, ranking among the tallest in the CBD at 51 storeys, its unconventional programme and facade design helps the new arrival connect with its surroundings, and the local community.

This is most obviously manifested in how the aluminum fins of the otherwise typical 'pin striped' facade bend to offer views in to greenery, and out to the city, as well as fresh air and sunlight. Beginning around 100 metres from the ground, the 30 metre (four storey) atrium contains tropical plants and large trees, and provides a range of naturally ventilated meeting and leisure spaces, connected by a dynamic spiral of circulation ramps.

The 280 metre, 93,000 m^2 tower has been jointly designed by CRA (Carlo Ratti Associati) and will be one of the tallest completed in the CBH when the project is handed over – which is due in late 2021. Singapore has a reputation for being a 'green city,' with many buildings having "sky terraces," says Yang. Renders for a

BIG's aspirations were centred around making terraces and communal spaces not only green, but also highly usable

new proposal from local firm ADDP Architects' in the city for example show a pair of 30 storey towers, sporting a large atrium at high level, and copious planting visible from outside.

However, Yang says that BIG's aspirations were centred around making terraces and communal spaces not only green, but also highly usable. "Sky terraces sometimes end up as empty spaces, not really utilised in a very active way. We want to contribute not only to the aesthetic of the city but also to its social and ecological diversity."

This led them to seize the opportunity to "transform the use of these spaces in a way that is really impactful and that reveals their fuller potential to a larger public." It is the project team's aspiration (shared by the client), that the building will be open to the public, to enable them to experience an unusual new and meaningful green space.

Competition & design process

The developer behind the project is CapitaLand, a Singapore-based real estate giant worth around $5bn and employing over 12 thousand people across Asia. However despite their size, Yang reports that the clients were very accommodating in terms of exploring BIG's ideas for the project, while having a "very specific brief." He tells ADF: "Singaporeans are very detail oriented and pragmatic; it was probably one of the best briefs I have ever read."

The international design competition took place in 2015, with practices including Heatherwick and MVRDV in the running. The project's construction has been hampered by covid, which impacted heavily on supply chains, but the team reckons it will be completed by the end of 2021.

During the competition, the practice divided the work equally between BIG and CRA, and "collaborated fully," says Yang, which continued into the detailed design stages, "although over time we also naturally focused on our respective strengths." Ratti was central to the "digital masterplanning of the user experience," including how users can interface with the building remotely, such as using an app for access control. The two practices, and client, had "regular design meetings, virtually as well as in person, to ensure things are on track."

The architects' proposal was for a steel-concrete composite tower with a single concrete core, containing serviced apartments at lower levels, a central atrium,

and offices in levels above. The client initially wanted two towers, being unconvinced they could meet their stringent efficiency requirements using a single lift core for both differing sets of functions.

However, following "a number of engagements" between architect and client throughout the competition, "to their credit, they listened, and opened up," says Yang. The designers persuaded them that a 'vertical city' single tower option, with an integrated garden space, was a valid idea, but the client added a caveat: "Prove it to us you can make it work, and we'll take a look."

A further example of how CapitaLand 'opened up' was how – via a desire to be a "good citizen, to give back to the community" – they approached opening the Green Oasis as well as retail and F&B to the public. The architect says this commitment is also evidenced by the fact they "have never had a single discussion about cutting the green space out, or downplaying the ambition," and gives credit to the client for investing in such a generous space with no easily quantifiable return.

The efficiency challenge when stacking the offices above the service apartments in one tower, says Yang, was that the office component would be paying for lifts that also service the hotel floors, and that there was 'wasted' space in the atrium, from a planning point of view. So the offices "needed to be that much more efficient to make up for it." He adds: "It's not cut and dried that a single tower scheme would be more efficient; it was a rigorous exercise in proving that."

BIG's proposal made the most of the constrained, and expensive, site adjacent to Raffles Place, the centre of Singapore's CBD: "We were trying to make the most compact solution; this was one of the last sites of the historic downtown that was available for development." He explains further: "The sightlines were very challenging, so there was an entire exercise of being able to clean that up and imagine what a very compact, efficient tower might look like." As a result of fitting neatly into the plot, and also facilitating the required elevations, the building has a five-faced shape on plan, a truncated square resembling a cut diamond.

The facade is animated, and its otherwise monolithic nature disrupted, by the 6 metre-wide apertures formed by distorting its aluminum vertical fins in three areas to provide porosity – the ground level podium, the atrium, and the roof garden. As the architects say, this creates a "dynamic interplay of orthogonal lines and lush greenery" ranging across the height of the building. Yang adds that it's "almost a little like a tropical realisation of classic New York modernism."

Programme

The architect calls the project a "reinterpretation of the modernist skyscraper," with a new take on the 'live, work, play' mixed use concept. In itself, the geometry of the tower is relatively strict, and typical floor plates range from 22,200 to 23,300 ft^2 (2062 m^2 to 2164 m^2). But within those confines, there's an unusually diverse mix of uses – an "incredible diversity of life," in the words of Yang. The 299-unit 'Citadines' serviced residence section sits below the atrium, which in turn connects to 635,000 ft^2 of Grade A office space above. Then there's a further green "rooftop experience," with an Urban Farm growing produce for a top floor food and beverage area, including a high-end restaurant. There's also a Sky Cube events space topping off the building.

The podium contains the entrance atrium and retail, and on its roof sit amenities for residents, including outdoor gardens, a running track, and swimming pools. Levels two and three contain the 'food centre,' which conjures up some of the former buzz and atmosphere of the popular Golden Shoe 'hawker centre' – the food hall within a 1980s car park which previously occupied the site, selling a wide range of affordable meals to locals.

The office levels have generous 3.2 metre floor to ceiling heights, which should provide pleasant as well as efficient space for anchor tenant, JP Morgan.

Ground level

There was a "holistic agenda between the Urban Redevelopment Authority (URA), us and the client to connect in a very real and public way," says Yang, "back to Raffles Place and the green lawn space there." So the building's ground level was designed to be porous, and "an extension to that park." A further goal behind this was to connect the building to the now-pedestrianised former 'Market Street' that runs alongside.

Another key ground floor element which is part of this connectivity is the City Room, an 18 metre high structure which sits directly outside the main lobby but within the podium, as a "sheltered space dedicated to public use." Helping provide

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some shade and comfort in Singapore's often hot and humid weather, this space provides separate lobbies for the offices and residential units, and leads visitors to the food centre and retail units. The City Room also "opens up into the park," so that the internal planted 'rainforest plaza' connects to the landscape outside, and features a number of "activity pockets" – spaces for fitness sessions, art installations, or other community events.

The Green Oasis

The 'Green Oasis' contains four levels of open-air planted walkways, along which sit an open-air gym, yoga space and cafe, as well as event/meeting spaces with kitchens, and space for simply walking and enjoying the fresh air and greenery, or relaxing in hammocks. Workspace is served by 'ideation pods,' oval, basket-like metal structures offering a degree of privacy as well as visual connection.

Brian Yang says the space "encompasses the gradient of the programme between live, work and play," with walkways running from the cafes which are related to the serviced residences below to indoor and outdoor meeting areas – "areas that are connected to working spaces above."

The Oasis' interconnected levels are formed by a spiralling "botanical promenade" which creates multiple viewpoints of this "vertical park," and the city outside. By their nature, the spiral walkways create various voids, allowing the copious amounts of daylight in which is needed for the tropical planting. Trees will be allowed to grow through these apertures up to "anywhere between six and 12 metres," says the architect.

Yang comments further on the iterative, analytical design approach needed to help ensure this green space was functionally sustainable: "The voids were carefully calibrated to facilitate the maximum amount of daylight to enable the diverse range of plants to be cultivated. It's not that easy to grow plants 15 metres inside the footprint of a tall tower." He admits that this aspect of the design ""took a lot of effort, maybe compared to what we were initially expecting."

In structural terms, the concrete core passes through the atrium, but there are fewer steel columns here than in the levels above and below. So to support the office levels above, a steel truss structure was designed, tying the base back to the core. A similar approach is also used at the top of the serviced residences, at level 16.

Virtual reality came into its own when this space was being designed, says Yang: "When you're working with experienced people, everybody knows what an efficient office floor design looks like. But with the kind of green space no-one had seen before, we started doing VR renderings and walkthroughs for the clients." He adds: "The first time they put the headsets on and experienced the space, the reaction was 'oh my god, what are we doing!"

Sustainability

In addition to being naturally ventilated, the central atrium and other public spaces receive recycled, cool 'spill air' from the air conditioned office spaces to offset heat and humidity; an example of where the architects have tried to use passive design approaches where possible. There are 77 bike spaces in the basement and 88 on the ground floor, with the client having "a strong desire to promote bike use," as well as a bike lane planned directly adjacent to the plot, and lockers and changing facilities in the ground floor podium as well as in the basement.

Conclusion

The Partner-in-charge Brian Yang says that in 2019 he was "probably in Singapore nine times, making sure things were going smoothly onsite." He says it's been a "big shift" to doing everything virtually, and is keenly looking forward to being able to visit the completed building when safe to do so.

"At least the virtual working was on the later stages," he says, explaining that BIG had by the stage become "very familiar" with the client and contractor, plus the local delivery architects RSP and "developed a good working relationship. Otherwise it could have been more difficult as it is with anything of such high ambition".

He concludes that albeit from this remote distance, looking at social media activity, "it feels that people are excited about the building, I can't wait to actually be there to see it, having had the opportunity to contribute to Singapore's city building." ■

UK's tallest residential tower protected by Advanced fire panels

Fire alarm control panels from UK manufacturer, Advanced, have been installed on yet another landmark development in London.

The installation of Advanced fire panels at the Landmark Pinnacle marks another tall-building win for the manufacturer who, in 2019, announced its specification at Western Europe's second tallest building, 22 Bishopsgate.

Standing 75 floors high at the head of the South Dock in the heart of Canary Wharf, the Landmark Pinnacle is the tallest residential building in Europe with more habitable floors than any other building in London, the UK and Europe. With prices starting from £480,000 and amenities including a roof garden, gym, private dining facilities and a cinema, London's latest skyscraper, at 239 meters tall, offers stunning views across London and the surrounding counties.

Four market-leading 8-loop and two 4-loop intelligent MxPro 5 fire panels alongside three repeater panels have been installed by Bedfordshire-based Firelec Controls Limited – responsible for the design, installation, testing and commissioning of the fire system. The MxPro 5 panels are networked with the tower's BMS using BACnet, include a custom graphics package and link to over 140 AOV vents and sprinklers with phased evacuation between floors.

Richard Randall, managing director at Firelec, said: "Advanced panels are our first choice every time, combining reliability and superior technical ability. Given the nature and size of the Landmark Pinnacle we needed a high level of protection to secure the public areas of the building and thanks to Advanced's vast cause and effect capabilities they were the ideal solution for this installation project."

