

LEAF REVIEW

No.26 • 2018

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SPACE TO WORK

The unique challenges of
designing one's own studio

CIVIC SERVICE

Redefining the role of
town hall architecture

PLUS:

ABB LEAF Awards

Catalonia focus

New retail spaces

Lighting roundtable

Connected thinking

The shifting priorities and
possibilities of bridge design



For the large in the

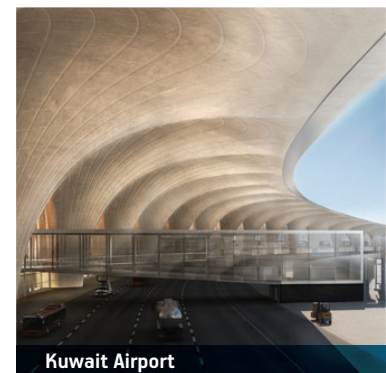


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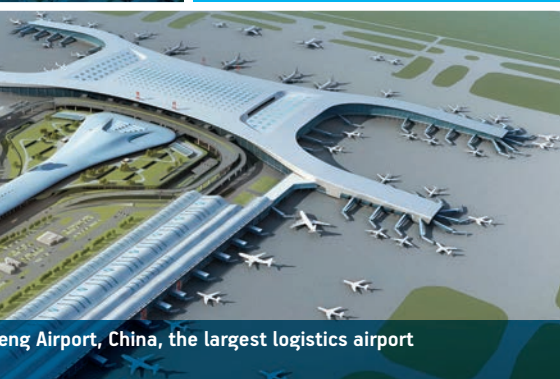


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Return to form

Casual architecture watchers might be forgiven for thinking there have been few stories of note over the last few years other than Thomas Heatherwick's Garden Bridge.

The latest instalment of this seemingly endless saga has seen donors who gave money towards the project announce their intention to sue the charity behind it, complaining that their money was – in the words of one contributor – “pissed down the drain”.

Construction never began on the £200-million design, but its story tells us so much about the seductiveness and challenges surrounding bridge architecture. Urban bridges on such a scale are rare – the Millennium Bridge, completed in 2002, was the first new crossing of the Thames in London since 1945 – and therefore capture the public imagination like almost no other building type.

At their best, such projects can be truly transformational in terms of how we traverse and imagine our built environments. But they're also incredibly expensive, garnering attention for the wrong reasons as well. The Garden Bridge – which was intended to be financed through predominantly private funds – posed fundamental questions about the ownership of our cities, interpretations of ‘public’ space, and how major infrastructure works should be funded in the 21st century.

We are also more suspicious of architectural flourishes and design for design's sake than we were prior to 2008 and the onset of ‘The Age of Austerity’ – Santiago Calatrava certainly seems to be building far fewer bridges in tertiary cities across the western hemisphere – and much of the debate surrounding Heatherwick's proposal surrounded function versus form.

For our cover story, Greg Noone speaks to a number of architects and engineers looking to fuse both elements, including Naeem Hussain, global leader of bridge design at Arup, and asked how shifting priorities of designers, investors and citizens are influencing the types of projects being commissioned and the manners in which they are approached.

This is just one of the highlights that lies within. I hope you enjoy this latest edition and, as always, greatly look forward to hearing your thoughts.

Phin Foster, editor

Cover image: The Gamla Lidingöbron, Stockholm / © Urban Nouveau.



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Welcome to LEAF Review

LEAF Review is a biannual publication that blends in-depth articles, case studies, interviews and industry profiles, to create an intelligent forum for the best ideas and developments in the architectural industry. A series of executive events and the annual Emirates Glass LEAF Awards bring decision-makers and top practitioners together throughout the year.

For further comment, news and information, visit our website: www.leading-architects.eu.

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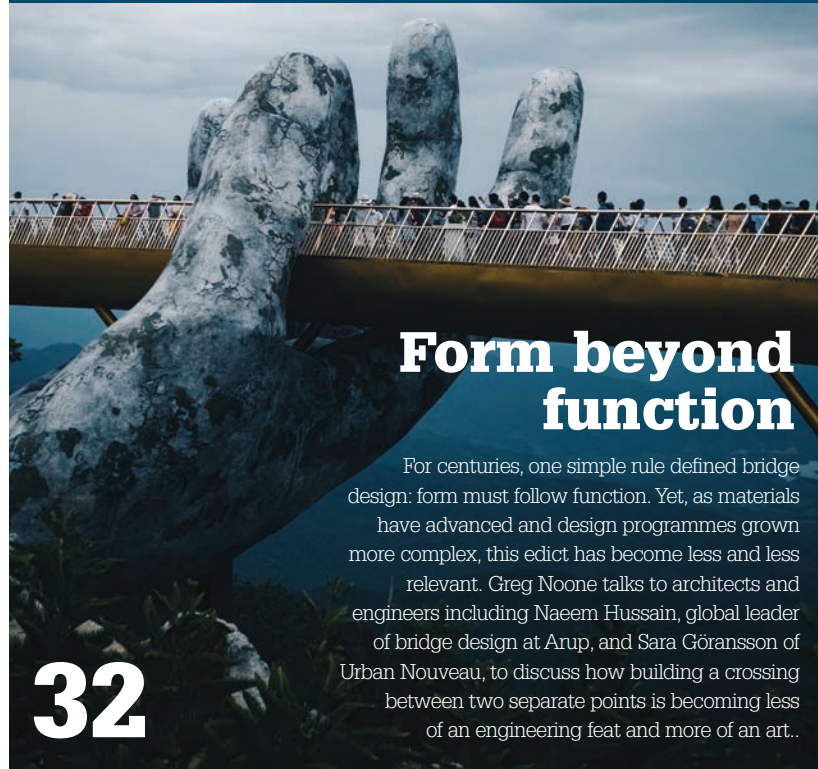
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Form beyond function

For centuries, one simple rule defined bridge design: form must follow function. Yet, as materials have advanced and design programmes grown more complex, this edict has become less and less relevant. Greg Noone talks to architects and engineers including Naeem Hussain, global leader of bridge design at Arup, and Sara Göransson of Urban Nouveau, to discuss how building a crossing between two separate points is becoming less of an engineering feat and more of an art..

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The intelligence

8 Create the future

Held at the Frankfurt Marriott Hotel, the 2018 ABB LEAF Awards celebrated ingenuity and innovation in architecture, and were judged by an esteemed panel, including Kai-Uwe Bergmann of BIG, Crab Studio's Sir Peter Cook and Professor Bob Sheil of the Bartlett School of Architecture. The winners were stand-outs in their fields, and we look forward to seeing you all again in 2019.

Special report

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Architects' own studios and offices – 'the spaces where people design spaces' – must serve multiple purposes, at once defining a practice's style and

approach, impressing prospective clients and peers, and providing a creative environment for staff. Tim Gunn talks to Make founder Ken Shuttleworth; Gregory Nijs, principal at Belgian company Klaarchitectuur; and Invisible Studio 'instigator' Piers Taylor about how they designed their own bases.

Construction

24 Civic duty

In an era of shrinking public funds, and an increasingly complicated relationship between citizens, communities, government bodies and private enterprise, what do we want our public buildings to stand for and who should be responsible for defining their function? Grace Allen speaks to architectural designer Adam Nathaniel

Furman, who has sparked conversation on the visual language of the city hall, and Louis Becker, partner and design principal at Henning Larsen Architects, about the civic architecture helping to pose and frame those questions.

38 Reach for the sky

In October, the new Istanbul Airport, planned to be the world's largest upon completion, opened its doors to the first phase of operations. Jenny Southan speaks to the architects involved in the massive project, including Grimshaw's Andrew Thomas, Haptic Architect's Tomas Stokke, Nordic – Office of Architecture's Ingrid Motzfeldt, and Maurice Rosario of Scott Brownrigg, about the inspirations and challenges faced when designing a facility of this scale.

Regional focus

44 Independent spirit

The region may be best known for the work of Gaudí, but Catalonia has also acted as a cradle and incubator for some of the most interesting and accomplished architects working today. Patrick Kingsland speaks to current members of the Catalanian architectural community and asks whether such a scene or school exists, the impact recent events have had on their work, and what accounts for the region's incredible architectural legacy.

Design

56 Talking shop

Retailers may be suffering in the face of online competition, but the physical store remains



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an important part of a brand's identity. Neil Gerrard speaks to Sam Jacob, founder of Sam Jacob Studios; Sheppard Robson's Claire Haywood; Jeremy Sweet of BDP; and Heatherwick Studio's Tamsin Green about the role architecture can play in shaping future meanings of retail space.

Technology

66 Share and share alike

The success of the sharing economy has been underpinned by the rapid advancement and increasing pervasiveness of digital technologies. According to some forecasters, these trends are also laying the groundwork for the future of shared-living concepts, changing the manner in which we design and occupy our cities. Simon Caspersen, co-founder of Space10, Urgent. Agency's Christian Pagh, and Maksym Rokmaniko of DOMA,

share their thoughts on this topic with Patrick Kingsland.

Lighting

76 Have you seen the light?

In terms of the source itself, and the development tools used in its implementation, arguably no architectural field had been altered so dramatically by technological advancements in the digital age than lighting. Elly Earls meets lighting designers Mark Major, Jeff Shaw and Kevan Shaw to find out why, amid so much change, it is crucial that conversations continue to be driven by the relationship between architecture and light.

Materials

86 Renewed purpose

Aluminium has been a recognised architectural material



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for almost 150 years, but practitioners are reassessing its value as they seek to create lighter, reusable and more adaptable buildings. Ross Davies hears from architect Michael Stacey, leader of the Towards Sustainable Cities programme, Brock DeSmit of Belzberg Architects and Tim Lucas of Price & Myers on the role it has to play in our efforts to create more recyclable cities.

Innovations

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A comprehensive list of our favourite products from the past few months.

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Highlights of the design calendar.



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Create the future

Held at the Frankfurt Marriott Hotel, the 2018 **ABB LEAF Awards** celebrated ingenuity and innovation in architecture, and were judged by an esteemed panel, including Kai-Uwe Bergmann of BIG, Crab Studio's Sir Peter Cook and Professor Bob Sheil of the Bartlett School of Architecture. The winners listed below were stand-outs in their fields, and we look forward to seeing you all again in 2019.

Overall Winner and Best Refurbishment

Zaha Hadid Architects
Port House, Antwerp, Belgium

The new Port House in Antwerp repurposes, renovates and extends a derelict fire station – a listed replica of a Hanseatic residence – into a new headquarters for the port. The facade's rippling quality is generated with flat facets to the south that gradually become more three-dimensional towards the north. This perception of a transparent volume, cut to give the new building its sparkling appearance, reinterprets Antwerp's moniker as the city of diamonds. From a central atrium, visitors access the historic public reading room and library. Panoramic lifts provide direct access to the new extension, while an external bridge gives panoramic views of the city and port.

Zaha Hadid Architects' award-winning Port House in Antwerp, Belgium.



Best Tall Building Project

Aedas
The Beacon, Hong Kong, China



The desire for views in the densely populated Hong Kong neighbourhood of Mongkok has historically created illegal iron balconies, many of them

filled with plants as a form of personal garden in the sky. Bringing this concept into the building, a green wall seemingly protrudes from the solid parts of the podium. The Beacon is set back from the street, relieving some of the congestion and replacing it with greenery. Borrowing elements from the traditional architecture of Hong Kong, the building becomes a contemporary interpretation of the challenges facing architecture in the 21st century.

Best Regenerative Impact

IDOM
New Lecture Room Block,
Alioune Diop University,
Bambey, Senegal



In Senegal, shade and water are everything. This project was developed from its cross-section, providing the building with a large double roof and a great lattice on the south facade, an L-shaped shield lying on its back, which avoids direct solar radiation but is

permeable to air, reducing the interior temperature by 10–15°C. To solve the lack of sewage and rainwater networks problem, infiltration rafts with vegetation collect rainwater and purified waste waters. The lecture rooms have both natural light and cross ventilation, while the facade comprises 20,000 in situ handmade blocks.

Best Facade Design & Engineering

Zaha Hadid Architects
520 West 28th, New York, US



The split levels of 520 West 28th – expressed within the interlocking chevrons of its hand-crafted steel facade – define the varied living spaces and echo the multiple layers of civic space on 28th Street and the High Line, a layered civic realm that has developed over generations. The 11-storey building houses 39 residences

with 11ft coffered ceilings, tailored interiors and integrated technologies including automated valet parking. Amenities include a spa, a 25-yard sky-lit lap pool, a sculpture garden and an IMAX theatre. Upholding the distinctive character of its neighbourhood, 520 West 28th has its own architectural presence, yet is very much of its surroundings.

Residential Building – Single Occupancy Studio mk27

Planar House, São Paulo, Brazil

Planar House is a radical exercise in horizontality, an aspect commonly explored in the projects of Studio mk27. The green rooftop mimics the surrounding lawn, as well as contributing to the thermal comfort in the house. Structurally, the slab is a rigid platform supported directly by cross-shaped metallic pillars distributed modularly in three axes, a homage to the elegant proportions of Miesian architecture. Under the roof, two

programmatic boxes house the service areas, gym, TV and playrooms, and five en-suite bedrooms. A vertical winding wall made of solid bricks arranged in solids and voids defines the different relationships between the internal and external spaces.

Residential Building – Multiple Occupancy Studio mk27

Caledonian Somosaguas, Spain



The brief for this meta-project was to create a gated community of houses on the outskirts of Madrid in response to the demand for housing, and it aims to maximise collective living. Each house is unique, and the architecture uses simple, industrial and monochromatic material. The non-linear placement of the houses

makes it appear similar to a *pueblo*, with different paths inside the lot. There is a delicate transition between the private and public spaces, with the main square in the middle providing a meeting place around the pool.

Interior Design Award – Completed and Future INNOCAD Architecture Schaudepot History Museum, Graz, Austria

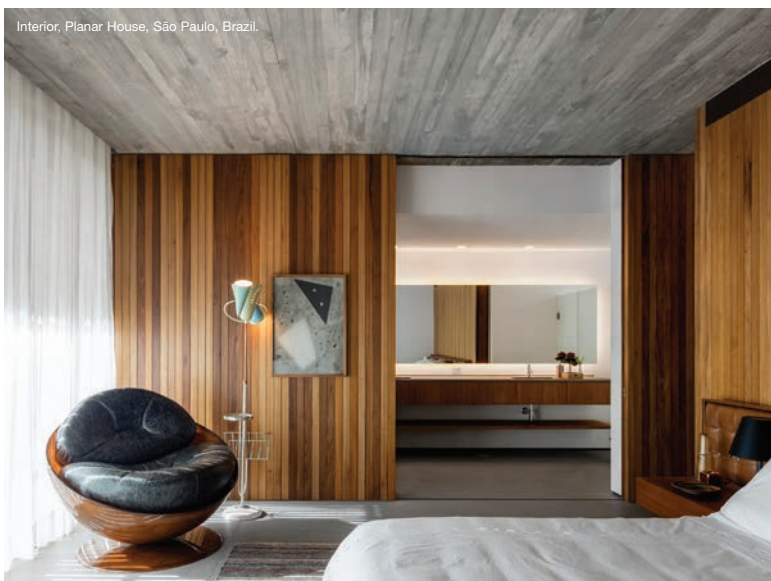


The client desired a fresh concept for the exhibitions and entrance of the new history museum housed in a historic building in Graz in the

Austrian region of Styria. The exhibition concept is based on a journey that begins with 'Schaudepot', an exhibition depot, divided into two parts: the Cultural History Collection and the Multimedia Collection. The exhibition includes approximately 2,000 objects from the Cultural History and Multimedia Collections placed in a 486m² space using industrial material to create a continuous display wall. The modular, multifunctional displays generate a homogeneously infinite metal loop.

Commercial Building INNOCAD Architecture CUBEND C&P Corporate Office, Graz, Austria

CUBEND is a unification of the words 'cube', relating to wholeness and persistence, and 'bend', referring to movement and dynamics. Organised as a cube divided by a curved atrium across all floors, this building – the headquarters of a real-estate company – comprises a



Interior, Planar House, São Paulo, Brazil.



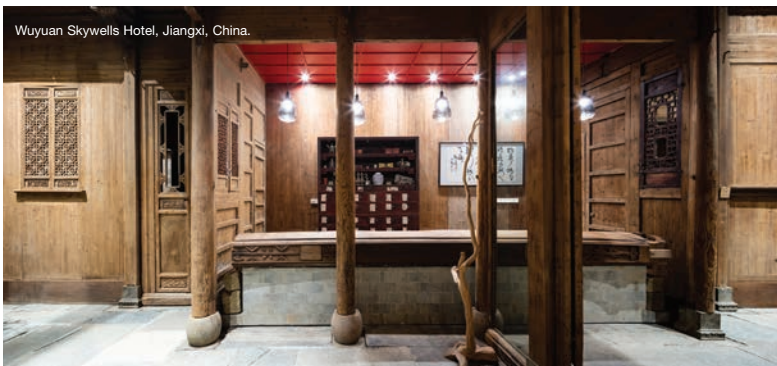
INNOCAD Architecture's CUBEND C&P Corporate Office in Graz, Austria.

glass-dominated core within a floating concrete structure. The outer symmetric grid of white concrete features an automatic sun-shading system; the second part of the facade, a porch-like area, is climate-controlled using a canopy; and the floor-to-ceiling glass inner cube, combined with the skylight atrium, offers consistent daylight throughout the entire space.

Hospitality Building – Completed and Future anySCALE

Wuyuan Skywells Hotel, Jiangxi, China

Located in the village of Yan in eastern China, the Wuyuan Skywells is a distinct heritage hotel with a history spanning 300 years. The elegant historical architecture creates a rich context for the contrasting modern and tasteful interior decoration. The rooms are supplemented with latticed panelling on the walls facing the skywells and high-quality artificial lighting. A mix of warm colours, cool neutrals and striking accent colours set a sophisticated tone for the interiors to let the Qing-era design stand out. The hotel also has a high level of thermal insulation and waste management.



Wuyuan Skywells Hotel, Jiangxi, China.



West-line Studio's Shui Cultural Centre, Guizhou, China.

Public Building West-line Studio Shui Cultural Centre, Guizhou, China

This Cultural Centre in Guizhou Province is a gateway to the land of the Shui, one of the ethnic minority groups in China who still retain their own language, together with their unique system of pictographs. *Shui* means 'water', and the 13,800m² site is surrounded by it on three sides.

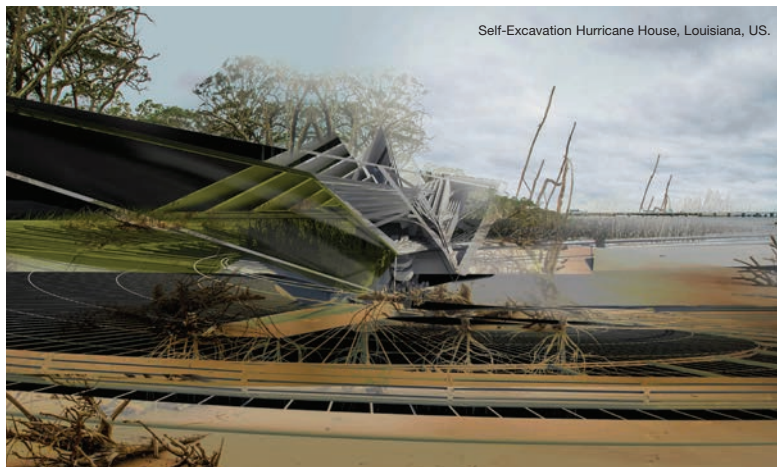
On the other, the west side, a water square welcomes visitors. Shui's culture is also evoked by the material choice. Bronze, which can be found in their altars, inspired the architects to use perforated bronze steel plates to cover the building.

Best Achievement in Environmental Performance – Completed and Future Zaha Hadid Architects KAPSARC (King Abdullah Petroleum Studies and Research Centre), Riyadh, Saudi Arabia

KAPSARC is a non-profit institution that brings together experts from around the world to tackle energy challenges. The composition of the 70,000m² KAPSARC campus is an amalgamation of crystalline forms that emerges from the desert landscape. Presenting a solid, protecting shell to the harsh sunlight from the south, the campus opens to the north and west, encouraging prevailing winds to cool it. KAPSARC was awarded LEED



Interior, KAPSARC campus, Riyadh, Saudi Arabia.



Self-Excavation Hurricane House, Louisiana, US.

Platinum certification from the US Green Building Council for its application of passive and active solutions including a 45% reduction in estimated energy use (compared with the ASHRAE baseline standards).

Best Future Building – Under Construction and Drawing Board **Margot Krasojevic Architecture** **Self-Excavation Hurricane** **House, Louisiana, US**

For this house located near the Louisiana coastline to withstand environmental loads like hurricanes it must be flexible enough to move with the wind, yet provide enough resistance and weight to dig itself into its own excavated engineered landscape. The main superstructure holding the living accommodation can move along a helicoid retaining



Living Corridor, Suzhou, China.

wall, excavating as it does so. The building's core is a reinforced concrete anchor under which a grid of root-like cable foundations spread. This anchor supports the superstructure using a series of hydraulic column lifts, which pivot to turn the building.

Urban Design Project – Completed and Future **Urban Planning & Design** **Institute of Southeast** **University** **Living Corridor, Suzhou, China**

This project infuses new life into the Suzhou City Moat, which struggles

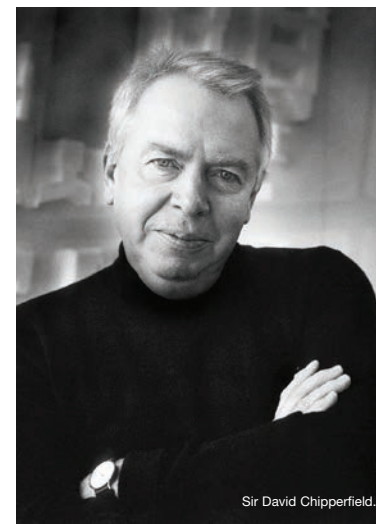


West-line Studio's Guizhou Fire Station, Guizhou, China.

against rapid urbanisation and modernisation. Living Corridor first reorganises the singularity of the waterway through a series of desilting and maintenance works. Second, the project generates different leisure waterfront space through combinations of plants, buildings and watercourses, and restores the ecosystem. Living Corridor has revitalised the social identity of local communities by recovering ancient city walls, watercourses and bridges, and house. It also reconstructs a waterway transportation system to relieve traffic pressure, and ensures a pleasant and accessible public experience.

Mixed-Use Building **West-line Studio** **Guizhou Fire Station,** **Guizhou, China**

Located in the centre of Guizhou Province in south-west China, Guizhou Fire Station gradually rises between two 30m-high trapezoid peaks, creating an iconic slope. The colour white and deep shadows characterise the central Honour Hall, used for ceremonies rewarding brave firefighters. The building is made



Sir David Chipperfield.

of a succession of parallel bands and is arranged on many levels connected by outdoor corridors and boardwalks. A large physical training and sport area includes a stadium, a swimming pool, several gym areas, ping pong tables and a tennis court.

Lifetime Achievement of the Year **Sir David Chipperfield**

As an architect whose understated, restrained approach and aesthetic stands in sharp contrast to a number of his generational superstar contemporaries, Sir David Chipperfield has become one of the industry's biggest names through a rejection of signature styles; producing site-specific architecture that values permanence, substance and meaning. In his acceptance speech, Sir David spoke about the need for architects to engage in societal issues, arguing that their skills mean that they are uniquely placed to understand the complex relationship between the physical and the social.



A space to create

Architects' own studios and offices – 'the spaces where people design spaces' – must serve multiple purposes, at once defining a practice's style and approach, impressing prospective clients and peers, and providing a creative environment for staff. Tim Gunn talks to Make founder **Ken Shuttleworth**; **Gregory Nijs**, principal at Belgian company **Klaarchitectuur**; and Invisible Studio 'instigator' **Piers Taylor** about how they designed their own bases.

Waiting in the entrance to Make's London office is the welcome you might expect from a five-star hotel. There's a concierge stationed in the boxy, painted brick space, the floor of which slopes away behind him – and he knows you're coming.

"We make sure of that," says founder Ken Shuttleworth. "Some architects' studios are more like going to the local post office, but I think if you're going to come here and spend millions on fees we should at least be able to welcome you properly."

It's a change for the Fitzrovia site. Before Make's redesign, this was a car park. That explains the (now stepped) ramp behind the concierge, if not the television screens you can see at the end of it.

"It helps having a crazy space that not many people would have wanted to go into," Shuttleworth continues. "We've shown you can make something out of nothing without spending a lot of money. That's what we do."

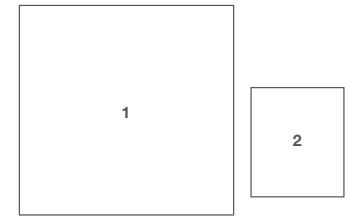
Visitors to Klaarchitectuur's Waterhond studio – a converted chapel in Limburg, Belgium – meanwhile, will find a space designed to inspire. "Even if people don't choose to work with us," says Gregory Nijs, the company's principal, "I hope that the building will stay in their minds."

He's being modest. The old nave is dominated by a huge, eccentric stack of four white boxes, wound round with glass terraces and black stairways. It's a sculptural installation offset against the worn church's peeling plaster walls, a set of offices and meeting rooms, and an invitation up.

"It would have been easy to buy a piece of land and set up a brand-new office with apartments to bring in money," says Nijs, who was fascinated by the old church long before he bought it. "But for me it's very important to be an architect first, to see what we can do."

Home truths

Though an aversion to office work stopped Marc Goodwin from entering the same profession as Shuttleworth and Nijs, the photographer knows as well as anyone the peculiar ways architects think about their studios. For the past three years, he's travelled the world to create an atlas of architecture studios, shooting and studying the atmospheres of major practices from Beijing to Mexico City, Make included.



1. Klaarchitectuur studio, Limburg, Belgium: a sculptural installation designed to inspire.
2. Make, London, UK: in place of an elevator, the entrance leads to a top-lit former car ramp.

In the process, he's dealt with every degree of pride and self-consciousness the industry can muster. PRs in Los Angeles want to squeeze the smiling faces of all the partners into every shot and small London practices fret that their pokey digs can't compare to the biggest and best Nordic studios. Then again, those same Scandis squirm at the idea of being seen with the lights off, which isn't so different from the London company that wouldn't let Goodwin publish a picture of someone asleep on one of their sofas. And while every city comes with a few major rejections, some architects actually prefer to leave him to his work. In fact, many in China were so unconcerned by the whole thing that it was "like operating in a vacuum".

There's obviously something unique about what the photographer calls "the spaces where people design spaces". Working on one is as much a philosophical quandary as it is a practical task. Not only must an architect create a cost-effective place that defines their style and approach, attracts customers, pleases staff, impresses peers and anticipates the practice's future needs, they also have to do it all for a demanding expert client with whom they'll spend the rest of their life.

With that in mind, it's hardly surprising that some practices task a staff member with standing next to Goodwin as he snaps away; there's a strong temptation to try and shape "what the vision of the studio will be". >>



That's a good part of what Make's concierge is doing as he welcomes high-value customers like Facebook, Schroeders and UBS. It's also why the top-lit former car ramp that he leads clients down is so important. It's an elevator pitch in place of an elevator.

"We have all our models and 3D-printers there, with meeting areas as well, so it's quite a lively entrance," Shuttleworth explains. "By the time you get to the bottom, when you're welcomed by the receptionist and the concierge goes back, I think you already feel your visit was worthwhile."

By that time, you're also underground, where the rent tends to be cheaper. Make is an employee-owned company, so all of its savings translate to increased profit share. It might be full of bicycles, but the concrete space is still very clearly a former car park – bay numbers and all.

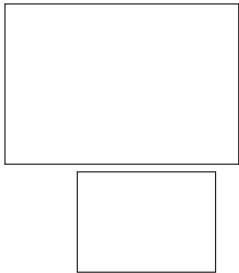
"The strength of the scheme is that it has all these references back without feeling like a car park," says Shuttleworth. "Our philosophy is actually to keep the place quite raw. I don't think clients really want to see a very plush architects' office. It probably means they're charging too much." Perhaps images of sleeping staff and empty studios suggest the same thing.

Indeed, the models on Make's ramp may show prospective clients what the company's capable of, but the building that houses them gives a far more tangible account of who the architects are and how they approach projects. It's one thing to say you're committed to designing zero-carbon buildings, for instance; it's another to work in a car park. More than that, the company has gone from renting office space in Arup's nearby building to having a front door and a signature location.

"It's actually shaped the way we think about ourselves as being



© Marc Goodwin



3. Klaarchitectuur studio, Limburg: the office appears to grow out of the converted chapel.
4. Invisible Studios' Visible Studio, Bath, UK: built with trees from the surrounding forest.

independent and global," admits Shuttleworth. "Before we moved here there was always this sense that we were part of Arup."

Tailored specifically for the designers' client-colleagues, the studio is part of Make's identity,



© Andy Matthews

its ramp tilting between advert and manifesto.

Or, as Shuttleworth himself puts it, “The democracy of Make is a feature of the building. There are no partitions or barriers: we’ve got the same ranking in all respects, and it’s easy to move people around for different projects. At the end of the day, we have to be dynamic.”

Contrasting approaches

In other words, Make’s office is part of the “mechanism” for its work. The term is Piers Taylor’s, and his practice, Invisible Studio, which has almost 20 members and no permanent employees, takes the concept even further. A response to the effects of the 2008 financial crash, Invisible Studio’s ‘Visible Studio’ base cost as much to build as Taylor’s previous company spent on rent every year. It has minimal overheads, and was built from trees felled in the surrounding forest as part of the woodland management plan. It’s a way to survive as an architect without constantly being – or seeming – busy designing buildings.

“I wanted a mechanism for having different amounts of work at different times,” Taylor, who also teaches and presents TV programmes, explains. “It’s how a lot of creative industries function, so why not architects? A band is still a band when it’s not touring, but do we just have to hope for stable work?”

The building itself is an answer to that second question. “It’s loose-fit,” Taylor says, “not a conclusive or a finite thing. It’s changed already, and it’s a better, more mature building because it can adapt.”

Back in Belgium, there’s a steel-framed tower wrapped in a protected building that doesn’t quite meet this definition of loose-fit. Looking up at it, it’s clear Klaarchitectuur’s studio is also a counterpoint to Make’s, stacking employees in an intricate set of semi-closed rooms rather than

leading them down into a flexible open space.

