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## THE ORDNANCE YARD, GOSPORT

A development of nine contemporary homes in Hampshire was designed around retained parts of a historic explosives facility, plus other constraints

## MANCHESTER ENGINEERING CAMPUS

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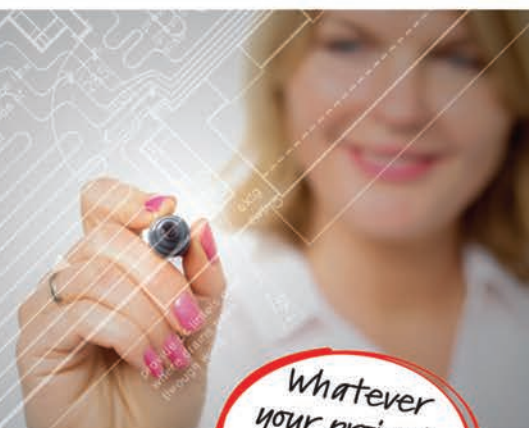




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**Managing Editor**James Parker  
jparker@netmagmedia.co.uk**Publisher**Anthony Parker  
aparker@netmagmedia.co.uk**Editorial Co-ordinator**

Tom Boddy

**Editorial Assistants**Roseanne Field  
Jack Wooler**Editorial Contributor**

Sébastien Reed

**Studio Manager**

Mikey Pooley

**Production Assistants**Georgia Musson  
Kim Musson**Account Managers**Sheehan Edmonds  
Paul Field**Sales Executives**Nathan Hunt  
Steve Smith**PR Executives**Suzanne Easter  
Kim Friend**Audience Development**Manager  
Jane Spice**Managing Director**

Simon Reed

**Advertising & Administration**t 01435 863500  
info@netmagmedia.co.uk  
www.architectsdatafile.co.uk**Press Releases**

editorial@netmagmedia.co.uk

**Subscription circulation enquiries**

info@netmagmedia.co.uk

**netMAGmedia Ltd**Cointronic House  
Station Road, Heathfield  
East Sussex, TN21 8DF

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# FROM THE EDITOR



Although the global spread of COVID-19 did not put paid to the Futurebuild event, despite it being an international construction gathering – including some architects – the virus' rampage has since seen organisers cancel some other key industry events.

MIPIM, held in Cannes every year and the scene of a lot of close-proximity property sector mingling, has now been moved to June. The Venice Biennale – unsurprisingly given the widespread nature of the problem across northern Italy – has also been postponed by three months. One big issue is, of course, that this virus might be a long-term problem, which will give event organisers headaches as well as coughs in the coming months.

It's ironic that just as the UK is about to isolate itself from Europe, but wants to reach out to trade with far-flung lands, the consequences of global travel are coming home to roost with the rapid spread of Coronavirus, and a more insular approach to life generally is being adopted. We don't know just how far this disease is going to reach into our everyday lives, and currently it seems as if the UK impact is on the low scale, but there may be more highly contagious new bugs around the corner, and a need for a more rigorous approach to controlling air travel as well as basic hygiene, not to mention panic-buying.

The outbreak has temporarily pushed the climate emergency down the fickle news agenda, however this was what Futurebuild's organisers were trying to tackle head on with a conference programme that reached out well beyond the normal parameters of those directly involved in construction. From academics looking at biodiversity challenges, to architects prepared to advocate against new build for the sake of the environment (Duncan Baker-Brown from BBM for one), the Futurebuild programme moved the agenda away from the normal 'build-first' momentum of the industry to provide an inclusive 'we're in this together' approach suggesting it's now everyone's job to actively tackle climate change.

The realities are of course stark, with the 'net zero' goal of 2050 being just 30 years away – not a long time given the challenges we face. The first major one for the industry is the 2025 Future Homes Standard, which will ban the use of fossil fuels in all new homes and see them either adopting a 'fabric'-based improvement in energy efficiency of 20 per cent, or a 31 per cent improvement using bolt-on renewables (eg PVs and air source heat pumps). Having formulated these two options for its recently completed industry consultation, and stating its preference for the latter, the Government seems to be offering a bit less assistance than is desirable, hinted at in some recent research we have done.

A total of 21.6 per cent of a straw poll we undertook of readers said they "strongly disagreed" that the Government was providing "sufficient information" around the new Standard, and it's going to need to do a lot more than that to help designers and housebuilders get ready in time. The rather 'slippery' showing from the Ministry of Housing's head of energy and environmental standards, Peter Rankin, at Futurebuild, giving no clear sign on when the Government will comment on the consultation response, did little to help.

**James Parker**  
Editor

**ON THE COVER...**

A development of nine contemporary homes by John Pardey Architects has completed in Gosport. The trapezoid-shaped homes feature grey-profiled clad exteriors and have achieved a flood-resilient design on a low-lying site.

Cover Image © Richard Chivers

For the full report on this project, go to page 36





## EDUCATION

# Design Engine's scheme for new building at Stowe School in for planning

Architects Design Engine's scheme for a new design technology & engineering building at Stowe School has been submitted for planning consent. Following a design competition in 2016, Design Engine were commissioned to develop designs for the new building to replace existing facilities at the leading independent school.

The new building will serve as the "creative hub" to introduce pupils to modern design and manufacturing skills and sit alongside and support the other STEM subjects (science and mathematics).

The initial stages of the project involved an "in-depth analysis of the campus as a whole in order to explore all options for the location of the new facility," said

Design Engine. The brief asked for a new stand-alone building that would replace outdated facilities, and house workshops that would "embrace developing thinking in all areas of design, technology and engineering." The proposed two-storey building is sited within woodland, to "minimise visual impact and to ensure logical adjacencies with other faculties."

The materiality of the building helps the building relate to its historic architectural and landscape context, said the architects. Stowe School also wanted to explore how the building could work as "an educational tool, expressing how different materials are employed in contemporary architecture."

To assist with the proportions of the

building and its "sense of repose in the landscape," Design Engine have introduced a "horizontal split in the elevation, establishing a low level and high-level material." This will "reduce the overall visual mass of the elevations within the woodland," said the architects.

The proposed bronze-coloured material for the upper level will tonally complement the woodland setting but will also maintain a low sheen and reflection, said Design Engine. They added that the brickwork's colour and texture is intended to have "parity" with adjacent brick buildings.

The building will "play a central role in ensuring the continuing success of Stowe School as an outstanding centre for product design and robotics in the UK."







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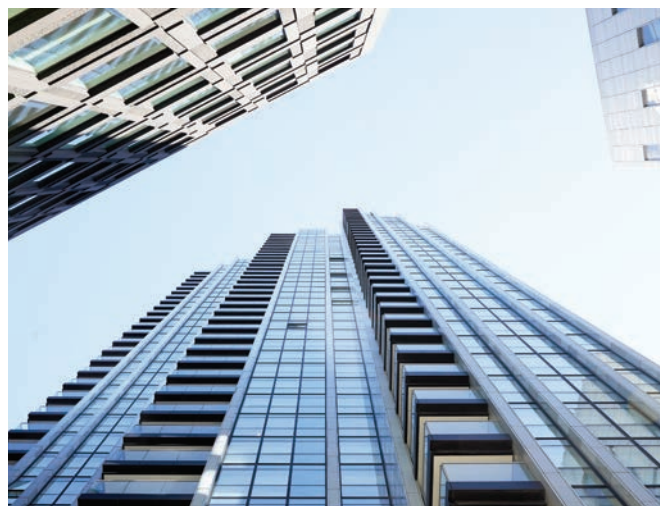
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## RESIDENTIAL &amp; COMMERCIAL

# Tallest tower completes in 'tech city'



Construction has completed on the Atlas Building, the tallest tower in London's 'tech city' district. Delivered by Design Delivery Unit, with a concept design by Make, the 40-storey residential tower and adjacent 10-storey commercial building sits on a prominent site on City Road, near Old Street Station.