The MxPro 5 is the unbeatable multiprotocol fire system. Approved to EN54-2,4&13, it offers four protocols, Apollo, Argus, Hotchiki and Nittan and a completely open installer network that benefits from free training and technical support. Panels can be used in single-loop, single-panel format or easily configured into high-speed, 200 panel networks covering huge areas. MxPro 5 panels are backwardly compatible with existing MxPro 4 networks and include a host of features including AlarmCalm complete false alarm management and reduction.

Amanda Hope, new business development manager at Advanced, said: "Landmark Pinnacle is the latest in a long line of tall buildings to benefit from Advanced protection, including western Europe's tallest and second tallest buildings, the Shard and 22 Bishopsgate. Where complicated cause-and-effect programming is required, our panels deliver market-leading performance and protection and we're thrilled to have been able to support Firelec with the equipment required."

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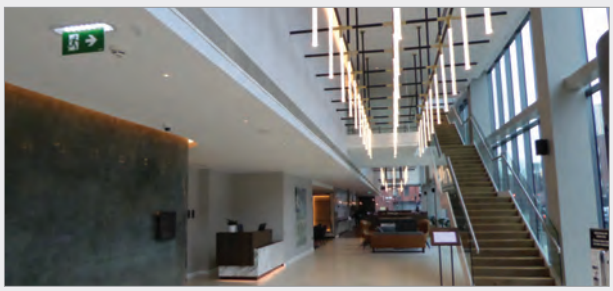

The lengths we go to...

Building services design has gone to exceptional lengths to help achieve a high-end finish to a major hotel development – over 50 m in this particular case. The length is that of the bulkhead in the reception area for the new 210 room Crowne Plaza and 116-room Staybridge Suite. To help property developer Bruntwood realise the interior design objectives of its client – InterContinental Hotels Group – that of a premium finish, all the public and administrative areas feature ventilation grilles from **Gilberts Blackpool,** installed by A&B Engineering (mechanical services). "Pride of place" has gone to Gilberts' LG linear bar grille – an LG/15/3 extends more than 51m continuously along the main reception area; it is complimented across the different public and administrative spaces by Gilberts' DG louvred diffusers, MBD multiblade diffusers, GSLS linear slot diffusers, HSLS high capacity slot diffusers, and GX and GH deflector grilles. Gilberts develops all its products in-house, from design through tooling to production in its 95,000 ft^2 Blackpool manufacturing facility.

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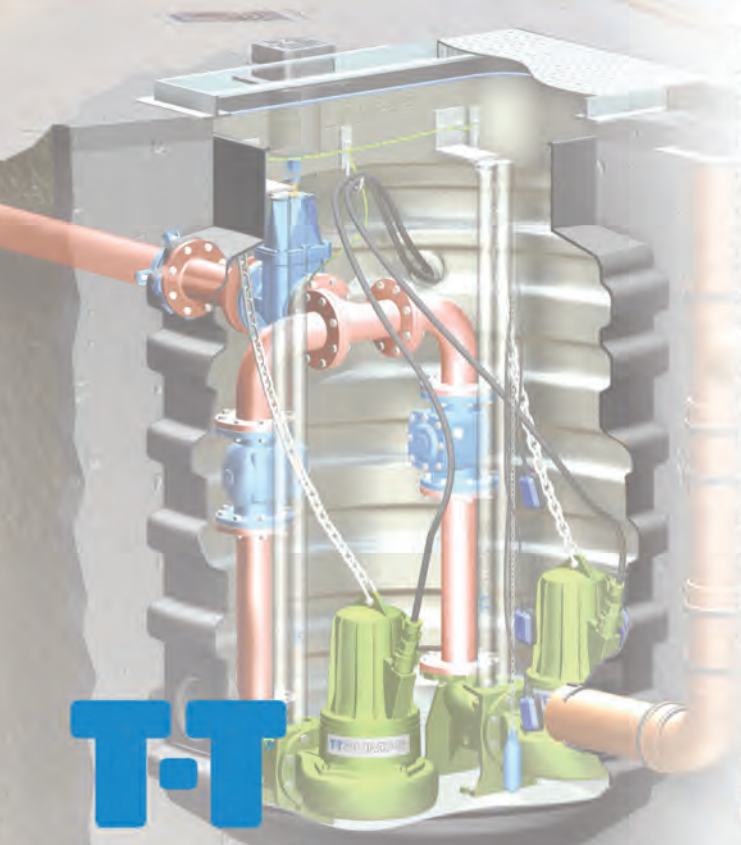

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Repositioning rain gardens

Charlotte Markey of Polypipe Civils & Green Urbanisation says rain gardens will be key to meeting the changes to water management in the new Environment Bill

While traditional rain gardens have long been an accepted element of sustainable drainage systems (SuDS), their previous limitations mean that they have not traditionally been widely specified, or considered a comprehensive solution to effective water management.

Conventionally, rain gardens tend to be confined to a small area of plants and shrubs that hold and soak away rainwater run-off and most are commonly retrospectively 'plugged in' to existing drainage networks, collecting water from roofs, driveways or lawns. Operating effectively as a 'soakaway,' traditional rain gardens rely largely on infiltration and usually only support a narrow plant profile of more drought-tolerant species, meaning within a SuDS scheme they typically take a supporting role, or are added as an afterthought.

New opportunities

When integrated as part of 'green urbanisation,' the scope and capabilities of rain gardens are now much greater, providing a link between stormwater collection and green asset creation.

Shallow invert geocellular sub-base replacement systems can be installed under rain gardens, as well as SuDS tree pits and engineered swales, creating a foundation for water management and re-use. The systems comprise interconnected cells with unique 'double trapezoid' ties; these systems form a uniform structural 'raft' with high load-bearing characteristics. Versatile in their application, this new breed of SuDS can be adapted to a range of settings, from a small housing plot to industrial warehousing where they can be combined harmoniously with blue-green roofs.

What sets this system apart, is its ability to safely retain water at source for re-use. The water collected immediately beneath the rain garden during a rainfall event can be drawn on by surface planting through passive irrigation as required. A hydrophilic geotextile placed above the raft helps distribute the gathered water across a large surface area through capillary action. As well as being a 'net zero' process, this capability brings countless benefits.

Passive irrigation, combined with evapotranspiration (evaporation from land plus transpiration from plants), ensures that there is the right amount of moisture to promote growth and prevent wilting of the local greenery, making the landscape more resilient in extended dry spells. This allows the rain garden to support a broader, richer and more versatile range of plant species, as they are less reliant on infiltration for growth, and also enables greater connection with other planting across a development as part of a wider integrated solution.

Additionally – and critically – re-using water in this way also helps remove stormwater that would otherwise go into the combined sewer network that is under increasing pressure from greater population, urban density and more extreme weather events.

A solution for the future

The capabilities of rain gardens are powerful, but they take on a whole new dimension when we consider the landmark changes of the Government's Environment Bill, which are due to come into force next year.

While far-reaching in its remit, the Bill is ground-breaking for water management, giving legal recognition of its importance in protecting and enhancing the world around us. Among the many significant developments will be the requirement for water companies to publish a water resources management plan, as well as strategies for drought, flood and overall catchment resilience. Importantly they will also be required to consider the interdependencies of each strategy.

Specifically, in recognition of the growing burden on combined sewers, the Bill focuses on building capacity into the drainage and sewerage system to meet current and future demand, and requires annual reporting on storm overflow performance.

As well as placing increased pressure on water companies and planning authorities to

When integrated as part of 'green urbanisation,' the scope and capabilities of rain gardens are now much greater

reduce stormwater discharge when designing and building developments, this policy change has the power to bring about a seismic shift in how we consider water as a resource to be used and reused, as well as to realise some of the wider environmental aspects of the Bill, specifically when it comes to biodiversity.

Key within the Bill is biodiversity net gain – in the form of a requirement to achieve a minimum of 10% improvement in biodiversity on or near a new development in order to get planning consent. These changes mean landscape architects and urban planners will need to re-evaluate how to introduce green infrastructure to ensure that projects comply with water management best practices and deliver an uplift in biodiversity post-completion.

These new requirements present exciting creative opportunities for the architectural community and a chance to challenge approaches to urban landscaping that are hardwired into construction practice. For too long, the UK's application of water management techniques has been fragmented, with siloed solutions developed around reducing our use of potable water, avoiding floods or droughts, improving water quality, or reducing environmental risk. Individually, they lack the benefits of a holistic, interdependent cycle that's more akin to what we see in nature.

The Environment Bill, plus significant changes brought about by the new Sewer Sector Guidance (SSG) in England (that allows water and sewerage companies to adopt a wider range of sewer materials and products) expand both the scope and potential for innovation. Now it is possible to use new solutions, including the next generation of rain gardens, that go way beyond traditional SuDS to benefit individuals, communities, and the environment, and integrate greater use of recycled materials.

Ultimately, these policy shifts give the architectural and urban planning communities the opportunity for greater creativity; to look at how breakthrough water management technologies can fuel more aesthetic, sustainable urban green assets while increasing biodiversity and climate change resilience.

Charlotte Markey is green urbanisation innovation manager at Polypipe Civils & Green Urbanisation

Smart greywater recycling helps to deliver exclusive Kensington homes

An innovative, smart water-recycling technology has been installed as part of the prestigious 80 Holland Park development by CPC Group, located in one of London's most exclusive residential neighbourhoods.

To meet planning and building control regulations, mains water demand was required to stay below a strict 110 litres daily allocation for each resident of 25 individually-designed homes in the Holland Park Estate in Kensington.

On-Demand Water Reuse

London-based consulting engineers chapmanbdsp specified a pioneering new on-demand greywater recycling technology from water management systems specialist SDS, in one of the first installations of the technology in the UK. The bespoke system enabled the waste water from baths and showers to be collected, treated in the digitally-controlled greywater system, then reused for toilet flushing throughout the building.

By reusing water, the overall mains demand was calculated to reduce by at least 15% to an average of 90 litres per person per day, a very low level and significantly below the current national average of 140 litres.

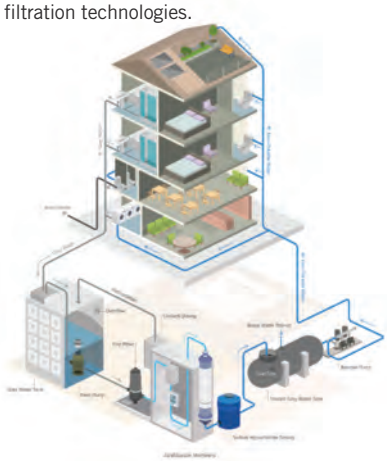
Reduced Mains Water Demand

"In keeping with 80 Holland Park's carefully-considered and individually-designed apartments, the bathroom fittings are of a very high specification," explains Dave Honey, principle public health engineer with chapmanbdsp. "Greywater recycling is an efficient and sustainable technology that has enabled water that would otherwise have gone to waste to be reused, thereby offsetting the increased flow rates from the high-end sanitaryware."