“But it’s not one stairway at one side,” stresses Nijs. “As you climb, you see the church from every side; you always have another point of view. The church is our office’s garden.”

Fittingly, the office seems to have grown out of it. Look out of the window in the fourth floor meeting room and you are treated to a view once limited to those dangling from the old building’s rain gutters – the studio pokes through the chapel’s roof. The whole structure is designed to make staff and visitors look more closely at the past and the present of architectural practice. It exemplifies Nijs’ belief that “there is nothing between inside and outside”.

The lack of flexibility doesn’t trouble him, either. Klaarchitectuur is a team of only five architects, and its principal doesn’t want any more.

“Having more people would mean I couldn’t do everything myself,” he says. “I want to be a part of each building from the beginning until the end. I always change things.”

Creative freedom

Nijs’ studio has been the one exception to that dictum. Given the nature of the steel-framed construction, there was no way he could make changes on-site. Oddly, out of all of his buildings, the place where he will spend the most time was the one most determined by virtual images.

In a slightly ironic contrast, the only images produced for the Visible Studio were a couple of sketches on a piece of blackboard. Proposed and completed in less than three months, it was set out by eye by a team of Taylor’s friends and neighbours, none of whom had any professional building or carpentry experience. It’s a sort of guerrilla architecture.

“We just wanted to construct a building with the stuff we had around us, material and skills,” he

explains. “As a result, it’s almost like the people here don’t really know that this is capital ‘A’ architecture, or in any way distinct from rural infrastructure.”

Nijs, however, believes his duty in designing an office for his practice was to “play with everything and let people know that an architect has been working in the space” of the former chapel. To do so, Klaarchitectuur spent months arguing and negotiating with contractors over designs.

“Our philosophy is actually to keep the place quite raw. I don’t think clients really want to see a very plush architects’ office. It probably means they’re charging too much.”

– Ken Shuttleworth

It’s a process many architects will know well, but spending such a protracted period poring over images troubles Goodwin, his profession notwithstanding. As he observes, “It has to create a kind of obsession – and it’s understandable – that the building should be seen ‘correctly’.”

Beyond that, in committing so much time and attention to renders and technical drawings, architects risk mistakenly deciding that replicating the views they spent so long modelling is the same thing as making the best building possible.

Goodwin knows how sensitive architects can be about their studios. That’s why his concerns are particularly acute here. In fact, Nijs’ chapel conversion was planned with the express goal of making particular views possible, although his decision to arrange the cooking appliances in a wooden cross and to situate the gold kitchen worktop as if it were an altar would suggest that he has some interest in reinterpretations. Either way, one wonders whether the architects who do their utmost to direct Goodwin around the offices

they designed really do believe in them as distillations of their practice and successful mechanisms for their work.

For his part, Shuttleworth is proud that Make’s democratic structure enables it to make the best buildings in a variety of styles. Taylor, meanwhile, designed his studio to ensure he could continue to work on things other than buildings, and would never have to accept an uninteresting commission simply so he could

continue to list his profession as “architect”. Aware of the risks of enshrining the practitioners they used to be, both chose to design freeing spaces over exercising their own creative freedom.

Nijs’ goal for Klaarchitectuur, however, is harder to distinguish from the building he designed to act as its base. Although the Waterhond has helped introduce the practice to a global audience, its owner laments the fact that it hasn’t had the impact he expected locally.

“You do it for the community,” he explains, “and I was hoping for a little respect and recognition after 20 years as an architect. That’s everything for me.”

Whether or not it’s noticed by the commuters traipsing past, the Waterhond now plays host to a regular evening ritual. Before he closes up, Nijs likes to take one last trip up and back down the two entangled buildings, savouring every view his design made possible. Rightly or wrongly, that’s when he reckons with what it means. ●

The perfect recipe

LEAF Review meets with Katrin Förster, the global key account manager at **ABB**, in Frankfurt, to have a chat about engaging at architectural events.



Katrin Förster at the ABB LEAF Awards.



Sir David Chipperfield (right), Lifetime Achievement Award winner, and architect Peter Cachola Schmal (left).



Winners at the ABB LEAF Awards.

There was a letter in every ABB LEAF Awards gift bag that was given to each participant at the awards celebration in Frankfurt this year. And each letter was attached to a red cooking spoon, and stated, 'Isn't creating the perfect building just a bit like cooking the best possible dish?' Can you elaborate on this?

Katrin Förster: Yes, the spoon is a rather amusing but symbolic tool to surprise all architects, designers and guests at the evening with. I was trying to find something worthy and special for everyone to take back home from the ceremony. The brilliant red colour of the spoon is certainly attractive and related to our ABB logo. I love thinking about the idea that most architects are using this excellent kitchen tool at home now, when being a chef, creating experimental dishes – or cooking a good old coq au vin. And in

this vein, our smart technology could also be a brilliant tool in their next architectural building design.

ABB joined the LEAF Awards for the second time as headline partner, and since 2016 it has been called the ABB LEAF Awards. Why did you choose this specific award to get involved with?

We do support other architectural events and awards as well, but the LEAF Awards celebration is something special for us to focus on. It is still an intimate boutique-style ceremony, taking place in amongst the huge amount of competitions around the world today. Nevertheless, it is completely international. We had shortlisted projects from five continents again this year, and a truly global community joining the celebration – like a global family of like-minded people. From our point of view, we would like to grow the

family, but the heartfelt character will not get lost. This sort of 'LEAF-family' feeling is very appealing, and inviting people to be part of that would be a great thing to achieve.

Which are the other awards ABB is supporting?

Well, obviously we are heavily supporting the World Architecture Festival as headline partner, providing the lounge for the speakers and judges to relax in, and supporting diverse receptions, such as in honour of women in architecture and others.

Why are architects so important to ABB?

For a company as big as ABB, it is essential to be acknowledged as a supporter and concerned partner of the architectural community and the society in general. Good architectural design that is future-proof must be environmentally supportive and people-friendly

in every way. Only with us is it possible to create up-to-date, modern buildings, as we are an industry that designs multisensors embedded in intelligent technologies that lead to significant energy savings, or even energy-production, and help to increase people's living comfort, well-being and security. But architects will only be able to plan employing these technologies in their buildings when they have detailed knowledge about the new developments. And we can only deliver exactly what is needed if we do have a constant and close exchange of ideas and research. I see us not as a sponsor or supplier to the architectural business, but rather as a partner of the branch and the community. We have to be present, reachable and predictable, not an abstract idea of an industry. ●

Further information

ABB
<https://new.abb.com/buildings>



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Elval Colour's aluminium cladding and roofing products, including orofe-coated aluminium strips and etalbond composite panels, are displayed in terminals across numerous continents. Elval Colour, a leading European manufacturer of coated aluminium, makes some of the world's most impressive buildings possible.

Mactan-Cebu International Airport:
Elval Colour offers a range of
specified and sustainable products
to dress roofs and facades.



From Germany's Frankfurt Airport to Nacala International in Mozambique and Zhengzhou Xin Zheng International in China, Elval Colour offers a complete range of specified and sustainable products to dress the roofs and the facades of the world's leading airports. The company has recognised that the creative visions of architects and designers can only be achieved with innovative materials. As such,

some of the world's most unique and daring buildings use its orofe-coated aluminium strips, etalbond A2 composite aluminium panels and Elval ENF aluminium sheets because they empower architects to design right to the limit of their imaginations.

Founded in Greece in 1977, Elval Colour is a leading European coated aluminium manufacturer that produces and sells a full range

of building envelope products for facades, roofing, rain gutters and more. More than 98% of the company's sales are exported to over 70 countries across the world. With over four decades' worth of experience in coating and colour matching, Elval Colour adds extra value by helping customers select the products that best suit the needs of their projects. Beyond that, the company follows through after delivery with customer

orientations and continuing dedication to enabling the best application of its products.

This is possible because the company's employees care about their work, and pursue corporate goals and objectives with great energy and enthusiasm. As a leader in both product quality and service, Elval Colour is always trying to identify the next customer need and address it as effectively as possible. Continuous research and development in various fields allows steady improvement of technology, quality and environmental standards.

The case study of Bangalore International Airport

A recent example of what Elval Colour can do for clients is on view at Bangalore International Airport, the third busiest in India, which underwent a \$221-million expansion of its main terminal building in 2011–12. The upgrade increased the airport's capacity from 11.6 million passengers per year to 17 million and enabled it to accommodate Airbus' double-decker A380 'Superjumbo' aircraft. To achieve this, architects HOK had to expand the terminal building to cover an area of over 150,000m²,



Bangalore International Airport's orofe roof is built to last, requiring minimal maintenance.

incorporating 5,300 seats, 90 check-in desks, 30 self-service check-ins, 48 emigration and immigration counters, 48 security stations and 15 baggage reclaim areas.

Crucially, HOK's structure needed to "create a grand, dramatic presence that seamlessly blends with the existing terminal", according to the design brief. Moreover, the brief called for an "elegantly curved roof" with the "undulating wave shape" of a smile. In one swoop, the dramatic roof structure not only needed to provide total protection for passengers arriving and leaving the terminal, but define a "strong physical presence and visual identity for the airport".

That's why Elval Colour's orofe-coated aluminium strips were chosen to cover the 55,000m² of softly curving roof. The lightweight coils, made from a specially strengthened aluminium alloy, are durable and flexible, designed for corrugated or standing seam roofing solutions. Built to bend, orofe was the perfect choice for the sort of wave-shaped design that HOK had envisaged. After casting, a special polyvinylidene fluoride (PVDF) liquid-based paint was applied to

the coils, resulting in an optimum colour finish and superb durability.

Together, the rolling, coating and installation teams at Elval Colour created a final product that met the performance, durability and aesthetic criteria set by the project owner and the architects. The roof of the Bangalore International Airport is built to last: orofe is incombustible, anticorrosive, UV-resistant, and requires minimal maintenance and cleaning. Orofe is a complete roofing solution, consisting of four different major alloy categories designed specifically for roof and wall systems, and it uses an advanced coating system to provide excellent corrosion resistance and superior aesthetics. It's a lightweight, versatile, strong and beautiful material suitable for almost any type of building. Orofe-coated aluminium is made to match the needs of the most demanding imaginations and operating conditions.

With the project's completion in 2012, Elval Colour had provided the finishing touch to an airport that will act as an important driver for the growth of Bangalore, Karnataka and the rest of southern India.

Aluminium composite panels

But roofing is only one application for Elval Colour's materials. The quality of all Elval Colour products is closely controlled through its in-house processes of casting, coating and finishing. These operations ensure each product achieves the maximum longevity and formability.

First among these products is Elval Colour's aluminium composite panels (ACPs), which offer architects a supremely versatile material for building facades. Each panel demonstrates a rigidity beyond that of most solid metal surfaces, which prevents the material from

deforming and becoming visibly 'wavy' due to local buckling, a process known as oil canning. It's not unusual to see metal roofing and cladding with unattractive bulges and ripples that make it look like it was installed in a storm, but that's not the case with Elval Colour products. Its ACPs provide an extremely flat surface to which high-specification liquid coil coatings can be applied, allowing the panels to resist oxidation and degradation even in extreme environments.

in the hospitality sector. These are developed in Elval Colour's own colour-mixing lab and applied in one of four coating lines to match any customer or project requirement. In addition, ACPs are lighter than alternative materials such as solid aluminium. This makes it ideal for renovating existing facilities, as it allows for visual and functional upgrades of the facade without requiring major modifications of the existing structure.

“Contemporary buildings not only have to comply with the highest design standards, but also have to meet the latest technical requirements in the fields of sustainability, energy efficiency, noise protection, fire protection, and more.”

At the same time, a limitless variety of colour coatings enables greater flexibility and freedom in design, a particularly important parameter for materials used

Furthermore, ACPs can also be produced with specially composed cores that make them fire-retardant or even incombustible. This attribute



Lightweight, versatile and built to bend, orofe-coated aluminium is the perfect choice for shifting wave patterns, supplying protection and security but also a powerful visual identity.

Company insight

is of paramount importance in today's world, where fire safety becomes more and more important every day, especially in highly used facilities such as airports.

Quality control

None of this is easy. ACPs are the result of a complex production process, and strict attention must be paid throughout to ensure the best quality final product. The panels comprise two coil-coated aluminium sheets between which a lightweight organic core with mineral fillers is sandwiched and bonded with adhesive. As aluminium oxidises, it needs to be treated accordingly. Even the process of rolling – the transformation of an aluminium slab into a coil – can result in oxidation as well as contamination of the aluminium surface from the lubricants and other agents used to

facilitate the procedure. Therefore, it is vital to clean the aluminium surface by chemically treating it with a combination of alkaline and acidic washes to remove the smut and any oxides from it. After that, a passivation layer is applied, which protects the surface from future oxidation. This layer is also polarised to bond with the coating that is added next. This pre-treatment process is vital: if omitted or done incorrectly, the ACP surface will be too reactive, leading to corrosion.

Based on location and application, tailor-made coating systems from PVDF or FEVE systems are applied to provide protection against the elements and give ACPs their aesthetically pleasing qualities. PVDF coatings are highly cross-linked painted systems with high UV resistance and an easy-to-

clean finish. They are used across Elval Colour's facade materials and can be provided with a dirt-repellent layer that requires even less maintenance. The quality of this coating can vary if it is not well applied. Whereas the normal composition is 70% PVDF and 30% acrylic, the coatings used by Elval Colour have an 80% PVDF content and contain no hazardous substances.

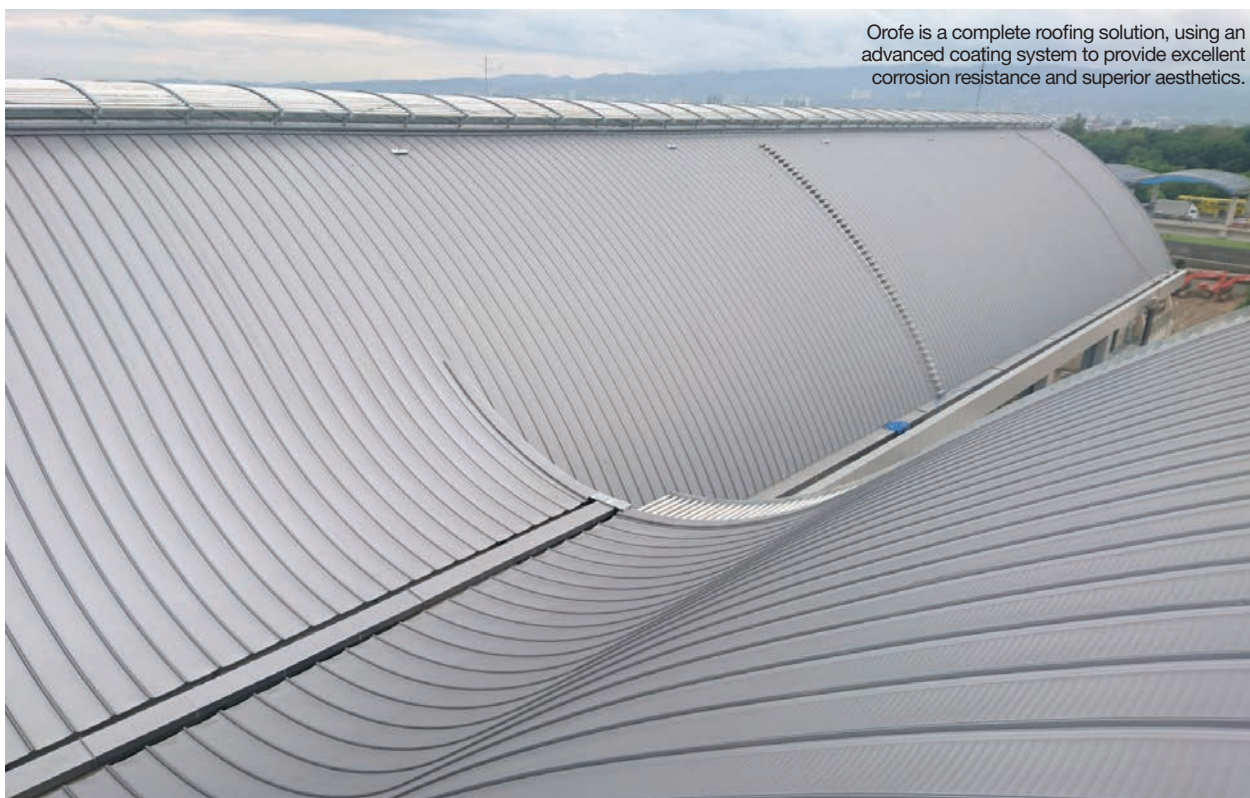
Safety and sustainability

Similarly, Elval Colour's etalbond panels combine energy-efficient construction, economic viability and architectural quality. Together, these properties make for an outstanding facade material. Etabond panels use a rear-ventilated construction technique, which is suitable for those who want to create facades on both new and old buildings as well as roof constructions and

contemporary interiors. A long lifespan, easy maintenance and a balance of insulation, ventilation and moisture control come together in etalbond to ensure the best appearance and constitute the perfect building envelope.

Elval Colour is vertically integrated – the casting and rolling of the aluminium coil, the surface coating, and the manufacturing of the composite panel are all performed by the same group. This provides full traceability for etalbond A2, granting full confidence regarding the quality of the product. Their high wind load capacity and strong penetration resistance are complemented with soft bending for the most demanding facade formations. The strips are rolled and coated in the company's facilities with the utmost care and in compliance with the most demanding European and global norms. The panels are light, flat, highly rigid and presented with the most durable coating qualities. Etabond is available in three different cores: etalbond PE with low-density polyethylene, etalbond FR with a fire-retardant core and etalbond A2 with an incombustible one, which is suitable for the most demanding applications and complies with all fire safety requirements for external cladding.

Contemporary buildings not only have to comply with the highest design standards, but also have to meet the latest technical requirements in the fields of sustainability, energy efficiency, noise protection, fire protection and more. Thanks to its mineral-filled core, etalbond A2 works ideally everywhere fire protection is necessary. Applications include high-rise buildings, high-traffic



Orofe is a complete roofing solution, using an advanced coating system to provide excellent corrosion resistance and superior aesthetics.



Etalbond panels are designed with a special aluminium alloy to achieve the right balance between rigidity and flexibility.

buildings such as airports, metro stations, shopping malls and hotels, and sensitive structures like schools, kindergartens, hospitals and elderly care centres, to name a few.

Like all Elval Colour products, etalbond A2 is a construction

material that facilitates freedom of design without compromising on superior technological features. Attractive and flexible, it is easily installed and formed, and is available in a wide array of highly durable and custom-made coatings, providing architects and designers

with numerous possibilities for materialising their ideas.

The importance of EN13501-1 classification in facade materials

The European directive tests and classifies the behaviour of

the material under fire, and this is done by examining and combining the results from three criteria. The first of these is the flammability of the material. Etalbond A2 is categorised as A2, which means that it consists mainly of inactive material with a minimal contribution to fire. Furthermore, it has approval from most national technical approval bodies.

The second is the release of smoke: etalbond A2 is categorised as s1, which means limited smoke release. This is very important, as smoke is the reason for most of the casualties during a fire incident.

The third criteria is the ejection of burning droplets and particles. Etalbond A2 is categorised as d0, which means that none of the above are produced, preventing development of a secondary source of fire. Moreover, the safe evacuation of the burning building, as well as the approach of firefighting crews, is not impeded.

Etalbond A2 complies with the most stringent fire safety specifications in the world and meets the highest demands for materials that prevent fire from spreading. Yet, due to the importance of Elval Colour's role in the market, and also its corporate social responsibility, Elval Colour decided to offer only etalbond FR and/ or etalbond A2 for high-rise and buildings with high visitation or sensitivity, regardless of whether or not the local regulations allow the use of PE-based materials. ●

Projects are based in PVDF or FEVE coating systems to provide protection and give aluminium-coated panels their aesthetically pleasing qualities.



Further information

Elval Colour
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Your Dreams, Our Challenge

A skyline of signature coated glass

AGC INTERPANE Glas is responsible for coating some of the most dazzling landmarks in London's Square Mile. We speak to Wayne McKiernan, a founding partner at architectural practice PLP, and Henk Wassink, AGC Interpane's international business manager, about the company's flexibility under pressure and emerging trends in the sector.

Walking down Bishopsgate Street in London, Henk Wassink singles out all of the nearby towers where AGC INTERPANE Glas have applied their signature coated glass. There's 70 Mary Axe, nicknamed the 'Can of Ham' for its curved exterior, 52 Lime Street, or 'The Scalpal'; and 22 Bishopsgate, still rising above the City of London. In fact, it's probably easier to list the projects AGC INTERPANE hasn't been involved in.

"Can you see the top, here?" says Wassink, pointing to the rising facade of 22 Bishopsgate. You can see a perfect flat glass surface, without distortion, in a closed cavity facade produced by Gartner, Permasteelisa.

"We're very flexible in changing coating layer build-up at short notice. That's because the people who built our coating line also operate it, maintain it, and conduct research and development on it as well."

– Henk Wassink

This, according to Wassink, is precisely what distinguishes AGC INTERPANE from its competition in the coatings marketplace: its absolute dedication to quality. Founded in 1971, the company has always prided itself on its ability to develop its own coatings (low-emissivity and high performance solarcontrol) on its own production line. This differentiates AGC INTERPANE's

transparent and neutral ipasol coatings from the competition. And it has the flexibility to coat custom-sized glass to obtain optimal visual quality.

What's more, AGC INTERPANE has always been open to innovation, a stance aided by its flat business structure. "We're very flexible in changing coating layer build-up at short notice," explains Wassink. "That's because the people who built our coating line also operate it, maintain it, and conduct research and development on it as well."

Nowhere is that flexibility on greater display than when a client requests AGC INTERPANE's 'coating on

demand' service, which allows architects to create custom coatings themselves to test new looks, shapes and ideas. "We can play with different layer thicknesses and coating specs to create different perspectives, test the look of new colours as well as the performances of the coating according to different lighting and thermal conditions," says Wassink. "We can

show this on our digital rendering of the building in question and, once they agree on a certain coating, then production starts. By the afternoon, we've produced a sample."

Indeed, the service has had an outsize influence on the appearance of London's skyline. "The coating used on the external skin of The Shard was, in fact, an early version of 'coating on demand'," Wassink recalls. "The architects from the Renzo Piano practice said, 'We want to use a low iron glass with a neutral silver reflective coating of the highest quality'." The problem was that no product could meet these requirements. At AGC INTERPANE, the full team was involved in the challenge. In a 'twinkle', they created ipasol bright white – one of the company's most popular coatings. The formulation has appeared on the lower ten floors of the Freedom Tower in New York City, the Louis Vuitton Foundation project in Paris and on the as-yet incomplete 22 Bishopsgate.

"We've used AGC INTERPANE's products quite a lot in our buildings," says Wayne McKiernan, a partner at PLP and one of the architects behind 22 Bishopsgate. "They're a big outfit, don't get me wrong, but it's also because of the early work they're prepared to do, and the relationships that build on them showing us their new technologies."

McKiernan and Wassink are currently in the early stages of discussions



22 Bishopsgate, soon to be the second-tallest building in London, uses AGC INTERPANE's ipasol bright white coated glass.

about incorporating Halio switchable glass – a type of glazing that responds to climactic conditions – into future projects at PLP. "AGC INTERPANE have been taking on those ideas and really using their research budget to try and find ways to make these things work," says McKiernan. Indeed, the enthusiasm Wassink has for the new in coatings is infectious.

"In the future we're going to have more connected glass, more intelligent glass, which reacts to our needs," he says. "We're going to have new technology in the glass itself and that, I think, will be a very interesting next step." ●

Further information
AGC INTERPANE Glas
www.interpane.com

CIVIC DUTY

© Nic Lehoucq

In an era of shrinking public funds, and an increasingly complicated relationship between citizens, communities, government bodies and private enterprise, what do we want our public buildings to stand for and who should be responsible for defining their function? Grace Allen speaks to architectural designer **Adam Nathaniel Furman**, who has sparked conversation on the visual language of the city hall, and **Louis Becker**, partner and design principal at Henning Larsen Architects, about the civic architecture helping to pose and frame those questions.

The Renaissance humanist Leon Battista Alberti had a clear conception of the architect's civic responsibility and significance. "The security, dignity and honour of the republic depend greatly on the architect," he wrote in his mid-15th-century treatise *De re aedificatoria* (On the Art of Building), a work that drew on the classical theories of Vitruvius and provided Renaissance Italy with its first architectural manual. Alberti

understood that the essence of a city, its reputation and understanding of itself, and therefore its civic conduct, were linked – or, indeed, dependent on – the quality of the buildings that formed it.

In an age when individual virtue had become closely linked to active contributions to the public good, Alberti would have expected every new project within a city to be attuned to the needs of the republic. Even so, a city hall carries particular



weight, both in the past and now. Alberti lived and worked for a time in Florence, where the monumental medieval Palazzo Vecchio – the seat of government – dominates the centre of the city.

In the modern era, there is perhaps no better example of the value of the architect in shaping the security, dignity and honour of a city than in Toronto, where the massive and modernist New City Hall, in the words of architecture critic Alex

Bozikovic, “instantly transformed Toronto’s image of itself”.

Designed by Finnish architect Viljo Revell and opened in 1965, the City Hall’s semi-circular council chamber is elevated on a stem and embraced by two statuesque curved towers. The building has become an emblem of Toronto and is credited with opening the way to an innovative manifestation of the city.

The ambition and correspondingly powerful effect of Toronto City Hall

illustrates the need for civic buildings to be generous in the architecture they give to a city’s residents.

“If it looks like a commercial speculative office building you could rent out, then you’re losing the point of the city hall,” says Louis Becker, partner and design principal at Henning Larsen Architects.

connection between civic spaces and the political expressions they inspire.

“Aesthetics are political,” he says. “People relate and respond very strongly to how things look and feel, and architects can’t ignore that.”

The Democratic Monument is, therefore, also a rejection of the

“There’s a lie, a great lie, that a neutral space allows anything to occur in it. It does the precise opposite; it alienates people.”

Aesthetics are political

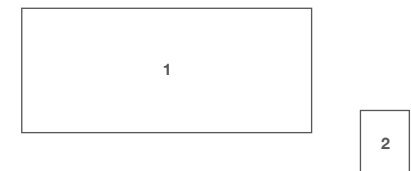
The company’s recently completed Eystur Town Hall in the Faroe Islands, a winner at the 2018 Global Architecture and Design Awards, is emblematic of the studio’s approach to the creativity possible in civic buildings. Long, low and almost invisible from some angles, the single-storey town hall forms a physical and symbolic bridge between the two municipalities it governs by spanning the river that divides them. Its green roof and blackened wood echo traditional Faroese building techniques, while glass panels offer views of the surrounding scenery and down to the river below.

The necessity and responsibility for civic architecture to ‘speak louder’ than other buildings is a conviction of artist and designer Adam Nathaniel Furman, who is also currently teaching a studio on city halls to architecture students at Central St Martins in London. Furman’s Democratic Monument, commissioned by the 2017 Architecture Fringe as part of the exhibition New Typologies, is a colour-saturated and energetic vision of civic pride where historic forms are combined with modern techniques and vivid ornamentation.

Fundamental to Furman’s conception of the city hall is the

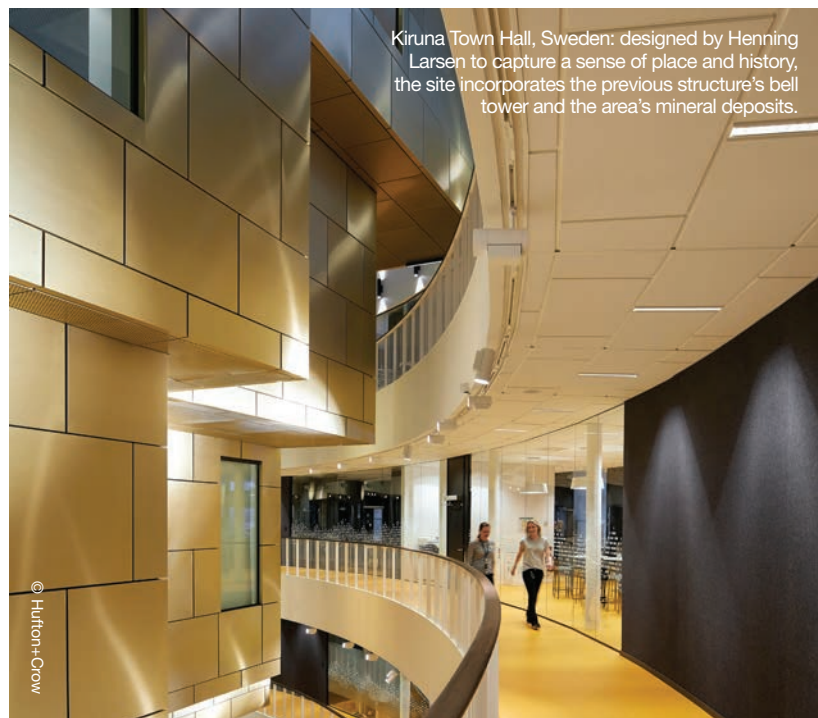
neutral forms that have come to embody much civic architecture.

“There’s a lie, a great lie, that a neutral space allows anything to occur in it,” Furman says. “It



1. Eystur Town Hall, Faroe Islands: an award-winning design by Henning Larsen Architects.
2. The Democratic Monument, Glasgow: a colour-saturated vision of civic pride.





Kiruna Town Hall, Sweden: designed by Henning Larsen to capture a sense of place and history, the site incorporates the previous structure's bell tower and the area's mineral deposits.

© Hutton+Crow

does the precise opposite; it alienates people."

A city hall has to offer a location for the expression of all aspects of democracy, including the right to protest.

"There's a reason that political campaigns, political demonstrations, political gatherings, great events, always happen in places that have got spectacular backgrounds," Furman asserts. "That's where people want to manifest their ideals."

Encouraging participation with a civic space is a priority for Henning Larsen Architects, which has worked on city halls from Denmark to Canada.

"They all share one thing; that is how you will be met when you enter the building," Becker says. "We are very precise about that – when you enter the building you have to feel welcome."

Transparency and inclusivity

In addition to a personal greeting, a relaxed and unthreatening atmosphere is also conjured through

the use of glass and uncluttered spaces to create visibility: in the city hall in Middelfart, Denmark, an atrium and exposed staircase open up the whole building to view. Focusing on the liminal spaces between the town hall and a street or square, blurring these boundaries, minimises the sense of the town hall as a closed-off space.