The tower delivers 302 apartments with leisure and spa facilities and basement parking. The commercial building is occupied by WeWork and provides access to three roof terraces, with external green walls, over 35 per cent of the footprint is new public realm; with a landscaped piazza of shops and cafes created between the two

buildings. This provides a new pedestrian link between City Road and East Road.

The architecture responds to the building's urban context, it also looks to maximise the potential of the site and location. The concept design is "simple," said the architects: "A series of 12 vertical blades articulate the elevations and work together to compose the tower's facade."

The Atlas building has a cantilevered structure due to the below ground constraints of the underground and Thameslink lines, which cross at the southern tip of the site. According to the architects, this discovery at planning stage changed the concept for the structural

strategy, resulting in the creation of a new superstructure design to "prevent the building from twisting and leaning."

"Impacting upon all consented internal layouts, large shear walls had to be introduced and the core redesigned with column locations and sizes altered." While the facade concept was maintained, it was "carefully deconstructed and redrawn to try to suit the new layouts, with the original architectural language safeguarded."

The delivered tower "tries to respect the original design intent, to create a stunning addition to the London skyline and contributes to the regeneration of this part of the capital," said Design Delivery Unit.





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## EDUCATION

# Lancaster University Library extension by Scott Brownrigg begins on site



An £11m, four-storey extension of Lancaster University Library designed by Scott Brownrigg has started on site. The scheme will expand the amount of study space in the library by 2,562 m<sup>2</sup>.

The expansion reflects the university's growing campus population. Sitting at the centre of the campus, the library looks to provide space and facilities to support the learning, teaching and research of students

and staff of the university.

The extension to the south west elevation will connect through to the existing library areas through open-plan study spaces, and specialised collaboration rooms. The design will unite both the old and new library with group study and meeting rooms fully enabled with AV. Glazed frontages divide the space, "while simultaneously maintaining visual

connections across the different areas," said the architects.

An independently accessed, lower-ground floor will provide space for teaching as well as student societies, opening up to a new area of "amenity landscaping" on Library Avenue.

Work commenced on site towards the end of 2019, and is planned to complete December 2020.

## EDUCATION &amp; RESIDENTIAL

## Over 1,500 homes plus new school planned for former biscuit factory

A former biscuit factory site in Southwark, London, is set to be transformed into more than 1,500 homes and new buildings for a local secondary school under plans approved by London's deputy mayor of Planning, Regeneration and Skills, Jules Pipe.

All of the 1,548 new homes to be built as part of the redevelopment of the Biscuit Factory and Bermondsey Campus will be for the rental market – of which

35 per cent will be affordable housing, including homes at social rent levels.

The plans also include new facilities for the Compass Secondary School, as well as flexible commercial space, including affordable workspaces and two new pedestrian routes through nearby railway arches.

Southwark Council refused permission for the scheme in February 2019, saying the plans would not

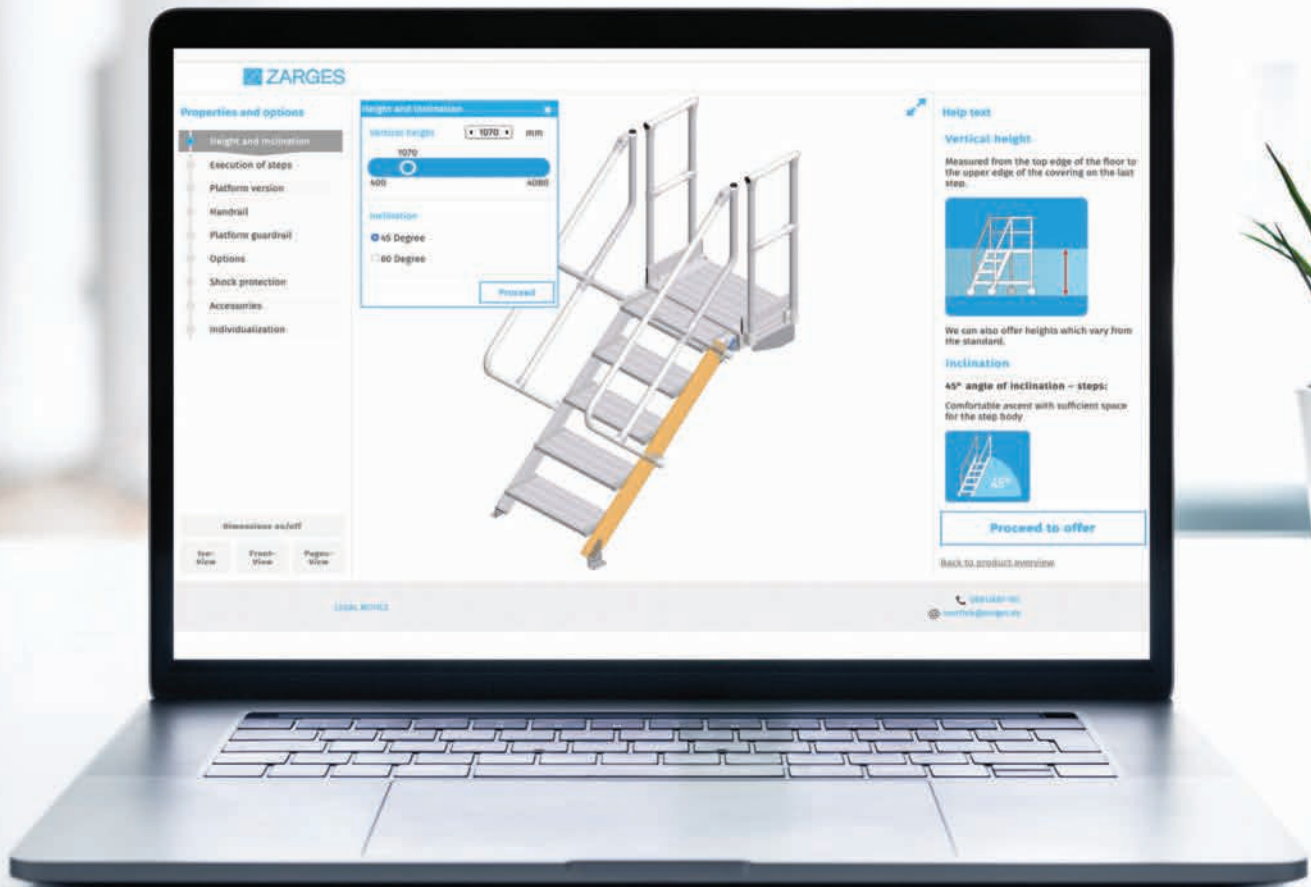
deliver enough affordable housing and that the homes would not be of sufficient quality.