"Planning conditions required the development to comply with Building Regulations Part G and the water efficiency criteria for new dwellings, normally 125 litres per person per day, but reduced further to 110 litres per person by a planning condition," he added.

Collaboration between the chapmanbdsp engineers, SDS and the development's environmental engineers was essential right from the design stage to exceed the required water efficiency performance and overcome the site constraints.

SDS's greywater system uses the latest filtration technologies.



Accurate Usage Calculations

Honey explains: "The SDS team provided excellent expert support and produced clear calculations to show precisely how much water their system would process and subsequently provide. This information was also invaluable to our client's environmental engineers to demonstrate the sustainable benefits of the development."

The groundbreaking SDS on-demand greywater recycling system could fit in the building's plant room much more easily than conventional membrane bioreactor (MBR) treatment, which would have been difficult to design around the constraints of the building, said Honey.

"By specifying the SDS on-demand greywater recycling system, the collection and storage tanks, which would be separate in an MBR system, could be combined to create a relatively small footprint. This meant the plant room could be located as centrally as possible and the pipework could also be routed without encroaching on the headroom requirements in the basement car park.

"The topography of the site meant it was difficult to collect waste water from all of the dwellings, unless we buried the system below the basement slab, which wasn't feasible. We therefore had to ensure that the amount of water collected could yield sufficient to provide flushing for all WCs," he added.

The 80 Holland Park development

Ultrafiltration Greywater Technology

Waste water is collected from 27 outlets around the building via a dedicated network of pipes that are routed to a holding tank in the GWR basement plant room. The collected greywater is pumped through a disk pre-filter system and dosed with a small amount of chlorine before entering the ultrafilters. The ultrafiltration system is a highly-efficient hollow-fibre membrane with automated integral backwash that yields water to near drinking-water standards.

The treated water is then stored, ready for use, in a separate tank and pumped, as needed, to provide flushing of 88 WCs throughout the development. The estimated greywater yield per day is just over 3,000 litres when the development is fully occupied.

Offering high-performance efficiency in a smaller space, the SDS system reuses just enough water to be delivered efficiently throughout the building as it is needed. The scalability of the system means that recycled water can be provided from when the first residents move into the building, then adapt to increasing demand as more people move in. By contrast, an MBR system would require a minimum usage rate to be reached before it could be set in operation.

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Bespoke lintels bring individual character to the heart of stunning £26m school

Bespoke gothic arch lintels from **IG Lintels** have played an important role in the transformation of an 19th century Carmelite convent, the centrepiece of the new Chichester Free School. Vacated in 1994 and in disrepair since a fire destroyed its chapel in 2009, the convent in Hunston, West Sussex, required partial demolishing and refurbishment as part of the creation of a new school for over 1,280 students. In a design by Novium Architects and built by Farrans Construction, the new school blocks are linear in form with each wing projecting either side of the newly restored and central convent block which forms the heart of the school. To ensure the existing convent facades were restored to their former gothic glory, IG Lintels was approached for the design and manufacture of a bespoke double gothic arch lintel. A 1,580 mm opening span, incorporating two 650 mm wide gothic arch details, with a 430 mm rise was specified – increasing the end bearing to extend the distribution of the load to the brickwork. This lintel replicated the dimensions of an existing opening, ensuring full structural support was restored.

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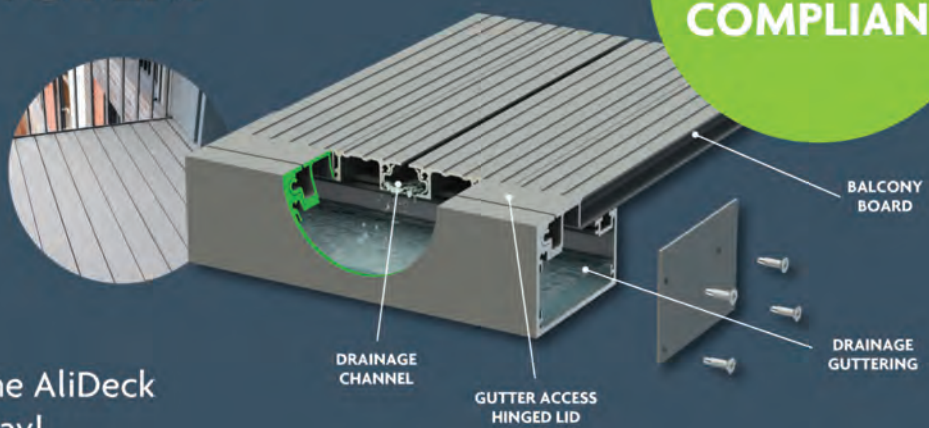

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Architects choose Vandersanden Bricks

For its architecturally striking Orwell House scheme in Bethnal Green, London, Bell Phillips Architects (BPA) has specified hand-formed, multi-coloured Antro bricks from **Vandersanden**, the brick maker renowned for its innovation, craftsmanship and sustainable manufacturing practices. Antro provides just the right balance of colour, texture and contrast for this affordable housing project, designed by BPA for London Borough of Tower Hamlets and forming part of the Berthold Lubetkin-designed Dorset Estate, originally constructed in the 1950's and 1960's.

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enquiries@cavitytrays.co.uk www.cavitytrays.co.uk

Roofshield® protects Northern Ireland Church

Roofshield membrane from the **A. Proctor Group** is now an integral part of protecting the heritage of St Andrew's Presbyterian Church, Bangor, and enabling it to continue serving the local community. Specialist roofing contractor D. Harkin & Co. Roofing will carry out the roofing works. D. Harkin chose Roofshield roofing membrane, which has long been recognised as one of the highest performing roofing membrane solutions, providing a pitched roof underlay, which is both air and vapour permeable. The products exceptional performance has proven itself in the most demanding locations around the world.

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Senior produces the goods

Aluminium doors, windows and curtain walling from **Senior Architectural Systems** have been used to realise the striking facade design of a new office development, created as part of the wider regeneration of Hull's historic Fruit Market. Thanks to its slim sightlines and enhanced thermal performance, Senior's SF52 aluminium curtain wall system was the perfect choice for the main facade, and has been integrated with the manufacturer's high performance SPW600 aluminium windows and robust SPW501 aluminium commercial doors.

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Energy Technologies Building, Nottingham – Sustainably clad with ALUCOBOND® A2

Nottingham University's Energy Technologies Building (ETB), a showcase £6.5m research centre, which brings together world-class experts in energy research, has chosen ALUCOBOND® A2 from 3A Composites GmbH, finished in Sakura 917 from its spectra colour series for its cladding.

Designed by Maber Architects to achieve a BREEAM 'Outstanding' accreditation rating, the highest BREEAM level for environmental sustainability, the building is an exemplar of low-carbon technology through the minimisation of its demands for heating, cooling, lighting and ventilation mediums from non-sustainable sources, whilst maximising energy from renewable and ambient sources.

The decision to use ALUCOBOND® A2, with its sustainability credentials, including an environmental product declaration (EPD) according to international ISO standards, and an independently verified life cycle assessment (LCA), plus BREEAM contribution, made it the ideal choice to help achieve a BREEAM 'Outstanding' accreditation for sustainability.

In addition, with safety paramount, the non-combustible properties of ALUCOBOND® A2 aluminium rainscreen cladding panels, with its mineral-filled core also helped the project meet the strictest requirements of fire regulations, whilst also offering long-life and durability, being impact-resistant and weatherproof.

Fabricated by Ash & Lacy, and installed by specialists Hickton Construction, some 1,000 m² of ALUCOBOND® A2 cladding was used on the stunning project, which stands as an example of how sustainability and environmental sensitivity can go hand-in-hand with great aesthetics

Paul Herbert, Sales Manager
07584 680262
www.alucobond.com

PROJECT DATA

Project: Energy Technologies Building, Nottingham University
Architect: Maber
Fabricator: Ash & Lacy
Installer: Hickton Construction
Facade System: Tray panels special construction
Year of Construction: 2018
Product: ALUCOBOND® A2 spectra Sakura
Photos: Ash & Lacy

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Natural enhancements

Victoria Brocklesby at Origin shares insights on simple as well as more creative ways to maximise natural light in residential properties

Natural light in a home has all kinds of benefits, including improving health and wellbeing, alongside performing the practical role of illuminating spaces. There are simple ways to maximise light using glazing, as well as more dynamic and creative ways.

Function

How to best maximise natural light will depend on the function of the room and where it is in a property. For example, a kitchen extension at the back of a house offers the ideal opportunity to make a statement and flood the space with light. Doing this will also benefit adjoining rooms as the light will filter through the home.

Product types

To pull as much of this all-important light into a room as possible, opt for a combination of slimline sliding doors, or bi-fold doors, and larger panels of fixed glazing. Replacing solid internal doors with designs that feature glazing, such as internal bi-fold doors, will also help filter light throughout a home. These not only let light stream in, but also break up space without creating a cramped or closed off feeling, fitting the growing 'broken plan' trend.

Glazed extensions are another option. These are growing in popularity because they help bring in light, but also add an interesting, modern design feature that works well with both contemporary and period properties. If limited by planning or budget constraints, a single wall or section of bi-fold or sliding doors will have a similar effect. Not only will they pull in lots of natural light for that airy, open feel, but they will also mean that the space can be physically extended when the doors are open, as the inside space will seamlessly connect to the outdoors. This works particularly well for clients with families, or those who enjoy entertaining.

Product configuration

When using bi-folds, make a statement with fewer but larger leaves (glass panes) to maximise the glazing. Also consider opting for a level threshold between inside and out and using the same flooring in the kitchen and outdoor dining area to create a seamless feel.

Room size

Not all spaces are created equal; for smaller projects where functionality needs to take priority when it comes to fitted elements of the room, like cabinets in a kitchen, consider other ways to increase the feeling of space in the room.

The choice of windows can make or break a client's enjoyment of a room and transform everyday tasks from mundane to a pleasure. After all, it's so much nicer to gaze out onto flower beds instead of a blank wall.

Large picture windows, bi-folding windows or corner windows are great options for maximising the view, without taking up as much wall space as doors. Aluminium frames also benefit from ultra

Replacing solid internal doors with designs that feature glazing fits into the growing 'broken plan' trend

slim sightlines to further help bring the outdoors in.

Remember, windows do not have to be at eye level. Be creative with window design and positioning. For example, consider fitting a combination of window styles and sizes at various heights.

Clerestory-style windows (a row of windows set above eye level) or one or two fixed, narrow vertical windows are a great way to switch things up. These can be used in conjunction with standard windows to add interest and maximise light.

Gable end windows are another sure-fire way to make a design statement whilst maximising light. They are also the perfect solution where a shallow roof pitch needs to be taken into consideration, for example loft conversions.