Transparency is a key concept for the company. "You know there's nothing worse than the feeling of going into an East German office – when that was still in function – and it was all brown, and there were many closed doors and you knew behind those doors something was happening, and it might not be good," Becker says. "I think what we're trying to do is take you as a citizen, you come to your place, it's your building, and you look in and there's transparency."

Creating an inclusive sense of welcome also requires engaging with the multifaceted cultural realities of civic communities: a critical

approach that Furman believes is lacking in civic architecture.

"We have queerness, we have other groupings, we have multiple cultures, we have different religions and somehow they all have to coexist," he says. "That's not something that has ever been allowed, in any way, to even begin being looked at as part of architecture."

The exuberant facade of the Democratic Monument is intended to act as a counter to this, an eddying mix of styles and historic references that combine into a universal belonging.

Furman's proposal incorporates specific regional elements – soils, stones – that tie the building to its location. A sense of place and history is also key to the town halls constructed by Henning Larsen, and this is particularly true in Kiruna, Sweden, a town moved 3km after subsidence created by mining threatened the original community. The city hall site incorporates the bell tower from the previous structure; the new building itself references the area's mineral deposits, resembling a crystal caught within a band.

The town hall in Kiruna is designed to provide a gathering point for an uprooted and displaced community. In an age when civic services are increasingly outsourced or offered online, however, there is a challenge in making a city hall a true civic centre. In Furman's eyes, many town halls have abdicated their role as the symbolic heart of a community, with this task taken up by selective spaces such as art galleries or shopping centres.

Collective ownership

For Louis Becker, flexible use offers a pathway to establishing the city hall as the spatial representation of a community.

"This idea, that you are building a public facility and you allow it to

be used in multiple different ways, that supports this idea that it's our building, it's our place," he says. "It's collective ownership basically, at least symbolically."

Reducing the number of fixed seats, creating a fluid space – in Middelfart City Hall, a stairway doubles as a seating area – and bringing events such as art exhibitions, concerts and leisure classes into the building opens it up to a broader section of the population.

While moving civic services online may serve to dissolve connections between citizens and the physical town hall, Becker sees the savings inherent in this process as a possible opportunity, creating funds to invest in the improved provision of those activities that remain.

Another option to maintain the town hall's relevance to a community is to merge it with other functions such as shops, sports centres, libraries. An example is the Corby Cube by Hawkins Brown in Northamptonshire, which combines a council chamber with two theatres and a library; Middelfart City Hall is part of a complex that includes residential and retail space.

"We've done one where it's totally integrated, and it works perfectly, but the hierarchy of the place is very simple," Becker says. "It's the city hall that's number one."

Furman, too, is open to this possibility. "In the past, town halls weren't fixed things," he says. "You had great halls in different cities, which were used as debating chambers, but also used for political events, annual music festivals, theatre."

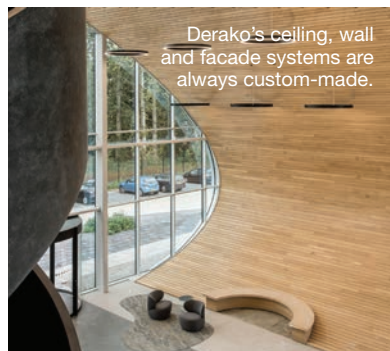
The ultimate consideration must be the purpose of a city hall – to serve the people.

"I understand that the owner in reality is the end users and not the people paying for it," Becker says. "And that particularly counts for city halls." ●

Beautiful wood application in a futuristic distribution centre

Derako International is a Netherlands-based supplier of custom-made solid wood ceiling and wall systems, the work of which has covered a range of innovative and exciting projects across Europe.

A NewLogic III distribution centre has been built in the south of the Netherlands. This futuristic building has received a 'BREEAM outstanding' classification and was constructed using Derako International's solid wood ceiling and wall system. The front part of the distribution centre, which contains the offices and loading docks, is known as the 'Tube'. This shape typifies the appearance on the outside, while, in the entrance, the curved solid wooden walls run directly into the ceilings, creating a unique experience inside the building.



Derako's ceiling, wall and facade systems are always custom-made.

Derako has supplied over 1,000m² of a solid wood linear system for this project, executed in European oak. Grey

non-woven tissue is fitted between the planks, which not only matches the colour scheme of the building but also improves the acoustics in the room. The Derako systems are C2C Silver-certified and make a direct contribution to obtaining credits within BREEAM. With a score of 98.5%, this building has obtained a 'BREEAM outstanding' classification. This has placed the NewLogic III distribution centre among the most sustainable in Europe.

Derako also worked out the systems in advance to their implementation

in full detail and supplied them in a prefabricated form. Access hatches were created and the integration of the light fittings was ensured through adaptations to the system and by supplying additional clips. The Derako ceiling, wall and facade systems are always custom-made project solutions designed by the architect in charge. ●

Further information

Derako International
www.derako.com

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www.derako.com - Architect: Habeen Architecten - NewLogic III, The Netherlands

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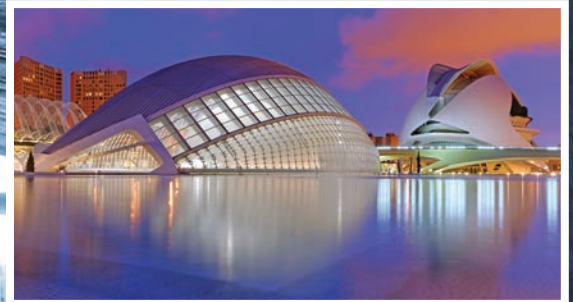


RPM BELGIUM VANDEX is specialized in development, manufacturing and sales of high performance polymeric and cement-based products.

Specific and innovative waterproofing, protection and repair solutions for various constructions and sectors, such as industrial floors, roofs, balconies, terraces, stadiums, parking structures, bridges, tunnels, sewage treatment plants, structures in contact with potable water, foundations and below grade waterproofing and so much more.

A multitude of available technologies allow us to choose the best solution based on customer needs, performance and conditions: epoxy (EP), polyurethane (PU), methylmethacrylate (MMA), PUMA, PU concrete and acrylate cement, bentonite and HDPE, crystalline and other cement technologies.

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Waterproofing and protecting structures worldwide

RPM BELGIUM VANDEX specialises in the development, manufacturing and sales of high-performance polymeric and cement-based products. It developed its PUMA technology as a response to the limitations and insufficient crack-bridging capabilities of conventional methyl methacrylate (MMA) and other resin-based systems.

Through innovation, know-how, experience and, above all, strong motivation, RPM Belgium Vandex supports its products and customers with exceptional service by providing technical advice during the design and offer phase, application advice on-site, organising training courses and product launch events, and designing new products or systems tailored to the customer's needs.

Much is being invested in research and development, and obtaining the necessary test reports and inspections, in order to meet the highest standards and requirements for different sectors and applications.

Seamless flooring

RPM Belgium Vandex provides different possibilities for floor coverings that can meet all the rigorous requirements in all sectors and industries: food and beverage, healthcare, electronic, commercial, production, distribution and warehousing, transport, education, residential, and many more.

Knowing the needs of your business is the key to choosing the floor that fits your needs. The combination of the wide range of products, years of expertise and flexibility helps RPM Belgium Vandex to offer the best solution for every flooring challenge.

PUMA waterproofing technology

For the waterproofing of buildings and infrastructure, RPM Belgium Vandex

developed the PUMA technology with the crack-bridging performance of polyurethane (PU) and the main properties that distinguish methyl methacrylates (MMAs) from conventional resin-based systems, such as fast curing and excellent workability even at very low temperatures, abrasion resistance, UV resistance and long life.

Even after application at -20°C, the PUMA membrane retains its superior crack-bridging properties and the system is fully hardened, rain-resistant, loadable and trafficable within the hour after application. Consequently, it can be used throughout the year, with minimal interruption of activities and waiting time between consecutive phases, which significantly reduces costs for users or owners.

The systems are applicable to almost any surface, such as concrete, steel, metals, asphalt, wood or composite materials, with excellent adhesion properties.

Vandex: cementitious products

Vandex is the worldwide trademark for a range of professional building chemicals for waterproofing, concrete repair and building protection, which was established in 1946 by Lauritz Jensen, the inventor of crystalline waterproofing technology.

With an impressive track record of successfully completed water-



RPM Belgium Vandex provides application advice on-site for its customers.

tightness assignments over a period of more than 65 years, Vandex has gained worldwide recognition.

A wide range of cementitious products and systems are available for structures in contact with drinking water or wastewater, as well as the repair and protection of civil infrastructure, and the restoration of old buildings.

New: flexible paving tiles

Zoruflex paving tiles are thin, light in weight, flexible, PUMA resin-based preformed tiles. The tiles are glued to the substrate with PUMA resin or applied to vertical and curved substrates using a double-sided self-adhesive bitumen seal.

It is a trafficable surface system with extremely high durability, and it is resistant to UV, deformation and cracking, even under heavy traffic conditions. It is applicable to almost any type of stable support and can be very quickly applied over a wide ambient temperature range, with short downtime.

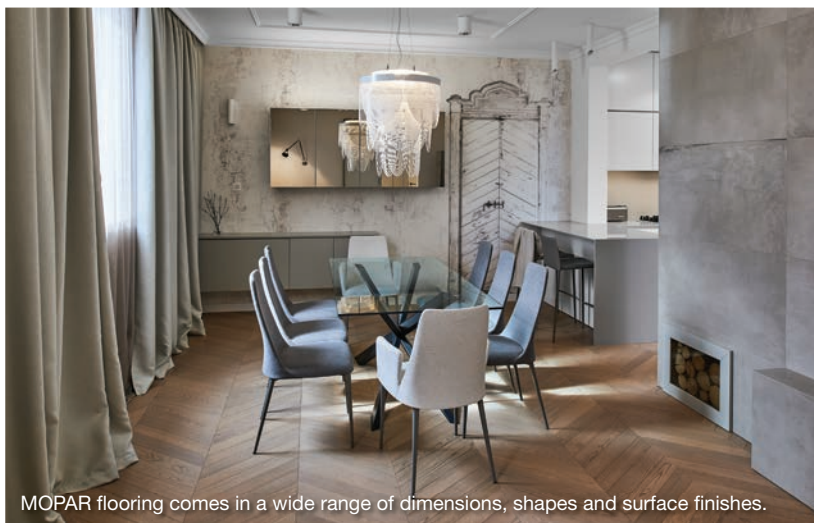
From a decorative point of view, the possibilities are endless. The tiles can be created and produced in several textures, colours and shapes, and even as an exact copy of any natural tile. ●

Further information

RPM Belgium Vandex
www.rpmbelgiumvandex.be

Bring nature into every interior

With the ability to be finished to look like a shiny metal or marble, or left raw with the imperfections of knots and grains, **Monolitinvest**'s MOPAR – Modern Parquets wooden floors are the perfect blend of warm and versatile decor for interiors.



Monolitinvest is a Croatian producer of prefinished engineered flooring under the brand name MOPAR – Modern Parquets. Since the start of production, almost 30 years ago, the company has always been export-oriented, closely paying attention to the newest developments and trends in customer demand, wood-processing technologies and environmental protection.

MOPAR flooring is chosen by people who want their project to tell a story, and comes in a wide range of dimensions and shapes – planks, chevrons, patterns and squares, for example – and an even wider range of surface finishes – varnished, oiled, stained, hand planned, brushed and more. When combined, these options can create almost infinite possibilities.

Still, every project is approached uniquely and developed to meet the customer's wishes. The team values its relationship with customers, believing that it is as important as the quality of the products. This is why MOPAR flooring can be found in many interiors all over the globe.

Due to highly modern technologies and skilled craftsmanship, the company has the capabilities for making customised prefinished engineered flooring for both small and large-scale projects. Through tackling new challenges and working to redefine the concept of what wooden floors can and can't be, Monolitinvest is constantly developing new and exceptional designs.

The main species of wood used in the MOPAR range is White European

oak, but not just any kind – it uses the well-known Slavonian oak that is highly valued for its structure, natural resistance and its specific yellow-golden colour. The standard colour range is a selection of carefully chosen shades from the colour of natural oak, varying from white and grey tones to warm browns and deep dark colours. An in-house colour lab designs more new colours in order to best bring the client's vision of the project to life.

At the same time, the team closely pays attention to preserving forests for future generations. The raw materials used for MOPAR products come from responsible sources. Monolitinvest is a member of the FSC organisation, the system that ensures that forests are able to conserve biological diversity, water resources and ecosystems.

The whole production process is an environmentally friendly cycle, with no harmful emissions released into the atmosphere. Adhesives used in production are formaldehyde-free, and the dyes, varnishes and oils are natural and ecological. MOPAR-finished products are packed in recyclable packaging while wood waste is used for the production of briquettes.

Customer care does not end with delivery. Monolitinvest offers a range of maintenance products that help customers to enjoy their hardwood flooring for a long time after purchase. ●

Further information
Monolitinvest
www.mopar.hr
office@mopar.hr

M O P A R

modern parquet





Form beyond function

For centuries, one simple rule defined bridge design: form must follow function. Yet, as materials have advanced and design programmes grown more complex, this edict has become less and less relevant. Greg Noone talks to architects and engineers including **Naeem Hussain**, global leader of bridge design at Arup, and **Sara Göransson** of Urban Nouveau, to discuss how building a crossing between two separate points is becoming less of an engineering feat and more of an art.

Toward the end of Paddington Basin in London, a strange bridge extends diagonally across the canal. When barges approach, the crossing quietly ascends, as if in salute, by means of a hydraulic system at its base. As the bridge rises, its walkway splits upwards and lengthways into strips to stand splayed in the air like the wooden spokes of a Japanese fan or, as its architect prefers, like five fingers of a hand.

"If you're sitting in one of the nearby cafe's, what you can see is narrowboats that are largely the length of our bridge turning around all the time," explains the crossing's designer, Bart Halaczek, a partner at Knight Architects. "If you had a bridge of the same scale and that slews around, that turns horizontally, no one would probably even notice."

Opened in 2014, the Fan Bridge is one of a new breed of crossing, designed explicitly for design's sake.

The bridge itself doesn't strictly need to be there: its presence really only allows pedestrians to forgo roughly three minutes of walking around the canal, and most barges have enough room to turn around before they even reach the basin. This is, unquestionably, a landmark – one likely to outlast the steel and glass offices around it. "All bridges – or most of them – become a defining part of the neighbourhood," says Halaczek. "Being aware of that and using that potential... is very important."

This remains a relatively radical concept in bridge design. Yet the idea that engineers and architects could work closely together to create something aesthetically pleasing seemed a strange idea to Halaczek's peers at Stuttgart University.

"There was [a] very clear break between the world of engineers and the world of architects," he recalls. "And they didn't talk to each other. They were separated from each other geographically – one part was in the town centre, the other on the outskirts of Stuttgart – which was very strange, because [the university] was very famous for intertwining the world of engineers and architects."

Public projects

Halaczek, who has made his name as a specialist bridge designer for Knight Architects, suspects the merging of those two worlds began with the advent of computational design tools in the 1980s. Naeem Hussain, Arup's leading bridge engineer and the man behind projects including the Queensferry Crossing in Scotland and the monumental Hong Kong-Zhuhai-Macau bridge, prefers to see the change as emerging from a citizen's revolt against blandly functional design in the public space.

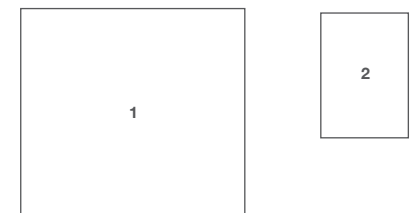
"If you ever deal with any public sector department, their attitude is: 'What is my minimum cost?'" explains Hussain. "And if you get a good designer, it doesn't mean that



the construction cost goes up. I can take the same amount of material as in a utilitarian-looking bridge, but I could make that into a much more sculpturally beautiful object with the same amount of material."

Take the Hulme Arch Bridge in Manchester as an example. In this case, form follows function before it cuts loose skyward with the crossing's diagonal arch, which seems like it would escape the structure entirely were it not for the steel cabling bolting it to the roadside. In the old climate, the bridge would

have seemed flamboyant, unnecessary. In 1997, however, Hussain and Eyre not only made the arch essential to



1. Golden Bridge, Ba Na, Vietnam: this bridge has become a popular tourist spot.
2. The Fan Bridge, London, UK: this landmark defies the idea that form must follow function.

the engineering of the bridge, but succeeded in creating a symbol for a new Manchester. And symbols are worth nothing if they are not seen.

“The reason it is a diagonal arch is that it looks like an arch from two directions,” explains Hussain. “If you drive underneath the bridge, it looks like an arch. If you drive on the bridge, it looks like an arch. And that’s the beauty of it.”

Best of all was the relationship between Arup’s team of engineers and the architects from WilkinsonEyre. According to Hussain, the finished design took all of a night to conceive. “We had plenty of wine, and we were just drinking and we were doodling and talking,” he recalls, before architect Jim Eyre raised the prospect of a diagonal arch. “That kind of conversation between designers, and I really mean designers – whether it’s an architect or an engineer is really beside the point – [it is] that collegiate approach where you’re sitting down, bending ideas and something comes out.”

Credit where it’s due

That, at least, is the idea. While Hussain celebrates this new era in aesthetic bridge design, coverage of the phenomenon has left him a little jaded. The Arup engineer has been outspoken in the past about the allocation of credit after the completion of prestige projects, pronouncing rather indignantly in 2012 that his close friend, the structural engineer Michel Virlogeux, “is the man who made the Millau Bridge, not Lord Foster”.

“Most of the major bridge [projects] are actually led by engineers,” explains Hussain. “They’re not given enough credit because, I would say, of the ignorance of the people who write about it.”

Hussain hasn’t experienced nearly anything like the level of tension between engineering and architectural teams that this might suggest: indeed, he is careful to add that he never heard of Virlogeux ever experiencing

similar difficulties. Nevertheless, it has influenced the type of architect he chooses to collaborate with.

“Personally, I would never work with Foster,” says Hussain. “I would not be able to get on with him, because [his] approach is, ‘I’m going to tell you what I want.’ And that’s not how I work.”

Un-bridging

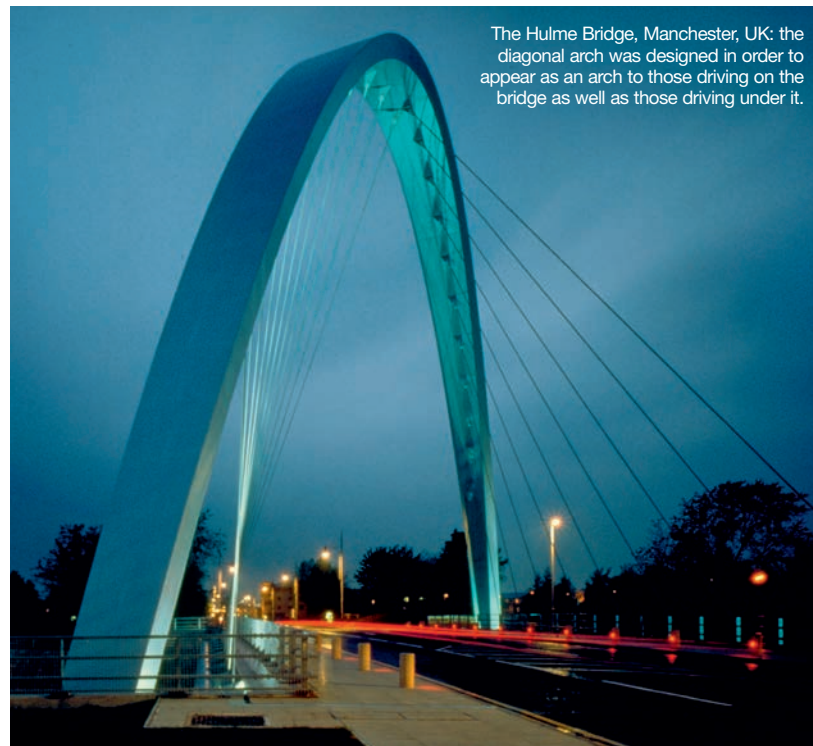
Viet Anh Vu, on the other hand, counts Foster as an inspiration. The architect appreciates the simplicity in his UK counterpart’s buildings, and those of Renzo Piano, divining from them what he describes as his “perception of modern order”.

One might see echoes of Piano’s iconic crossing at Ushibuka in Anh’s Golden Bridge, nestled high in Vietnam’s Ba Na Hills. Behind it a former hill station turned local tourist resort, the crossing is gently lifted atop the forest canopy by two vast stone hands, cut off at the wrists. “The bridge is the connection, the pathway and also a dialogue between [human] and nature [at] Ba Na Mountain,” he explains.

Within a few months of its opening, the crossing had gone viral, attracting hordes of tourists eager to take the perfect pose above the outstretched forest. Indeed, its popularity suggests that the view from the bridge is becoming as, if not more, important in its final design as our view of it. This is certainly the case in Urban Nouveau’s proposals for the Lidingöbron, a pedestrian and tram crossing from the island that bears its name to neighbouring Stockholm.

Changing times

Sara Göransson has fond memories of walking across the bridge in winter, when the water begins to freeze. “The landscape changes dramatically,” says Urban Nouveau’s founding partner. Underneath the steel rafters of the bridge’s stubby archway, she marvelled at the transformation of the channel beneath from a swirling, black maelstrom to a silent, formless white.



The Hulme Bridge, Manchester, UK: the diagonal arch was designed in order to appear as an arch to those driving on the bridge as well as those driving under it.

It is Göransson’s fear that this landmark could soon be lost forever. The bridge is old now, and its steel – of diverse sourcing and quality – is starting to fail. Stockholm’s city council is resolved to demolish the crossing and replace it with a new one, a prospect that Göransson is determined to avoid. Just as Stockholm’s suburbs have jumped the water to Lidingö Island, Urban Nouveau proposes they also cling underneath the Lidingöbron. The sale of the flats touching the waterline below will, in turn, fund the creation of a public park on top.

“This would be the most spectacular place to live in the city,” says Göransson, who makes no bones about the apartments’ exclusivity. Naturally, she is also intrigued by a form of adaptive reuse that has few working precedents – Ponte Vecchio in Florence; London Bridge in the medieval period – and that draws its inspiration from the changing face of Sweden’s capital.

“Stockholm is one of the fastest-growing regions currently in Europe,”

says Göransson, and one with an acute housing shortage. “This is an attempt from us to connect [Lidingö] to the municipalities.”

The realistic prospect that an inhabited bridge could become a signature feature of a European capital again is just one sign that the relationship between form and function has blurred. One might consider that the new possibilities offered up by this shift could result in a loud carnival of designs unmoored from the urban or rural context in which they are placed, where form exerting an unwelcome dominance over function.

Such prospects seem unwelcome to Halaczek, who is careful to weigh the influence of each new crossing he designs on the direction of the route it bears, the circulation of people, and even the character of its neighbourhood. “Every bridge, on its own, is a landmark by itself,” he explains. “Every bridge is a solitaire.” ●

Unique slimness

Forster Profile Systems provides windows that are heavily insulated yet ultra-slim.

Thermally insulated windows and fixed glazing, with an unparalleled slimline facing width of 55mm (window/overlapping casements) and 23mm for glazing, can become a reality with the new forster unico XS profile system. Filigree sash bars and slimline frames with excellent structural properties allow the implementation of modern, large area modules for new builds, and particularly delicate sash bar elements for old and historic building renovations.

The steel profiles offer a broad portfolio of application possibilities and afford plenty of scope for creativity; everything from different window opening variants, such as turn, turn and tilt, casements and outward opening windows, right up to individual and curved constructions can easily be accomplished with the flexible profile system. The possible installation of filling elements measuring up to 60mm for triple-insulating glass, for example, makes it easy to achieve very low U-values and excellent sound insulation credentials.

Despite its slim appearance, the forster unico XS system does not compromise safety and security, as it comes with burglary-resistant RC2. An all-round locking mechanism and three sealing levels increase tightness, thereby ensuring that customers feel safe.

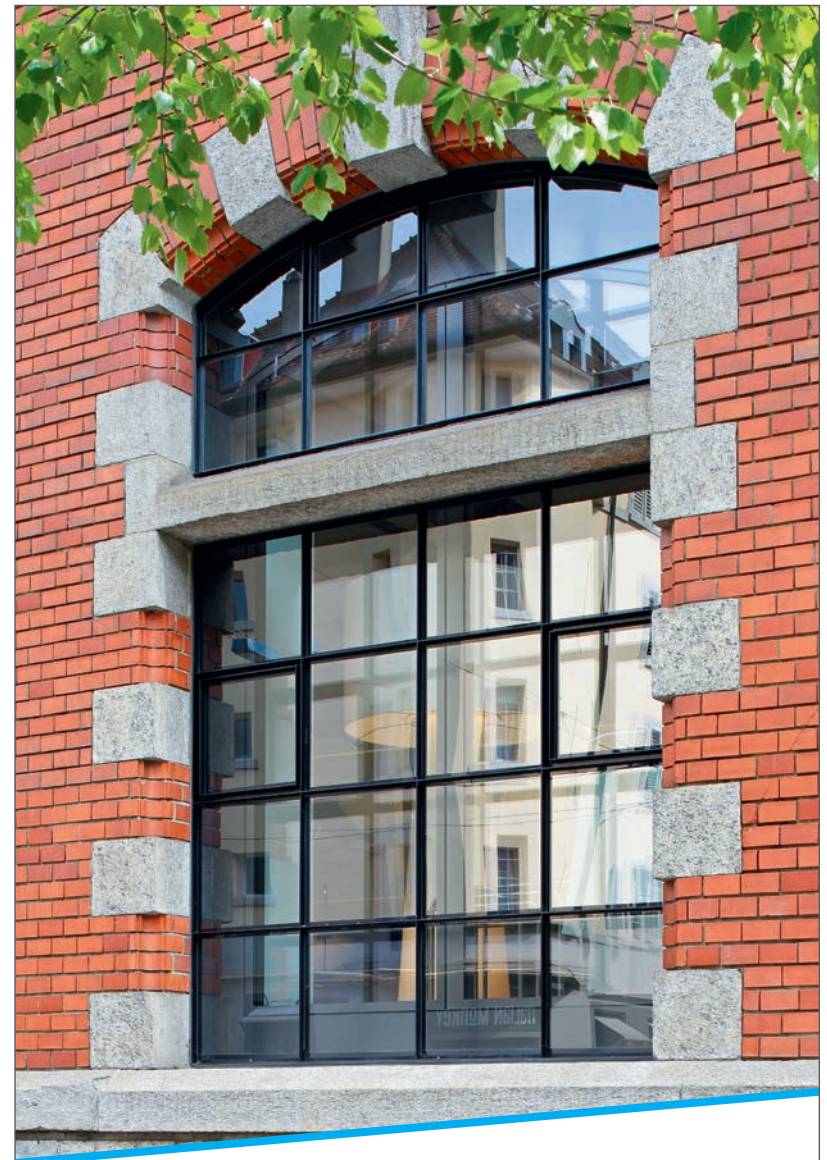
Components used in forster unico XS profiles also achieve excellent insulation values and have obtained the Minergie



Steel profiles can be used for a wide array of applications.

certification from Ecolabel Index for low-energy consumption buildings in Switzerland. Made from 100% steel and designed without additional synthetic insulation materials, the profiles are particularly durable, ecological and sustainable. ●

Further information
Forster Profile Systems
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Unique slimness

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Collaboration is key

Swiss-based **Laufen** has achieved its goals of precision, quality, design and sustainability through its willingness to collaborate with highly skilled, innovative individuals in order to create unique bathroom products and concepts.

Laufen has a long heritage of collaborating with internationally renowned architects and designers. These unique partnerships offer the opportunity to blend Laufen's expertise in ceramics with a constantly evolving design aesthetic, which comes from working with a prestigious group of outstanding international designers. This enables them to offer outstanding bathroom products, in form and in function, to their customers.

Laufen inspires beautiful bathroom solutions for commercial projects around the world and are passionate about bringing the very highest user satisfaction for clients, and ultimately,

their guests. This is achieved through an open partnership approach with the highest level of professionalism – offering designers two possible approaches: complete bathrooms including washbasins, toilets, faucets, bathtubs and furniture, or modular concepts that integrate flawlessly in architectural concepts.

SONAR – a collection formed through collaboration

The innovative SONAR collection is the latest range from Laufen and has been created by internationally acclaimed and eclectic designer Patricia Urquiola. Laufen has been working with Urquiola since 2016, and she explains

what drew her to collaborate with the brand, saying, “Well, first they called me to design their showroom in Madrid, a city that I care a lot for. Then we start talking about a design collaboration. I was interested in evolving the project with a bold and innovative approach. I wanted to interpret and explore the very unique and interesting characteristics of SaphirKeramik [Laufen's patent-pending ceramic material], both in terms of design as well as form and function. In this way Laufen and I partnered to create the SONAR project.”