London mayor Sadiq Khan saw the application last May and decided to take it over to subject it to further scrutiny. Since Khan's intervention, the number of homes has been increased from 1,342 homes to 1,548 and the level of affordable housing has been boosted from 27.5 per cent to 35 per cent.

Of the affordable homes within the development, 342 will be offered at discount market rent (i.e. at a level of rent significantly below the market average) and 140 at social rent levels (i.e. homes for tenants referred via the local authority).



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## COMMERCIAL

# Work begins on LOM's 'landmark' Milton Keynes workplace for Santander



Images courtesy of LOM

Work to deliver Santander UK's landmark new workplace in Milton Keynes has started on site. The £150m campus, which will be known as Unity Place, will be a centre for digital banking and will incorporate a range of community facilities.

Procured by Osborne+Co for Santander and designed by LOM architecture and design, the scheme will bring together Santander's 6,000 employees who are currently spread across four sites in Milton Keynes. The design aims to nurture collaboration and support the health and wellbeing of staff.

Unity Place is designed to be "the focal point for Santander's UK business and the local community," said the architects. The scheme includes co-working space for small

business and start-ups. Local businesses and the public will be encouraged to use the ground floor facilities including an 'urban market,' retail outlets, health facilities including; gym, yoga and consultation spaces, a community hall, and an auditorium. There is also a rooftop running track and cafe/restaurant, complete with terrace.

LOM's design for the eight-storey building features four blocks connected by three atria, and includes two basement levels providing plant space and parking. It is also designed to be easily adaptable to ensure that it is sustainable in the long term. For example, the co-working area can expand or contract to accommodate changes in Santander's space demands and the building can be subdivided for



separate tenancies.

Milton Keynes Council granted planning approval for the 81,650 m<sup>2</sup> development in July 2019. The building is anticipated to open in Autumn 2022.



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## COMPETITION

# Empowering Platforms: a competition to reimagine the Thames Riverfront

The London Festival of Architecture (LFA), Westminster City Council and the Northbank Business Improvement District have launched a new design competition for an “empowering platform” that can “help reimagine the experience people have with the River Thames alongside the Westminster riverbank,” said LFA.

As the latest addition to the Festival’s competitions programme, the ‘Empowering Platforms’ project seeks a complete transformation of the current ‘benches on bricks’ model with a design vision that centres around “inclusivity and accessibility – shaping a more engaging and stimulating experience of the riverfront for all,” said the competition organisers.

Architects, landscape architects, and designers are invited to develop a “bold

and interactive design concept that offers everyone a place to engage with the River Thames, local landmarks and the area’s rich heritage from a fresh and engaging perspective,” and to make the Thames Path more inviting for different users.

At present, the Thames Riverfront in the City of Westminster is a world-known destination but according to the LFA, it is not being used to its full potential. In places public benches are positioned on raised brick platforms to offer views across the river wall; however, for many people they are “inelegant and inaccessible.” The competition aims to enhance the Thames Path through “bold design solutions” in different locations, providing a more accessible and attractive public realm, and properly addressing the relationship

between the Thames Path and its surroundings “in ways that benefit everyone,” said the organisers. Designers are encouraged to consider interactivity and sensory experiences, how views towards the river and key landmarks can be improved, and how the area’s rich heritage can be enhanced.

Those interested in applying are invited to submit their initial expressions of interest by 8.00 am on Monday 23 March. Up to six shortlisted teams will then be invited to develop a design concept and will each be awarded an honorarium of £500. Winning designers will then be awarded £20,000 to manufacture and install their interventions, ready to be revealed as part of the London Festival of Architecture 2020.

## AWARDS

## 2020 Royal Gold Medal for Architecture awarded to Grafton Architects

Yvonne Farrell and Shelley McNamara, co-founders of Dublin-based Grafton Architects, were awarded the 2020 Royal Gold Medal for architecture at a special ceremony at the Royal Institute of British Architects (RIBA).

Presented in recognition of a lifetime’s work, the Royal Gold Medal is approved personally by the Queen, and is given to a person or group of people who have had a significant influence either directly or indirectly on the advancement of architecture.

Yvonne Farrell and Shelley McNamara co-founded Grafton Architects in 1978. Since then the practice has received international acclaim for a portfolio of projects, most notably for its exemplary education buildings – in 2016 they won the



Yvonne Farrell and Shelley McNamara, co-founders of Grafton Architects. © Morely von Sternberg

inaugural RIBA International Prize for the bold new vertical campus building for Lima’s specialist engineering university (UTEC) in Peru.

Speaking about Grafton Architects, RIBA president, Professor Alan M Jones, said: “From designing houses in wind-swept rural landscapes to substantial inner-city university projects, from curating and contributing to world class exhibitions to teaching within some of the world’s leading schools of architecture, the scale and scope of Grafton Architects’ influence is extraordinary. Their extensive talent and generosity of spirit are an inspiration, not only to me and my fellow architects but to all those who have had the pleasure of engaging directly with them and their work.”





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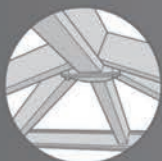
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## SPORT &amp; LEISURE

# AFL reveals plan for Millwall FC stadium

AFL Architects have announced their redevelopment plan for The Den, the home of Millwall FC, following discussions with the club and residential developer Renewal.

The architects have been working in collaboration with Millwall FC and the Renewal design team for the past few months to develop proposals for The New Den and the area surrounding it, known as New Bermondsey.

These proposals include a strategy for incremental, phased expansion of the existing stadium, up to a total maximum capacity of 34,000 seats, built as additional upper tiers behind the existing seating bowl. This will not only provide the facilities needed to meet Premier League requirements – such as additional media and player accommodation – but also in time provide enhanced facilities for fans to “transform their match day experience,” said the architects.

**A new public plaza at the centre of New Bermondsey will provide an open area for the surrounding community, as well as “engaging space” for fans on match days**

Part of the proposal is the creation of a new public plaza at the centre of New Bermondsey, providing an open area for the surrounding community, as well as an “engaging space” for fans on match days. This is elevated over parking and service areas and accommodates retail, commercial and community use spaces along the street frontages.

The development strategy is to retain as much of the existing stadium structure as

possible while providing for a phased uplift to both facilities and capacity over time. The aim here is to not only maintain the stadium in-use for fans, but also minimises demolition and construction waste. The design approach is to create spaces that are adaptable, flexible and multi-use, encouraging activity within and around the stadium.

The design of the new proposals has been inspired by the history of Millwall FC and its surroundings. The use of brickwork arches references the railway viaducts and industrial past that surround the current site, and also those at Millwall Park, which was home to the club on the Isle of Dogs over one hundred years ago, where the brick railway viaduct can be seen in the background of historic match photographs. Internally, as much of the original stadium infrastructure as possible will be kept, to ensure the atmosphere of The Den is retained.