Room orientation

For areas of a home where adding large panels of glazing is not an option, consider the orientation of the home to make the most of the natural sunlight. An east-facing wall will benefit from sun in the morning but be in shade by the afternoon. Use this to the homeowner's advantage by considering when they will be using certain rooms most. If it is an office, prioritise south-facing walls for glazing so the room benefits from light throughout the day. There are several types of daylight tracking software which will help with this.

Victoria Brocklesby is COO at Origin

Brett Martin's cascade makes the grade

When it came to the specification of a replacement rainwater system for a 19th century school building, **Brett Martin's** Cascade Cast Iron Style Rainwater System offered authentic detailing, long-term performance and ease of installation without compromising the integrity of the building. Brett Martin provided the client with full on-site technical support as well as recommending a cost-effective rainwater solution which had the look and feel of cast iron but offered the long-term benefits of plastic. The specification of the Cascade rainwater system comprised 112 mm Roundstyle Gutters and 68 mm Round Downpipes with Tudor Rose Hoppers, all in Classic Black and providing the authentic detailing and finish they were looking for. This was complemented by the Cascade 110 mm Push-Fit Soil System to provide a complete look which was architecturally sympathetic to the 19th century building and the original detail of the previous cast iron system Cascade is much quicker, easier and safer to install at height, helping to offer the contractor and their client huge savings in terms of on-site installation costs.

mail@brettmartin.com www.brettmartin.com

Crittall on the right lines with Crossrail

Crittall is making a major contribution to new and refurbished West London railway stations on the multi-billion pound Crossrail infrastructure project. Crittall has been creating the fenestration for a series of AfA (access for all) link bridges over the railway lines between platforms and ticket offices. W20 glazed pivot windows coupled on a fixed light with a PPC steel cement board made up the majority of the frames required. Crittall organised the contracts so as to minimise disruption to the operation of the railway which has now been renamed the Elizabeth Line. Just over half of the frames were fixed and glazed off site in Wiltshire and Rotherham then transported by the contractor to the site and craned into place during specific set times controlled by Network Rail. The remaining windows for the contract had to be fixed and glazed on site at the stations during controlled 'possession' time slots at nights and weekends when the railway lines were closed of a period of time.

01376 530800 www.crittall-windows.co.uk

New automatic storm lobby improves visitor access

A privately owned golf club, Thonock Park, in Lincolnshire, has recently completed an extensive refurbishment to the main building. Updating the front entrance, **TORMAX** worked closely with Window Concepts to deliver fully automatic access into the main reception via a contemporary, all-glass storm lobby. Comprising of inner and outer sliding doors that operate in tandem, heat-loss from the building is significantly reduced during wet and windy days. The entire re-fit had to be completed to a very tight timescale, whilst the club remained open. With this in mind, TORMAX recommended powering the doors with their reliable 2201 door operators, which benefit from a patented component fasting mechanism, making them extremely quick and easy to install. Measuring just 142 mm x 100 mm, the TORMAX 2201 operator is surprisingly compact, delivering an unobtrusive and aesthetic solution for the all-glass entrance at Thonock Park. However, it is still a powerful operator capable of driving either a single-leaf door of up to 120 kg or a double set of doors weighing 100 kg per leaf, providing an impressive pass-through space of up to 2000 mm.

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Garador now offering Secured by Design accreditation on sectional garage doors

Garador is now offering Secured by Design (SBD) accreditation across nearly all of its sectional garage door range. The highly regarded SBD status is being offered as a free upgrade on all Garador sectional garage doors that meet certain eligibility requirements, including being a 42 mm Premium Insulated model and fitted with the electrically automated GaraMatic operator which is engineered with an anti-lift kit to prevent forced entry.

Garador's managing director, Neil Discombe, said: "We've always been proud of the quality of our sectional garage doors. This new Secured by Design accreditation confirms that they are robust and secure and we expect this new feature to be well received by our customers."

Customers can choose from the full range of fully insulated Georgian and Linear designs and all standard RAL colours.

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The Liverpool electric dream house – Insulated with Huntsman BS Spray Foam

Homeowner and lecturer in Sustainable Architecture, Dr Stephen Finnegan is rising to the challenge of achieving a Net Zero Carbon (NZC) Victorian home in a leafy suburb of Liverpool. His objective is to minimise running costs, emit no carbon emissions in operation and run the entire property on electricity, largely generated through sustainable sources. Here, we take a look at the project.

The house, a large detached, brick-built property constructed at the turn on the 19th Century, is typical of the style of building of the period. Solid walls, high ceilings, a walk-in cellar and occupied roof rooms (historically used as servants quarters!). Heating the four-story property had originally been via open, coal fires in every room, including those in the roof prior to the installation of gas central heating.

Dr Stephen Finnegan, who is a lecturer in sustainable architecture at the University of Liverpool, plans to take the building back to a bare shell and incorporate as many energy harvesting and low energy consumption systems as is practical in the restoration of the house. He will then carefully monitor energy and carbon usage with the overall target of Net Zero Carbon emissions.

His ultimate objective is to run the house entirely on electrical energy, through the incorporation of a solar PV system with a SunSynk battery storage system, an Air Source Heat Pump (ASHP), thermal store and monitoring kit (all of which will be provided by Dynamis Associates Ltd). This retrofit system will provide domestic hot water and underfloor space heating. An electric vehicle charging point and a 'time in use energy tariff' will catapult the house into the 21st Century.

Fabric "first approach" to thermal performance

According to Dr Finnegan, it is well established that around 20% of UK carbon emissions are generated through heating, hot water and cooking in domestic properties. With over 60% of current housing stock built pre-1960 when little thought was given to heat-loss prevention, the challenge of reducing these emissions is significant.

New-build properties can be built to far more thermally efficient standards than their predecessors, so the Government's target of slashing overall carbon emissions by 78% by 2035 puts real focus on older buildings where retro-fitting of heat loss prevention methods and reducing energy inputs, particularly of carbon rich sources such as gas, are so crucial.

In older properties, particularly like this house, built over 120 years ago, when energy costs were far lower and measures to prevent heat-loss through walls and roof were rarely considered, the challenge is even greater.

Dr Finnegan explains: "Our first big obstacle to overcome is heat loss prevention and this primarily focusses on improving insulation and air tightness"

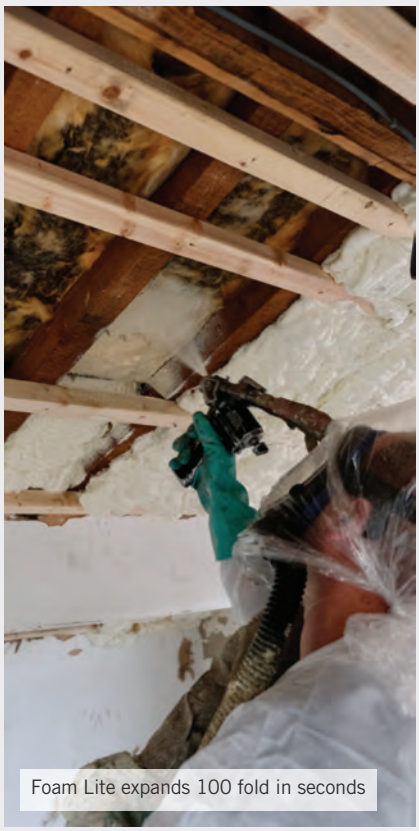
Up to 40% of a building's heat loss can be attributed to air leakage [what we would all understand as draughts], so it is vital that air tightness is included in any programme of measures designed to improve a building's thermal performance. A so called 'fabric first' approach.

A breathable, sealed-box environment

Traditional insulation materials such as mineral wool or rigid board products can be time-consuming and expensive to retrofit and if not installed correctly can still lead to air leakage. It is almost impossible to achieve a completely airtight seal, while still allowing the building to breathe naturally.

The electric dream house. A substantial brick built Victorian three story property

Eaves area before treatment


Foam Lite expands 100 fold in seconds


The entire roof area insulated in a matter of minutes

"We needed a more efficient, modern method of insulation that provides a high level of thermal insulation and help us create a sealed 'breathable' box environment to give us better management of both heat input and ventilation. Electricity is already expensive and prices will only go upwards, so it's vital that we do all we can to first minimise consumption, prior to the installation of any renewable energy technologies" said Finnegan.

Early on in the restoration programme, insulation specialists, Green Horizon Energy Solutions were brought in to advise on how best to minimise thermal loss. Director, Matt Lawford recommended the use of Foam Lite LDC 50, a breathable, spray applied 'open cell' insulation system from Huntsman Building Solutions (HBS).

"Huntsman's Foam Lite is a spray applied insulation system that expands quickly but gently, sealing all gaps, service holes and hard to reach spaces, virtually eliminating cold bridging and air leakage" explained Matt Lawford.

"As well as the entire roof area, we recommended applying spray foam insulation to the underfloor area of the timber ground floor. Up to 20% of heat can be lost through an un-insulated suspended floor and, with easy access from the cellar area, this gave us a quick-win in terms of heat loss mitigation" added Lawford.

Spray applied, open-cell insulation

Unlike the urethane foams of 20 years ago, modern spray foams such as Huntsman Building Solutions Foam Lite LDC 50 uses water as the blowing agent. This means that the reaction between the two components produces a small amount of CO_2 which causes the foam to expand. Cells of the foam burst and the CO_2 is replaced by air.

This "open cell" foam provides outstanding insulation properties but still allows the building to breathe naturally, without the risk of condensation. HBS spray foam insulation systems were developed in Canada to cope with their severe winters and are now widely used in UK in both the residential and commercial sectors.

In the roof area, the original lath and plaster covering was removed from the underside to the pitched roof and 50mm section timber counter- battens installed. The roof had been re-slated in the 1960's and the bituminous sarking felt covering was found to be in sound condition so no further remedial work was needed.

A thin layer of glass fibre was removed and HBS Foam Lite LDC 50 insulation sprayed directly on to the exposed felt to a depth of 120 mm. After trimming flush, the ceiling was fitted with a Vapour Control Layer (VCL), re-boarded and skimmed.

With good access to the underfloor at ground level (via the basement), insulation was sprayed between the flooring joists to a depth of 120 mm, eliminating draught incursion to the rooms above.

Post restoration data collection

The house restoration project began in early 2021 with a target for completion and occupation by the end of the year. An array of temperature, energy and relative humidity sensors are being installed as work progresses allowing a comprehensive programme of data collection covering air tightness, net electrical energy consumption, thermal performance and so on. These will be collated into a formal paper to be published by Dr Finnegan during the latter part of 2022. Alongside a live data feed open to the public and hosted by the Zero Carbon Research Institute www.zcri.co.uk, which was founded by Dr Finnegan.