Contrast, balance and elegance

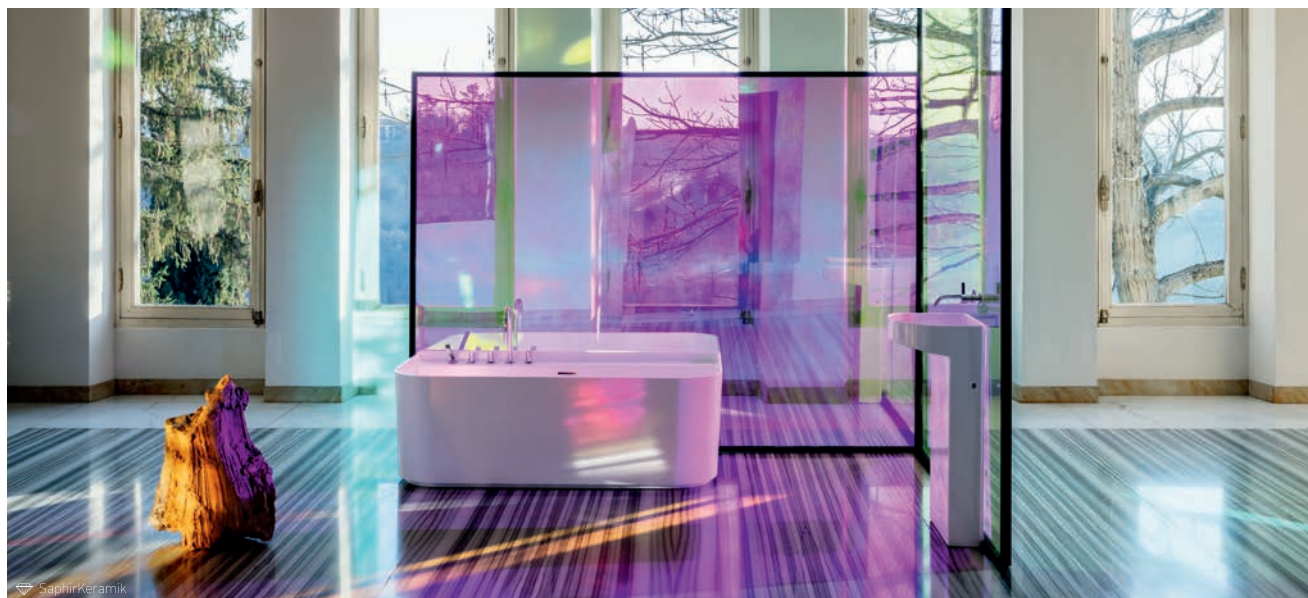
In the SONAR concept, Urquiola manages to combine two powerful

and apparently opposing matrices of inspiration: the rigour of architectural minimalism as an expression of purity and formal understatement, and the energy and dynamism connected with the natural phenomenon of sound waves and their relationship with water. The unique SONAR range includes thoughtfully and elegantly designed wall-hung washbasins, washbasin bowls, toilets, bathtubs and furniture in different finishes. ●

Further information

Laufen
www.laufen.com

LAUFEN



*COLLECTION SONAR
Design by Patricia Urquiola*

Bespoke wooden floors from the Black Forest

Hiram Floors is a company with a deep-rooted belief in the value of quality and craftsmanship.



Hiram's floors are made with locally sourced, sustainable timbers like oak and Douglas fir.

For over 30 years, Hiram has been based in the Black Forest region in southern Germany. The family business produces bespoke wooden floors that are used in projects that have a requirement for exquisite craftsmanship and longevity.

With its origins as a horse-logging company, the company now produces wooden planks that are up to 15m long and 40cm wide using local, sustainable timbers such as Douglas fir and oak. Every product is made to order and produced according to the customer preferences for the wood, the colour and the dimensions of the flooring.

The trees are selected in local and sustainably managed forests and then transported over short routes to the production facilities. Once

arrived, the timber is sawn into wide boards, dried on the air and then kiln-dried in state-of-the-art chambers.

Hiram's skilled team of craftsmen care deeply about the entire production process. With every step, the floorboards receive hands on attention and are regularly subjected to quality control. Each knot is examined and mended, if necessary. The final result is floorboards that are unique due to the wooden grains, the sizes of the knots and the dimensions of the boards. Once installed in a project, the floor itself is a beautiful and long-lasting room element that complements any kind of interior design. ●

Further information
Hiram Floors
www.hiram-floors.com



Contact Us
www.hiram-floors.com
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WIDE PLANK FLOORING
IN DOUGLAS FIR, OAK & ASH.



Reach for the sky



In October, the new Istanbul Airport, planned to be the world's largest upon completion, opened its doors to the first phase of operations. Jenny Southan speaks to the architects involved in the massive project, including Grimshaw's **Andrew Thomas**, Haptic Architect's **Tomas Stokke**, Nordic – Office of Architecture's **Ingrid Motzfeldt**, and **Maurice Rosario** of Scott Brownrigg, about the inspirations and challenges faced when designing a facility of this scale.

The inauguration of the new Istanbul Airport took place on 29 October, the country's 'Republic Day', after a construction project that took 42 months to complete the largest single-roof airport in the world. The site covers 41km², but this will increase to 76km² over coming years, making the aviation mega hub bigger than the whole of Manhattan Island (59km²). At the ribbon cutting, President Erdogan reportedly said that his country will become the "most important transit location on the north-south, east-west axes, connecting 60 countries and \$20-trillion economies".

With a price tag of \$11 billion, this private-public partnership can have nothing other than seismic ambitions. Located in the Arnavutköy district near the Black Sea – 40 minutes' drive north of the city centre, on the European side (with a new metro line set

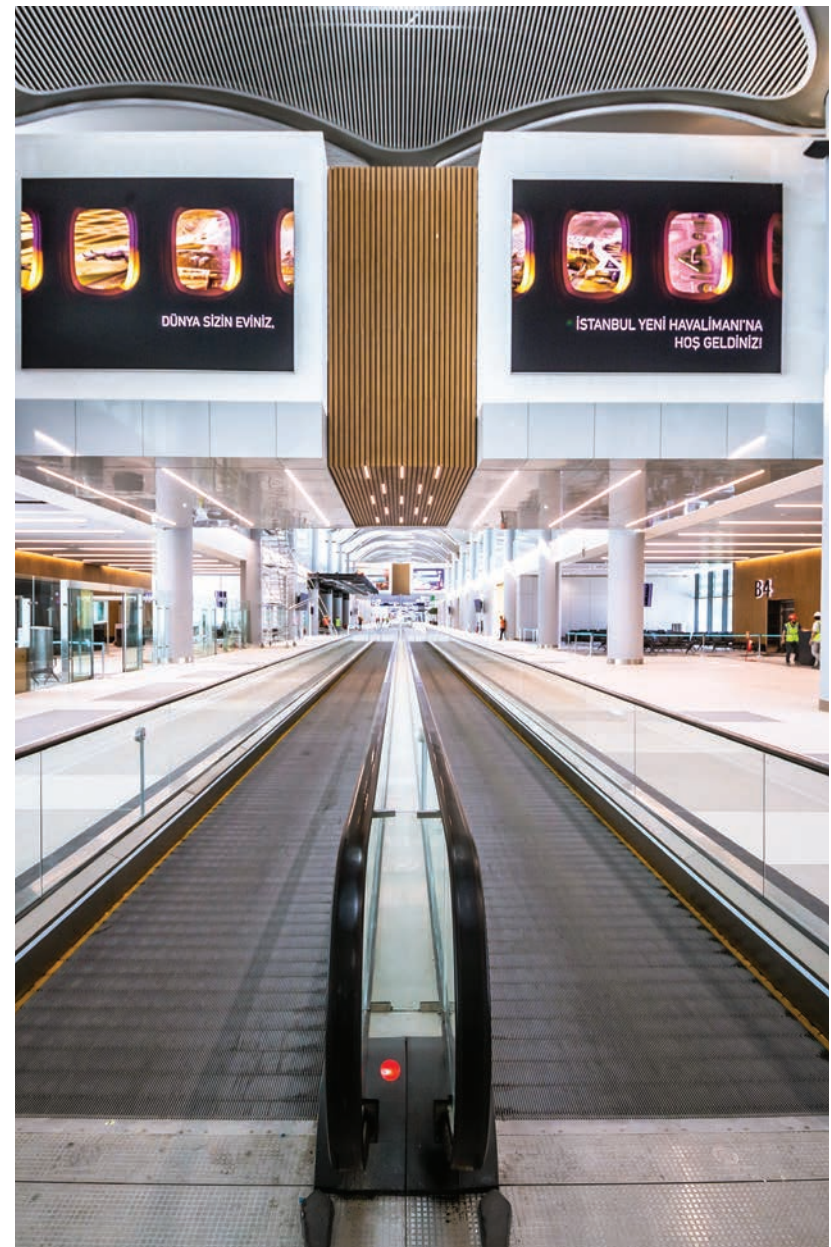
to be installed by 2020) – the airport is set to become a gateway to 350 destinations, and will be big enough to serve 90 million passengers a year during its first phase. Once all four phases have been completed in 2028, this will increase to 200 million. In 2018, the world's busiest airport was Atlanta Hartsfield-Jackson International, with just over 100 million passengers a year.

To get things started, the new airport has two parallel runways measuring 3,750 and 4,100m, and a torch-like ATC tower, inspired by the flowing forms of the country's national flower, the tulip. It was designed by Italian design company Pininfarina and AECOM, after they won the bid ahead of competition from Moshe Safdie and Zaha Hadid Architects. Phases two and three are scheduled for 2021 and 2022, when two more ATC towers and another two runways will be added. Phase four will see the addition of the fifth and sixth runways, plus a new satellite terminal – making three terminals in all. In total, the airport will be able to accommodate 500 aircraft at any one time, and the surrounding grounds will host parks, mosques, conference centres and hotels.

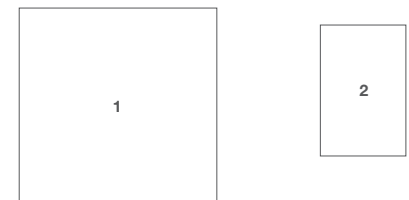
Viewed from above, the 1.4km² terminal building is shaped like a capital 'H' pinched in the middle, with aircraft piers providing the stems. At its heart is an enormous central hall, with two and a half levels for arrivals and departures. Inside, there are 228 passport desks and the planet's biggest duty-free retail complex, covering 5.5km².

Master planners

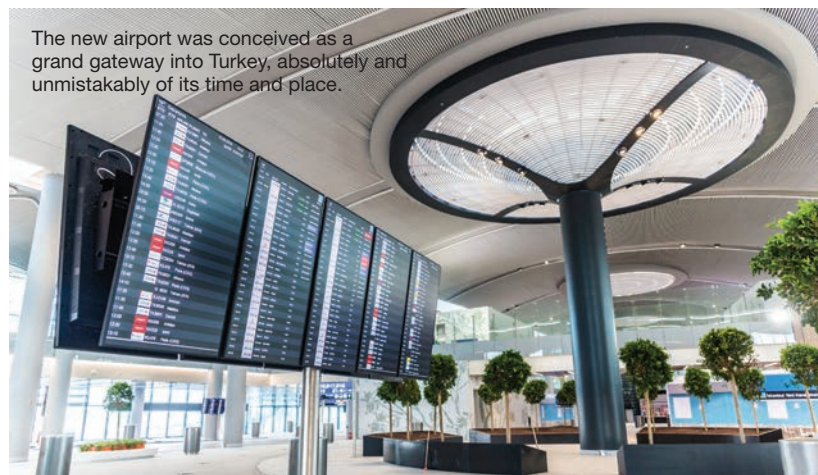
Leading the concept design of the airport was global architectural firm Grimshaw Architects, alongside Nordic – Office of



Architecture and London studio Haptic Architects. Together, the team was responsible for the concept design of Terminal One, as well as initial designs for the forthcoming Terminal Two and an airside satellite concourse. The design of Terminal One was developed by Scott Brownrigg, which was also responsible for



1. The new Istanbul Airport: this airport will be the largest in the world upon its completion.
2. The airport will host mosques, parks and the world's biggest duty-free retail complex.



The new airport was conceived as a grand gateway into Turkey, absolutely and unmistakably of its time and place.

the interior design concept, and worked with local architectural delivery teams including Fonksiyon Mimarlik, Turgut Alton Mimarlik, and Kiklop Design and Engineering.

Andrew Thomas, a partner at Grimshaw, describes what makes the new Istanbul Airport development unique. "In terms of its scale, it is absolutely unprecedented," he says. "[But] while it's grand, we have really sought to design it to a human scale, with intuitive wayfinding and a rich variety of experiences that will make it an enjoyable place for people to use and spend time in."

The result sports majestic vaulted ceilings, through which daylight is filtered via dozens of skylights. Long, smooth-moving walkways take people past floor-to-ceiling glass windows, and for those looking for a breather, there is a beautiful open-air forecourt with greenery and al fresco seating under wing-like canopies. Thomas explains how the architects harnessed light to improve well-being. "Sunlight within a terminal building provides a connection to the outside world and brings the internal spaces to life

throughout the day. The slatted ceiling surface provides control of direct sunlight to avoid glare, while casting rich patterns of light inside the terminal."

In terms of inspiration for the overall design concept, Tomas Stokke, director at Haptic Architects, says the team looked to the city and its variety of Ottoman monuments. "The new airport is conceived as a grand gateway to Turkey that is absolutely and unmistakably of its time and place," he says. "Istanbul is a vibrant and youthful city, with the most wonderful architectural tradition expressed in its spectacular historic buildings, most notably the great work of the classical Turkish architect, Mimar Sinan [who designed the Suleiman Mosque, for example, in the 1500s]. These techniques of light, pattern, texture and colour [found in the new airport] are deeply influenced by the traditional art and architecture of Turkey."

Throw out the rulebook

Pressed on some of the biggest challenges the architects faced in designing the terminal, Ingrid Motzfeldt, partner at Nordic – Office of Architecture, explains, "We could see that at this scale,

and with this amount of people, the established 'rules' of airport design needed to be replaced with new modes of thinking. We had to constantly test and re-evaluate what would work for a 'normal' airport to see if it was at all applicable at this scale."

Thomas agrees: "It was critical that we developed design proposals that were simple and modular to build in order to support rapid construction. The steel structure and the roof are very simple and quick to build, while the architectural quality is primarily achieved through the form and rhythm of the vaulted ceilings and the quality of natural light. Another concern was how we could create a terminal to serve such a huge volume of passengers that would allow all of those people to navigate simply, within acceptable walking distances and with minimum level changes."

"We could see that at this scale, and with this amount of people, the established 'rules' of airport design needed to be replaced with new modes of thinking. We had to constantly test and re-evaluate what would work for a 'normal' airport to see if it was at all applicable at this scale."

– Ingrid Motzfeldt, Nordic – Office of Architecture

Grimshaw has a long history of airport commissions, including Pulkovo in St Petersburg, London Heathrow and Zurich. Comparisons aren't easy but there are common themes that are fundamental to the studio's approach. "It can be seen as part of an evolution of certain key ideas and qualities that we always seek to embody in our projects: we want our terminals to be clear, well ordered and easily understood by the people that will

use them," Thomas says. "While they are big buildings, they should be designed with the experience of the individual user in mind, allowing for moments within the journey that offer respite and joy."

He adds, "Plentiful natural light and warm materials are employed to create positive environments for people, and we treat the experience of arriving passengers to be of equal importance to that of those departing. The opportunity to spend time relaxing within a pleasant environment that offers a diverse range of concessions and other amenities can create a memorable experience and a positive start to a passenger's journey. For the airport operator, the revenue provided by these facilities is, of course, a fundamental part of their business plan. Finally, we use modular and loose-fit structures to accommodate the inevitable change that the building will face in its lifetime."

While Istanbul may not have the hiking trails and waterfalls found in Singapore Changi's forthcoming Jewel terminal, there is no doubt that Istanbul Airport is part of a growing trend for turning airports into aesthetically and spiritually uplifting public spaces that go beyond function. It is a place people will, hopefully, want to spend time in rather than rushing from the self-check-in kiosk to the gate. ●



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Meeting the demands of a dynamic international market is a challenge for building-product manufacturers.

CENTRIA reveals how it is making a world of impact with exterior metal panels.



Metal panels are one of the most flexible and sustainable building products on the market.

The world may be getting smaller, but possibilities continue to expand, especially when it comes to designing with exterior metal panels. Today's global construction market is fluid; businesses continue to expand their reach overseas, whether it's high-performance metal coatings for the oil and gas industry in the Middle East, fire-resistant insulation to meet China's rigorous code regulations, or portable mills supplying metal panels to facilities in the most remote areas of Thailand and Indonesia.

The construction market is also cyclical, as a downturn in one economy may signal an upturn in another. As a result, many of today's larger architectural firms have offices in multiple countries to increase their competitiveness, and provide the

best products and services to their customers around the world.

All of this dynamism in the market means that architectural firms need to think about their designs and the products they specify from a global perspective. These considerations include product performance, aesthetics and overall value. Architectural metal wall and roof systems are some of the most versatile and sustainable building materials. Metal is a strong trend in markets, from stadiums, arenas and convention centres to healthcare, government, power plants and logistics.

Designing on an international scale means meeting the performance requirements of multiple countries. Advanced architectural metal panels,

such as those from CENTRIA, deliver all-in-one performance, and undergo rigorous testing to achieve maximum thermal and moisture protection, even for the most demanding global projects.

For instance, North East Asian markets require metal panel systems that incorporate fire-resistant mineral wool cores, such as CENTRIA's Formashield DSR panels. Around the world, foam-insulated panels, including CENTRIA's Formawall system, are designed to meet stringent international standards and many are environmental product declaration (EPD)-certified to demonstrate the company's commitment to transparency in the building process.

Thanks to years of innovations and enhancements, metal panels offer architects unlimited creative potential. From efficient, utilitarian aesthetics to some of today's most colourful and dynamic facades, metal panels are one of the most flexible and sustainable exterior building products on the market. Interchangeable panels offer a variety of design options with multiple profiles and reveals as well as vertical or horizontal orientation.

With a palette of high-quality coating systems and unique surface treatments, designers can play with a variety of colours and textures. Designers are even creating organic curves and smooth, crisp corners. These nimble features allow the freedom to create a unique

expression and make a personal or corporate statement.

Wall-to-wall value

Architectural metal panels are engineered for efficiency in reducing waste and quick installation. Working with a manufacturer that can roll-form on location is an important factor. For international design teams, companies such as CENTRIA have global sales and service experts in four continents who consult with clients to ensure projects are installed under budget and on time.

The trend towards individuality has generated an increased demand for customised building products and systems. Partnering with building product manufacturers can open up a wider world of design possibilities for architects. CENTRIA collaborates with build teams to customise any project to meet their design visions.

With its commitment to reimagine metal on an international scale, CENTRIA has grown immensely since its founding. The company takes pride in being a single-source solution that provides everything from project design to delivery in any market.

Consultants work with build teams to bring projects with architectural metal wall and roof systems to life around the world. ●

Further information
CENTRIA
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INDEPENDENT SPIRIT

The region may be best known for the work of Gaudí, but Catalonia has also acted as a cradle and incubator for some of the most interesting and accomplished architects working today. With the region currently going through a traumatic and uncertain period in its history, Patrick Kingsland speaks to current members of the Catalan architectural community and asks whether such a scene or school exists, the impact recent events have had on their work, and what accounts for the region's incredible architectural legacy.

On any given day in Barcelona, there are so many tourists crowded around Antoni Gaudí's Sagrada Família that you'd be forgiven for thinking the entire history of Catalonia's architecture begins and ends with the still unfinished Roman Catholic basilica.

It is, of course, a remarkable building. By the time it is finished – some hope in time to mark the centennial of Gaudí's death – what is already, even pre-completion, arguably Spain's most iconic piece of architecture will reach higher than any other in Barcelona, further cementing the reputation of a man known simply by some as 'God's architect'.

But Gaudí, for all his accomplishments, is not the only architect to have left an imprint on the identity of Catalonia, a culturally and linguistically distinct region of north-east Spain that has Barcelona as its capital and contributes roughly one fifth of Spanish national GDP in taxes.

Born in provincial Catalonia, Gaudí was part of a much wider cultural and political movement, known as Catalan modernism, which appeared in Barcelona at the end of the 19th century and sought to transform Catalan society through new architecture, art and literature.

Nor is the period associated with Gaudí the only cultural era of note. From the so-called 'Barcelona school' of the 1960s and '70s through to the present day, Catalonia continues to act as a cradle and incubator for some of the world's most interesting and accomplished architects.

Last year, a trio of Catalan architects from Olot-based firm RCR Arquitectes were the recipients of the Pritzker Prize. All too often awarded to globetrotting 'starchitects', the lesser-known practice was commended for its largely local designs, ranging from a winery in Palamós to an athletics track outside the town of Olot and a kindergarten in Besalú.

Finding a common thread that ties together contemporary Catalan architects is difficult. "If you go in depth you would discover that all of us have our own approach, slightly or very differently," argues Xavier Ros Majó, partner architect at H Arquitectes, a Barcelona-based practice.

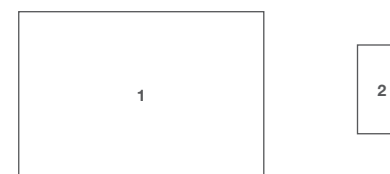
But some similarities can be detected. Many have studied at the same universities, deploy similar aesthetic and material approaches and have been influenced by the same movements of the past – from the old Catalan masters of Gaudí, Josep Maria Jujol and Josep Antoni Coderch to the 'Barcelona School' architects, Frederic Correa and Alfons Milà.

"I would consider my generation as an indirect descendant of the so-called 'Barcelona School'," says 40-year-old Borja Ferrater, founding partner of the Office of Architecture Barcelona (OAB), a native son of the city (and of one of its most celebrated contemporary architects, OAB co-founder Carlos). "We are part of the tradition of these architects, inheriting such values and keeping them in our DNA."

A turning point for the current generation of architects came



when Barcelona hosted the 1992 Summer Olympic Games. Rather than simply building sporting areas destined to become expensive white elephants, the city's planners spent



1. Museu del Disseny de Barcelona: the design museum is an Institute of Culture centre.
2. Sant Antoni – Joan Oliver Library, Barcelona: by Pritzker Prize winners, RCR Arquitectes.

Cristalleries Planell Civic Centre, Barcelona: designed by H Arquitectes, this converted glass factory highlights the necessity of redevelopment in the city due to the lack of space.



huge amounts of money on new infrastructure and public spaces – with architects playing a leading role.

Among the most notable projects completed was a 5km promenade that now runs along the Mediterranean coast, connecting the city to the sea; new ring roads, known as the Rondas, designed to reduce congestion; the regeneration of the industrial Poblenou neighbourhood and the opening of dozens of new parks and plazas.

“The Olympics changed the history of the city forever and architects played one of the main roles in this transformation,” says Ferrater. “Barcelona was a so-called ‘laboratory of ideas’ for architects and urban planners. It gave us the opportunity to show the world our values.”

After the success of the Games, the authorities in Barcelona looked for a new way to attract tourists and catalyse redevelopment. In 2004, the city was selected to host the Universal Forum of Cultures, or Forum 2004 – a four-month expo tackling everything from the environment to Chinese funerary art. Like the Olympics, the project generated new urban

development and new architecture, which included Jacques Herzog and Pierre de Meuron’s Forum building, a triangular structure that functioned as the expo’s main exhibition hall.

With so much urban transformation happening in Barcelona over the past few decades, some local architects are now questioning what is left to be done: “It is almost a completed city,” says Majó. “It cannot grow more or consume more land because it is physically limited by two rivers, the sea and the hills. All the new opportunities to improve Barcelona, in architectural terms, are surgery operations.”

Some also wonder whether the city has become a victim of its own success, as it attracts an increasingly large number of visitors from abroad. In 2017, around 8.9 million tourists stayed in Barcelona’s hotels, a rise of more than seven million people since 1990.

“Massive tourism is pushing the city too hard,” says Ferrater. “We do not recognise our city when we go downtown. We are losing authenticity by selling a banal version of our identity to the new visitors.”

More importantly, the massive growth in numbers has caused

a strain on Barcelona’s housing stock. Across the city, apartments have been converted into vacation homes with affordable long-term lets increasingly hard to come by. Since 2010, rental prices have risen by a jaw-dropping 35% according to the real-estate website Idealist.

“Young local families cannot afford housing,” says Ferrater. “They can’t compete against Airbnb. Local shops or artisans must close to give space to the souvenir stores.”

This crisis of affordability comes off the back of the 2008 housing bubble, which triggered a crippling financial crash throughout Spain and years of austerity. Put together, Ferrater says these problems have severely dented the reputation of architects, developers and politicians in Barcelona and beyond.

“Politicians have become more populist,” he says. “In front of their voters they demonise developers – maybe most of the time they probably are right to do so – and they are suspicious of architects. It is not just a phenomenon of Barcelona, it’s also a global issue: mistrust from middle class and working class people on the leadership of the decision-makers of the city.”

The financial crisis had other effects on architects in Catalonia. Public commissions to design civic spaces – a hallmark of the post-Franco era in Barcelona – quickly dried up, while graduates who had found work so easy to come by before the crisis were suddenly left with caps in hand.

The lack of projects also forced more established practices ‘to go international’. In the five years that followed the crisis, Ferrater says he spent more time outside Barcelona than inside, working on projects as far afield as Turkey, Morocco, Mexico, China and Kazakhstan.

“Back then, the renowned studios of the city either became international or they died,” he says.

While the circumstances were hardly positive, for Lluís Alexandre Casanovas Blanco, a New York and Barcelona-based architect, curator and scholar, the crisis forced Catalan architects to step out of their comfort zones: learning from others and letting others learn from them.

“There has been a series of people that have gone out either to Europe or the US to have conversations about the fact we need to reinvent ourselves now,” says Blanco. “These are the practices that have become more interesting in the last years and have idiosyncratic Barcelona hallmarks while connecting to the international context.”

Catalonia’s increasingly fractious relationship with the Spanish Government suggests its architects may be forced to look even further afield in the coming years. Tensions hit a new high last October when pro-independence parties unilaterally declared independence after a disputed referendum. More than a year on, many separatist leaders and activists are either in exile or prison.

“The distance between Madrid and Barcelona is starting to become bigger, and I am afraid it is to do with the current political scenario,” says Ferrater. “As a student in the late ’90s and early 2000s, I witnessed a very intense dialogue between Madrid and Barcelona, and so with the rest of Spain. I would be lying if I did not admit that the current situation has affected that relationship.”

Ferrater says the process has already begun, with Catalan architects “reconnecting” with their peers in Italy, France and central-northern Europe, and looking even further afield to Asia, the US and the rest of the world.

“We need to grab other regions’ attention,” Ferrater says. “Because the connection with Spain is getting lost.” ●

Build with sophisticated window technology

HAHN Lamellenfenster has built a name for itself as a master of natural ventilation, with its louvre windows being used to great effect for Oxford Brookes University's award-winning John Henry Brookes Building.

HAHN Lamellenfenster has been involved with natural ventilation since the 1950s. Since then, HAHN Louvre Windows has set a standard in the field of ventilation and can be either seamlessly integrated into a facade or stand out as an attractive part of its design.

By using louvre windows, architects and designers are able to manage smart ventilation in the early stages of project planning, when the focus is based mainly on building design. Horizontally running louvre blades

lead to optimised climate control, with precisely adjustable motor drives. In addition, louvre windows are fall-protection safe and burglar-proof

As a successor to the Oxford School of Art, founded in 1865, the Oxford Brookes University received its current name in 1992 in honour of John Henry Brookes, one of its earlier principals.

The John Henry Brookes Building, opened in 2014, is located in OBU's Headington Campus. On an area of more than 24,000m², an

innovative project was created by the Winchester-based Design Engine Architectural Office. The building was crowned by four Royal Institute of British Architects (RIBA) awards: the RIBA National Award, RIBA South Building of the Year, RIBA South Regional Award and the RIBA South Sustainability Award.

"Anyone who has seen the way in which students have already made the space their own will recognise that not only is it beautiful, it is also functional," says Janet Beer, former vice-chancellor

of Oxford Brookes University, who presided over the building's opening.

The entrance area – as well as the 147 HAHN Louvre Windows type S9-iVt-05 in the facade – welcomes visitors. With up to 18 louvres per opening, a total of 2,000 single HAHN louvres provide targeted night and day cooling, controlled by intelligent building technology. ●

Further information

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PROVENZA

Contemporary surfaces for international design

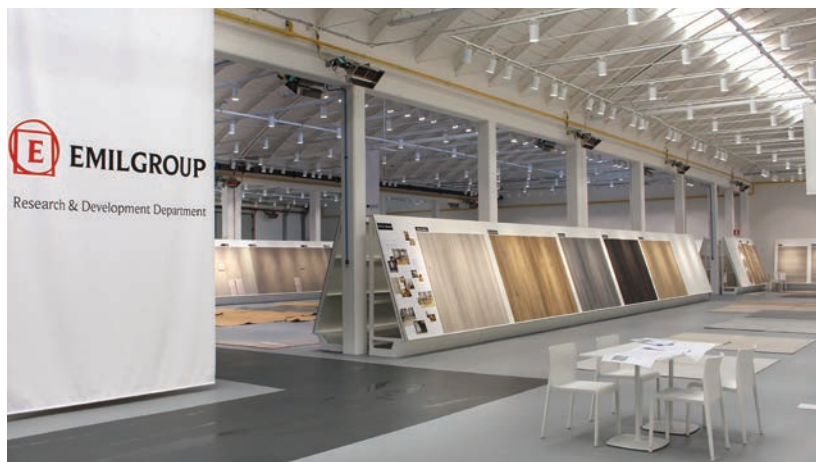
Operating across five continents, **Emilgroup** categorise its tiles into five main brands, each inspired by different sources and offering unique designs.

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Based in Italy, Emilgroup designs, manufactures and sells tiles for five brands.



Emilgroup owns sales offices and warehouses located across five continents.

- **Ergon:** a great expression of 'minimal art', where technical innovation is applied to modern ceramics. It aims to serve as a conceptual crossroads where technology meets design.
- **Provenza:** an interpretation of nature's determination in this modern era. Provenza captures the charm of nature, celebrating the ravages of time and material recovery. It offers rigorous and conceptual proposals, where know-how meets the most sophisticated and cutting-edge technologies.
- **Viva:** research and design innovation for exclusive and trendy environments. Viva's storytelling is rich with choices and unusual combinations, with the clear intention to surprise and excite.
- **Level:** a new brand focused on countertop surfaces. This new line of 160x320cm ceramic slabs highlights not only the beauty of porcelain stoneware surfaces, but also, and above all, their high-quality performance.

Emilgroup owns sales offices and warehouses located across five continents. Its logistic organisation responds to global market needs, providing tailor-made solutions from design to tile installation. Production and innovation are strategic keys that guide investments. The R&D department operates as a creative workshop where ideas and

experiences are blended together with the latest technologies to create outstanding collections.

One of the most evocative brands of Emilgroup is Provenza, which recently created a new collection to celebrate the innate charm of nature by enhancing the passage of time and the rediscovery of traditional materials. This new collection was named Vulcanika.

Vulcanika expresses the evocative power of matter through two distinct but similar souls: Lavika and Raku. Lavika, as the name hints, has the look of lava stone. Like many of Emilgroup's products, it evokes a rock that calls Sicily home. It's a formidable stone that comes from the deep heart of the earth, holding a strong symbolic value and, perhaps for this reason, is experiencing a moment of renewed popularity among designers and architects. Its surface is opaque, refined and exclusive. Raku finds inspiration in the firing process of ancient Japanese pottery, valuing imperfection and a spontaneous, whispered and intimate beauty. Six different shades of stone are covered in the Raku collection. Metallic and shiny, they are able to satisfy the tones and moods of the interiors they will complete. ●

Further information

Emilgroup
www.emilgroup.it

A new life to Battersea

Effisus's weathertight system defends buildings against water vapour and improves the quality of indoor air. Proof of its effectiveness can be seen across London, with many large developments – including Battersea Power Station and the Design Museum – deciding to implement this groundbreaking product.