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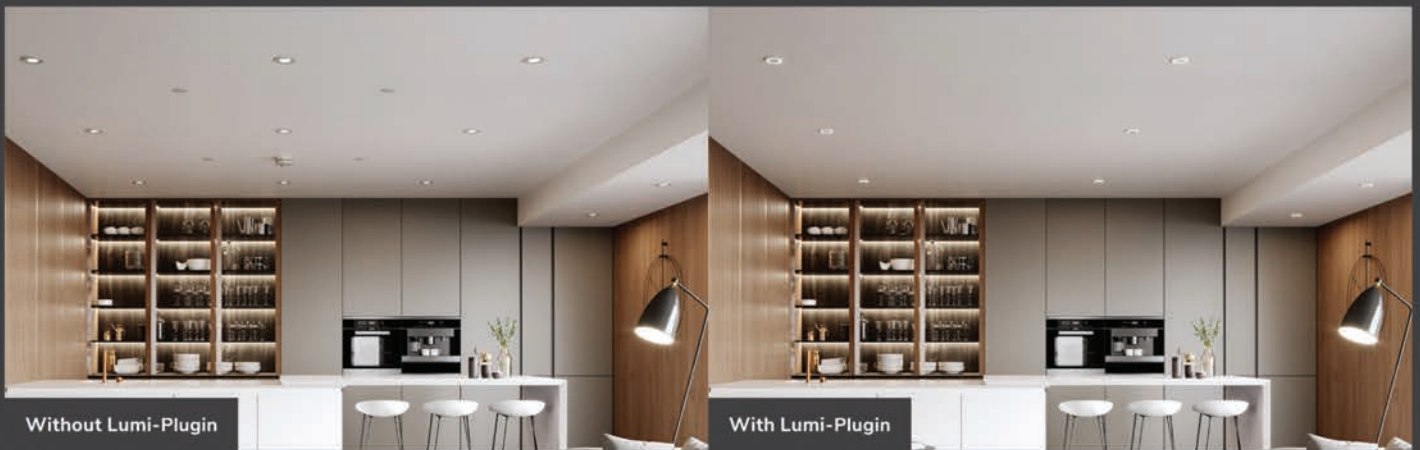
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# VIEW POINT

Having set up the first School of Architecture at Lancaster University, Professor Ruth Dalton explains how the school's 'radical creativity with a conscience' motto embeds key principles into innovative teaching practice



A meeting 'pod' in the woods at Lancaster University

While setting up the new school of architecture at Lancaster University, a phrase that we coined very early on – and have returned to again and again – is 'radical creativity with a conscience.' It has become an extremely useful concept against which we are able to measure or test any decisions we are making around how and what we intend to teach, and what kind of graduates we intend to produce. But what exactly do we mean by it? Furthermore, might this slogan have some currency beyond our own immediate focus, and resonate with the wider profession?

Before starting to unpick this phrase – why do we need such a concept at all? A generation ago, different schools of architecture certainly had different reputations, but in a rather 'fuzzy' way (one school might be more 'arty', another more 'techy'). Equally, architectural practices also had their own identities, specialising in

certain typologies, scales or architectural styles. Nevertheless, these reputations were mostly implicit and 'common currency'; everyone just *knew* them.

Rarely did architectural practices have a mission statement declaring proudly their unique selling point – possibly just sensible business practice so as not to deter a potential client seeking something outside a practice's specialism. And, although having a mission statement feels rather in the realm of 'corporate America,' we only have to look a little further back in our own history to find both institutions and companies with mottos.

In particular, the ancient trade associations and guilds all had mottos, of which the Worshipful Company of Chartered Architects – admittedly a rather late addition to the guilds in 1984 – had 'firmness, commodity and delight' as well as the RIBA's own motto of *Usui civium, decori urbium* (for the use of the people, for the glory of the

city). Are these really so different from Adidas' 'Impossible is nothing' and Google's 'Don't be evil'? So perhaps it is time for every practice (and school of architecture) to consider adopting their own modern motto (just maybe not in Latin!).

## Breaking down the concept

Returning to our 'Radical Creativity with a Conscience' motto, the 'radical creativity' part is predicated on two things, the first being the emphasis on creativity. This stems from an unwavering conviction that the only way we are going to solve the most difficult problems, is via creative solutions.

And it does seem that we face difficult problems: we are in a transitional time characterised by numerous environmental, cultural and societal issues, all of which have an effect on, and are affected by, the built environment. American designer George Lois said: "Creativity can solve almost any problem. The creative act, the defeat of habit



The LICA Building, home of the Lancaster School of Architecture

## One of the skills the architectural profession needs is being comfortable with risk and uncertainty

by originality, overcomes everything.”

Where the idea of ‘radicality’ comes in, partly inspired by the history of Lancaster University, is from the idea of being concerned with fundamental change, or change at the root cause of a matter (the origin of ‘radical’ is the Latin *radix*, meaning root). We see this as a willingness to seek new ways rather than repeating what has happened before, but it is also a challenge to look for solutions beyond the typical professional boundaries, and be more open to different ideas and influences from outside architecture. Maybe being ‘radical’ is simply about asking the different, or awkward, questions, or challenging the status quo and rejecting the commonly held ideas.

### Skilling a new generation

With respect to architectural education, it then becomes necessary to ask ourselves two key questions – both linked but different: what knowledge/skills will an

architect in this new, changing world need to have? And what is the profession itself going to look like? We would argue that, in a rapidly changing world, one of the skills the architectural profession needs to have is being tolerant of not knowing all the answers. In other words, being comfortable with risk and uncertainty, and there are two interesting corollaries arising from this.

The first is about teamwork. We should no longer promote the myth of the omniscient architect as visionary leader and lone genius, but rather recognise them as a team player (in an often extensive and interdisciplinary team of professionals). For architects who are used to leading, being part of a more collaborative design process with a far flatter hierarchy can require a significant cultural shift. It also requires an ability to be willing to admit to what is not known, and to encourage or seek input from others.

As design, procurement and construction processes become ever more complex and fragmented, the need for strong team-building skills can make all the difference between achieving design goals or not. The second corollary concerns research. Future architects will need the skills to discover things that are not yet known by anyone. This is where research skills come into play: it is about more than simply finding creative solutions for design problems, but rather being able to rigorously and methodically

investigate an issue with the aim of creating new knowledge about it – for example a new method of installation – which can then be generalised and shared among the profession. Some of the ideas underpinning ‘radical creativity’ go hand in hand with attributes such as flexibility and agility.

Finally, we arrive at the ‘with a conscience’ part: this is about design being grounded in the real world, and for all people, not just those who, in the past, have been able to afford an architect’s services. It is about design for the wider public (so inclusive design is very much part of this), and with values of society at its core.

In the manifesto produced by Architecture Education Declares, they describe the “intrinsic link between ecological breakdown and social injustice” and it is true that we are becoming a far more unequal society than ever before, with differences found along class, race, age, gender and geographic lines. If concern for others is a core principle of the RIBA’s Code of Professional Conduct, and if our practice is able to ameliorate some of these inequalities, surely this should also be at the heart of all our endeavours. And so, we end up with ‘Radical Creativity with a Conscience’ – what is your motto?

*Ruth Dalton is professor of architecture at the Lancaster School of Architecture*



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## PRACTICE PROFILE

# Samira Rathod Design Atelier

James Parker finds out how the award-winning firm of Indian architect Samira Rathod pursues its goals of creating sensual, context-focused beauty using locally-sourced natural materials

**M**umbai-based architect Samira Rathod attended the renowned Sir J. J. College of Architecture in the city, and then attained a Master of Architecture degree from the University of Illinois in 1988. After this she worked for Californian practice Don Wald and Associates (with clients including Clint Eastwood), before returning to India to work under Ratan Batliboi and in a partnership, RLC, from 1995.