01485 500 668
www.huntsmanbuildingsolutions.co.uk

Safe and sound

Ben Hancock of Oscar Acoustics looks at the importance of employee welfare when redesigning workspaces, and the challenges involved

Photography © TP Bennett, BW Workplace, Tom Green Photography

As waves of workers are now returning to offices, employers are under increasing pressure to ensure workspaces are not just safe, but inviting. In the wake of the pandemic and having spent months at home, employees' expectations of what an office environment should look, sound and feel like, have changed. But are employers doing all they can to fulfil these needs, and what are the experiences of architects who have been tasked with redesigning office workspace?

Prioritising employee welfare

There is no doubt that the transformation of current workspaces is a challenge. Often working in rooms where rubbing shoulders with colleagues was the norm pre-pandemic, renovations in limited space were never going to be easy. Yet despite the growing awareness around office safety and the impact that noise can have on employee health, some companies undergoing office restructures are still falling short of the mark in the decision-making process. In fact, according to our recently commissioned research, which surveyed over 200 architects on the challenges of transforming workspace, almost half reported that "clients are not interested in 'end user health'." This was despite them being offered guidance and expertise to the contrary. This is a worrying statistic, given that a reported two in five employees plan to embrace 'hybrid' working by 2023.

Further challenges

With safety a number one priority, creating an effective post-Covid office space requires more than just social distancing measures. Companies need to design spaces where collaborative working can take place with ease, and where much-missed social interaction can be safely reintroduced. Architects are also facing further challenges, particularly when it comes to budgets to ensure work is carried out properly. According to our research, two in five architects (40%) stated that 'inadequate budgets' was the main challenge when working on office fit outs. For architects, this presents a tricky situation: appease a client set on a box ticking exercise, or push for a truly comfortable and safe work environment?

Importance of acoustic health

What is clear is that the impact of acoustic health within offices is still being underestimated. Without adequate acoustic treatment, a workspace can quickly turn into a noisy and stressful environment, compromising employee comfort and undoing all the benefits of expensive office revamps.

Studies have highlighted the impact excessive noise can have on physical and psychological health and it can be a major contributor to reduced productivity at work. Poor office acoustics can also lead to employees taking more sick days, which has a serious knock-on effect on business

Continued on page 66...

efficiency. This fact is not lost on architects either as, according to our report, just 9% of architects felt acoustic design is "given the attention it deserves by clients."

Worrying still, is the work needed within the architectural community to ensure that acoustic health is given the correct attention. From our survey, only around one quarter of respondents (27%) could correctly identify which peak sound pressure should not be exceeded (87 Db), whilst 16% were unaware of any health risk associated with excessive or reverberant noise.

Wellness & duty of care

It is clear from our research that further education for companies looking to install office fitouts is needed, particularly around acoustic health. However, architects also have a role to play in raising the awareness of the impact and dangers of excessive reverberant sound. Fortunately, there are a range of architectural acoustic finishes for ceilings and walls – inncluding sprays and plasters – that can help architects in their mission to create calm and inviting spaces without breaking client's budgets. Quick installation times and a guarantee of minimal disruption can often help sway the vote too.

The impact of acoustic health within offices is still being underestimated

In a landscape where businesses need to be operating at a higher efficiency within increasingly competitive markets, it may be well worth architects fighting the corner for improvements to office acoustics. By doing so, clients can be sure that their costly fitouts are fit for purpose and that they do not find their reimagined spaces plagued by noisy and disruptive sound.

A silver lining to the challenges presented by the pandemic is the window of opportunity we have been given to undo some of the biggest challenges faced with working environments. With the right due care and consideration both architects and clients can ensure office-based employees feel safe and comfortable in the months and years to follow.

Ben Hancock is managing director at Oscar Acoustics

Hotel benefits from multiple moveable walls

The Londoner is the world's first super boutique hotel offering a collection of spaces, tastes and experiences brought to life across 16 elegant storeys. Delivering flexible space to cater for a myriad of impressive events, **Style** installed a six metre high Skyfold vertical-rising moveable wall in the main ballroom, as well as a combination of Dorma Hüppe Variflex sliding walls and smaller Skyfold systems throughout the numerous event areas. This focus on adaptable space, combined with Style's expertise in delivering partitioning walls with impeccable acoustic performance, gives the hotel multiple options for opening out or dividing the available areas and maximising room hire revenue. Bringing an exciting new buzz to the south-west corner of Leicester Square, The Londoner boasts one of the world's deepest habitable basements with six subterranean levels housing two cinemas, an expansive ballroom, as well as a swimming pool and spa facility. Style worked closely with the architect, interior designer and contractors to deliver flexible event space throughout the hotel.

www.style-partitions.co.uk

New lease of life thanks to Sto insulation

An historic landmark has been given a new lease of life with the installation of StoTherm Mineral K external wall insulation and StoSilco finishing render, from **Sto**. Built in 1937, the building in Keswick originally housed the UK's first pencil factory. The BBA-certified StoTherm Mineral K system combines impressive insulation with unrivalled fire protection characteristics. It features Sto-Mineral Fibre thermal insulation boards, which in this case were fixed to the substrate using StoLevel Duo Plus mineral bonding and reinforcing mortar. The exterior surface was finished with StoSilco silicone resin render.

0141 892 8000 www.sto.co.uk

Latest news, views and more

If you like to be kept informed of all the latest news, views, and promotions for the architectural community, the ADF email newsletters can offer you regular updates straight to your inbox. The weekly Editor's Choice newsletter includes top news stories curated by the ADF editorial team, while the monthly CPD Focus and fortnightly ADF Newsletter offer updates on products, services, events, and learning opportunities available from a wide variety of manufacturers and suppliers.

www.subscribepage.com/adf

The new forest of learning

Erlev school in Denmark's Haderslev is visionary and award-winning for many reasons. With all columns and beams constructed in wood, it is one of the largest timber structures to be constructed in the country for a long time. It's also unusual for the teaching method it employs which comprises student-centred learning and flexible open-learning environments. The school has also just won Denmark's prestigious School Building of the Year 2021.

Architects Arkitema conceived the design based on the principle of a supported forest-like grid of columns in a fixed modular system. This supports high ceilings lined with Troldtekt acoustic wood wool panels to create quiet and attractive leaning areas.

Pernille Svendsen of Arkitema Learning is very pleased with the acoustic solution, comprising fine surface wood wool panels. She comments: "I think that the Troldtekt ceilings are a wonderful match for the wooden structures and the many interior elements in wood. Troldtekt is both an acoustic solution and also suits the overall design catalogue for the school. The panels have a surface that is a bit rough, but in a good way. A school shouldn't look too fine and polished. It should signal that it can withstand use, hanging things up, exhibiting and moving around. There's room for change here."

The new school is divided into seven clusters, one cluster for each year group from 0 to 6 and a maximum of 70 children in each year. They comprise a variety of spaces ranging from small private niches to multifunctional workshop zones. The varied environment encourages the school's diverse instructional strategies together with a strong focus on movement and physical exercise.

Founded on the Cradle-to-Cradle design concept, Troldtekt's natural and inherently sustainable panels are available in a variety of different surfaces and colours and contribute positively to a building's BREEAM, DGNB and LEED ratings. In addition to their high sound absorption and tactile surface, they offer high durability and low-cost lifecycle performance. Available in various sizes and in four grades from extreme fine to coarse, the panels can be left untreated or painted in virtually any RAL colour.

Photography: Niels Nygaard

Samples, case studies and technical guidance are available from Troldtekt, while more information about this project can be found at bit.ly/3gB9Eau

01978 664255 Troldtekt.co.uk

Circoflo UFH system selected for stylish Yorkshire residential scheme

The practical and logistical benefits, as well as the price competitiveness offered by **Circoflo's** range of underfloor heating solutions, have led to its ClipRail system being employed for a development of nine stylish dwellings in a beautiful rural location in West Yorkshire. As the sub-contractor's founder, Rob Jones confirms his decision to use ClipRail was based on the competitive quote given by Holmfirth based merchant, Holmebuild and the service support available through Circoflo, together with E Tupling, the underfloor heating specialist's main distributor across the north of England. The Plumbing Manager for Holmebuild, Darren, added: "We've been impressed with the direct contact we've had with Circoflo". In the first five houses completed, R. J. Jones' engineers have clipped the 12 mm pipe runs down across Jablite insulation ready for the flooring contractor to lay a conventional wet screed, and connecting each circuit back to the plot specific manifolds provided as part of the Circoflo package. The 133 mm pipe spacing and good thermal transmittance via the screed will help achieve very good occupant comfort while assisting the heating systems to run at optimum efficiency.

01392 360457 www.circoflopro.co.uk

Domus Ventilation launches new units

Domus Ventilation has launched the new D-dMEV range of single flow, continuous running decentralised mechanical ventilation fans for small to medium size rooms, such as bathrooms and toilets. The D-dMEV, which can be fitted in a wall/panel, ceiling or window, extracts indoor stale air directly to the outside providing a more comfortable indoor living space. Its unique winglet-type impeller provides enhanced air extraction for maximum effectiveness, yet remains very quiet in operation – down to 9 dba – and has a low power consumption.

vent.info@domusventilation.co.uk www.domusventilation.co.uk

Improving the air quality in schools

The long established Vario fan by **VORTICE**, which has been a popular choice due to its ease and variety of installation options, can be used with a selection of sensors, including a CO_2 sensor which ensures the fan extracts appropriately to deal with the amount of CO_2 within the room – a hot topic at the moment especially in school environments. Vario is a reversible axial fan, providing fresh air into the building and extracting the stale air. Marketing Manager Jennifer Quinn says: "Ventilation that ensures adequate air exchange makes it possible to breathe clean air."

01283 492949 www.vortice.ltd.uk

The answer to the biggest office complaint

The biggest source of office environment complaints? Air conditioning. Around 20-30% of workers are not happy with their temperature; either being too hot or too cold. **AET's** flexible underfloor air conditioning system can eliminate user complaints with the personal local control feature, or by simply relocating fan terminal units to an alternative position. With worker comfort being directly attributed to productivity and around 90% of business operating costs attributed to staff, the potential impacts of indoor environment design should be a major concern.

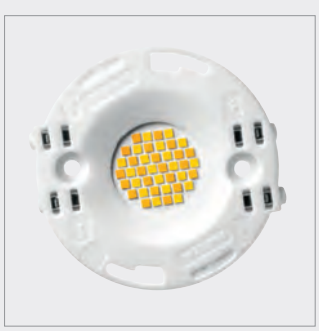
01342 310400 www.flexiblespace.com/why-ufac

New, improved, bigger and greener than ever!

The **Knightsbridge** 2022 catalogue is out now; jam-packed with over 600 new products and full from cover to cover with great ideas, innovations and inspiration. For the latest, smartest and best solutions in wiring accessories and lighting, you won't find a more comprehensive and informative read. The handy A5-sized publication is divided into easy-to-reference sections and provides full product details along with high quality lifestyle photography and detailed product images. Helpful information about industry and product certification is also included in this edition, to aid installers in making informed choices.