Battersea Power Station is currently being developed into a mixed-use neighbourhood, and will make use of Effisus's weathertight systems.

Battersea Power Station has dominated the London skyline since the 1930s. The coal-fired power station was designed by one of the UK's great modern architects, Sir Giles Gilbert Scott.

It was decommissioned in 1983, but having lain derelict for three decades, the iconic landmark has now found a new life. The development of the site will permanently alter the shape and focus of Central London.

Battersea Power Station's rebirth will see it transformed into one of the most exciting and innovative mixed-use neighbourhoods in the world.

A follow-up at every stage

The Effisus Ecofacade Envelope system is being installed for this project, in order to ensure the most efficient facade weathertight system. Effisus's

consulting services have provided the ultimate added value throughout the whole process by offering comprehensive support every step of the way, with attention to detail being the key to complete success.

The company's unique market approach and innovative thinking, together with its engineering and construction experience in envelope weatherproofing systems, allows it to offer the best solution and support to the challenges that owners, architects, contractors, engineers and inspectors face throughout the entire construction process, achieving unbeatable quality, major efficiency, economic profits, and time and labour savings.

From the initial concept to project closeout, Effisus supports customers, always considering each customer's specific needs and unique project

requirements, through a close collaboration that provides continuous support at every project stage.

For definition and planning, Effisus's expertise includes:

- analysis of project requirements
- development of bespoke solutions
- project detailing, including interfaces with other solutions
- cost estimates
- compatibility tests
- assistance with prototype testing
- development of project-oriented installation manuals.

At the execution and control stage, the company assists with:

- training project managers and crew on-site
- monitoring plans
- technical assistance on-site
- analysing deviations and the proposal of improved solutions.

When a project concludes, Effisus works on:

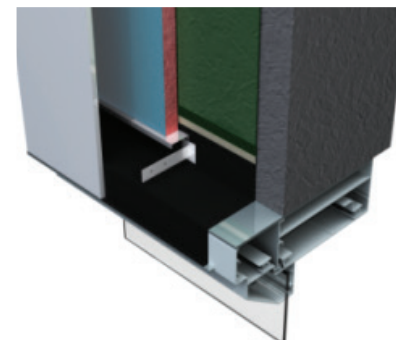
- final inspections and reports
- maintenance plans
- issuing warranties
- experience backup.

In conclusion, establishing long-term partnerships is Effisus's focus for achieving excellent practice in facade weatherproofing for every project.

UK partnerships

Effisus Ecofacade Envelope systems and many other solutions can be found at Terminal 2 at Dublin Airport, SSE Hydro arena in Scotland, the Thames Valley Science Park and Birmingham New Street station.

In London, the company has or is working on Royal Wharf, Hollandgreen, the Design Museum, London Wall Place, Buckingham Green, White Collar Factory and Harbour Central. ●



The Effisus Ecofacade Envelope system eliminates the possibility of condensation on the facade's interior.

Further information

Effisus
www.effisus.com

A new frontier in terracotta facade design

NBK Keramik's terracotta facades have opened up a completely new dimension in facade design and have been embraced by architects around the world for outstanding versatility, design flexibility and building performance characteristics.

Mapleton Crescent, in Wandsworth town centre, UK, is the tallest private for-sale off-site volumetric modular residential tower in Europe, and sets a precedent for design-led volumetric affordable housing. Designed for Pocket Living, it provides a mix of one, two and three-bedroom homes with additional storage and communal space in the form of courtyards and roof gardens.

The tight triangular site backs onto the River Wandle and Wandsworth shopping centre, and is heavily constrained by a culvert, primary electricity substation and river wall, which led the design team to pursue off-site construction as a solution. The unique terracotta sawtooth profile of the Mapleton Crescent facade provides a sense of depth and texture to the tower, creating a distinctive character to fulfil Pocket Living's brief for a flagship project of exceptional quality.

Three profiles of large terracotta tiles are used – ribbed, micro-ribbed

and pleated. The profiled rainscreen facade, and use of colour creates a strong character for the building that enlivens the streetscape. The micro-ribbed tiles act to distinguish the core and plinth, while pleated tiles are reserved for gable areas and ribbed tiles pick out features such as the prominent prow, where a special corner tile was developed.

The tower uses a vertical stretcher bond of striking green, bespoke NBK terracotta rainscreen tiles approximately 1,500mm long and 450mm wide. The 450mm facade grid is aligned with the structural grid to greatly limit the number of special extrusions. Terracotta is an ideal cladding material as it wears extremely well and doesn't fade. The expressive green of the glazed terracotta underlines the uniqueness of the building, from which one can hardly turn away one's gaze. ●

Further information
NBK Keramik
www.nbkterracotta.com

ARCHITECTURE LIVES ON IDEAS



Mapleton Crescent Wandsworth, UK

Architect: Metropolitan Workshop, London

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For 155 years, **Küberit** has led the way in floor-profile manufacturing. The DIN EN ISO 9001:2015-certified company guarantees customer satisfaction with high-quality aluminium profiles that seamlessly fit into the most technical of projects, such as 565 Broome Street in New York.

SoHo has not always been a good residential area in New York. It was only in the 1960s, as modern artists took refuge there, that it acquired its present charm as a popular, creative neighbourhood with narrow cobbled streets, numerous boutiques, furniture stores, galleries and restaurants. It has now established itself as a centre for art and culture, and at 565 Broome Street, on the corner of West Broadway, the first residential building from a renowned Pritzker Architecture Prize winner can be found. With their rounded floor-to-ceiling windows, the building's luxury apartments offer magnificent panoramic views of the city and the Hudson River.



565 Broome Street during construction.

Floor-to-ceiling windows and high-quality parquet flooring needed a special profile

It was a challenge to achieve an optically and technically perfect connection between the high-quality parquet flooring and the large window fronts, with their rounded corners. Elegant flooring profiles had to be developed that could be attached without using either glue or screws and, at the same time, allow sufficient room for the wood flooring to expand and contract. Within six months, Küberit – the globally recognised specialist for aluminium profiles – had developed expansion joint profiles, profiles for the interior and exterior corners, and profile connectors that were specifically designed to meet these unusual structural circumstances. A total of 870 straight aluminium profiles and 300 aluminium profiles, constructed to fit the round corner windows, were installed, and more than 1,100 parts were milled so as to elegantly clad the mitre cuts and joints.

No screwing, no gluing, just clamping

With its distinctive glass facade, the 30-storey building towers above the smaller industrial structures that are so typical of SoHo. They were built in the 19th century, when SoHo became the city's textile district. The luxury apartment building's architecture and materials not only augment the historical context, but are also visually and technically sophisticated. Below the 20mm parquet flooring, 10mm of sound



The curved flooring trims at 565 Broome Street had to meet the architect's requirements.

insulation ensures a peaceful, quiet living atmosphere.

At a meeting at the construction site, the site engineer explained the requirements of the architect team. The task was to develop floor profiles with an expansion joint that could be set on the flooring while reliably doing their job. In this respect, the approximately 300 rounded corner windows posed a particular challenge. Moreover, a visually attractive solution needed to be found for the transitions between adjacent profiles.

Neoprene expansion joints fitted by hand

In accordance with the architect team's requirements, Olaf Holtschmidt, head of development at Küberit, created design drawings for the construction of mock-ups. For this purpose, the development team modified the Küberit angled profile 237, matching it to the precise radius of the rounded windows. For the expansion joints, Küberit chose neoprene to satisfy the

building's technical requirements. The neoprene joints were attached to the window frame in such a way that they would press against it when the parquet flooring expanded, and would fit securely without being screwed or glued on.

Then, a visually attractive solution had to be found for the transitions and mitre cuts on the profiles. For this purpose, Küberit milled special aluminium interior and exterior corners, as well as connectors that corresponded to the optics and engineering of the angled profiles. The Küberit team built a small device to enable the neoprene expansion joints to be quickly and cleanly attached to the straight and rounded profiles, but they had to be fitted by hand on the corner and connecting parts. The careful planning paid off: all profiles in this custom production fit precisely. ●

Further information

Küberit
www.kueberit.com

The sweetest sound

Aesthetics and sound go hand in hand, according to **acousticpearls**. The company prides itself on providing eco-friendly products that put the well-being of users first.

The company's products are free of pollutants, promoting a healthier atmosphere.



© Norbert Miquelz

Armed with insight and aesthetic sensibility, the German manufacturer acousticpearls has been combatting noise pollution in interior spaces for almost ten years. Its weapons: premium acoustic panel systems that are as beautiful as they are effective.

"We're designing environments that make us crazy," said international sound consultant Julian Treasure in a persuasive TED Talk entitled 'Why architects need to use their ears'. "Sound affects us physiologically, psychologically, cognitively and behaviourally, even if we're not conscious of it," he argued.

We know that architectural space that considers the way sound functions within it is key to effective communication, not to mention well-being. However, unmanaged talking in open-plan offices can reduce productivity by up to 66% – that's clearly not good for business. Treasure urged architects to open their ears, in order to realise that acoustics are always present. It's a question of whether one wants to make them centre stage or allow them to be shaped as a quasi-accidental by-product.

Ears open

If anyone has their ears open, it's international design manufacturer acousticpearls. Based in Bremen, the company has been listening clearly to architects, interior architects and planners for almost a decade, creating premium, architectural products that help shape interior space and manage the sound within them. Its success is based on the interior-design and

engineering competencies of managing director Clemens Lünig and his team, as well as having a strong dialogue with building professionals, which have seen the implementation of design solutions that marry aesthetic with acoustic features.

Its strongly graphic and chromatically expressive yet never dominant products – which range from modular wall-panel systems and stand-alone space dividers to suspended ceiling elements and even the room within space pods – have been specified for work and living spaces across a range of typologies, including offices, banks and receptions.

Going green

Sustainability has been the watchword in the design industry for a long time, but some brands are able to evidence their commitment to it more clearly than others – acousticpearls is one such brand. Beyond the fact that the company's products possess an extremely long lifespan, with no material degradation over time or reduction in acoustic performance, its range is also free of emissions and pollutants, resulting in a healthier working environment for users.

The business is not only a sustainable, profitable company, but is also an indispensable, long-term partner offering its expertise to architects, planners and end clients working on sustainable projects – ones that put the well-being of users first. ●

Further information
acousticpearls
www.acousticpearls.de

DESIGN FOLLOWS ACOUSTICS

Custom acoustic solutions for modern interior spaces





TALKING SHOP

Retailers may be suffering in the face of online competition, but the physical store remains an important part of a brand's identity. Neil Gerrard speaks to **Sam Jacob**, founder of Sam Jacob Studios; Sheppard Robson's **Claire Haywood**; **Jeremy Sweet** of BDP; and Heatherwick Studio's **Tamsin Green** about the role architecture can play in shaping future meanings of retail space.

For many retailers, it is not the tills that are ringing in their stores, but the shrill din of proverbial alarm bells.

Shopping habits are changing and changing quickly.

It is a global problem and the statistics make for grim reading. In

the UK alone, shops are closing at the rate of 14 every day according to research from PwC, and analysts estimate that some 200 UK shopping

centres are at risk of administration as a result of dwindling footfall, as would-be customers take their purchases online.

Heatherwick Studio's ambitious design for the 10,000m² Coal Drops Yard retail development in London.



© Nick Caville

Meanwhile, in the US, household names like Macy's and JC Penney have announced hundreds of closures since 2017 and Sears, once the country's fourth-largest employer, has seen the number of its stores decline from 3,500 in the mid-1990s to fewer than 600 today.

The future of physical stores

And yet, a recent report by Arup on the future of retail declared that the physical store is still a "critical step" in the purchase journey, pointing to a survey of consumers that showed 59% preferred to buy household appliances in-person, with 52% preferring to see consumer electronics in real life before parting with their cash, and 72% opting to leave the home for groceries.

For the time being, then, the accepted wisdom is that retailers need an omnichannel presence.

"It's not either ecommerce or physical property but rather the interplay between the two," says Claire Haywood, partner and retail lead at Sheppard Robson.

With that, though, comes the acknowledgement that the form and function of a physical store need to shift dramatically.

"All the rules have changed," says Sam Jacob, founder of Sam Jacob Studio, co-founder of the now-disbanded pomo provocateurs FAT Architecture and recently a judge in the Crown Estate's Future Retail Destinations competition.

"What is a shop when what used to be its fundamental reason for being – the transaction – can now take place somewhere else? Maybe it isn't even the place where the transaction is conducted, but where other kinds of relationship are explored and created?" he suggests.

Big-brand boutiques

When it comes to high fashion, major brands are teaming up with architects to offer boutiques the design of which is every bit as outlandish as the products contained within, making them a destination in their own right.

Dior's eye-popping clothing store in Seoul, created by Christian de

Portzamparc and Peter Marino, for example, is dressed in 20m-tall white fibreglass panels that undulate, recalling the flowing movement of the clothing created by the famous fashion brand.

Meanwhile, MVRDV took what is perhaps a more sensitive but just as radical approach to Chanel's Crystal House boutique in Amsterdam, mimicking the design of the original building in the city's PC Hooftstraat shopping district but with a facade made almost entirely out of glass bricks.

The prohibitive cost means that such groundbreaking approaches to rethinking retail stores are the exception rather than the rule (each glass stone used on Chanel's store reportedly cost €50), but the basic premise that shops need to offer consumers more than just the prospect of a transaction still applies.

Rise of the showroom

"I think 'showrooms' and 'brand centres' are likely to become a bigger part of the bricks and mortar retail offer," says Haywood. "Made.com, which is an online brand, has since

opened three showrooms across the UK to showcase its products."

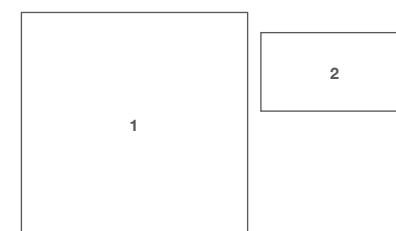
Looking to the US, that is certainly the approach Samsung has decided to take. Its first flagship store in Manhattan, Samsung 837, is built on the company's idea of what the future of retail looks like and focuses on experience. The only part of the 55,000m² store where you can actually make a transaction is in the cafe. The rest of it is given over to a changing programme of activities, including tech-based art installations, live broadcasts and workshops.

For Jeremy Sweet, head of retail at BDP, placemaking and the creation of a memorable experience for would-be customers is key.

"People still want to come together to experience, interact and socialise, so creating the right environment to allow that is a major positive attribute," he asserts. "The days of having old-fashioned, inward-looking shopping centres that just offer retail are over."

In London, the newly opened Coal Drops Yard, a 10,000m² retail development designed by Heatherwick Studio, has been built with creating a memorable experience very much in mind.

From its ambitious design, which sees the roofs of two cast-iron and brick former coal depots peeled off and bent towards each other at a 25m-high 'kissing point', to its expansive public spaces and mix of large and small stores, Heatherwick Studio project leader



1. The glass-brick facade of Chanel's Crystal House boutique in Amsterdam.
2. Heatherwick Studio's ambitious design for the 10,000m² Coal Drops Yard retail development in London.

Boxpark pop-up mall in Croydon, London.



© Luke Hayes

Tamsin Green explains that to hit developer Argent's brief of attracting 12 million visitors a year, Coal Drops had to be made into a destination that transcended transactions.

"We were really thinking about how we create not just an environment for retail, but also a public space that has some element of theatre and experience, where there can be things happening within the space between the buildings," says Green.

There's an emphasis on the human element within each of the stores, with Heatherwick Studio and Argent creating very small units of as little as 12m² to encourage independent start-ups to take a risk and open a store, sitting alongside anchor stores of up to around 2,000m².

The architects have also built plenty of flexibility into the space, as Green explains: "In future, if Argent want to combine some of these units together or separate them up, that is possible. We currently have quite a small number of restaurants because there are many in the surrounding area, but in the future that may change so we have designed the units with the possibility in mind that some can become restaurants."

Boxpark: a fusion of food and flexible space

Encouraging the presence of smaller, more unusual operators is also core to the experience at Boxpark in Croydon and Wembley, both designed by BDP Retail. A food and beverage-focused pop-up mall of shipping containers, Boxpark fuses street food, local restaurateurs and global brands to create a destination that appeals to a wide range of consumers, but particularly the younger generation of digital natives. Sweet sees lessons there for the entire retail sector.

"I think there are some parallels in Boxpark that we see coming into play in other schemes more generally," he says. "It is not just about the fact that you are creating a space with more food and beverage in it: what is key to us is this idea of the architecture becoming about creating loose-fit, flexible space where the emphasis is on allowing things to happen and change."

"It's not just about the fact that there are restaurants there – they have gigs, events and exhibitions, often in the dead time between breakfast and lunch."

BDP designed the space so that seating in the main area can be removed very quickly to make way for Boxercise and yoga classes. And more generally, an evolution in payment technology – through mobile payment, for example – is likely to mean that architects have more space to play with. It is through this approach that Boxpark Croydon also became the preferred place in the local area to watch England play during the recent World Cup, something that even the architects themselves had not predicted.

Jacob sees that different way of thinking as a potential answer to the plight of zombie shopping precincts struggling to find their *raison d'être*.

"Once a particular model of how things have to work becomes established, that becomes a formula that it is then very difficult to do anything outside of," he says. "Obviously when that formula no longer works, it requires rethinking and maybe it is a chance to think about what we want to have in our town centres. Could it be less monolithic? Could it be something where you are more active as a citizen rather than cast simply as a

consumer? There is the potential for the revitalisation of public spaces across the country."

Shopping for sustainability

Retail design also needs to tap into the concerns of modern-day consumers in order to win their approval, Haywood asserts. That means paying heed to issues like sustainability.

She points to Sheppard Robson's new retail pavilion in Manchester's Spinningfields, which will become a restaurant by the Ivy and is almost entirely constructed from timber, with planting greening the facades, and its BREEAM Excellent-rated Morrison's supermarket on the Edgware Road in London, which introduces natural light onto the sales floors.

"At the heart of the issue is quality. Shopping centres and precincts – especially those that lack natural light and have outdated finishes – need to use design to create engaging, memorable experiences, creating a compelling and experiential alternative to online shopping," she says.

"Previously the architecture was a blank canvas for the brand to inhabit. Increasingly the architecture and the brand are becoming linked and have a more symbiotic relationship."

For Sam Jacob, there's plenty that architects can do to assist retail brands and keep their physical stores fresh and interesting – and that applies whether it is a luxury development with a big budget or something much smaller and humbler – but the key is to have a space that can undergo continuous evolution and curation.

"You don't just find a formula and stick to it," he concludes. "It doesn't feel like there is a key to what the future model should be. It's more of an attitude."

So while architects can't rescue retailers from the tough times they are experiencing, fostering a closer relationship and working together to rethink what a physical store is for is key to future success. ●

What clients want

Poesia Glass Studio makes its clients' cast glass dreams a reality. Its team works closely with customers to guarantee that their requests are met for one-of-a-kind facades.

The ethos and principles that Poesia Glass Studio was founded upon include having a unique studio, where it produces cast glass that makes its clients' vision a reality.

Poesia Glass Studio offers a full turnkey solution with its studio, covering all aspects and elements of cast glass. Primarily known for glass bricks and its installation solutions, the company has the ability to work on global projects and has an expert team that assists clients with any kind of cast glass facades, which have surged in

popularity since the birth of crystal houses in Amsterdam.

There has been a shift in architectural culture, with a fresh approach being taken on how cast glass can be used and incorporated into a building. On top of its design capabilities and technical skill sets in producing and delivering a project, Poesia Glass Studio has a track record in making dreams become a reality.

All manner of combinations and possibilities can become a reality of any shape and size. The company works with clients from

start to finish, providing a full introductory consultation and conducting a feasibility study of customer requirements.

Poesia Glass Studio is not just about glass bricks and facades: it also has dedicated divisions that focus on cast glass artwork, including lighting, furniture, and interior design for walls and other features.

The company has a research and development department, plus a strategic partner network – which is second to none – that includes engineering and material testing

laboratories that consult with Poesia to road test client ideas. The business's team works together, aiming to give clients confidence in their ideas while ensuring confidentiality. It then uses examples such as prototypes to back up its products and designs.

The next decade and beyond is going to be exciting for cast glass, facades, buildings, interior design, artwork, furniture and one-off pieces. ●

Further information
Poesia Glass Studio
www.poesiaglass.studio

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Glass fins with functionality

SEFAR Architecture's fabric interlayer technology brings a contemporary touch to the sleek glass facade of the University of Birmingham library, while also boosting thermal performance and aiding sustainability.

The glass facade of the new University of Birmingham library, in the UK, employs the beauty of SEFAR Architecture's VISION fabric interlayer, while benefitting from its daylighting and energy management capabilities. The new library is one of the key features of the university's £300-million campus regeneration.

Birmingham-based Associated Architects designed the project, specifying PR 260/55B Gold SEFAR VISION fabric for glass vertical fins to provide a modern take on functionality. Visually, the VISION fabric interlayer gives a contemporary aesthetic to the library. The high level of laminated glazing maximises views into and out of the building, while achieving optimum daylighting and creating a quiet perimeter study area.

Improved performance

Functionally, SEFAR VISION fabric interlayers improve thermal performance by reducing heat loading and will save building owners additional expenses on HVAC. The laminated fabric mesh will also reduce glare by mitigating visual light transmission, eliminating the need for exterior louvres and interior shading systems. SEFAR VISION uses the three-dimensional effects of the fabric, to provide a unique depth to the glass facade, which is typically seen as a two-dimensional system.

SEFAR VISION fabric interlayers are most often used to create unique designs in exterior glass facades, rain screens, curtain walls, glass rails, and interior and decorative glass

Function, form and sustainable performance mark the University of Birmingham library.



partition-wall systems. In addition to its aesthetic benefits for these applications, SEFAR assists with thermal modelling to demonstrate how the VISION fabric interlayer reduces solar heat gain.

SEFAR VISION fabric interlayers can also be printed with UV-stabilised inks to produce any Pantone or RAL colour, customisable patterns and other visual effects, without the exterior-facing design reading

through to the interior. The fabrics are available in four density configurations. Each can be produced with three different metal coatings – aluminium, gold and copper – in addition to custom-printed colours or patterns. The variety of the fabrics allows unlimited combinations for VISION products. Each fabric features plain or twill weaves in a variety of aperture percentages (25–55%) and light transmission percentages (18–60%). SEFAR

offers a 15-year warranty from the material's delivery date.

The glass installed at the library also contributed to credits for BREEAM, the world's leading sustainability assessment method for master-planning projects, infrastructure and buildings. ●

Further information
SEFAR Architecture
www.sefar.com

Market-leading glass

BGT Bischoff Glastechnik can be seen all over the world, from New York to Abu Dhabi, and its home country of Germany. Although medium-sized, the company thinks big when it comes to customer service and innovation.

BGT Bischoff Glastechnik, with its main office in Bretten, Germany, is one of Europe's leading companies in the field of flat glass processing and finishing. Since 2007, the company – which was founded in 1938 as a wholesaler of iron and glass – has cooperated closely with Scheuten as part of Scheuten Projects.

Making complex glass projects simple

With its wide range of functional and speciality glass, BGT is mainly represented in the construction industry. Many years of experience and a high level of know-how form

the basis for high-quality products that are used worldwide. The company's willingness to innovate is the driving force behind its successful market positioning. BGT is committed to accepting challenges and developing sophisticated solutions for glass

architecture and industrial applications. This willingness to respond to customer requirements, and to realise standard and high-tech solutions makes BGT an international partner for glass.

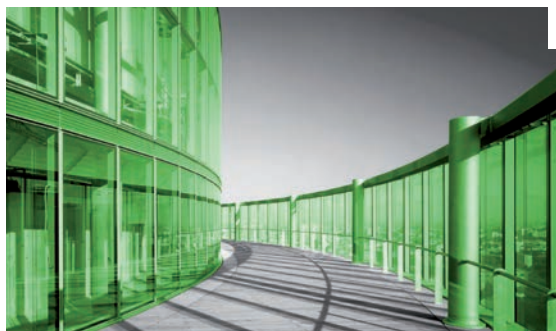
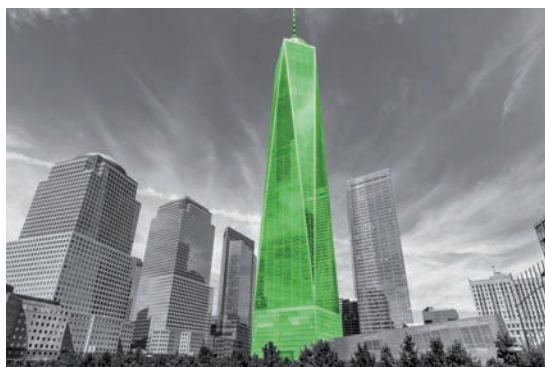
A large scope

BGT's medium-sized structure enables it to act in a customer-oriented and flexible manner. At the same time, the company can draw on the extensive resources of Scheuten for product development, logistics and purchasing. This combination of strengths allows BGT to comprehensively advise its customers and find the

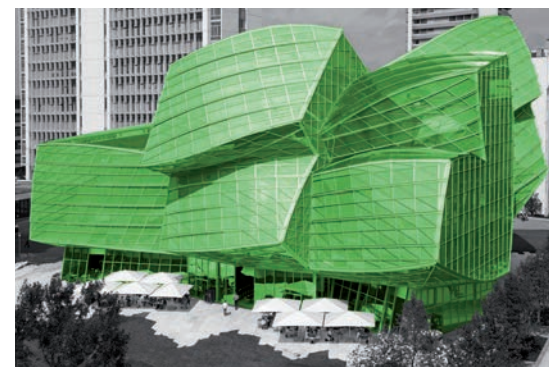
optimal glass solution that meets all their requirements.

Well-known buildings with BGT glass in Germany include Elbphilharmonie in Hamburg, Berlin's Reichstag and the European Central Bank building in Frankfurt. Elsewhere, its work can be seen on Moscow's Evolution Tower, the Gehry Building in the Swiss city of Basel, Ferrari World in Abu Dhabi and New York's World Trade Center. ●

The Reichstag in Berlin showcases BGT's expertise.



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Combine heritage and innovation

Tracing its roots back to the Royal Manufacture Château du Parc, in Chateauroux, **Balsan** has prospered for over 300 years as a textile designer. Carrying its need to innovate to the present day, the company has launched a number of iconic collections that epitomise its creativity and unique style.

For more than three centuries, Balsan has been a key player in textile design, specialising in a range of multi-formats solutions: broadloom (4m and 5m width), tiles (50×50cm) and planks (25×100cm). Originally known as the Manufacture Royale, the company was bought by Pierre Balsan in 1857, and the French company still maintains its sense of entrepreneurship and a desire to innovate. Louis Balsan's audacity led him to import the tuft technique to France – a technique that is still widely used today by manufacturers of textile floorings. In 2006, as part of its rapid expansion, Balsan joined the Belgian Belgotex International group.

Proud of its Berry origins, Balsan has two industrial sites located in the heart of a prestige natural environment near Chateauroux, which is perfectly preserved. A forerunner of sustainable development, the company takes its actions to preserve its natural environment very seriously: its commitment to producing zero landfill waste and partnership with the ONF, use of Econyl yarn, activated sludge water plant and waste recovery are all highlights.

With a surface area of 45,000m², the Arthon manufacturing site is dedicated to the manufacture of wide width carpets, while the Neuvy-

Saint-Sépulcre site specialises in the manufacture of planks and carpet tiles. This 100% 'made in France' manufacturing creates colourful carpets with a strong creative potential, for office, hotel and home.

Balsan offers its skills in France and throughout the rest of the world. The company relies on the skills of its 250 employees and generates an annual turnover of nearly €70 million, 45% of which comes from exports.

Balsan's philosophy is to think of the floor as a true means of expression, while the DNA of the company lies in exploiting the creative potential of carpet through colours. The company is also committed to supporting young artists by setting up partnerships with French and International Design Schools (Dare Your Dreams) and by organising exhibitions for young designers (Marta Bakowski and Laureline Galliot).

Balsan currently markets a range of iconic collections – French Couture, Mix-Up and Macro Micro: Peak to Marble.

French Couture

Inspired by haute couture, Balsan offers a new collection of exceptional coating, dedicated to the hospitality and office worlds. The noblest materials and the most sophisticated techniques are composed of these precious textile coatings. The tones harmonise with the walls and the reliefs create hand-

stitched effects for a resolutely couture collection spirit.

Mix-Up

Balsan has unveiled its own mix and match trend: 'Mix-Up', a new collection of modular carpets, serving creativity and personalisation. This collection mixes impressions and effects, and its colours invent new patterns. Mix-Up allows customers to create a graphic effect, an explosive shock or, more serenely, to enhance the shades. The goal is to express the unique personality of the place in order to best embody the client company's image, through an artistic exercise that transcends any creator.

Macro Micro: Peak to Marble

The Macro Micro concept is an inspiring style exercise that plays on three perspectives: Scope (top of the mountains), Vision (facing the purity of the marble) and Zoom (the heart of the material). Balsan is once again developing its Macro Micro concept by taking inspiration from the mineral world with its new Peak to Marble collection. Available in six mineral colours, with touches of vivid and subtle colours, Peak to Marble was designed to complement the company's Pilote tile collection. The Peak to Marble collection opens the field of possibilities by playing on structures and design. ●

Further information

Balsan
www.balsan.com



Balsan's philosophy is to see the floor as a true means of expression.



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The optimal watertight roofing system

Firestone Building Products worked with MUTE C on the Les Trèfles building in Anderlecht, Belgium. Its UltraPly TPO thermoplastic polyolefin roof system effectively waterproofed the structure's 7,000m² roof.

The striking Les Trèfles building in Anderlecht, Belgium, opened its doors in 2017. This school and sports complex has room for 750 pupils, and also serves as a popular location for sports clubs and associations. Brussels-based ARTER Architects received an Exemplary Building (BATEX) prize from Brussels Environment for the design of this remarkable building, which is an innovative combination of passive construction, sustainability, learning and eco-friendly features.

MUTE C, Firestone Building Products' master contractor, was responsible for waterproofing the roof with the UltraPly TPO thermoplastic polyolefin membrane, which had an eye-catching green roof installed on top of it. The

company has a great deal of expertise and experience in TPO waterproofing and green roofs.