She set up Samira Rathod Design Atelier (SRDA) in Mumbai in 2000 with two other partners, but, says the architect, “over time we realised that our ideologies of practice differed,” and they “amicably parted,” with Rathod continuing as head of a practice with a mission to pursue “investigation into ideas of design, architecture and research.”

The practice’s initial goal, which remains a constant mantra for its leader, was a “commitment to the idea of beauty, and an integrity in practice.” So while it tackles the practicalities of spatial problem-solving for clients, SRDA also sees architecture as “informed at a subliminal level by the finer arts like literature, poetry, art and sculpture.”

In addition, Rathod maintains a focus on “creating sensual experiences,” in spaces which can have “reformative influence on human behaviour and emotions.”

The studio founded with just two employees and no commissions, but with “a zeal to design relentlessly.” Perhaps unusually, its first work was to design avant-garde furniture pieces for an exhibition, which immediately led to the firm being commissioned to design buildings.

### Healthy growth

The studio has grown “slowly and gradually,” says Rathod, and now has a team of 20 designers, architects and “visualisers.” Being a small, tightly knit unit better enables the firm to prioritise quality over quantity, she says. “We work intensely, on projects that push



### THE SCHOOL OF DANCING ARCHES

A key project for the practice was a terracotta school in Bhadrn, Gujarat, which had an experimental form of uneven arches to emulate “a child’s early scribbles”

our boundaries, and reinvent ways of making architecture, rather than undertake quantum work to make ends meet.”

While keen to employ architects with skill sets in areas such as management, drawing ability and research, the firm “above all looks for individuals with an unending desire to learn and grow, and who have a responsible attitude to rigorous process,” says Rathod.

Following its debut furniture designs, SRDA branched out into similarly esoteric territory, designing a tree house, which led to the first of many residential commissions. In the past decade however, the firm’s range has broadened significantly, with it completing a variety of projects across India including art galleries, schools and skyscrapers, as well as masterplans for villas and several interior design projects.

### Case by case

The practice’s founder affirms that its focus is not on explicit specialisation, but rather to “take up design challenges, irrespective of their scale.” Rathod adds: “We enjoy designing the smallest furniture piece as much as the very large institutional projects. Our driving force is the challenge or opportunity to express an idea.”





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The studio has an all-encompassing motto which is captured in the acronym 'BLIRS' – 'Beautiful, Local, Indigenous, Recycle and Reuse, and Small.' Rathod explains: "We believe that the context of buildings is a starting point to design. Architecture should rely heavily on its context, including the materials available, local craft etc." She goes further to say that the firm's designers "strongly believe in objects as characters that speak to you. In the same way, architecture influences and speaks to the person inhabiting the space."

The architect says that the firm, rather than merely prioritising functional space planning, devotes a large part of its work to "creating experiences, using space to interpret – rather than reiterating the definitive," using light and texture.

She compares architecture to poetry, in the sense that poetry is the "unravelling of layers of meaning, whereas architecture is unravelling of experiences; surprise, serendipity, comfort, relief, romance." However Rathod explains that "esoteric" sources of inspiration such "stories, books, conversations" may be brought into designs, but subliminally, "not necessarily as physical manifestations."



#### OBJECTS OF DESIRE

SRDA maintains a strong line in product design alongside its architectural work, stemming from its first commission, to produce avant-garde furniture

### Intellectual rigour & local inspiration

The practice prides itself in its rigour in terms of lateral thinking, group discussions and extensive research," underlying the success of its commissions, many of which have picked up awards. Rathod says that the studio "undergoes a rigorous process of design, ideation, drawing, model making and research" when it takes on a commission, giving the example of the School of Dancing Arches, a playful terracotta education project in Bhadran, Gujarat that crystallises a lot of what SRDA is about. "Conceptualised from a child's early scribbles that turned into a series of dancing arches, the school is an experiment with materials and forms," she says, explaining the resulting uneven set of arches, set within an overall articulated form in plan.

"A scribble is indicative of having freedom; it's the only form a child knows. The dancing arches are a reminder of this freedom. The arches' asymmetry reiterates that it is not always mandatory to be straight or conventional." She continues: The plan's irregularity echoes critical thinking, questioning and breaking away from convention; it also allows for a meander." The building's materiality



#### SHADOW HOUSE

The practice designed a residential project in the coastal town of Alibaug principally to shade its occupants from the strong Indian sun  
All images © Nivedita Gupta

roots it into the local landscape: it's entirely made from brick sourced from a local kiln and which has been hand crafted by local masons.

The Community Centre in Bysandrum near Bangalore is another project built using materials made by local craftsmen. It "appears as a stone monolith," made of granite from a nearby quarry, each piece having been manually cut, chiselled and installed. Rathod says: "For us, every project is a large painting which people inhabit – many of the textures found their inspiration from the landscape of fields around the site."

In terms of bringing clients along with them, Rathod says the firm spends "a lot of time persuading them of the ideas we are passionate about, but we also believe in striving to change things until the client is satisfied. The practice's approach has led to it winning a clutch of awards, from commercial, office and urban design categories to its work in copper, plus an *Elle Deco* design award for lighting and a 'Women and Architecture' award from arc Vision in Italy. Despite this accolade however, her gender, says Rathod, has been "irrelevant" in her work.

### Harnessing research

Having made its name in the commercial and education sectors, the practice is firmly setting its sights on larger urban masterplanning projects in future, "a realm not many niche practices decide to enter," says Rathod. Short term, she says SRDA will be looking to bring to life, a range of concepts that they have been researching recently.

These include 'Project Boject,' which has looked at the idea of "dismantling" buildings for sustainable reuse, rather than demolition. 'Museum of Trees' is a research project that documented the many trees in the Rani Baug zoo of Mumbai to propose it become a botanical garden instead.

Further projects looked at the potential regeneration of the town of Bhadran, where the practice created the School of Dancing Arches, and a design concept for a house that retains water in its walls. Such efforts show a practice not only delivering beautiful, context-responsive design for individual clients, but also thinking deeply about the wider ramifications and potential of architecture in India. ■



## BREXIT

# Brexit will worsen shortage of architects in London, says practice director

Brexit is likely to worsen skilled labour shortages in architecture as well as construction more widely, meaning the Government will have to take decisive action to ensure the industry is not “crippled” in the process, according to architect Richard Hyams.

Hyams, director of London-based practice astudio, said that as the transition phase of Brexit got underway, it was becoming clear how the industry would be affected. “The construction and architecture industries are facing the worsening of a pre-existing problem – labour shortages,” he said. “With a large portion of their skilled labour consisting of EU migrants, these sectors may have to reckon with a diminishing pool of workers, who no longer see the UK as a promising place to relocate to.”

Hyams added that there would be consequences for project programmes and budgets: “In order to minimise the impact that this future shortage will have on the completion times and costs associated with construction projects in the UK, the government will need to implement short and long-term measures to ensure the sector is not crippled during and after the Brexit process.”

Architecture practices “stand to suffer,” said Hyams, with creative industries an “essential part of the UK’s economic wealth and prosperity, contributing approximately £92bn annually and growing at double the overall rate of the economy.” Architecture made up £5bn, he said, with revenue from international work (including the EU), totalling some £500m a year.