01582 88 77 60 www.mlaccessories.co.uk

Spotlight LED module for Tunable White applications



Tridonic launches second generation of spotlight and downlight modules for Tunable White solutions. SLE PRE2 LED modules, equipped with Chip Scale Package (CSP) LEDs, can be maximised with optional mixed lens. Integrated in the CSP module are components that do not require soldered wire connections or a substrate. CSP technology gives the LED modules a high optical density, ideal for use in small luminaires with large lumen packages. The compact SLE 13/17 mm 927-965 PRE2 module offers Tunable White functionality with high colour consistency (MacAdam 3) and a colour rendering index of Ra > 90. The luminaires cover a colour range from 2,700 to 6,500 Kelvin, with a constant luminous flux of up to 3,030 lumens. Combined with Tridonic's 38W DT8 driver, they are ideal for attractive shop lighting with individually adjustable colour temperatures. The modules are available in light-emitting surface sizes LES 13 and LES 17. For each, a housing with a snap-on locking function is available for easy mounting in the reflector. The LES 13 delivers over 2,000 lumens and an efficiency of up to 114 lm/W. The LES 17 delivers 3,000 lumens and an efficiency of up to 111 lm/W.

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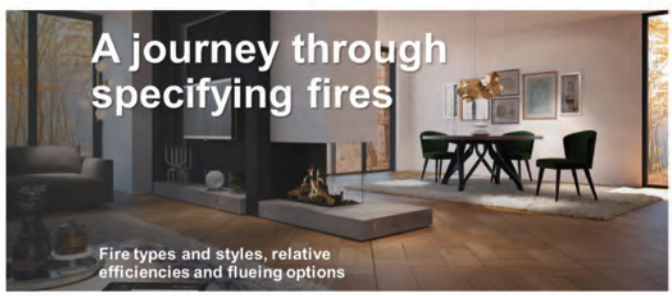

DRUFIRE.COM

Carpet tiles that weave together the past and present

With the carpet tile designs of Cobbles, Haze, Dune, Meadow and Polder, **modulyss** is taking offices on a voyage of discovery through the landscapes connected to the company's Belgian heritage. From the ever-changing coastline in the west, to the iconic cobblestone roads and the fertile polders more inland, the designs bring the essence of a connection to the places of our memory. "Heritage weaves together past and present, reflecting the shapes, textures and colours of Flemish landscapes," explains the collection's designer, Ruben De Reu. The Heritage collection includes a range of Cradle to Cradle Certified® Gold and Silver solutions, also available with modulyss' Limit Your Footprint programme for a carbon neutral carpet tile. Made with ECONYL® fibre and the ecoBack Cradle to Cradle Certified® Gold backing, any remaining carbon is independently assessed and negated through the CO2RE initiative, which sees emissions offset. Currently, modulyss supports projects in Africa to reduce inefficient and harmful traditional cookstoves and open fires. Replacing these sees a 50% reduction in fuel and 35% less greenhouse gas emissions.

0800 096 2702 www.modulyss.com

Zip launches next generation system with infection control in mind

Never one to remain static in this ever-changing world, global drinking water specialist **Zip Water** is proud to announce the launch of its fifth generation drinking water system. As workplaces begin to welcome people back, facilities and office managers will no doubt be looking for ways to keep staff safe and healthy. The latest Zip G5 command centre has been designed to provide additional hygiene control to businesses, as well as offer an improved user interface, making it the most advanced system Zip has ever created. As with its previous iterations, the G5 provides filtered boiling, chilled and sparkling water in an instant, but now includes features such as SteriTouch® antimicrobial treatment which is applied to both key components in the water path and touchpad in the new Classic Plus tap, killing 99.9% of bacteria. This new under-the-counter system is partnered with one of Zip's sleek HydroTaps, which can be positioned either over-sink or on the countertop with the addition of a font. Customers can choose from a variety of models. The innovative HydroTap systems are also conducive to an environmentally positive refill-culture, negating the use for single-use plastics.

0345 646 1015 specify.zipwater.co.uk/all-new-g5-hydrotap

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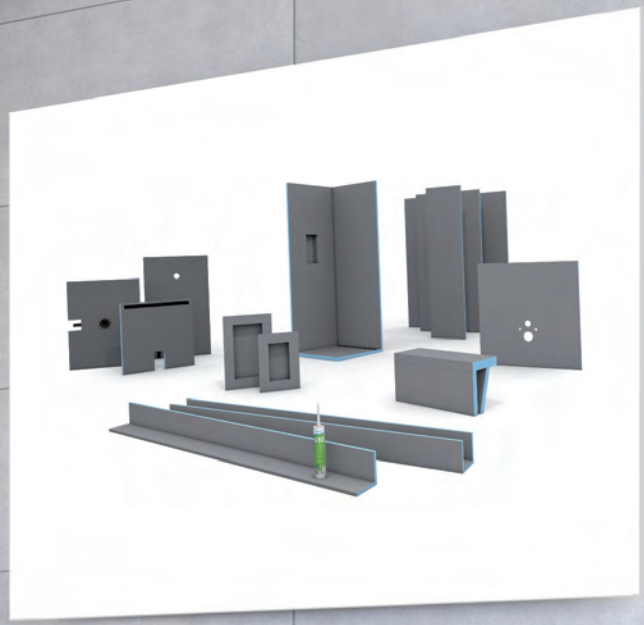

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IVC Commercial creates inspiring spaces at Assemble by Seven Dials

IVC Commercial's award-winning Studio Moods modular vinyl concept has been used to make a feature out of the floor at 16&20 Short's Garden, a contemporary office space in Covent Garden, London.

A Cat A office in London's Covent Garden district, 16&20 Short's Garden blends urban warehouse with contemporary office design. Across two buildings directly opposite the iconic Neal's Yard, the Grade II Listed Victorian warehouse provides three floors of office accommodation amounting to some 990 m².

On the first floor of 16&20 Short's Garden is a plug and play ready workspace that's used as a showcase of Assemble by Seven Dials, a turnkey fit-out programme offered by the landlord. Here, IVC Commercial's Studio Moods modular vinyl floor was specified by fit-out specialist STOiCA to create a designated zone for the fully integrated kitchenette and breakout and congregation areas.

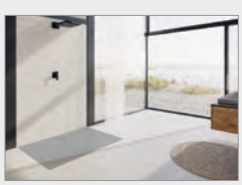
Ciara McClelland, STOiCA, says: "We originally proposed LVT but felt that IVC Commercial's Studio Moods modular vinyl would be a really great way to elevate the space. We just loved the aesthetics of the flooring and have since received positive feedback reinforcing our own thoughts. Great design was delivered at a sensible price."

Selecting Studio Moods Diamonds and Wicker patterns, STOiCA have used a range of natural wood and stone effects to create a relaxing look that upholds the premium feel of the entire space. In breakout and congregation areas, the design team selected Sierra Oak in a stylish Wicker pattern for a modern solution to wood effect flooring. For the kitchenette, Diamond in a combination of Verdon Oak and two shades of Jura Stone for a striking tri-tone geometric pattern.

Made in Belgium using 50% recycled content, Studio Moods is IVC Commercial's modular vinyl floor that brings bespoke floor design to commercial interiors. Using nine geometric shapes combined with wood, stone and colour decors, the concept provides 107 off-the-shelf looks that make it fast and easy to select a floor personalised to projects. The modular vinyl also allows the creation of unique patterns, as well as a completely bespoke floor in any combination of 160 Moduleo 55 looks.

01332 851 500 www.ivc-commercial.com

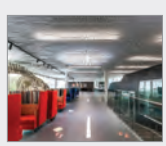
Introducing the Superplan Zero



Superplan Zero, is the latest shower floor from **Kaldewei** and promises a completely floor-level finish. When creating Superplan Zero, Kaldewei took on board the wishes of their customer's creating a product that is totally flat to the floor, with zero steps, zero edges, and zero compromises. Developed by the award-winning Berlin product designer Werner Aisslinger the Superplan Zero maintains Kaldewei's green credentials with its luxurious steel enamel base it is both durable and 100% recyclable.

01480 498053 www.kaldewei.co.uk

Hunter Douglas – The metal ceiling specialist



Since **Hunter Douglas** developed its first metal ceiling 60 years ago, it has introduced a wide range of styles that can be used in almost all types of building. Because acoustics are crucial in a design, the ceilings can be manufactured with micro-perforations and an acoustic non-woven backing can be added to the panels as these help to absorb the sound energy. Hunter Douglas's metal ceilings are guaranteed to last for years and because they are made from recyclable materials, they are also more environmentally friendly. As well as standard colours, all metal ceilings can be finished in RAL colours, as well as unique metallic hues.

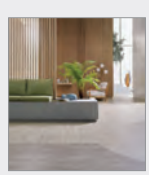
01604 648 229 metalceilings.hunterdouglasarchitectural.eu/en_gb

F. Ball raises the level at university

Technical representatives from **F. Ball and Co. Ltd.** have provided a cost-effective alternative to completely removing and replacing a weakened screed as part of a flooring refurbishment at the Aberystwyth Arts Centre. The company was contracted to install rubber floorcoverings over two floors of the centre's main building. The whole subfloor area was capped with a layer of F. Ball's Stopgap 1200 Pro high performance levelling compound to create a perfectly smooth base for the receipt of new floorcoverings. The final phase was to install Nora rubber sheet floorcoverings using F. Ball's Styccobond F48 PLUS.0

01538 361 633 www.f-ball.co.uk

Forbo's new Marmoleum Linear collection



Public buildings are beginning to move away from the traditional, institutionalised look and instead are adopting more 'human centred' designs to support health, well-being and comfort. In response to this, **Forbo Flooring Systems** has refreshed its CO_2 neutral (from cradle to gate) Marmoleum Linear collection, with a beautiful natural colour palette, ranging from light earthy tones to cool greys. Featuring a softly striated design, evoking an expression of wood, Forbo's new Marmoleum Linear collection will help specifiers to bring a touch of nature inside to create warm, welcoming and relaxing spaces.

01773 744 121 www.forbo-flooring.co.uk/marmoleumlinear

VitrA introduces Liquid, a new bathroom range in collaboration with Tom Dixon

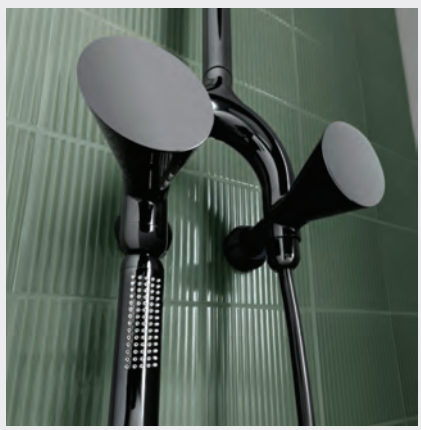
This Autumn, global bathroom brand VitrA introduces Liquid – a new range designed in collaboration with Tom Dixon. Liquid is the first ever bathroom range by the acclaimed British designer.