The structure of Les Trèfles resembles a four-leaf clover, referencing the French word for clover, trèfle. However, while a four-leaf clover is known as a lucky charm, nothing was left to chance when it came to waterproofing. This is why the client chose Firestone's UltraPly TPO roofing system.

High-quality roofs

MUTE C, a Belgian market leader that specialises in the installation of Firestone UltraPly TPO roofing systems, has been owned by the Willy Naessens Group since 2013. This industrial roofing company primarily focuses on the B2B market

for waterproofing industrial buildings in new-build and extensive roof renovations. Every year, approximately 325,000m² of roofs are sealed by MUTE C.

"On top of our great expertise in TPO, we also work daily with PVC, EPDM rubber and bitumen membranes," explains Vincent de Meyer, MUTE C's managing director and founder. "We are a Firestone Master Contractor' and are, therefore, certified to install Firestone products. This is a status that you have to earn and we are very proud of it. We run continuous training and seminars to keep our employees up to date with the latest developments, installation techniques and technological evolutions," adds De Meyer.

The roof surface of Les Trèfles, which measures around 7,000m², was fitted with an adhered build-up roof consisting of:

- a self-adhesive bitumen vapour barrier membrane that was also used to cover all the upstands
- two layers of 15cm-thick polyisocyanurate insulation boards, that were fully adhered with a two-component polyurethane adhesive
- 1.5mm-thick Firestone UltraPly TPO single-ply membrane that was fully adhered with contact adhesive.

"The roof also features 90 ventilation openings (two per classroom), which had to be air and watertight at the vapour-barrier, as well as the roof level," says De Meyer.

The choice of roofing membrane, plus all other construction materials, was determined based on a life-cycle assessment, which takes into consideration the environmental impact products have during their lifetime. The green roof did not just consist on sedum vegetation: a wide variety of species, such as succulents, flowers and herbs were chosen as well. Green roofs were also installed on the four sloping sides of the sports hall roof, but only succulents on pre-cultivated sedum vegetation mats were used because the roof structure had a lower bearing capacity there. ●

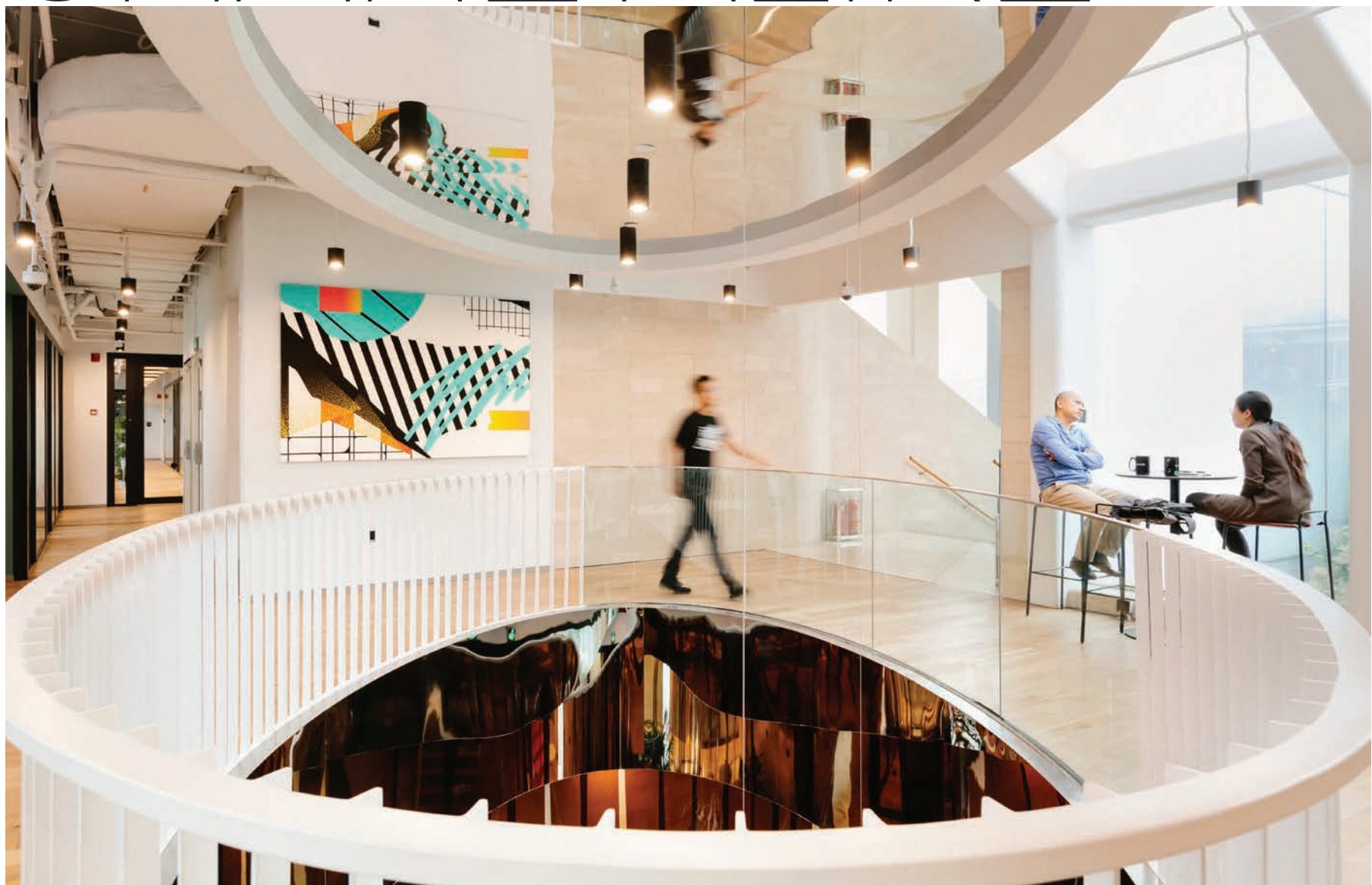
Further information

Firestone Building Products Europe
www.firestonebpe.com



Les Trèfles' roof has an innovative clover-style design.

SHARE AND SHARE ALIKE



The success of the sharing economy has been underpinned by the rapid advancement and increasing pervasiveness of digital technologies. According to some forecasters, these trends are also laying the groundwork for the future of shared-living concepts, changing the manner in which we design and occupy our cities. **Simon Caspersen**, co-founder of Space10, Urgent.Agency's **Christian Pagh**, and **Maksym Rokmaniko** of DOMA, share their thoughts on this topic with Patrick Kingsland.

A crisis of affordable housing. Increased population pressure on major cities around the world. A desire to live less bunkered lives. These trends are leading to a renewed interest in an idea that is almost as old as man itself: shared living.

Often associated with the cooperative movement of the 1970s, co-living – individuals sharing amenities and space with a larger group of people – has turned into a multimillion pound industry in recent years, through companies such as WeLive, Common and The Collective.

These companies have received support from influential architects such as Patrik Schumacher, the outspoken principal of Zaha Hadid Architects, who believes the market should take a greater lead in how we plan our cities and effusively praised The Collective in a controversial speech at the 2016 World Architecture Festival in Berlin.

The company's schemes have helped demonstrate that "there is

money to be made within shared living", acknowledges Simon Caspersen, co-founder of Space10, IKEA's external innovation lab. "Knowing it is a proven concept from an investment point of view is enabling a traditionally conservative industry to experiment much more," he adds.

But while interest in shared living continues to grow, the amount of residential projects that take shareability into account remains relatively small compared with other forms of housing. Research from Space10 has found that the "complexity of financing, designing and managing shared-living projects prevents many schemes from being realised".

Facing criticism: leading co-living companies

Far from the community-based, co-housing projects of the past, co-living companies are also offering something on a far less personal scale. The Collective, for example, has a giant 550-bed tower in Old Oak, west London, while the New York-based company WeLive is building a 36-storey skyscraper in Seattle.

The price and size of the rooms they offer, and the professional, millennial demographic they target has left many questioning the social value that big co-living developments claim to offer. For some, it's little more than student housing for grown-ups.

"A lot of these new co-living companies are basically looking at ways to make as much money as possible," says Caspersen. "They offer people as few square metres as they can and then just throw in some shared facilities. And it is not even affordable. I visited some of the big ones in New York and I was surprised that people would pay that amount of money."

But developer-driven projects are by no means the only co-living concepts that exist. Around the world there are many co-operative and community land trusts offering genuinely



affordable housing that brings together residents from different walks of life who are committed to collectivist values.

Driven by technology

To help propel these bottom-up approaches into the mainstream, co-living researchers say the industry must start to leverage the power of



1. A common area in WeWork's Sanlitun building in Beijing, China.
2. WeLive is building a 36-storey skyscraper co-living development in Seattle, US.



Fixed desk shared work spaces at The Exchange, one of The Collective's buildings in London, UK.

new digital platforms and devices such as blockchain and 3D printing.

"Technology is going to be a key driver," says Caspersen. While digital technologies have fundamentally changed the way architects are able to design and construct buildings, rarely have they considered the way we occupy our cities.

As Benjamin Bratton, director of the Center for Design at the University of California, San Diego, recently said: they have not helped us "design the systems to which those forms give function".

But technology that helps people leverage collective buying power could change this approach. Casperson offers the example of a platform that enables people interested in living together to co-invest in land and property. No longer would the risk of investment lie with a small number of trailblazers, who purchase space and then hope others will join them later on. "It is a very simple way where technology could help," says Caspersen.

Buying with blockchain

DOMA, a platform co-operative that enables crowd-buying of urban properties is an example of this system in practice. The organisational structure is jointly run and owned by its members, whose resources are

pooled so that their 'collective buying power is leveraged'.

Using blockchain technology, the platform issues DOMA tokens that are sold to its users, providing them with equity shares and monthly dividends. Money raised through these tokens is then spent to purchase more apartments in different areas of cities where DOMA is operating.

"We are using the significant power of the market to play it against itself," says Maksym Rokmaniko, who is part of the DOMA team. "By establishing this financial infrastructure, we are capable of engaging with a world where everything is financialised and commodified but still trying within that to find an alternative for architecture. Our main objective is to show a precedent of a sustainable community that can be built on principles of cooperation, collaboration and hosting the interests of different people."

Ease of access

An investment platform that uses secure blockchain technology could also enable people to join and leave a co-living space with far greater ease, adds Christian Pagh, culture director at Urgent.Agency.

"I may have a social inclination to live together with other people, but

not forever," he says. "So how do I get in and how do I get out? What about my investment in the market if I am only renting for five years? With a blockchain ledger it would be less complicated every time a new person goes in or out because everybody knows the value of the shared investment accords to a particular logic."

Shares and shared living

While many say today's younger generation is not interested in owning property, let alone shared property, research by Space10 has shown the opposite. "We did a survey where we asked people from 150 countries how they would like to co-live and the majority actually wanted a stake in their shared-living space," says Casperson.

With a blockchain-powered energy platform, co-living residents could even take charge of their own energy system: producing and trading sustainable electricity in a micro-grid.

"Shared living is not just a way of enabling strangers to live together in a shared facility," says Casperson. "It is a way of empowering people within a community where everybody benefits in terms of pooling resources."

Of course, living in a shared community has its drawbacks, particularly when it comes to everyday responsibilities: Who does the dishes? Who takes out the trash? Who handles the electricity bills?

Here again technology could be useful, with some of the bigger co-living spaces already experimenting with mobile applications that present digital representations of shared communities and the various tasks that need doing. "You can see tools that make it much easier to co-exist on a much bigger scale, facilitating structures and all of these things that it requires to live together," says Pagh.

Other, more ambitious technologies that could be used to benefit shared living include 3D printing, which allows custom-made and local forms of production, and virtual-reality tools that could help facilitate a more collaborative process to designing shared facilities and spaces.

Ca for support

Aside from new technology, bottom-up shared-living projects are likely to need wider political support if they are to challenge the mainstream developer and profit-driven co-living companies.

"Handling the pressure on the property market in bigger cities is, of course, not something that shared living can solve on its own," says Pagh. "This is a political question and, above all, a question of the legal framework with which we manage this insane capitalist pressure on the market."

At a planning level, Pagh suggests governments could force new developments to invest in social housing strategies that experiment with co-living concepts, and work with new types of developers that specialise in non-profit, collective organisational models.

"Rather than stopping the developer-driven projects I think it is about being able to develop a new market," he says. "And we will need much more ambitious political goals on social justice and equal opportunities in the urban fabric to do that."

For Caspersen what is needed is a wider public debate, not about building more houses but about the kinds of houses and cities we want to live in.

"Today we have a housing market with one product on the shelves, where everything is designed for the nuclear family," he says. "What we need is a market that allows people to experiment with new ways of living. ●"

Designed to work for you

Hunter Douglas demands performance from its ceilings while at the same time looking to create topographies that grant every space its own personality.



Hunter Douglas created a 3,500m² 'leaf roof' from its made-to-measure tiles and planks range.

The extensive Hunter Douglas range of ceiling systems offers architects and designers a creative freedom that is unparalleled in ceiling design. Its ceiling solutions are available in a selection of materials including metal, steel, textile and wood.

Every element of Hunter Douglas's ceiling offering has been created to contribute to a comfortable, healthy and productive environment. It is dedicated to supplying ceilings that are sustainable, durable and suitable for interior and exterior applications. As a manufacturer, it has invested heavily in research and development, focusing on ceiling innovation. It tries to think outside of the box and to develop an understanding with its clients that meets their needs and aspirations.

Supportive partner

Hunter Douglas supports its business partners with a wide range of

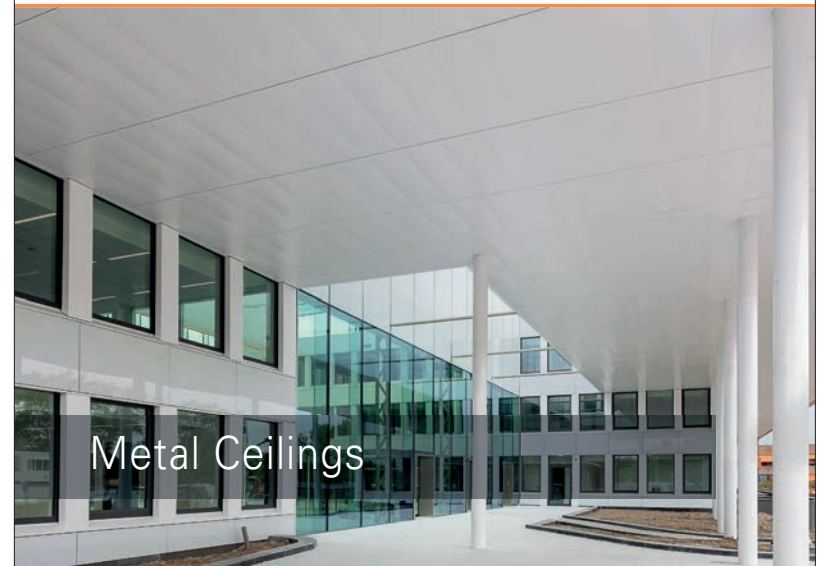
technical support and, in particular, offers a range of consultative services for architects and installers. It provides architects and developers with recommendations on materials, shapes and dimensions as well as colours and finishes. Hunter Douglas's latest innovative project indicates that it can meet at the demand of the architect; it produced a 3,500m² 'leaf roof' from its made-to-measure tiles and planks collection.

Hunter Douglas's technical support team assists with design proposals, visualisations and mounted drawings. It also supports its installers with detailed installation drawings and offers training and advice during the process. ●

Further information

Hunter Douglas
www.hunterdouglas.com

Designed to work for you



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Hunter Douglas Architectural Europe

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HunterDouglas 
Architectural

More art, less noise

d&b audiotechnik has long been known for its market-leading position in the live music and touring world, but less so for its thirtysomething years of experience in fixed installation.

International offices branch out from the company's historic base in south-west Germany; a localised sales, service and support network that can cite installations as far and wide as Sydney Opera House; Oblix at the Shard, London; Marina Bay Sands in Singapore; Pacha in Ibiza; the Johann Cruyff Arena in Amsterdam; and 1Oak in Tokyo.

Today, the research, development and manufacturing that takes place at d&b's HQ in Germany returns a truly comprehensive product portfolio, created with business and user needs in mind, with a functionality, feature set and cost efficiently tailored to the task.

Two beliefs, one mission

For d&b, two ideas have stood the test of time, supporting and uniting a generation of audio enthusiasts who know that sound is about more than volume – it is something shared, wanted and experienced, just like any form of art.

“For d&b, two ideas have stood the test of time, supporting and uniting a generation of audio enthusiasts who know that sound is about more than volume – it is something shared, wanted and experienced.”

The first idea is the belief that everyone should experience the same impeccable quality of sound, regardless of their position in a space. This mission can be expressed in three words: democracy for listeners.

The second is the idea that loudspeakers and electronics should



Club Central in Split, Croatia: designed by architect Duje Kaliterna, the club makes use of d&b's sound systems.

be built systematically, that is, to work in total unity. As a result, d&b loudspeakers can only be driven by d&b amplifiers – a technically beneficial union, maximising efficiency, consistency and ease of use. A fully integrated way of working that sets d&b apart from the crowd.

Directivity reborn

Technological development at d&b has long been driven by a preoccupation (some would say obsession) with the directivity of sound – on keeping sound and silence where they should be. This approach has culminated in

the arrival of both the xC-Series and SL-Series – loudspeakers that reject energy to the rear, significantly reducing excitation of the reverberant field, resulting in minimised reflections indoors and lower sound emissions to unnecessary areas outdoors.

Additionally, d&b's proprietary NoizCalc and ArrayCalc software programs work in unity to predict the sound propagation from one or more d&b loudspeaker systems. With these tools, the optimal sonic experience is delivered reliably and faithfully to the right ears, and not the wrong ones.

Finally, with the d&b Soundscape, a remarkable toolkit is available to further enhance audience connection and understanding. By allowing the placement and movement of 'sound sources' – for example, a public speaker on stage, a group of musicians, or actors in a play –

the entire audience can hear what it sees and vice versa. The brain is freed of unnecessary acoustic ballast and the listener's senses are stimulated, making it easy to stay focused and aware.

Custom solutions

When visual aesthetics are high on the agenda, d&b loudspeakers can blend sensitively into their surroundings, leaving listeners comfortably unaware of their existence. While bespoke colour options are not new to d&b, the RAL palette has been expanded to offer a wider range of options – including high-gloss or metallic paint finishes – for all d&b loudspeakers, no matter the project size or complexity. ●

Further information
d&b audiotechnik
www.dbaudio.com
info.emea@dbaudio.com



Richard Southall @ Emphasis Photography

This isn't about loudspeakers.

It's about art lovers and partygoers, sports fans, music buffs and absolute clarity connecting congregations; it's about dynamic daily programs and tireless listening for everyone, every time. It's about solutions tailor made to task: d&b loudspeakers, amplifiers, software, and accessories, all perfectly integrated for highly efficient, versatile solutions. www.dbaudio.com

d&b
audioteknik 

Quality multistorey building

ZÜBLIN Timber has been making waves in Germany's construction sector with its work on pioneering projects.

ZÜBLIN Timber assists with every phase of construction, including joinery and assessing turnkey performance.

It is also sustainable, fast, high quality, efficient and economical, particularly for multistorey construction. This area is becoming increasingly important and ZÜBLIN Timber's projects are contributing significantly to it. Extensive experience in timber engineering, as well as developing, producing, delivering and executing high-quality timber constructions and facades, are the main strengths of this global player.

Through cooperating with local project managers, engineers and architects during the planning period, ZÜBLIN Timber produces customised components at its own state-of-the-art production facilities. This interactive approach, together with many years of experience in project management and execution, guarantees high-quality results within a given time frame and financially secure budget.

ZÜBLIN Timber's expertise has been proved by the five-storey residential complex 3xgrün in Berlin – a pioneering project with a multistorey

timber construction. The company manufactured the timber components for a wooden house prototype, and also used concrete semi-finished parts. This not only made precise construction possible, but also cinched numerous industry awards.

ZÜBLIN Timber has also displayed its efficiency with the BOB Treet project, which is a 14-storey residential tower consisting of load-bearing glulam members and two intermediate levels. It has enough space for 62 apartments covering a total area of 5,600m², making it the world's first wooden skyscraper.

Another major new project for ZÜBLIN Timber is in Heilbronn, Germany. The timber construction expert is building the ten-storey SKAIO using hybrid construction. Wooden walls and ceilings form the main part of the construction, giving SKAIO the honour of being Germany's first wooden high-rise building.

All of these projects are milestones in multistorey timber construction. ●

Further information
ZÜBLIN Timber
www.zueblin-timber.com



Timber Construction Competence

ZÜBLIN Timber stands for ambitious and pioneered solutions in the field of timber construction.

We are your single-source provider for the development, production, delivery and execution of high-quality timber construction systems, from simple to complex engineered timber structures and turnkey project execution. Together with our clients we develop efficient solutions and a sustainable quality of life.

www.zueblin-timber.com

ZÜBLIN Timber GmbH, Industriestr. 2, 86551 Aichach/Germany



ZÜBLIN
TEAMS WORK.

Highly durable interior film with a natural feel

Hanwha L&C Europe offers one of the broadest ranges of designs and textures of interior film on the market, which is epitomised by its BODAQ Interior Film line. Whether a client's style is minimal, elegant, bright or bold, BODAQ Interior Film meets demand with diverse materials and trendy patterns.



BODAQ Interior Film expresses the texture and three-dimensional feeling of stone.

BODAQ Interior film is a high-quality surface material for architectural interior use. BODAQ is treated with a self-adhesive on the back of the film, making it easy to install even without professional tools and effectively reducing the amount of time necessary for installation. BODAQ has more than 400 colourful and stylish patterns. Due to its special surface coating technology, it is highly durable and resistant to moisture, pollutants, bacteria and fungus.

Brand-new patterns of 2018

This year, Hanwha L&C Europe expanded its product line-up by adding patterns inspired by nature. With a natural surface design, these create a fresh and

refined appearance by focusing on expressing the texture and three-dimensional feeling of stone. This texture has become the trendiest and most attention-grabbing pattern in many interior design fairs due to its modern and sophisticated characteristics. The company has also concentrated on deep-embossed patterns that emphasise the luxurious feeling of wood.

Hanwha L&C Europe is focusing on developing and producing 'highly functional' and 'environmentally friendly' building materials. With its high durability and diverse design pattern, BODAQ Interior Film creates unique and luxurious spaces. Its eco-friendly, flame-retardant and stability performances have been certified



The company has also created patterns that recreate the luxurious feeling of wood.

by an authorised institution and the material holds various certifications, including the EU Ecolabel and the CFFA heavy metal-free test.

BODAQ's various patterns create beautiful and sophisticated spaces, regardless of whether they are used for commercial or residential projects. The interior film offers a range of benefits for users, including:

- various patterns, colours and textures
- easy application
- a self-adhesive that's applicable on surfaces like glass, tiles or MDF
- a special surface coating for high durability
- being resistant to moisture, pollutants, bacteria and fungi

- being eco-friendly and free from harmful chemicals
- being flame retardant and stain resistant.

By considering how a healthy and safe environment should be, Hanwha L&C Europe has worked hard to ensure that its product is free from hazardous chemicals and to reduce the level of volatile organic compounds that are released. BODAQ can therefore be used everywhere and with trust. The company also supplies flame-retardant and non-flame-retardant options, and can fulfil small orders. ●

Further information

Hanwha L&C Europe
www.hanwhasurfaces.eu

WHY

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Light up the industry

Leading Polish company **ES-SYSTEM** has had a fruitful year, sweeping up prestigious awards and making a mark at the industry's major events. The lighting manufacturer has also been busy showcasing impressive products, including CIRCADIAN technology and Intelligent Lighting Control Systems.

Lighting company ES-SYSTEM can sum up 2018 with one word: success. Prestigious awards, providing lighting equipment to projects worth millions globally and participating in the biggest trade fairs has defined ES-SYSTEM's activity throughout the year.

Technology investment

ES-SYSTEM is a pioneer in developing luminaires with 100% LED technology, which are manufactured in two production facilities located in Lesser Poland and Masuria. The ES-SYSTEM NT plant in Dobczyce was recently invested in and now includes an advanced electronics production line. A fourth production line will be built there next year to meet increasing LED lighting sales.

"Continuous development motivates us to take further action to keep searching for better solutions, and to expand our product offering,

technological tools and facilities," says Rafał Gawrylak, president of the company.

Awards in 2018

The company's solutions used in the WHY system also placed it among the 20 most innovative products at Light + Building and the top ten must-see innovations at LuxLive in London, and the product even received a special mention from the jury of the Lux Awards 2018 for Commended Interior Luminaire of the Year.

CIRCADIAN technology was also recognised as a top product by the Eurocres ActiveOfficeAWARD, which honours outstanding solutions that encourage physical activity in the workplace. An expert jury evaluates innovative and creative products, and then chooses the best each year. The award was presented along with a certificate for CIRCADIAN technology, using the

example of the OPPOSITE CIRCADIAN lighting system. The LUNA system, meanwhile, played a major role in shopping centre lighting designed by ECE Projektmanagement and lighting designer Tobias Link. The Löhr Center in Koblenz, where the company's LUNA luminaires are used, came third in the darc awards/decorative's (a competition organised by *darc magazine*) Best Use of Decorative Lighting in a Retail Project category.

Important industry events

ES-SYSTEM's first international industry event was March's Light + Building. In May, ES-SYSTEM was the only Polish company to attend ARCHITECT@WORK GERMANY in Wiesbaden after impressing the jury with the OPPOSITE CIRCADIAN lighting system. After this, the company received an invitation to attend ARCHITECT@WORK FRANCE in Nantes.

'Let's light up the Darc Room' invited visitors to ES-SYSTEM's stand at Darc Room in London. ES-SYSTEM then attended Light Middle East 2018 in Dubai alongside its strategic partner Cinmar in September.

This year, the Professional Lighting Design Convention was held in Singapore for the first time, giving ES-SYSTEM the chance to present its products to a new audience. And, last but not least, LuxLive followed in November, marking one of the most important events for the company, as its WHY system was up

for a Lux Award in the Interior Luminaire of the Year category.

At all these events, ES-SYSTEM showcased its most advanced equipment, including products featuring CIRCADIAN technology – which employs the idea of human-centric lighting – and Intelligent Control Systems, a solution that allows active lighting management.

ES-SYSTEM is continuously introducing new products to the market like FX Line, an elegant linear lighting system that lets users create captivating lighting arrangements in any interior. Its modern design and simple construction make it ideal for general and decorative lighting purposes. Another key addition to the company's portfolio was the GECCO downlight, a configurable luminaire for general and decorative lighting. ES-SYSTEM has also developed Intelligent Lighting Control Systems, which allows active lighting management. These products promote flexibility, meeting the needs of users while keeping pace with the digital revolution, especially the internet of things.

In April 2017, the company created the London-based subsidiary ES-SYSTEM LIGHTING UK, which will act as a trading representative in the UK market. ●

Further information

ES-SYSTEM
www.essystem.pl
m.dobbs@essystem.pl



ES-SYSTEM's light have been making waves at leading events and award ceremonies.

HAVE YOU SEEN *the light?*

In terms of the source itself, and the development tools used in its implementation, arguably no architectural field had been altered so dramatically by technological advancements in the digital age than lighting. Elly Earls meets lighting designers **Mark Major**, **Jeff Shaw** and **Kevan Shaw** to find out why, amid so much change, it is crucial that conversations continue to be driven by the relationship between architecture and light.



The physics of light hasn't changed. Nor has the lighting-design industry's focus on how lighting makes buildings' inhabitants feel. Yet the discipline looks entirely different than it did just ten years ago, thanks almost entirely to a single technological advancement: LEDs.

Where lighting designers used to have a choice between, for example, incandescent or fluorescent, dim tungsten or warm metal halide, there's now rarely a question over which light source would be specified.

LED technology has evolved to such a level of quality and performance that it has saturated the market. This has led to a paradigm shift so significant that Mark Major, who co-founded international lighting-design practice Speirs + Major in 1993, goes so far as to compare it in scale with the move from gas to electricity.

The knock-on effects of the digitisation of light have driven innovation in everything from colour to control.

"In the past it was much harder to change the colour of lights," says lighting designer Jeff Shaw, associate director at Arup and former president of the Society of Light and Lighting. "Now that it is much easier, there has been a lot of exploration into what happens if you subtly change the colour of lights throughout the day. At the same time, there's been a lot of research, discussion and awareness built over the connection between lighting and health.

"For almost all of human history, we have spent the majority of our lives outside, and it is only relatively recently that we've started spending most of our time inside under electric light. What difference has that made to our physiology and what difference can lighting make? And now that we can easily shift the colour of light, should we? That's still an open question, but something we're exploring quite a lot."



The shift from mechanical and chemical to electrical methods of creating light has also led to huge developments in lighting control, which continues to become more sophisticated.

"We're asking how can we better control lighting, and how can we make it more intuitive? How can we ensure it's only on when it's needed? But also what else can we use lighting for?" Jeff Shaw says. "Do we start using it to help locate people in buildings where each fitting can communicate with people's phones? Where does it go with the internet of things?"

Due to these advancements, Major believes that it has become much more difficult to discriminate between the fields of architectural lighting, media and information.

"Light has always been a form of information, but I think that's become more prevalent now that there is such crossover between various fields," he says. "We're all working with state-of-the-art technology on our projects and there are a lot of cross-currents between these different threads."

The quality argument

While the move to LED has made things such as dimming, tuning and changing

the colour of light much easier, it has also added new layers of complexity to lighting designers' day-to-day jobs.

"Nowadays you have to very meticulously specify the performance of the LED because there is such a wide range of quality and performance in terms of the quality of the light, the colour, the frequency of the flickering of the LEDs when you dim them and the lifetime of the LEDs," Jeff Shaw says.

Finding fixtures that bring out LED technology's true potential is also a challenge, suggests Major.

"At the moment, the industry is still shoe-horning LEDs into what I consider to be former paradigms in terms of light fixtures," he says. "Although, things are improving and we are beginning to see more innovative ideas around light fixtures than we have previously."

Major also believes that the quality of the light from artificial sources needs to become a greater discussion point within the industry.