Hyams said: “The skilled-worker shortage is a key issue for us. We are proud to have over 15 nationalities working on our team of 35, many of whom joined us through the EU’s right to free movement and employment. Since the referendum, we have put serious thought into planning for a future where they may no longer be able to work with us. This not only provides logistical and workplace challenges but also limits the scope of our business from international opportunities and growth.”



The practice has established a studio in Portugal as well as a registered business in Asia as part of measures to tackle the issue. “This offers us the ability to mitigate the potential issues by moving or growing our international operations beyond London.”

Hyams said that new immigration systems “need to recognise the key role of overseas citizens in our industry.” He added: “Long-term, we need to find ways of encouraging the training of more skilled workers within the UK, providing incentives through government programs and regulations to boost a workforce in desperate need of new, younger members. But this takes time to implement, which the construction industry does not have.”

He said he “strongly supports RIBA’s position in calling for a post-Brexit immigration system which continues to allow the architecture sector to have access to the best talent globally, while providing mutual recognition of architects’ professional qualifications with the EU, as well as other countries.”

“Architecture firms already struggle with

the pressures that accompany contractual work, with tight deadlines and the constant ebbs and flows in revenue.” Hyams added that labour shortages more widely in construction “pose a serious risk to the industry’s continued operations, leaving a massive contributor to the UK’s economic health in a precarious position. If we don’t take steps in both the short and long-term to mitigate these problems, the effects may prove extremely costly.” Approximately 28 per cent of London construction workers (including architects) come from European countries.

He said leading construction sector bodies had joined forces to call for action on skills shortages in a range of roles, from bricklayers to quantity surveyors, saying those organisations are “urging upskilling the existing workforce or hiring new workers within the UK.” Hyams added: “If highly sought-after workers are forced to return to Europe, the effect could be immense on the UK’s construction industry, which already struggles to keep up with demand.”

# INTERNATIONAL FOCUS

Showcasing the latest projects from around the world – visit [www.architectsdatafile.co.uk](http://www.architectsdatafile.co.uk) for full information



## OPPO HEADQUARTERS, CHINA ZAHA HADID ARCHITECTS

Following an international competition, Zaha Hadid Architects (ZHA) have been selected to build consumer OPPO's new headquarters in Shenzhen, China. Conceived as four interconnected towers reaching a height of 200 metres (42 floors), the 185,000 m<sup>2</sup> design incorporates two towers of flexible, open-plan spaces linked by a 20-storey vertical lobby, and two external service towers. Orientated to maximise the views over Shenzhen Bay, the towers taper inwards at lower levels creating large civic spaces at street level. The 10th floor Sky Plaza will provide local residents, visitors and OPPO employees with varied dining, leisure and entertainment facilities, while the rooftop Sky Lab will be "a popular public space with spectacular views over one of the world's most dynamic cities," said the architects. Breaking ground later in 2020, OPPO's new headquarters is planned to complete in early 2025.



## TREEHUGGER, ITALY MODUS ARCHITECTS

Italian architecture firm MoDus Architects recently completed TreeHugger, a new tourist information office building in the city of Bressanone (Bolzano, Italy). "The exotic, sinuous curves of the corner pavilions are re-interpreted in the building, which transforms into a new gateway for the city," said the firm. The curvature of the walls, together with the floor slabs form a "collaborative composition" in which form, structure and building facades "become one." The building is almost entirely glazed on the ground floor to "allow maximum transparency and permeability," said the architects. The entrance is marked by the inset windows and the large overhang that cantilevers out towards the new square.



## KWAI CHUNG HOSPITAL, HONG KONG FARRELLS

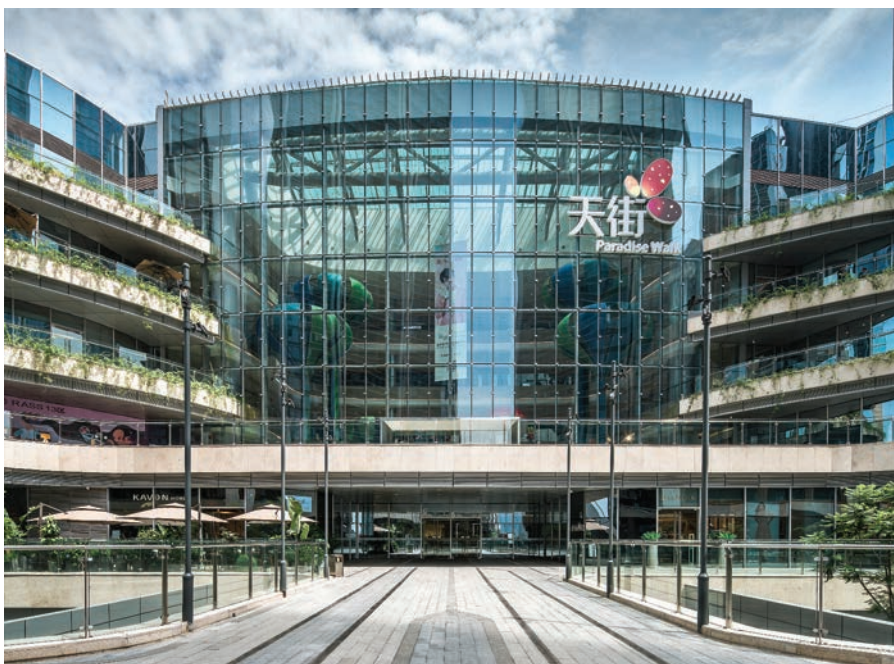
Farrells have kicked off the redevelopment of the Kwai Chung Hospital (KCH) with site works having begun in December 2019. The redevelopment process will look to improve the efficiency and capacity of KCH with a specific focus on improving the quality and setting within which the psychiatric care facilities can be provided. The design features The Green Healing Village – a collection of "multi-layered landscapes" with extensive double-height ward gardens and daylight to "create a natural environment for patients that helps to aid rehabilitation and recovery, while providing a place for staff and visitors to relax," said the architects. The project is due for completion in 2023.





## GUANGFA HEADQUARTERS, CHINA JAEGER KAHLEN PARTNERS

Guangfa Securities' new headquarters is a 308 metre "super high rise" tower located in the Zhujiang New Town district of Guangzhou, designed by Jaeger Kahlen Partners (JKP). The design divides the tower into three key zones: an entrance lobby designed to "improve connectivity with the surroundings," a sky lobby with a communal lounge that "enhances vertical circulation," and a crown that "reinterprets traditional Chinese roof design in a contemporary architectural language." The design also looks to support the wellbeing of the employees – "convenience stairs" create vertical connections and encourage employees to walk between floors rather than take the lift.



## XICHEN PARADISE WALK, CHINA LWK + PARTNERS

Xichen Paradise Walk, designed by LWK + Partners, is the retail component of an integrated complex in the centre of west Chengdu, China. The architectural form features "a range of geometric shapes, creating an iconic, beacon-like facade," said the architects. The multiple ground floors allow entry from different levels, giving different points for attracting visitors and a higher accessibility especially to the higher levels. The design features "extensive use of greenery," from potted plants to big lawns, to create a sense of "freshness and relaxation." An outdoor rooftop piazza provides space for public events or simply a place to relax, with open-air terraces accessible from various retail zones, connecting not only outdoor-indoor spaces but also different levels from the ground up. With three indoor atria in total, the mall offers multiple spaces for events, exhibitions, large-scale artworks or business showcases.