The range is the latest addition to VitrA's portfolio of designer collaborations, part of a long-standing programme of working with world-renowned designers to create distinctive, modern bathroom collections to complement any washroom space.

Tom was impressed by VitrA's extensive experience and highly specialised in-house design team, spending time at the sophisticated manufacturing plant and Innovation Centre at the core of the company's operation. The collaboration with VitrA has allowed Tom to explore new design opportunities while gaining an appreciation of the complexities of manufacturing products for the bathroom.

VitrA and Tom Dixon share a similar vision for creating innovative and original designs that retain their appeal over the years. For Liquid, part of Tom's inspiration was Victorian bathrooms. "I like the feeling of permanence in Victorian bathrooms, with their big chunky taps and fat tubes," Tom notes, "It's an aesthetic that's closely connected to a whole tradition of British engineering and influenced the development of the bathroom." The fact that clay is readily available and extremely durable resonated with Tom, particularly from a sustainability perspective. He found it fascinating "the way a bit of grey and greasy earth can transform into something so white, clean and shiny." Like much of Tom's recent work, the new collection is aligned with his increasing use of round-edged aesthetics. The designs have been inspired by elements of pop art, such as Jeff Koons and his Balloon Dog and the work of Claes Oldenburg, as well as the sculptor Barbara Hepworth's geometry of soft forms and use of rounded marble.

Tom and VitrA's shared vision was to create a complete bathroom solution that is for everyone: "contemporary without being of the moment," states Tom, while being sufficiently different from other collections on the market. Over months of close collaboration, VitrA and Tom Dixon explored lots of new ideas. "I think design should always increase the potentials," says VitrA's Design Director, Erdem Akan.



"If you get the core pieces right, you can create combinations and potentials – creating more with less." The final result is Liquid, a range that is wholly new and yet somehow familiar.

Recognising the current obsession with skinny and reduced designs, Tom has created the opposite, incorporating fatter, softer lines that are inherently more generous, strong, and long-lasting. The smooth, rounded edges are easy to clean, alongside taps with simple controls, while soft edges ensure a safe bathroom environment.

While the overall design is stripped back and reduced, a style Tom refers to as 'expressive minimalism', the functionality is intuitive so that users can instinctively understand how to operate the products. "I wanted the collection to look like a kid's sketch of a bathroom basin or a tap," says Tom, "displaying a clear logic and simplicity in looks and usage."

Consciously choosing to offer only white ceramics, the range combines different materials including fluted glass and metal mesh. Taps and showers are available in chrome or for contrast, a new gloss black finish that is atypical in modern bathrooms. The range also includes distinctive wall tiles, available in five designs and with colour options of white, black, grey, sage green and ecru. The tile designs reflect ripples in the water and patterns inspired by the classic U-bend, featuring embossed dots and waves that can be creatively configured. Each of the products can be combined to create different styles and purposes, such as private and public usage, offering customers the opportunity to personalise the bathroom space by choosing from a wide range of products that includes a urinal, bidet and touch-free tap. This flexibility means that customers can use the collection in a wide variety of locations from domestic settings in the home to more professional environments such as offices, restaurants and hotels.

Tom Dixon joins designers including Ross Lovegrove, Sebastian Conran, Arik Levy, Terri Pecora and Claudio Bellini, each of whom has collaborated closely with VitrA's in-house team to create bathrooms that reflect their own vision and aesthetic style.

01235 750990 www.VitrA.co.uk

How Schlüter-KERDI-BOARD can take your bathroom project to the next level

When it comes to planning and designing a bathroom or wetroom, getting the perfect finish right is an absolute must. This can only be achieved by creating a completely level and tile-ready substrate prior to installation of the covering material.

Creating something stand-out is not always straightforward to achieve though as there are several factors to consider. Firstly, the substrate used must be suitable for a tile or stone installation. Secondly is the decision of whether to go for a system from one or several manufacturers and lastly, the products chosen need to be versatile enough to give you full creative control. Thanks to the BBA-certified tile backerboard Schlüter-KERDI-BOARD, the hard work has been done for you so all you need to do is get those creative juices flowing.

Consisting of an extruded hard foam core panel with a special reinforcement material on both sides and waterproof fleece faces to finish, KERDI-BOARD is also an eco-friendly alternative to fibreglass or cement-faced backerboards. The absence of a cementitious layer means that it costs less to transport and produces no dust when cut, making for healthier working conditions and avoiding the release of toxins into the wider environment.

Using various sealing bands, adhesives, and prefabricated corner pieces available from the Schlüter-KERDI range, the seams between individual boards are quickly and robustly sealed. This will create a complete CE marked bonded waterproofing assembly upon which tiling can commence without delay.

There's a choice of seven thicknesses of KERDI-BOARD from 5-50 mm, which means it can be used to create various design features such as shelves, niches, partition walls and even seats within a bathroom area. Pre-formed shapes such as corners or curves allow you to create custom furniture and features whilst reducing installation time on site.

When looking to introduce some unique touches to your bathroom or wetroom project, KERDI-BOARD will provide a reliable substrate to tile onto, leaving you to focus on adding the creative elements and putting your own stamp on the design.

01530 447991
www.schluterspecifier.co.uk

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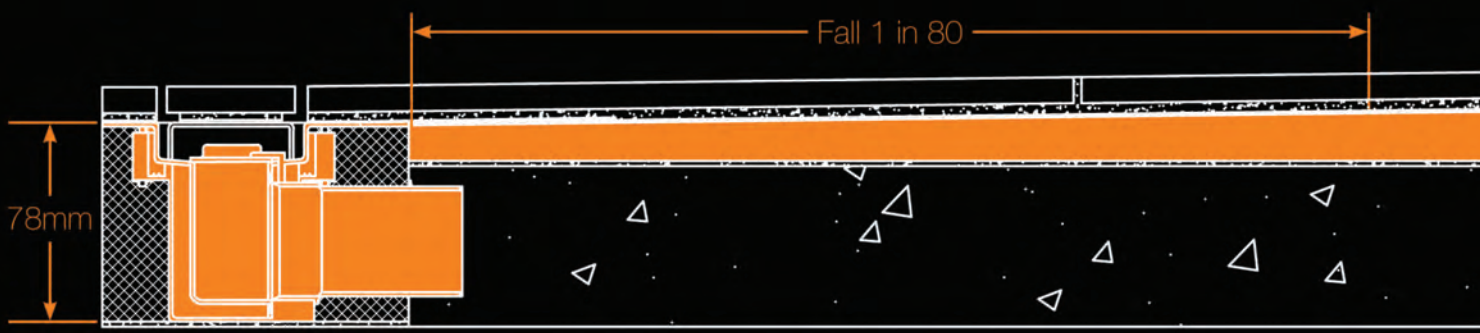

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A watertight wetroom

Ian Knifton of Schlüter-Systems discusses how best to approach a wetroom specification to ensure the correct design for a watertight finish

Wetrooms can be a great addition to both residential properties and those within the hospitality sector. Many homeowners consider this option to add value to their property, while hotel owners are realising the design potential a guest wetroom can bring. However, it is essential that the wetroom is properly fitted and watertight, using the right products and systems throughout the process.

Water-resistant vs waterproof

There is plenty of room for creativity in wetroom specification, but the designs need to be backed up with the correct materials and maintenance schedule in order to achieve the best results. This means understanding seemingly subtle details that in fact make all the difference, such as the distinctions between water-resistant and waterproof materials. This is a fundamental distinction to make in achieving a long-lasting result for a wetroom: water-resistant is partially absorbent; meaning water is able to reach the tiling background, whereas waterproof means totally impervious; that water is unable to reach the tiling background.

A common misconception is that tiles and grout are waterproof in themselves. In fact, these two elements of an installation are at best, water-resistant. This means that for waterproofing protection, you must look at what is used beneath the tile covering.

Waterproofing for walls

There are three different options when it comes to choosing a waterproofing system for walls.

Commonly used liquid-applied membranes are cost-effective at the point of purchase. However, they can be difficult to apply evenly and slow-drying, often making them impractical for large-scale usage.

Sheet membranes provide uniform coverage and bridge cracks in substrates. Like liquid-applied membranes, their use relies on application to an even substrate.

This means they are often used as a second layer over plasterboard or water-resistant backer boards.

Waterproof tile backer boards provide a flat and even substrate, as well as being ready waterproofed. Therefore, they can reduce the number of installation processes needed to create a waterproof assembly, which can save time and money onsite.

An uncoupling membrane not only waterproofs but also helps to manage movement in the flooring assembly

Waterproofing for floors

The same waterproofing systems used for walls are often not the best choice for floors. Floors endure more stresses, so extra functionality is desirable. An uncoupling membrane not only waterproofs but also helps to manage movement in the flooring assembly. This functionality is particularly important in heated floor assemblies, which expand and contract more than standard floors.

Tile & stone fixing

Tile and stone should always be fully bonded into the adhesive. 'Dot and dab'

fixing techniques leave voids behind the tile, in which moisture can be harboured and mould can develop. Tile or stone greater than 12 mm in thickness should be mechanically fixed as per BS 8298. A suitable substrate (e.g. plywood or blockwork) must be in place behind your chosen waterproofing in order to support this load.

Correct 'falls to drainage'

Specifiers should accommodate falls to drainage in one area of the wetroom, unless the room is particularly small. Falls should be between 1:35 and 1:80 (i.e. for every 80 mm the incline travels towards the waste outlet, the floor level will fall 1 mm) as per BS 5385 Part 3. Falls should always be below the waterproofing layer, not in the tile adhesive applied above.

There are two main methods used to create falls. The traditional method involves using a screed formed to the required falls to drainage. The lowest point in the screed should still meet British Standards; if a screed is too thin, it will crack or crumble when under load.

The other option is to use a preformed shower board which is manufactured with the appropriate slope already created. Some also come ready-equipped with waterproofing layers.

You can easily achieve a wetroom that not only looks great to suit the client's needs, but also performs as it should

Specifying a wetroom can be something of a juggling act; a client will likely have a strong opinion as to how it should look and tie in with the rest of a building and therefore focus can be drawn away from getting the fundamentals correct. However, if the factors listed above are taken into consideration, you can easily achieve a wetroom that not only looks great to suit the client's needs, but also performs as it should, resulting in a long-lasting and beautiful installation.

Ian Knifton is head of technical and training at Schlüter-Systems

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Lecico's Atlas Pro range specialises in products for commercial buildings including schools, leisure facilities, hotels and offices.

Lecico Bathrooms are one of the world's largest manufacturers of sanitaryware, number two supplier into the UK market, and export to over 50 countries worldwide.