"LED light is a very particular type of light, which has a particular character," he says. "And I think that while the industry now offers a range of colour appearances – from very warm to very cool – along with

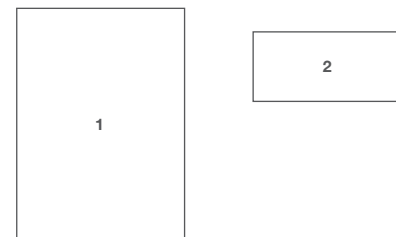
tuneable whites and warm dim technology, there is still insufficient focus on the actual quality of the light itself within the industry.

"The questions we should be asking are: how is LED changing the character of our outdoor public spaces? Is that a good thing or a bad thing? And are there ways to deal with that? There's hasn't been enough debate yet about the quality of light."

Intelligent lighting

Kevan Shaw is design director at independent architectural lighting-design consultancy KSLD. He thinks that one of the most interesting areas to watch will be how the lighting business model changes now that "lighting is turned upside down".

"Previously, we'd put a light fitting up in the ceiling and the fitting would



1. Arup has fitted a Bluetooth mesh network of spotlights inside the Royal Academy of Arts.
2. Wireless lighting at the Royal Academy.



The light fittings at the Royal Academy of Arts are able to communicate with each other.

have a very long life, but every now and then we'd have to change the lamp," he explains. "Now we've got LED light sources that have got a very long life, but the electronics behind them have to be replaced regularly. That's an interesting-looking business model."

He's also excited by the potential of Bluetooth mesh systems for

wireless lighting control, although, just like with radio microphones back in the day, there are still questions over interference and available frequency.

"Lighting isn't the only thing that's become 'intelligent', so we're going to end up with situations where we're going to saturate

wavelengths and start losing connectivity because there's just too much noise there." Kevan Shaw says. "If we put in a Bluetooth mesh system now and there is plenty of wavelength available, there's nothing to say that five years down the line, someone isn't going to put something else in next door."

At Arup, too, the team is exploring some of the interesting technological things that can be done with wireless lighting controls. At the Royal Academy in London, for example, the spotlight system has recently been retrofitted with a Bluetooth mesh network so that the fittings can all communicate with each other.

There are also starting to be more discussions around how lighting can be used to help people find their way around airport terminals or railway stations.

"This is both literally in the sense of how we lay out the lighting, which is what we've always done, but also in the sense that each fitting could have a Bluetooth chip in it that could communicate with people's mobile devices, know where they are in the space, and direct them to the platform or the terminal or the gate they have to go to," Jeff Shaw explains.

It is here that the lighting design industry needs to push back a bit, he believes.

"We want to always make sure that we put the lighting where it's needed to light the space, not where it's needed to create an ideal IT network," he says.

A dialogue between technology and design

Two factors are beginning to combine to grow the influence of lighting designers within architecture, according to Jeff Shaw.

First, the fact that LEDs are so much easier to integrate into architectural details means lighting designers are

becoming more intrinsically involved in projects. And second, the growing public awareness about the impact that light can have on the comfort and appearance of spaces – and their human inhabitants – means that more clients are asking questions about circadian lighting and looking for specialists to help them implement it.

On a less-positive note, there's a danger that as the technological side of lighting increasingly encroaches on the creative side, lighting designers will start to be seen as technicians rather than designers, something Kevan Shaw for one, is keen to avoid.

"There's two parts to lighting design – the left brain and the right brain bit. I don't want to be a lighting designer who's just a technician," he says. "The schizophrenic bit of lighting design is part of what makes it such an interesting area to work in."

For Major, it comes down to the fact that while lighting designers' toolkits may have improved, conversations still need to be driven not by technological considerations, but by the time-honoured language of the relationship between light and architecture.

Not that there aren't benefits to the developments that have transformed the field over recent years.

"Design that moves things forward has to have an element of bravery to it, and we can be increasingly confident that as long as we don't break the laws of physics that we will be able to deliver on some of the crazier ideas that we come up with," he says.

"By consistently being informed about what is possible in technological terms, you can be quietly confident that you're not suggesting the impossible. Ultimately, it's a kind of dialogue between our knowledge of technology and our passion for design and architecture, and the influence that light has on that." ●

Early collaboration is key to LED display project success

Daktronics specialises in electronic LED displays, and has conducted a number of successful projects that have been amplified by collaboration early in the process.

Daktronics is a world leader in audiovisual systems and implementation, with offices around the globe. The company helps customers make an impact on their audiences with large-format LED video displays, message displays, scoreboards, digital billboards, audio systems and control systems in

multiple applications. Founded in 1968 as a manufacturing company, Daktronics is a stable company that has been solving challenges for customers for more than 50 years.

Piccadilly lights

This half century of experience has bred many successful, iconic

installations around the world. Specifically, the revamped Piccadilly Lights is a landmark installation that highlights the company's abilities from collaboration to implementation.

Working closely with LandSec and Ocean Outdoor, Daktronics provided a massive, outward-curved LED display capable of true 4K video production. The project was years in the making as LandSec and Daktronics worked through the details of the new solution for the high-profile, historical location. The display was custom-engineered to precisely compliment the curvature of the existing architecture. Another crucial process included coordinating the transfer and installation of specific pieces of the display within the existing restrictions of the high-traffic area that limited access to traditional installation equipment.

The transformation has surpassed expectations and delivered a new standard that will continue to captivate visitors to London for years to come. It also re-establishes Piccadilly Circus as a prime destination on the world stage.

New Tottenham Hotspur stadium

Early collaboration with Daktronics isn't limited to advertising and public spaces. Live event centres such as stadiums and arenas can also see significant benefits from bringing everyone to the table early on. Most recently, Tottenham Hotspur took the

plunge on creating a new home stadium using Daktronics technology. Their vision was to create one of the finest stadiums in the world as a landmark in London.

Coordinating with architects and construction teams, Daktronics was able to design and deliver a solution capable of immersing fans in the experience as the live action unfolds before their eyes. From the moment visitors step on-site they are greeted with a unique experience born from a bold design that integrates technology with human senses to create an emotional connection with one's surroundings.

Meeting the stadium's unique challenges, Daktronics provided more than 60 displays dedicated to wayfinding in and around the stadium. Four large main video displays are located in the four corners of the arena to entertain fans during events while two tiers of ribbon displays along the seating fascia help immerse fans in the experience.

Involving Daktronics early in a project can lead to a fully integrated LED display system that matches the architecture of any venue while helping transform any space into an engaging, immersive and memorable experience for visitors. ●

Further information

Daktronics
www.daktronics.com/architects

Daktronics provided the massive, curved LED display in the revamped Piccadilly Circus.



Four large main video displays are located in the four corners of the new Tottenham Hotspur stadium, due to open in early 2019.



Light is creativity

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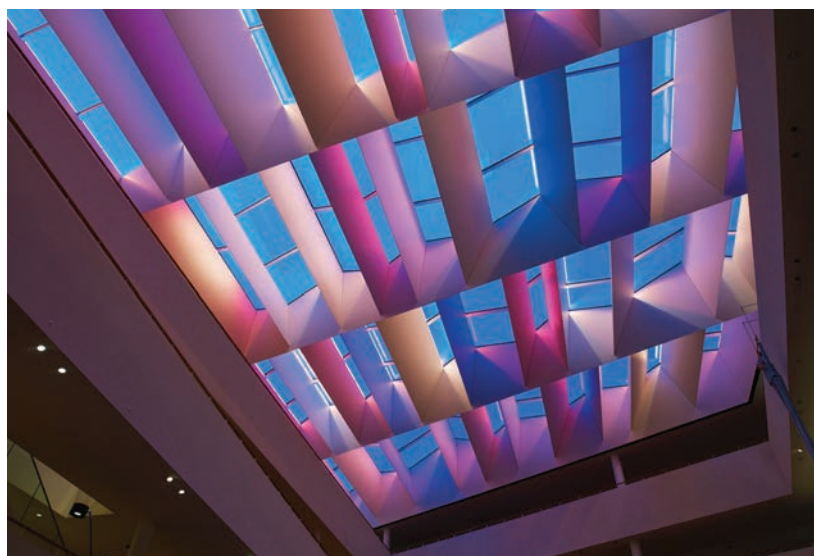
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Light is OSRAM

OSRAM

Demands of architects and lighting designers

Dennis Fullin, **OSRAM**'s product designer and manager, and his colleagues have been in close contact with lighting designers and architects from all over the world for years, discussing their demands and needs concerning lighting design, and trying to conceptualise and create premium products specially tailored to their requests.



Novo Nordisk HQ, Copenhagen: creating an atmosphere through lighting where the consumer feels inspired and empowered is in demand in every environment.

Which trends are you currently seeing in lighting design?

Dennis Fullin: The expectations concerning lighting design have greatly increased in the last few years. Light not only needs to be of the highest quality, but it also needs to be human-centric, which means that it has to be dynamic in a well-structured and intuitive way. Colour changing, light dimming and creating a good ambience in which end consumers feel inspired and empowered are all demanded by the hospitality sector, as well as in office environments.

If required, light can be seamlessly integrated into architecture in the

form of flexible high-performance solutions, light ceilings and more.

Concerning light fitting – its form and function – miniaturisation is an important tool, but so too is high performance. This applies in particular when it comes to applications like shelf lighting or the illumination of structural architectonic features that are supposed to be brilliantly lit.

So you offer a solution to these demands? What sets your solution apart from the others on the market?

Yes, we do indeed offer a number of solutions to the demands we face. Our newest solution available

is called LINEARlight Niche, a modular and very slender lighting system. I would claim that what we supply is outstanding, because we offer a merged solution for various needs that does not require any compromise. The Niche has an ideal form factor that integrates seamlessly into architecture, offers high-quality light and is easy to install.

solutions. Moreover, in my opinion, light is nothing without control, but the quality of the solution also needs to be outstanding. With our solutions there is a certain ease of mind, as our customers know that they are obtaining ideal colour consistency over the whole system, with a broad range of light colours and up to 3m of light systems in one row.

“ Light not only needs to be of the highest quality, but it also needs to be human-centric, which means that it has to be dynamic in a well-structured and intuitive way. ”

We at OSRAM offer a ‘one-stop shop solution’, which includes design support for projects and other relevant tools, as well as global support by our expert team for everything from modules to drivers and complete light management systems. And, as I said before, the Niche is easy to install compared with other shelf lighting solutions – it can be installed with magnets on metal surfaces or fixed with transparent brackets if required.

What lighting design problems are solved by this product?

These days, it is not always easy to design a perfectly matching system, including high-quality light sources with ideal light output, as well as dynamic

So what can your product do that cannot be solved with high-quality, flexible LED tapes?

As already mentioned, it can be used when it comes to very narrow space conditions – common LED strips normally require 11mm of space for the tracks and modules. Our modular solution is considerably slimmer. Additionally, it offers a very high flux in an extremely narrow line of light.

In spring, the product family will be extended with wall-washing and wall-grazing products. ●

Further information
OSRAM
www.osram.com/flex

Inspired by sustainability

Known as ‘the renewable materials company’, **Stora Enso** is committed to providing low-carbon alternatives to fossil-based or non-renewable materials. The company’s new cross-laminated timber rib panels provide architectural freedom and structural integrity while slashing project costs.



Rib panels are an eco-friendly option for adding a little *je ne sais quoi* to interiors.

When entering a space, many people look down or straight ahead. If they tore their eyes away from their devices and looked up, then they’d probably see one of this decade’s major design trends: exposed beams and rafters, or rib panels.

These open ceilings can brighten an office, make a school building feel cozy or bring a rustic charm to a modern residential construction. Including them in a room design used to be costly, weighty and involve steel or concrete, but Stora Enso is now bringing a renewable alternative with rib panels.

Rib panels – the structures that actually make the floors and roofs of a building – are traditionally made from concrete. Stora Enso has recently launched rib panels made

of cross-laminated timber (CLT), which offers architectural freedom and structural performance.

There are myriad reasons to use wood

As well as the creative design possibilities that wood brings, Stora Enso’s CLT method is lightweight, cost-effective, environmentally sound, and suitable for commercial, industrial and residential construction.

The rib panels are ready to install, so there’s no dust during construction. The panels have superior strength, stability and a high load-bearing capacity. The space between ribs can be used to route service lines or other installations, making it an ideal choice for public buildings. In addition, rib panels

allow architectural flexibility over the lifetime of a space. By choosing a rib panel, a row of columns and beams can easily be omitted, thereby increasing open-plan space while providing a new floor plan with many uses.

Additionally, as a construction material, wood is renewable unlike other competing materials.

Spirit of innovation

Manchester’s latest timber-framed pavilion, home of the new Ivy Restaurant, is a celebration of ambition and green values. Pushing the boundaries of timber construction and spanning four floors from brasserie to roof garden, it uses Stora Enso’s CLT rib panels for the floors and CLT for the walls. The timber contractor was B&K Structures.

Stylish yet easy for projects to implement

CLT rib panels are prefabricated and lightweight; this makes the work flow quicker, from delivery to assembly, compared with other construction methods.

“They are tailor-made in a climate-controlled environment and can be transported to building sites just in time for assembly, saving time and ensuring high quality,” says Mathieu Robert, director of building solutions at Stora Enso.

There are fewer pieces to install, so construction programmes save time. Long-span floors with CLT rib panels can reduce the number of components installed by up to 20–30%.

While a long-span layout may have a higher overall frame cost, efficiencies in other areas compensate for this and bring down the total costs. In poor soil conditions, a reduced loading from lower self weight keeps foundation works to a minimum. CLT rib panels, spanning up to 12m, increase the foundation grid and therefore reduce the total foundation cost.

Best of all, rib panels meet the demand of creating spaces that are stylish, elegant and timeless. ●

Further information
Stora Enso
www.storaenso.com

Imagine what a tree can do

Building Systems based on CLT and LVL are a new way of building with wood, balancing today's needs with the needs of future generations. We offer a structured approach to your dreams and ambitions.

Find out more:
www.storaenso.com/buildingsystems



A therapeutic environment anchored in the landscape

High-performance windows from **Reynaers Aluminium** form an integral part of the AZ Sint-Maarten hospital in Belgium, where advanced technology and sustainable, patient-centred design work in perfect harmony.

Conceived as an object in the landscape, AZ Sint-Maarten is a human-scale hospital that radiates simplicity and serenity – a solid building surrounded by green space and enveloped by delicate brise soleil elements.

Sophisticated technology, design anchored in sustainability, competitive budgeting and patient-centered design features were woven together to create this unique environment.

Design concept: an object in the landscape

The designers began by anchoring the project in the green space surrounding the site. The result was optimal integration into the landscape, with a compact, human-scale design. In addition, a waving brise soleil solar protection reduces heat gain within

the building by deflecting sunlight, while simultaneously adding a playful, delicate element – a second skin, protecting patients and personnel.

Design with patients at the heart

In close consultation with the hospital, much attention was paid to patient comfort in the form of privacy considerations, ergonomics, and environment and safety features. By including a multitude of glass surfaces, patients have nearly continuous visual contact with the world outside. To achieve this, the architects specified windows and joinery that comply with the highest performance and thermal insulation criteria as set out by Belgian standards.

CS 77-HI windows from Reynaers Aluminium complied perfectly with

The brise soleil lends a unique identity to the building, while reducing heat gain.



AZ Sint-Maarten: surrounded by a green space, the hospital radiates simplicity and serenity.

this requirement, while also literally creating a window to nature and providing the building with plenty of natural light.

Compact and delicate

Further optimising the lower energy needs of the building, a brise soleil was applied to a number of facades to form a sunscreen solution.

VK Architects & Engineers designed this unique solution using curved lamellas in a wave pattern. The inclination and form was studied by VK Architects & Engineers to achieve a highly functional sun shield. The design process included the production of a building simulation model to monitor the thermal comfort in patient rooms.

In addition to optimal performance, the design of the brise soleil lends a unique identity to the building, while still affording patients views of the surrounding landscape from their beds.

technical proposition by tailoring the company's existing BS 100 system to the design needs. This solution consists of no less than 63,000m of profiles, the delicate and functional 'skin' adapting to the facade orientation.

For example, the lower position of the sun in the west and east requires smaller distances between the brise soleil slats than the higher position of the sun in the south. Much attention was also paid to the transition from public to semi-public and private spaces by playing with degrees of brightness

A healing environment

Solid yet delicate, compact and highly functional in design yet expansive in feeling, AZ Sint-Maarten is truly an exceptional example of a healing environment that nurtures and supports patients, families and those who work within the healthcare environment. ●

Moving from design to production of the brise soleil, the contractor and Reynaers Aluminium came up with a

Further information
Reynaers Aluminium
www.reynaers.com

Reynaers Campus (BE) - Architect: Jaspers Evers Architects
Photo: picture@georgesdekinder.com

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RENEWED PURPOSE

Aluminium has been a recognised architectural material for almost 150 years, but practitioners are reassessing its value as they seek to create lighter, reusable and more adaptable buildings. Ross Davies hears from architect **Michael Stacey**, leader of the Towards Sustainable Cities programme, **Brock DeSmit** of Belzberg Architects and **Tim Lucas** of Price & Myers on the role it has to play in our efforts to create more recyclable built environments.



Some six decades elapsed between Danish chemist Hans Christian Ørsted's discovery of metallic aluminium in 1825 and the material being cast upon the pyramid capping of the Washington Monument, built in honour of The US's first commander-in-chief.

The polyhedron, completed in 1884, that sits atop the famous obelisk on the US capital's National Mall is commonly acknowledged to be the oldest civic use of aluminium in the world. It also set something of a trend for the following century, in which architects, attracted by its versatility and durability, sought to involve the material in their projects.

Otto Wagner's Austrian Postal Savings Bank building, completed in his beloved Vienna in 1906, may have represented the architect's move away from neoclassicism into modernism, but it was also notable for the incorporation of aluminium bolts into the building's facade. Similarly, Pittsburgh's Alcoa Building, finished in 1953 and standing at 120m, is regarded as the world's first aluminium skyscraper.

Such was the impact of Skidmore, Owings and Merrill's aluminium-clad Pepsi-Cola World Headquarters (1959) on New York's surrounding skyline that film director Alfred Hitchcock declared the modernist masterpiece "the ultimate in refinement of proportion and elegance of materials".

The rebirth of aluminium

The way that architects look upon aluminium has undergone an obvious shift since the days when even the master of suspense was wowed by its lightness and novelty. For one thing, it can no longer be seen as new-world material, with application now much more commonplace, from tower blocks to shopping centres.

But today's practitioners and engineers are increasingly

focusing on what role it can play in creating more sustainably built environments, using less energy and less material in the process.

In October 2016, a group of architects, alongside engineers, artists and designers, descended upon London's Kew Gardens for a symposium around quantifying the in-use benefits of aluminium in this area. The plenary formed part of Towards Sustainable Cities, an ongoing research programme funded by the International Aluminium Institute, and undertaken by Michael Stacey of Michael Stacey Architects and partners from US firm KieranTimberlake.

The event served to highlight some of the most prominent recent feats of aluminium in design projects, with Kew aptly

being home to Wolfgang Buttress's lattice installation The Hive, a 55ft-high beehive made up of 170,000 aluminium components. Having debuted at the UK Pavilion at the 2015 Milan Expo, the structure was transferred to the south-west London gardens with the aim of continued disassembly and relocation – although, somewhat ironically, Kew recently gained planning permission to keep The Hive for the foreseeable future.

London-headquartered Marks Barfield Architects, designer of the aluminium-clad Greenwich Gateway Pavilions, was also in attendance, as was Price & Myers, the structural-engineering firm responsible for the Vertical Shell in London's South Bank Tower, constructed from 3mm-thick fins of anodised aluminium.

Yet any sense of collective triumphalism was checked somewhat by a consensus that the architectural community is still to master the potential of aluminium and its durability.

"I do think the benefits of aluminium are undertaught in some schools of architecture and engineering," says Stacey, who served as professor of architecture at the University of Nottingham between 2006 and 2015. >>



1

2

1. Wolfgang Buttress's The Hive at Kew Gardens comprises 170,000 aluminium components.
2. Belzberg Architects' office building in Mexico City is wrapped in aluminium strips.

“Obviously we live in a multimaterial world, but it should be considered as an established material. It's also important in terms of evaluating materials using life-cycle assessment (LCA). However, one thing that is clear from my research is that architects that find aluminium useful go back and use it again and again.”

Lightness and malleability

California's Belzberg Architects is one such firm to have chosen to feature aluminium in recent projects. In 2017, it gained attention for its work on an office building in Mexico City, the six-storey exterior of which is wrapped in aluminium strips affixed to glass on the edifice's interior and exterior.

The rationale for using aluminium on the project, known as Threads, was the material's inherent lightness, durability, softness and malleability, explains project manager Brock DeSmit.

“This helped achieve the complex curvature we wanted and made installation and manoeuvring easier,” he says. “It required less equipment, with no need for complicated jigs or bending equipment. It was also appropriate for the exterior environment – durable, no rusting, and corrosion was much less of a concern.”

Belzberg also deployed perforated aluminium for the roof canopy of the Gores Group headquarters – officially known as Spring Place Beverly Hills – for what DeSmit describes as “very similar reasons”.

“Again, it was to do with aluminium's lightness and malleability,” he says. “It also turned out to be a great choice compared with steel, for instance. It allowed for the thickness and malleability we wanted without the weight.”

Back in London, Stacey's research into aluminium's innate qualities has yielded some interesting results, particularly in the context of composition. For instance, aluminium castings are typically almost 100% recycled content, requiring only a few primary elements to balance out the chemical composition of an alloy. Similarly, recycled aluminium necessitates just 5% of the energy input compared with primary production.

“Aluminium is almost infinitely recyclable,” explains Stacey. “By our calculations, 1t can last for around 3,500 years. The aluminium industry as a whole is also a key component of the circular economy, and always has been. Some 75% of all the aluminium ever produced since 1886 is still in use. Compare that with plastic, which has a recycling rate of around 5%.”

If aluminium has always been a cog in the circular economy, as Stacey puts it, why the underemphasis in the lecture theatres? Perhaps this can be tied into a need for a reappraisal of LCA. Speaking at the Kew symposium, a director at Marks Barfield – and former student of Stacey's at London Met's Department of Architecture and Interior Design – claimed that the LCA was no longer “the be-all and end-all”, despite having made headway up the agenda “15–20 years ago, when the green movement started”.

Life-cycle assessment

Despite this, there appears to be evidence that architects are seeking to readdress the balance regarding LCA. For DeSmit, there has been a real push to use aluminium in the production of facade structures beyond the likes of simple reinforced mullions and clips.

“It lends itself to easier customisation opportunities in

the manufacturing process, which is often necessary to achieve the complexity prevalent in building facades,” he says. “In this way, recycled aluminium can play an important role in building sustainable cities. It's important that architects become advocates for sustainable material applications and construction.”

Tim Lucas, a structural engineer at Price & Myers, agrees that conversation around aluminium's recyclability has become louder. He believes architects could draw lessons from the practice of design for manufacturing, in which systems are “more inherent to the design process”.

“Aluminium is almost infinitely recyclable. By our calculations, 1t can last for around 3,500 years... Compare that with plastic, which has a recycling rate of around 5%.”

– Michael Stacey

“From an engineering standpoint, we are interested in creating more integrated structures – so something more like a structural facade. I can see aluminium playing a bigger role in that regard. Then you have aluminium extrusion, which allows the creation of a die for not a lot of money while having your own custom-made parts, which requires less material.”

“I think that LCA is definitely now part of the mix, and there's growing potential to demonstrate that you are acting responsibly,” adds Stacey. “But there are some concerns over whether clients are willing to pay architects to do it.”

I'm not sure whether LCA should be seen as something that you just embed into the design process, or as an additional service. I also think we should

progress away from an obsession with first cost – we should be looking at the whole value.”

Stacey raises another caveat. In light of the current limit of the global supply of recycled aluminium standing at 35% recycled content – although it is close to 50% – he warns against requesting in excess of this unless a “closed loop” is in place.

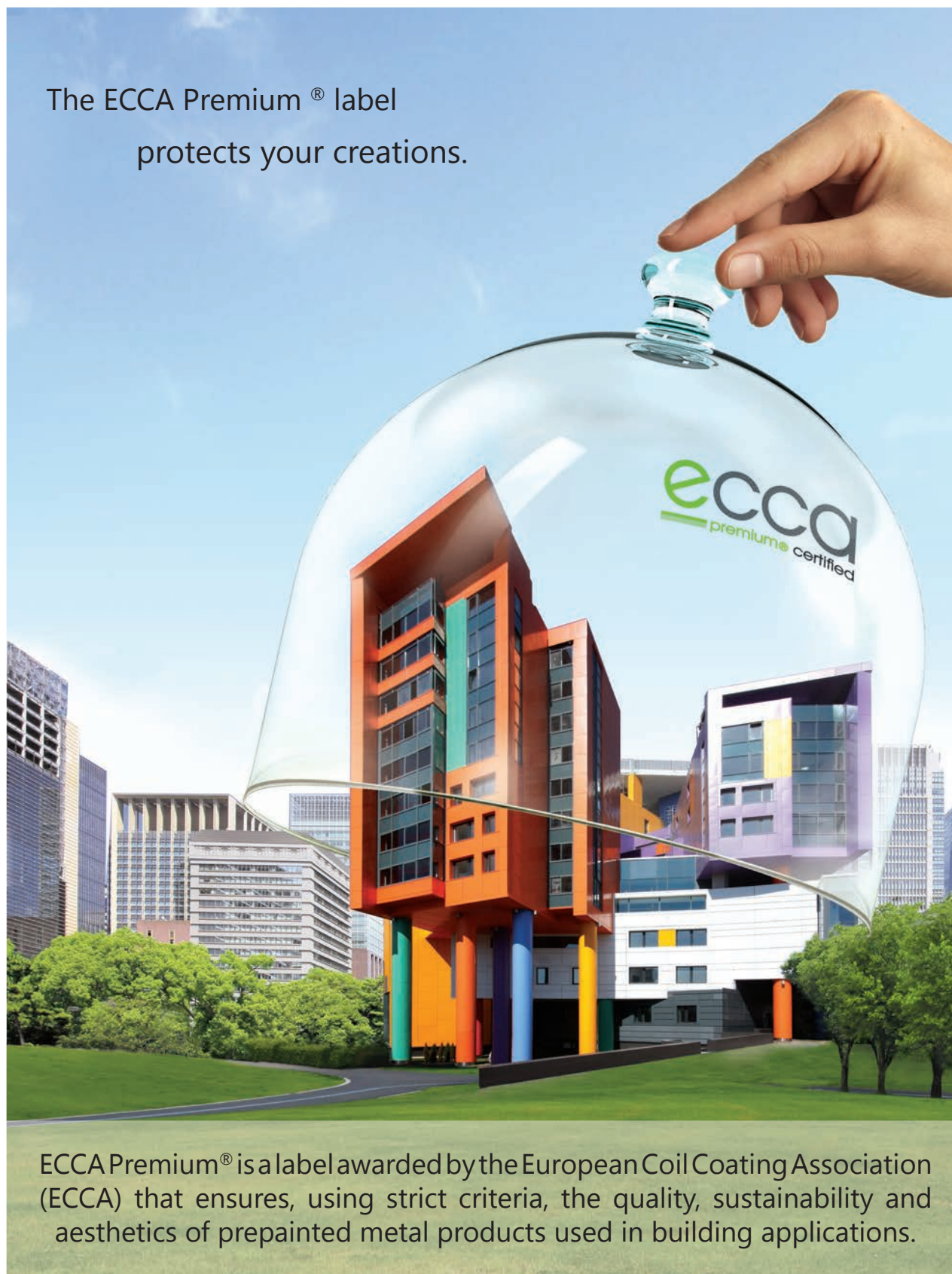
“People shouldn't rush to want 100% recycled content in aluminium unless they've got a closed loop. If you are looking for more than 50%, you are kind of shepherding all of the recycled to your product while somebody else is using primary.

“Therefore, 100% recycled content is obviously not the responsible specification.”

One of the more charming projects to underscore aluminium's durability was the recent refurbishment of Oxford University's Bodleian Library, originally designed by Giles Gilbert Scott. The new library, nominated for the 2016 Stirling Prize, contains the same aluminium-anodised windows, as first installed back in 1939, having required only minor cleaning and reglazing work.

As a veritable marriage of the new with the old, it's easy to see why these sash windows, in particular, captured the imagination. But their significance transcends that of tasteful anachronism. It serves as yet further evidence of the sizeable role aluminium might play in creating sustainable cities in years to come. ●

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A PV facade without mechanical fastening

Kömmerling Chemische Fabrik applied its eco-friendly credentials to its work on Z3, Züblin's headquarters in Germany. With its load-dissipating adhesive, the company proved that building-integrated photovoltaics can be visually appealing.

Sustainability and energy efficiency were what the design of the Z3 in Stuttgart, Germany, focused on right from the start. Since completing in 2012, Züblin's headquarters has served as a test subject for building-integrated photovoltaics (BiPVs). To this end, the southern facade was equipped with photovoltaic

(PV) modules that were only attached using a structural, load-dissipating adhesive bond, without additional mechanical fastening. Züblin, one of Germany's biggest construction companies, closely cooperated with Kömmerling Chemische Fabrik, an adhesive and sealant manufacturer based in Pirmasens, for this project.

Supporting Züblin with research

From 2020, all new buildings in EU member states must generate as much energy as they consume. PV systems are perfectly suited to generating renewable energy near buildings; they have low emissions, minimal noise levels and are low maintenance, and can take on a building's functions when integrated, as can the facade. However, BiPVs' downsides are visual appearance and the standardisation of elements complicating the provision of individual facade designs. The opposite is now being demonstrated by Züblin's five-storey Z3 office, which was designed by MHM architects. In 2014, the nearly zero-energy building was awarded a DGNB gold certificate.

A glued PV facade with screen-printed pattern – designed by UNStudio – was finally added to the south side of the building last year, as part of the EU-funded research project Construct-PV. Thanks to the load-dissipating adhesive from Kömmerling, the elements were harmoniously integrated in the architecture without needing additional mechanical securing. The building is characterised by wooden pilaster strips and contrasting, dark-looking facade sections, where windows alternate with graphite-grey glass balustrades. The tempered-glass balustrades,

which were glued down before in a load-dissipating manner in accordance with structural glazing principles, were replaced by glass-glass PV modules. Kömmerling not only supplied the structural-glazing silicone for the modules' glued attachments, but also assisted with the approval procedure. Without mechanics, the attachments needed to be approved on a case-by-case basis.