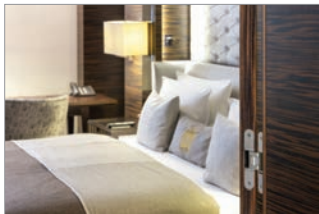
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## SENIOR ARCHITECTURAL SYSTEMS UNVEILS NEW CURTAIN WALL CPD



Aluminium fenestration solutions provider **Senior Architectural Systems** has launched a new RIBA-approved Continuous Professional Development (CPD) seminar entitled '*Curtain Wall – Design, Detail, Delivery*'. The comprehensive new CPD will assist specifiers in developing a greater understanding of the purpose of curtain wall systems, covering the key considerations of aesthetic appeal, performance, sustainability, wind loads and pressures, as well as compliance with the latest energy-efficiency targets and fire regulations. Benefitting from Senior's extensive knowledge gained from over three decades of being at the forefront of the UK's fenestration industry, Senior's new CPD will also look in detail at the fabrication and installation process, testing procedures, glass specifications and the different design options available. Specifiers will be able to learn more about the specific benefits of aluminium curtain walling, from its strength and flexibility to the fact that the material can be endlessly recycled. The role of the systems manufacturer will also be discussed and the seminar will cover the benefits of early engagement and collaboration, as well as the technical support that is available. The new seminar on the specification of aluminium curtain wall systems is the latest to be developed by Senior, with the company also offering a CPD on '*Designing Sustainable Fenestration Systems*'. 01709 772600 [cpd@sasmail.co.uk](mailto:cpd@sasmail.co.uk)

## WETROOM DESIGN & SPECIFICATION CPD FROM CCL WETROOMS



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## NEW BLUE ROOF CPD FROM OPTIGREEN



Green roofs are already known for their ability to attenuate water, but this can now be enhanced with blue roof technology. Here the roof not only stores water but is also able to delay water discharge after a high intensity rainfall event and release it at a pre-determined rate. **Optigreen's** newly approved RIBA article '*Blue Roofs: what are they and how are they used*' looks at how this can be achieved practically and why this type of specification is likely to become more commonplace in the future. 0203 5899 400 [www.optigreen.co.uk](http://www.optigreen.co.uk)

## CISTERMISER'S CPD PRESENTATION EXPLAINS THE BENEFITS OF IOT REMOTE MONITORING



Intelligent washroom controls and water efficiency specialist **Cistermiser** has launched a new CPD learning module entitled '*Using the Internet of Things for Water Temperature Monitoring to Help Reduce Risk of Legionella*'.

The fourth edition of ACoP L8, published by the HSE in 2013 with technical guidance published separately in Health & Safety Guidance 274, was compiled to help duty-holders comply with their legal duties and Part 2 of this document specifically deals with the control of Legionella bacteria in hot and cold water systems.

This CPD fully discusses how remote monitoring systems using IoT technology platforms can deliver significant advantages for management of commercial buildings in the 21st century.

Key considerations include the threat of water-borne bacteria, design parameters for water system monitoring, Internet of Things utilisation and the practical benefits of digital analytics.

1 hour in duration with a closing Q&A, this CPD learning module from Cistermiser is presented in "short seminar" format and is approved by 3 third party organisations: The CPD Certification Service, RIBA and CIBSE. 0118 969 1611 [www.ourworldiswater.co.uk](http://www.ourworldiswater.co.uk)



The latest CPD courses, seminars and documents for architects

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**NEW CPD: BB101 Guidelines on ventilation & indoor air quality in schools**

Monodraught are delighted to have had three CPDs accredited by CIBSE. Two CPDs are based on previous accredited sessions and we also have created a brand NEW CPD around the latest update to the BB101 regulations. These can now be found in the CPD directory. All presentations include practical examples of the relevant applications in use. Our newest CPD considers the design standard BB101 for Schools. Poor indoor air quality can have a serious impact on learning, with issues around concentration, lethargy and headaches. The presentation talks through some of the latest developments and innovations in

natural, mechanical and hybrid ventilation. We focus specifically on ventilation and indoor air quality. The CPD runs through the 2018 changes and explains the differences between natural, hybrid and mechanical ventilation systems. We then look at the role of building simulation to assess design performance.

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can be beneficial through reducing energy consumption while supplying ventilation air for a building. Specific practical examples are included with data to demonstrate system performance.

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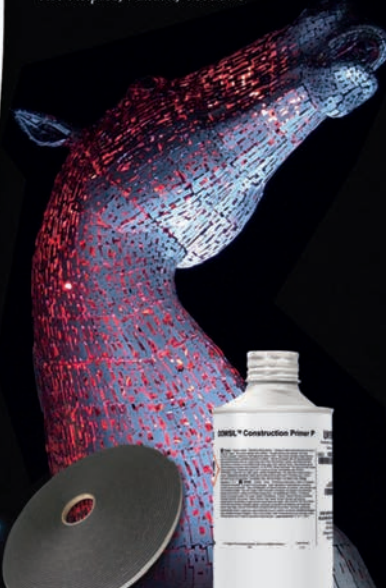
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RCI SHOW STAND NO D6



# Learn from the experts at the RCI Show

The Roofing, Cladding & Insulation Show returns to the Ricoh Arena in Coventry this month, providing dedicated conference sessions delivering the latest trends, technologies, legislation and issues influencing the market



**T**he RCI Show is claimed by the event organisers to be the UK's largest free-to-attend event which is dedicated to the roofing, cladding, and insulation supply chain.

The event allows visitors to benefit from the opportunity to speak directly to the experts, try out their latest products, and discover how you can transform your projects with new or innovative solutions.

The show consists of two core elements: an exhibition of leading suppliers and a

comprehensive conference and workshop programme featuring content from industry experts and associations.

If you attend, you can start your day by joining Kiwa Building Products for a breakfast briefing – including hot refreshments for delegates – as the team talks you through the legal requirements for product and system manufacturers in the UK, along with additional market-led requirements, and explore the best routes for manufacturers looking to maximise the



## The exhibition of leading suppliers sees a wide variety of companies showcasing the latest construction products and services, including materials, safety equipment and tooling

confidence in their products and reach the biggest market.

Essential sessions for architects include talks from technical consultant John Mercer and Dr Ronan Brunton, technical manager of the Single Ply Roofing Association (SPRA). John Mercer will explain how you can design and construct pitched roofs to ensure they remain watertight and durable by using techniques and materials that add very little to the overall build cost of the roof. With safety factors being paramount in the design stage, Dr Ronan Brunton will detail SPRA's new wind load protocol and how to determine and apply the correct factor of safety during the calculation process.

Further highlights on day one include the Scaffolding Association providing a best practise guide to commissioning scaffolding, Janice Tyler of Briggs Amasco will demonstrate how the roofing industry can mitigate the effects it has on climate change and Vivalda chairman, Peter Johnson will discuss managing through tough times – austerity, Grenfell and Brexit.