Lecico manufactures a range of internationally certified sanitaryware products sold both under Atlas Trade, Atlas Pro and Design Series brands. All Lecico Products are UKCA, WRAS and LANTAC approved where appropriate and are listed on the UK water label scheme.

Lecico Bathrooms products are also now live on the NBS platform.

Lecico Bathrooms are only one of a limited number of sanitaryware manufacturers with products listed on the NBS platform.

For Lecico Bathrooms NBS is a powerful and targeted channel to promote their extensive product range.

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Pendock casing solutions – the art of concealment

Over the past 30 years, the Pendock name has become a byword for decorative architectural casings, with countless projects using its 'Radius' column casings and 'Linea' building linings ranges to conceal structural components and building services, while also improving aesthetics.

The company is also well known for washroom systems and pre-formed services casings, as well as low surface temperature (LST) radiator guards and floor ducting products.

Although all Pendock products are relevant to architects, specifiers and contractors, the most commonly specified are those within its 'Radius', 'Linea' and 'Washroom' ranges.

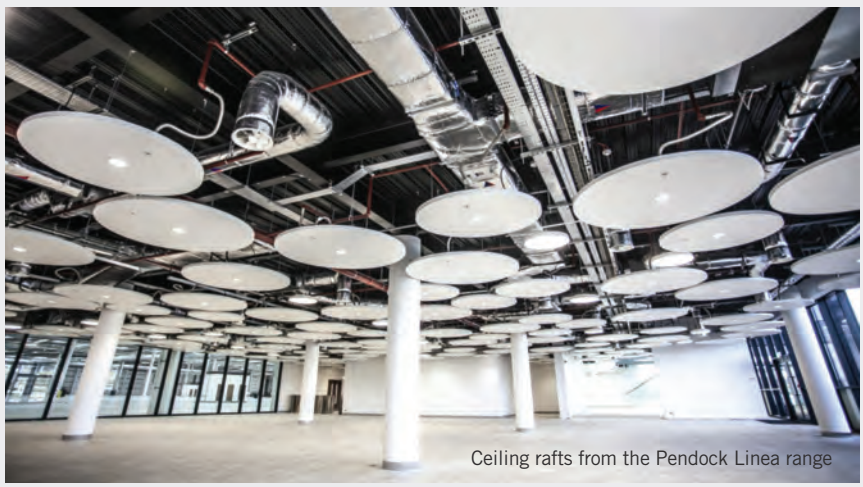
Radius column casings

Designed to conceal interior and exterior structural steelwork, as well as concrete columns, Pendock Radius unites the company's six individual column casing types.

The pre-formed plywood range is for interior use only and is available as circular or square profile casings, as well as extended circles or rectangular shapes. Although they are available unfinished for on-site painting, most are specified pre-finished with high pressure laminates (HPL) or with real wood veneers.

GRG casings are also for interior use only and are regularly specified as circles. However, as they are produced from moulds, GRG casings can also be manufactured to bespoke shapes and dimensions to meet the needs of specific projects.

Pendock's GRP casings are also produced from moulds, enabling them to be bespoke manufactured to individual project specifications, but they can be used for both interior and exterior applications. Their durability and weather resistance also makes them well suited for high traffic areas, such as public buildings and retail.



Ceiling rafts from the Pendock Linea range

The versatile metal column casing range is also designed for interior and exterior projects. Manufactured from aluminium or stainless-steel, they are weather resistant, highly durable and can be specified in a wide range of shapes and finishes.

In addition to a wide palette of RAL, BS or Pantone colour PPC finishes, anodised, brushed, polished and textured finishes, including Rimex, are also available, depending on the material specified.

Linea building linings

The extensive Pendock Linea building linings range comprises nine different architectural finishing products, including exterior rooflights, parapets and soffits, alongside interior pilasters, perimeter casings and ceiling features.

The Linea range allows architects to specify several lining elements within a project from a single source, as opposed to these items being unlisted or 'floating' within various sections of a specification document.

By using this approach, a high degree of consistency to be achieved across different aspects of a project, as the elements can be manufactured, supplied and installed, if required, from a single specialist manufacturer. This helps reduce risk, mitigate potential co-ordination issues on site and allows a uniform, high-quality finish to be achieved.

Washroom cubicles and systems

Pendock's cubicle and washrooms range includes five systems – Classic, Classic Plus, Robust, Ultimate and Education – as well as modular IP panels and bespoke solutions.

The Classic range is manufactured from 18 mm thick MFC (melamine faced chipboard) and is designed for use where economy and simplicity are key factors, while the Classic Plus uses the same core, but is faced with high pressure laminate. Both models are edged with 2 mm PVC.

The Robust and Ultimate cubicle ranges are produced from 12 mm compact laminate (CL) and are designed for high traffic and wet areas, including high humidity zones while the dedicated Education range covers washrooms from nursery through to further education and is available in 18 mm MFC or HPL, as well as 12 mm CL.

For complete design versatility, every aspect the IP panel system and bespoke washroom range can be specified, including the core material, finish colours, graphics, panels and door sizes, as well as pilasters and ironmongery. Vanity units, back panels and accessories are also available alongside DDA and Approved Document M compliant solutions.

01952 580 590 www.pendock.co.uk

New Altro Tegulis: stylish and hygienic

New **Altro** Tegulis™ innovative wall system offers the ideal alternative to traditional tiles for wet rooms, bathrooms, kitchens, and retail spaces. With a range of tile-effect patterns offering a grout-free alternative to tiles, Altro Tegulis offers a more familiar feeling than traditional wall panel sheets. Available in an extensive colour and design palette, Altro Tegulis has the look and feel of tiles, but has custom-etched grout lines that eliminate the cleaning, repair and hygiene issues often associated with traditional ceramic tile installations using porous grout.

01462 489 516 www.altro.co.uk/Altro-Tegulis

Safe and sound with fire-resistant sealant

For passive fire protection with added peace of mind, **Sika's** Sikacryl® -621 acrylic sealant combines exceptional fire-resistance with the added benefit of providing acoustic insulation. The phthalate-free Sikacryl-621 acrylic sealant is incredibly flexible and can offer up to 4 hours of fire resistance, helping to limit the spread of fire, heat and smoke through walls and floors disrupted by linear and penetrative joints and seals. By providing a robust seal, the product can also help with soundproofing requirements and dries to a smooth finish which can easily be painted over.

01707 394 444 www.sika.co.uk/passivefire

Luceco's sweet lighting success at famous confectionary manufacturer in Birmingham

Luceco has recently supplied exterior amenity lighting to the famous village of Bournville. Over 90 Viva-City Pro street lanterns from Kingfisher Lighting, part of the Luceco PLC Group, were chosen to illuminate the streets and canal area of Bournville, some with the columns boasting the purple livery of the famous "glass and a half" chocolate bar that became the most popular chocolate consumed in Britain. Viva-City Pro is a modular, slimline, performance LED street lantern offering a choice of optics. Manufactured from high pressure die-cast aluminium, the luminaire is IP66 and IK10 rated and has an efficacy of up to 141 Llm/W and can produce up to 24,000 luminaire lumens at 4000K with a CRI >70. The range offers 15W – 180W power options with 2,062–24,741 luminaire lumens respectively and an operational working life of 100,000 hours. Viva-City Pro is at home in many amenity lighting applications such as urban environments and civic areas, car parks, streets and highways and offers a choice of optics with asymmetrical distribution. The optics include street and area options, as well as a 50° Flood Optic, 70° Street Optic and 70° Area Optic as used at Bournville.

01952 238 100 www.luceco.uk

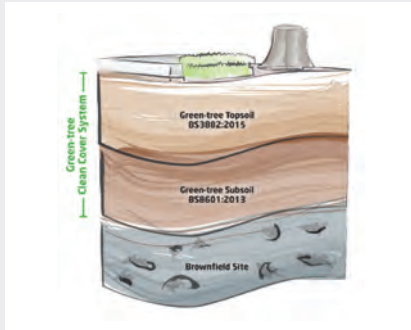
Remedial and effective solution for contaminated land

Green-tree's Clean Cover System is a remedial and effective solution for contaminated land, regeneration projects and the development of brown-field sites. It reduces the hazard to human health or the environment from potential contaminants found on these types of sites. By incorporating this Clean Cover System into initial plans, brown-field projects can progress with reduced excavation works whilst providing a long-term solution for the development.

Green-tree is a well-respected brand manufacturing and distributing a range of soils and growing media. Their products are all manufactured using organic compost and overburdened sand from quarries; products that would otherwise end up in landfill. Green-tree soils are used in landscaping and construction projects where environmental sustainability is important.

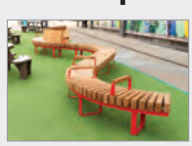
The innovative Green-tree Clean Cover System is a combination of manufactured British Standard topsoil and subsoil which are both chemically clean. The resultant growing medium is tested to CLEA requirements, with very low-level chemical metal and metalloid content and clear of asbestos content.

Green-tech took a stand at the Contamination & Geotech Expo and exhibited under its soils brand, Green-tree. The Contamination Expo, held at the NEC in Birmingham, is the first big trade show that Green-tech has attended since the start of the COVID-19 pandemic. Green-tech's Business Development Director, Mark Wood, attended, and said: "Absolutely fantastic to be back out there. It was well organised, plenty of space and we got a regular flow of traffic to the stand. It's a bit of a different event for us, away from the usual landscaping exhibitions; Contamination Expo is perfect for our Green-tree Soils. We were in The Land Remediation zone which focuses on the diagnosis, management, and remediation of contaminated land. Our Green-tree Clean Cover System is a perfect remedial solution for contaminated land and was incredibly well received, with plenty of interest, so a good two days."



01423 369731 www.green-tree.co.uk

Green space seating from Marshalls



Marshalls Landscape Protection has designed, manufactured and installed inclusive outdoor seating as part of a Leeds City Council pop-up park, creating a welcome green space in the centre's busiest shopping street. Created using Marshalls Landscape Protection's Distrikt® timber seating range, the new seating area is located on an artificial grass installation located on Briggate. The Distrikt® range is a customisable timber seating range. Unlimited options such as seating direction, arm rests and backs mean a free flowing seating arrangement can be configured as long as the project requirements.

info@marshalls.co.uk www.marshalls.co.uk/commercial

Sci-Tech Daresbury trust the science

The world-class Sci-Tech Daresbury site has specified **Resiblock** as the Paving Sealer supplier for the £17.8m Project Violet. With around 330 new full-time jobs being created, a solution was required to protect the 1,000 m² of Tobermore Artro pavers from the large volumes of footfall traffic. Having been utilised worldwide on a variety of paving environments, the 'Legendary' Resiblock '22' has showcased throughout its history its effectiveness in preventing paving failure through joint stabilisation. The paving sealer binds the jointing sand together which prevents joint loss and ultimately paving failure.

www.resiblock.co.uk

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