More about the company

Kömmerling has been part of the US adhesives group H.B. Fuller since October 2017. The acquisition of Kömmerling's parent company, Royal Adhesives & Sealants, drew attention to the German locations of Pirmasens and Langelsheim. Together, the companies grew into the world's largest provider of adhesives and sealants for insulating glass applications. The acquisition raised the annual sales of H.B. Fuller to \$2.8 billion. In combination with Royal and Kömmerling, H.B. Fuller has deepened its expertise in high-quality adhesive and sealant applications that are employed in a number of industries, such as electronics, hygiene, medicine, transport, construction and renewable energies. ●

Further information

Kömmerling Chemische Fabrik
www.koe-chemie.de
info@koe-chemie.de

Züblin's headquarters, Z3, was designed by MHM architects and uses BiPVs. The innovative adhesive solution was supplied by Kömmerling Chemische Fabrik.





H.B. Fuller



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Tough locations need tough solutions

AkzoNobel has launched a tough powder coating that combines a contemporary low-gloss look with the ability to withstand scratches and knocks encountered in indoor and outdoor public areas.

Interpon D1036 Textura powder coating features a soft-feel, low-gloss finish that helps disguise surface imperfections; it also cures at a lower temperature than many other fine texture coatings, allowing users to save energy or increase productivity.

The product meets the requirements of all leading quality systems and is available in more than 100 different colours, ranging from bright white to

scarlet red and marine blue. The properties of Interpon D1036 Textura are:

- low gloss, fine-textured finish
- hard-wearing, and scratch and knock-resistant
- perfect for high-traffic areas
- wide colour range
- maintenance friendly
- low curing temperature – 12 minutes at 170°C
- quality approvals; Qualicoat Class 1 and GSB Standard.

The finely textured finish adds richness to the colour, making it more aesthetically appealing than a smooth finish in the same shade.

Aurelie Godan, European segment manager for architectural powder coatings at AkzoNobel, explains, “The properties of Interpon D1036 Textura make it a perfect finish for architecture elements in busy public buildings such as airports and railway stations, and also

for outdoor furniture in public areas. Furthermore, Textura is extremely hard-wearing and the fine-textured finish offers a low-maintenance solution for high-traffic areas. Its low-temperature curing also makes it more sustainable than many competing solutions.” ●

Further information

AkzoNobel
www.interpon.com
uk.marketingservices@akzonobel.com

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Those looking to design spaces with breathtaking patterns and structures should look no further than Hanex whether they're considering interior or exterior applications. Since 1995, Hanwha L&C Europe has developed its Hanex line into a front runner in the market for acrylic solid surfaces and is a leading global manufacturer of acrylic solid surfaces, quartz and deco sheets. Now, the company is in a position to expand its European market by interacting with its partners and rapidly catching the market trends.

According to Namchu Woo, Hanex's managing director, "Innovation

through beauty, design and flexibility," represents what the company seeks to achieve. Woo adds, "Our goal is to provide customised solutions for any type of building. The only limitation is your imagination." Hanwha L&C Europe offers its partners substantial value added with innovative, tailor-made products and solution. This is the result of its systematic focus on customer needs.

Facade requirement: to create diversity

Reflecting the combination between wild, unspoiled nature and urban environments, Hanex offers architects the unlimited possibility of creating

unique, long-lasting designs based on the harmony of diverse colours and outstanding quality. Hanex is the perfect material for wall cladding because of its outstanding characteristics: it's easy to clean, durable and aesthetic:

- Alumina trihydrate is a main ingredient, which provides superior resistance to stains and chemicals. Even if it's damaged by graffiti, it can usually be repaired through sanding and cleaning, without replacing the whole side.
- In order to make a perfectly smooth, homogenous and regenerable surface that looks brand new, Hanex has

received important independent certification for its environmental performance, such as being Greenguard-certified. Through its great resistance and seamless installation, it eliminates any place for stains and bacteria to get into.

- Hanex is crafted from a unique blend of 100% acrylic resins and natural materials. Thanks to its non-porous features and inconspicuous seams, it can be easily formed into any shape and size that is required. Hanwha L&C Europe believes that the inexhaustible possibilities this feature opens up will help in creating a worthy space for its clients.

Break the mould

Through a proactive approach, Hanwha L&C Europe consistently applies advanced technology to customers' needs. It has an extensive, growing product line, such as wide sheets for its decors – S-102 g-white and S-008 n-white will be available from the first quarter of 2019 from its new production site in Texas, in 1,350 or 1,520mm. These extensive surfaces, without visible joints, can seamlessly fit into any type of furniture and – this is of paramount importance – they can be simply cut out or combined together to fit a range of designs. ●

Further information

Hanwha L&C Europe
www.hanwhasurfaces.eu



Building with wood

Timber is often undervalued as a construction material for permanent structures. In fact, the material is an eminently sustainable, safe and practical alternative to steel and brick. *LEAF Review* talks to Martin Bender, **Blumer Lehmann**'s sales leader for international projects, about how the firm's specialisation in building with wood has led to the realisation of inspirational modular and free-form structures around the world.

The Hotel Kulm grandstand: as a building material, wood offers almost limitless design possibilities.



How extensive is Blumer Lehmann's expertise in modular and temporary construction?

Martin Bender: Blumer Lehmann is a pioneer in the field of wooden modular construction. We have been working in this sector for 13 years now, with 500 modules leaving our factory annually on average. Our modular buildings are often used for temporary school, sales or office buildings, but are getting interest for urban densification or tiny houses. They're appreciated

by our clients for their pleasant room climate and the individual design possibilities. And honestly, qualitatively, they can easily keep up with a 'normal' construction.

What clients have you served in the past in this area?

Our clients in modular construction are almost 100% in the public sector, and include school communities, municipalities or cantonal administrations. We also have customers from public transport authorities, and we are planning

a temporary construction in cooperation with private investors right now. Those rentable rooms should be an inspirational and networking place for small businesses in urban areas.

What inherent advantages does timber offer as a construction material, over and above brick or steel?

Thanks to a high level of prefabrication, most of the wooden buildings that we produce can be prefabricated in the factory, including walls and

ceilings with all the requisite connections and installations. The construction site times are therefore shorter, which is especially advantageous in urban areas.

In the timber construction field, planning in 3D has been a reality for many years. During that time, Blumer Lehmann has executed a number of projects with BIM models. In addition, wood is the only naturally renewable building material that can be sourced regionally, and therefore enjoys shorter transport routes and little grey energy. Lastly, wood as a building material offers almost unlimited design possibilities. Our free-form constructions are proof of that.

How safe are timber buildings compared with structures built using steel or brick?

Wooden buildings are as safe as steel or brick buildings. They are also very durable. Admittedly wood is flammable, and the safety of the structure is also contingent on the professionalism of the planning and production processes behind its construction, but the carrying behaviour during a fire in such a structure is well known and calculable, contrary to other building materials. In particular, large-sized wooden components almost retain their strength at high temperatures. In a fire, an insulating layer

of carbon is formed and water vapour emerges. As a result, the thermal conductivity remains low. Furthermore, the fire behaviour of wooden constructions has been proven with extensive tests. With proper dimensioning or in combination with other building materials, fire resistance can be achieved up to 240 minutes.

How have advances in digital design and production made timber construction a more attractive proposition?

Digitisation brings various interesting competitive advantages to timber construction. This includes planning in 3D, which makes planning processes more participative, earlier and more direct. Digitisation also enables the optimisation of production processes, and therefore the journey from design concept to the production of the structure becomes more relevant as a process. This also affects the costs and the design options. The client profits from lower costs and the architect yields new possibilities in the expression of form in buildings, which can be produced with new tools.

“ Wood is the only naturally renewable building material that can be sourced regionally, and therefore enjoys shorter transport routes and little grey energy. ”

Can you describe Blumer Lehmann's work in assembling free-form structures?

From the beginning, the team has to guarantee that every element is producible, transportable and installable. The number of unique elements within free-form projects and complex timber projects often comes to more than 3,000 single

pieces, and no one piece is exactly the same as another. The only way to handle such large quantities is through parametric design.

Furthermore, we try to handle the complexity of a project during the planning and production phases, keeping assembly as easy as possible. For the overall success of



Temporary school building: the temporary and modular buildings that Blumer Lehman produces can be prefabricated in the factory, resulting in short construction site times, which is a huge advantage when building in urban areas.

a project, logistics and installation are just as important as the other phases, and need accurate organisation and an improved quality management system.

Which structures are you particularly proud of building in this regard?

We have quite a few. The most important for the development of our company was certainly the first free-form structure designed by Shigeru Ban for the Haesley Nine Bridges Golf Club. This was followed by some beautiful buildings in collaboration with Foster + Partners; for example, the grandstand for

the Hotel Kulm or Manchester's Maggie's Centre. Incidentally, we are currently back in Korea, assembling four new projects in Yeosu, also designed by Shigeru Ban. This isn't forgetting our projects in England, like the new Maggie's Centre being built in Leeds and designed by Heatherwick Studio, or the Cambridge Mosque by Marks Barfield Architects. We are looking forward to every construction – big and small. ●

Further information

Blumer-Lehmann
www.blumer-lehmann.ch

A comprehensive list of our favourite products from the past few months.

The innovations list

1



1. Individual BRIT Awards are appreciated for their stylistic verve, and next year's trophies are no exception. Winners at February's ceremony will be receiving a statuette designed by architect Sir David Adjaye, who describes his dark, minimalist creation as "the manifestation of a great material forged in fire and shaped into the body of a woman".

www.brits.co.uk

2. One would think the basic design of a guitar – two wooden boards sanded to a figure of eight, with a hollow centre and strings – is not capable of improvement. Maxwell Custom politely disagrees. Built from New Zealand kahikatea and black maire wood, the company's sleeker guitar is built using CNC machining and forgoes the traditional circular opening in favour of a side pocket to create a richer, more responsive sound.

www.maxwellguitars.com



2



3. The common-variety kayak is rugged, dependable and typically hard to carry. That is about to change. California-based Oru Kayak – which specialises in making folding boats – has extended its talents to the humble ocean-going canoe. Weighing only 18kg, the vessel is good for 20,000 fold cycles, each time into a shape roughly the size of a large suitcase.

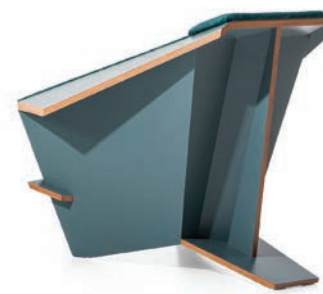
www.orukayak.com

3

4. Furniture is an integral part of Frank Lloyd Wright's design legacy, and now, for the first time in almost three decades, Wright's Taliesin 1 armchair is being put back into production by the Italian company Cassina. Designed by the architect for the living room of his Arizona residence, the chair was originally made throughout the 1980s, before being discontinued for being 'too avant-garde'. Buyers can obtain their own version with either its cheery wood veneer stained in black oak, or kept in its natural state.

www.cassina.com

4



© Cassina | Maestri Collection



5. Swedish lighting company Wästberg has partnered with architect John Pawson in the design of a minimalist oil lantern, christened Holocene no.4. The lamp stands at over 40cm and can be used both in and out of doors. The finger-friendly indent on the top of its thin handle also makes it ideal for hanging from wall fixtures. "It's basically a crucible-like container for fire, designed so that it can be comfortably carried and suspended," Pawson explained to *Dezeen*. "I wanted to keep the function, form and palette as simple as possible." www.wastberg.com

6. Italian architect Matteo Thun has always been fascinated by glassmaking, and it shows in his new series of delicate, translucent vases for glassmaking company Venini. Coming in four different styles, the vessels were mouth-blown before being sanded to a satiny finish. The result is fine glassware in a range of cloudy palettes, from purple and taupe to grey and orange. "I would like for the



complexity of the blowing to produce an archaic feeling, just like the painting of the early Novecento," said Thun. www.venini.com

7. House plants do wonders to spruce up one's home, but also have an unfortunate habit of dying when deprived of natural light. Enter Bjarke Ingels Group and Artemide, who have



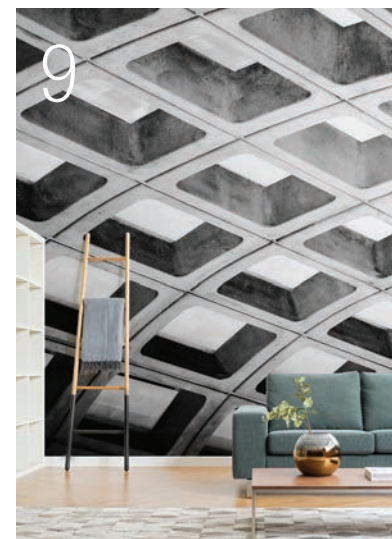
collaborated in the design of 'Gople', a blown-glass lamp that emits blue, red or white light to aid plants in their performance of photosynthesis.

www.big.dk
www.artemide.com

8. The modern open-plan office is a noisy place. Luckily, Panasonic is here to help. Its prototype 'Wear Space' blinkers are expressly designed to shutter out unwelcome sounds and sights by forcing the user to employ only 60% of their field of vision which, one would hope, contains their work and nothing else. "As open offices and digital nomads are on the rise, workers are finding it ever more important to have personal space where they can focus," said a spokesperson. "Wear Space instantly creates this kind of personal space – it's as simple as putting on an article of clothing."

www.panasonic.com

9. Brutalist buildings still dominate the skylines of many of Europe's inner cities; now, they are moving



into the living room. Murals Wallpaper has debuted a new collection of designs celebrating architecture's most controversial genre, with close-ups of hits including the vaulted ceiling of Washington DC's metro system and the exterior of the Pinnacle Building in Leeds. Rolls are priced at £36/m². www.muralswallpaper.co.uk



Unique ceramic facade enriches The Hague skyline

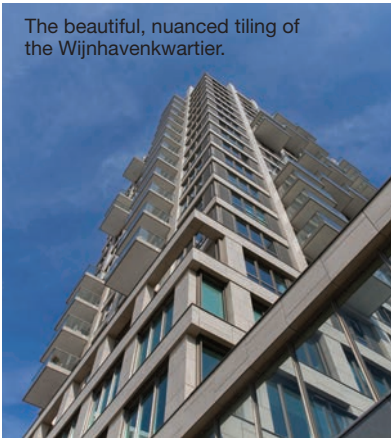
Mosa's ceramic facade claddings have brought an air of sophistication to the Wijnhavenkwartier in The Hague, and the company's custom range has numerous benefits, including weather resistance and natural ventilation.

A dull ministerial office complex in The Hague has been turned into a warm, metropolitan multipurpose building due to its ceramic facade. The most striking aspect of the building is the sand-coloured facade that has been finished with custom-made tiles from Mosa, with which the architect makes reference to the beautiful city behind the dunes.

Wonderful woven patterns

"The ceramic facade entices you to look at the building," explains

The beautiful, nuanced tiling of the Wijnhavenkwartier.



architect Jeroen Geurst. "The closer you get to the Wijnhavenkwartier, the more there is to experience. From a distance, the building appears to be the same shade all over, but on closer inspection, you can see the delightful horizontal and vertical woven patterns of the tiles. Each tile has unique colour nuances – and it's these details that make the building so interesting."

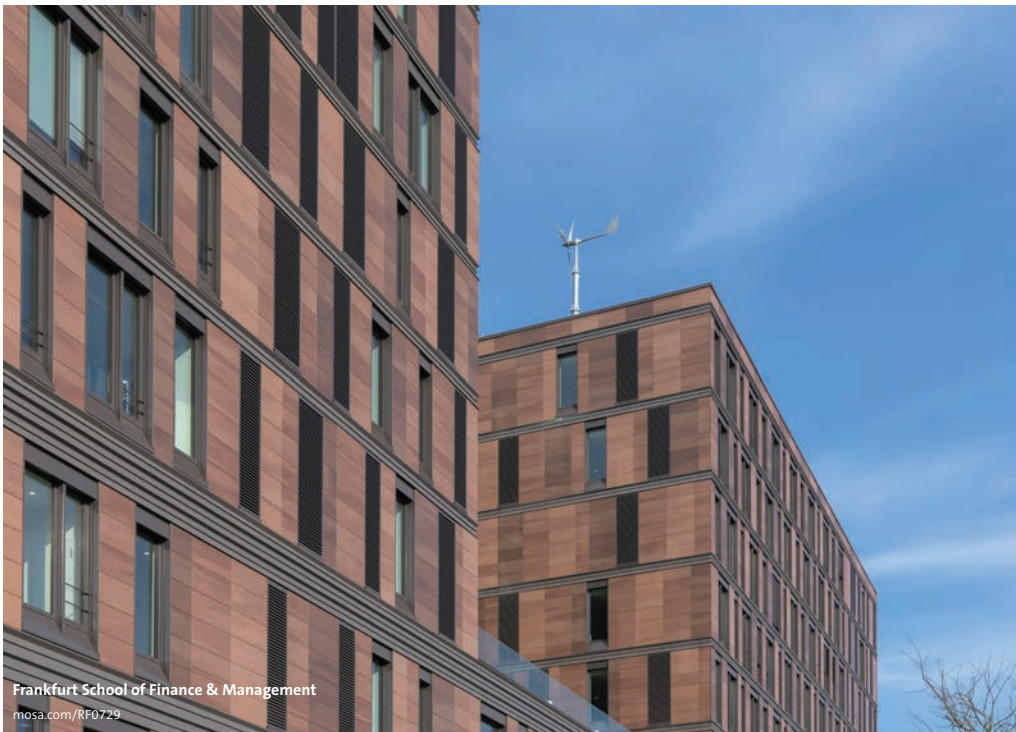
Quick facade construction

The building's head contractor, Heijmans, and investors opted

for Mosa because the company's tiles are durable, strong and easy to maintain. Heijmans also had to complete the work quickly because of the lack of space for storage and construction in the inner city. With the prefabricated ceramic cladding elements and the ventilated-facade system, a quick and clean construction is possible in any urban area. ●

Further information

Mosa
www.mosa.com/facades



Frankfurt School of Finance & Management
mosa.com/RF0729

Mosa. Cradle to Cradle ceramic facades

Ceramic facade cladding is an optimal building envelope for a wide range of building projects. Together with the ventilated facade systems supported by Mosa, our premium ceramic tiles are an ideal solution for both new-build and renovation projects. Together with selected system suppliers, Mosa Facade systems are tested and approved according to European and British standards and Cradle to Cradle Silver Certified.

Advantages ceramic facade cladding

- Weather-resistant, UV-resistant, colour fast
- Non-combustible, impact-resistant
- Low-maintenance and graffiti-proof
- Natural raw materials, sustainably produced and recyclable

Motion in architecture

Libart's revolutionary retractable systems bring motion to architecture through extremely flexible design.



The Babylon Beach Club in Istanbul, Turkey.

Cities never stop evolving and neither does architectural design. This organic, constant change is defined as 'adaptability and mobility' in architecture. Architecture has been bolstered in this context, having been enhanced over the years through technology and innovation. Building materials should now be able to carry out several tasks at once and act multifunctionally.

together movement and architecture in an organic and functional manner. Needs have changed and continue to change at a rapid pace, yet one fact – rather paradoxically – remains fixed: motion is the key to the future.

Libart has moved to incorporate this key fact into its practices, confident that motion in architecture will spread and that there is more

“Commercial, industrial and residential spaces should allow for some kind of motion that enables a certain degree of flexibility, economical advantage and ‘wow factor’.”

How people move and circulate is changing. Therefore, the services offered should adapt and shift towards a new level of spatial configuration. Commercial, industrial and residential spaces should allow for some kind of motion that enables a certain degree of flexibility, economical advantage and ‘wow factor’.

This dictation of how guests operate within a space may help bring

Further information
Libart
www.libart.co.uk



LIBART

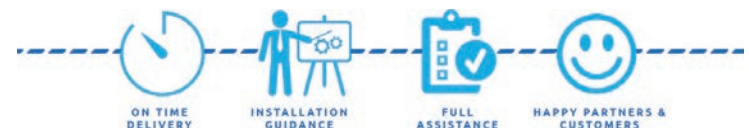
Meet the revolutionary systems of Libart! We bring *motion* to architecture with our retractable systems.
Design has never been this flexible.

Point Bornova Shopping Mall / ClearSky Retractable Skylight

Cities never stop evolving, so why would architectural design? This organic everlasting change is defined as adaptability and mobility in architecture. Architecture can have special powers in this context having fed with technology and innovation. Building tissues should now be able to bare several functions at once and act multifunctionally. How we move and circulate is changing. Therefore, the services offered shall adapt and shift towards a new level of spatial configuration. Commercial, industrial and residential spaces should allow some kind of motion which enables a certain aspect of flexibility, economical advantage and “wow effect”.

The dictation of how guests operate within a space may help bring together movement and architecture in an organic and functional manner. The needs change and the pace is fast yet there is a fact that does not seem to be changing sometime soon: Motion is the key to the future.

With Libart Enclosure Systems discovering this key, Motion in Architecture is to spread and more is to be explored replacing all traditional architectural approaches. It's the era of motion, evolution and movement. And design can achieve this with Libart's retractable skylights, structures, windows and doors.



Dark Hill Hotel / PanoramaView Vertical Retractable Window

MOTION IN ARCHITECTURE

Retractable Structures | Retractable Skylights / Roofs | Vertical Retracting Windows & Doors

libart.com/libart.co.uk

libartsales@libart.com

Fire safety on facades: a worldwide concern

Effisus protects buildings and the lives inside them. The Effisus FR waterproofing membrane uses innovative technology with a fibreglass base to obtain a fire-resistant membrane, according to EN 13501-1 and ASTM E84 class A (class 1) ratings.

After the tragedy of the Grenfell Tower fire, the UK's concern for facade fire safety escalated.



The Effisus FR membrane is a non-combustible, waterproof, breathable facade membrane.



Over the past decade, there has been a significant increase in facade fires. After the tragedy of the Grenfell Tower fire in London – one among a number of high-profile fires – the UK's concern for facade fire safety escalated.

Discussions regarding the combustibility of facade materials,

and the ambiguities of the present regulations, are everywhere.

While it is necessary to look into the matter in detail, it is imperative for every person in the industry to understand the contributing factors behind buildings' fire hazards, promote the development of new legislation

and ensure that existing building regulations are applied. They must do whatever possible to reduce the risk of fire on facades.

Effisus has launched a non-combustible, waterproof, breathable membrane for facades – the Effisus FR membrane. As well as being an alternative to the combustible breathable membranes currently used on facades everywhere, this product is the one and only class A fire-rated waterproof membrane.

Fire-resistant: tried, tested and proved

The Effisus FR membrane uses advanced technology, together with a fiberglass base, to create a fire-resistant membrane. This membrane has been tested in accordance with EN 13501-1 – obtaining an A2 classification – and ASTM E84 class A (class 1). It is CE-certified according to EN 13859-2 standards, and can be applied to flexible sheets for waterproofing and underlays for walls.

Product features

The Effisus FR membrane is a highly tear-resistant wall-lining waterproofing membrane that allows vapour diffusion, but is 100% water and wind tight. It guarantees optimal protection for the structure behind the external cladding against wind, damp and driving rain. It has exceptional UV resistance and is suitable for facades with open or

closed joints. There are also a large range of accessories that allow it to be installed in the most demanding projects.

It is available in rolls of 1.07x93.45m for 100m² in either white or black.

Excellence in weatherproofing

Effisus strives to provide excellence in weatherproofing solutions for the building construction segment, with a key focus on meeting the needs of each project. With the aim of leveraging strong partnerships, it achieves efficient sustainability from start to finish. Effisus's solutions combine efficiency and sustainability, promoting integrated systems with added value and superior quality. Supported by an extensive consulting service, a wide range of solutions for roofs, facades and day-to-day construction challenges are offered.

Effisus is present worldwide and its work features in numerous projects, such as Dublin Airport, the SSE Hydro arena in Scotland, Total Tower in Cyprus and hospitals in Orléans, as well as Beauvais in France, Salalah Airport in Oman, and the Burj Vista, Fountain Views and Sky View developments in Dubai. ●

Further information
Effisus
www.effisus.com

An enhanced fire door system

Wrightstyle's new fire door system is tough on fires yet aesthetically pleasing. It can also be incorporated into the company's SR60 curtain walling range.

Wrightstyle has introduced a new fire door system that provides 90 minutes of integrity and insulation (EI90). The new 8050 series of thermally broken fire doors are fully compatible with Wrightstyle's SR60 curtain walling system, providing a new level of aesthetic appeal.

The door system is available in either single (1,606×3,062mm or 1,534×3,222mm) or double leaf (3,102×3,062mm or 2,958×3,222mm).

The doors, which will accept glass up to 60mm thick, can be used as a stand-alone product or incorporated

into Wrightstyle's SR60 curtain walling system. The company can therefore provide a complete screen or facade with 90 minutes integrity and insulation.

Add further options for fire and smoke-resistant doors

The new door system has been successfully fire tested. It can incorporate any EI90 glass that has been tested into steel framing to a maximum glass area of 3.97m².

It adds a further option to Wrightstyle's extensive range of fire and smoke-resistant doors. This includes a line of unlatched doors in double or single leaf

format – a breakthrough for fully glazed fire door systems.

Previously, Wrightstyle's F1 glazed door and screen system offered non-thermally broken fire protection up to EI60.

The company is delighted that the new system adds 30 minutes of protection, with the significant and added benefit of thermally broken profiles.

Complementary system

The SR series curtain wall and roof glazing system provides architects and designers with flexibility in glass dimensions and facade design, allowing

large areas to be spanned without the secondary support for assembly.

"The inclusion of a thermal break in this new door system gives it added insulation, while allowing slimline steel framing," says Denis Wright, Wrightstyle's chairman.

"It therefore combines the protective function of an advanced steel glazing system, with the sleek aesthetics that architects and designers are looking for," he concludes. ●

Further information
Wrightstyle
www.wrightstyle.co.uk

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Events diary

January – June 2019

A Home for All: Six Experiments in Social Housing

Until 26 May

V&A, London, UK

www.vam.ac.uk

What role can architecture play in solving the housing crisis? This question, one that has challenged governments and architects for over a century, provides the starting point for this display, presented by the V&A and the Royal Institute of British Architects (RIBA) Architecture Partnership. It presents six innovative projects from the collections of the RIBA and the V&A, each demonstrating a unique experiment in social housing design.



Forever new: Frankfurt's Old Town – Building between Dom and Römer since 1900

Until 10 March 2019

DAM, Frankfurt, Germany

www.dam-online.de

The core of Frankfurt's old town between Dom and Römer boasts a rich history in terms of architecture. The area was destroyed in 1944 and reconstruction efforts began at Römerberg in 1983, coinciding with the emergence of postmodernism in the form of the Schirn and the Saalgasse. In 2005, the demolition of the Technisches Rathaus sparked a controversy about what should be built in its place. How this resulted in the new old town is a salient theme of this exhibition.

The Art of the Building Site: Construction and Demolition from the 16th to the 21st Century

Until 11 March

Palais de Chaillot, Paris, France

www.citedelarchitecture.fr

This exhibition looks at how people have seen, designed and imagined the place where

building occurs since the Renaissance, shedding light on the technical, social, political and artistic dimensions of the building site, and bringing together works and documents by artists, journalists, engineers, architects and labourers, among others, as well as statements from three contemporary architect-engineers – Patrick Bouchain, Marc Mimram and Martin Rauch.

Dentro la Strada Novissima

Until 28 April

MAXXI, Rome, Italy

www.maxxi.art

Inspired by the inaugural international architectural expo at the Venice Biennale, which opened to the public on 27 July 1980, kick-starting the international debate on post-modern architecture, this show celebrates the architectural history of the 1990s. Curated by the storied Italian architect Paolo Portoghesi, it showcases archive documents, photographs and plans recalling the role of the street in the architecture of the decade, with work from the likes of Frank O Gehry and Rem Koolhaas.

Architecture Effects

Until 28 April

The Guggenheim, Bilbao, Spain

www.guggenheim-bilbao.eus

Architecture Effects is billed as “an exhibition of contemporary architecture, art and storytelling”. It includes three connected territories entitled Airlock, Garden and Bubble, the latter being a digital dimension that visitors can access as a free app. The exhibition experience is designed for a constant back-and-forth between the material and the virtual, the ancient and the futuristic, allowing visitors to feel hyper-connected not only in space and time but also in body and spirit.

Dichtelust – Forms of Urban Coexistence in Switzerland

Until 5 May

Schweizerisches Architekturmuseum, Basel, Switzerland

www.sam-basel.org

In Switzerland, the word ‘density’ is often used pejoratively. This exhibition, developed with support from the Basel City Cantonal Department of Construction and Transport, explores the concept of density, eschewing negative visions of ‘built-up’ cities overrun with high-rise buildings in favour of the sensible use of buildable territory – and that means building compactly in order to prevent proximity stress.

David Adjaye: Making Memory

2 February – 5 May

Design Museum, London, UK

www.designmuseum.org

Explore the design and role of contemporary monuments through seven of Adjaye's landmark structures. Including the Smithsonian National Museum of African American History and Culture in Washington D.C. and UK National Holocaust Memorial and Learning Centre, these monuments and memorials show how Adjaye uses architecture and form to reflect on history, memory and record human lives.

The Value of Good Design

10 February – 27 May

MoMA, New York, US

www.moma.org

Driven by the conviction that good design can enhance everyday life, this exhibition begins with MoMA's Good Design initiatives from the late 1930s through the '50s, which championed well-designed, affordable contemporary products – from domestic furnishings and appliances to ceramics, glass, electronics and transport design. The Value of Good Design also considers whether values from mid-century can be translated and redefined for a 21st-century audience.

Critical Care. Architecture and Urbanism for a Planet in Crisis

25 April – 9 September 2019

Architekturzentrum Wien, Vienna, Austria

www.azw.at

Critical Care goes global with this exhibition showcasing 20 international examples of sustainable architecture and design including villages in China, public spaces in Brazil, the revitalisation of traditional irrigation systems in Spain, a community land trust in a Puerto Rican favela, the conversion of modern megastructures in Europe, and the ongoing development of local building techniques in flooded areas of Pakistan.

London Festival of Architecture

1–30 June

Multiple venues across London

www.londonfestivalofarchitecture.org

Billed as “the world's largest annual architecture festival” – more than 600,000 people visited in 2018 – the London Festival of Architecture returns with a diverse programme of public events across London exploring the theme of ‘boundaries’. London's architects have long stepped outside national boundaries to build around the world, but what does architecture have to say about boundaries, real and imagined, in the UK capital itself?



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Its universal design and user-friendly customisable settings make the latest technology accessible to everyone.

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www.roca.com

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