If you are interested in discovering what the future of building and infrastructure design, manufacture, integration and connectivity within our built environment could entail, then be sure to attend the opening keynote of day two. Trudi Sully from The Manufacturing Technology

Centre and the Construction Innovation Hub will lead you through how its work will benefit the industry, and how you can get involved. Following sessions include Bauder's Nigel Blacklock discussing fire in flat roofing, John Mercer will show delegates how to design and construct modern pitch roofs to be watertight and durable, and Marley will discuss Making the Grade – BS5534 graded roofing battens: 'Are you roofing to standard?'

To promote professional development within the industry, practical seminar sessions are being delivered by Actis Insulation, Alchimica Building Chemicals, Fixfast, Quin Global, Xtratherm and mental health charity Mates in Mind.

The Actis Insulation session will demonstrate how Building Regulations compliance can be obtained in construction systems. The module shows a manufacturer's view on how compliance can be achieved by providing trusted products plus robust laboratory and real-life testing of materials within construction systems.

As a visitor to the show you can tailor your agenda to meet your learning requirements by pre-booking your preferred conference and seminar sessions during the booking process.

The exhibition of leading suppliers sees a wide variety of companies showcasing the latest construction products and services, including materials, safety equipment and tooling. Many exhibitors will feature live product and tool demonstrations on their stands as well as providing product application advice and offering unique show only promotions.

The RCI Show is delivered in association with RCI magazine, is supported by sponsors, Fixfast, Kiwa Building Products, Xtratherm and DT Technologies and key media partner, Fix Radio, who will be broadcasting live from the show floor.



# Encasement covers all the angles at Cardiff Bay's flagship Premier Inn



One of the latest hotels from the Premier Inn chain in Cardiff Bay is using bespoke 'Polyma' GRP column casings from Encasement to conceal diagonal structural steelwork that runs along the full length of the building, while adding a distinctive and colourful feature due to their bright yellow finish.

Although the successful regeneration and development of Cardiff Bay has attracted a wide range of businesses and stimulated tourism, it has also exposed a shortfall in quality hotel accommodation in the area, which the new Premier Inn is helping to address.

Designed by Holder Mathias Architects as part of the £40 million Cardiff Waterside development that also includes two office buildings, the eight-storey hotel has 210 double, twin and family rooms, together with a restaurant, bar and meeting facilities.

As Cardiff Bay includes an eclectic mix of building types and styles, ranging from ultra modern angular office buildings to mid-nineteenth century structures, the Premier Inn's unique exterior design reflects the area's characteristics with the use of 'punched hole' widows, brick style facade and Encasement's bright yellow casings.

An integral aspect of the building's steel frame construction is the use of diagonal

square section supports below a sharp cantilevered edge on the front elevation, which are joined at the top and base to create a continuous angular design.

To conceal the structural steelwork and enhance the building's aesthetics, Encasement's Polyma GRP range was used, as it is weather proof and resistant to damage, which makes it ideal for exterior use.

Encasement manufactured and installed 40 column casing sections, each measuring 400mm in diameter and 3860mm in length, together with 40 bespoke 'V' shaped casing sections and two single casings to conceal the fixing brackets at each end.

Due to the unique casing design, all the casings were manufactured from 10mm thick GRP, which was hand-laid in moulds to give a precise form, while ensuring the casings incorporated the specified high quality yellow RAL 1018 Gel-coat finish.

Each casing was designed to work as a two-part design, which enables the casing to be placed around the structural steelwork before being secured and the joint lines concealed using colour-matched polymer filler.

To ensure the system fitted perfectly over the steelwork, Encasement constructed a framework within the column casing, which is fixed to the steelwork and

provides a continuous support to each component. This also allows each casing to be secured to the frame and hold each element securely in place to provide a strong and rigid solution.

Encasement's Managing Director, Martin Taylor, explained: "We have been involved in a wide range of projects requiring casing solutions of all shapes, sizes and materials. Some are purely for aesthetic reasons; while others take advantage of a particular material's characteristics that overcomes a specific technical challenge or meets a unique specification requirement.

"However, with this project, the casings were not only genuinely unique, to accommodate the layout of the building's steel support structure, but also had to have good damage resistance, excellent weather-proof performance and make a bold aesthetic statement for one of the UK's best known hotel brands."

He added: "The end result speaks for itself, as the finished project not only looks dramatic, but also meets all the client's technical and performance specifications. We're delighted to have played a part in this excellent project."



01733 266889 [www.encasement.co.uk](http://www.encasement.co.uk)

## AluK joins Specifi Architecture Roadshows



AluK's specification support team will be out and about throughout 2020, meeting clients and specifiers at five of the Specifi architecture events taking place around the country. The aluminium fenestration specialist will be in Leeds on March 17, and then Birmingham in April, Nottingham in May, Liverpool in June, London in July and finally Cardiff in November. Rhodri John, AluK's Business Development Manager, said: "These roadshows are the perfect place for us to get face to face with specifiers to discuss upcoming projects and see how our window, door and curtain walling solutions can help. There's no hard sell, the emphasis is on advice and inspiration which is why I think they work so well. "We'll be taking samples of our products, including our new 58BW Flush window and our curtain wall, which has already sparked some interesting conversations. But, our priority will be on demonstrating how successfully we can collaborate on projects, from very early in the design process." The Specifi roadshows have been running since 2015 and there are now 32 in total, reaching as many as 3000 individuals every year. More details are at [www.specifi.co.uk](http://www.specifi.co.uk)

01291 639 739 [www.aluk.co.uk](http://www.aluk.co.uk)

## Longfloor launch game-changer for industry

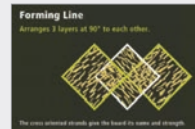


At this year's Concrete Show on 25th March, Longfloor will launch a game-changing development for the construction industry, a revolutionary approach in the way liquid cement screeds are applied, a global first

which will fundamentally enhance the way liquid cement screeds are used. Darren Williams, Longfloor General Manager said: "We are very excited to announce an industry first at this year's Concrete Show. The future is grey!" Please come along and see us on stand 60 to find out more about this game-changer for the industry.

01629 540 284 [www.longfloor.co.uk](http://www.longfloor.co.uk)

## Norbord's animated about SterlingOSB Zero



Norbord, the leading manufacturer of engineered wood-based panel products for the construction and architectural industry, has developed produced an educational video on the continuous line production process of SterlingOSB Zero. Beginning with timber logs, the video depicts how this raw form eventually becomes the popular finished product being packed and dispatched from the warehouse. The video illustrates the processes which give SterlingOSB Zero its strength and consistency so that viewers can glean more of an understanding of the manufacturing of this popular product.

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BUILDING  
PROJECTS

THE ORDNANCE YARD  
GOSPORT

# The whole nine yards

A development of nine contemporary homes near Gosport, Hampshire, have been arranged around a historic military facility to offer expansive bay views. Jack Wooler visited this meticulously-designed scheme





Approaching these striking new buildings from a distance, David Craddock, director at project developer Elite Homes, takes a moment to look at the grey-profiled metal clad exteriors of the nine completed homes of Ordnance Yard. They're "intended to reflect the historic naval setting, and create a unique and breathtaking environment," he says.

"Having something architecturally different," says David, as well as "challenging what was there, really makes them stand out." What was there is one of the more unique aspects of this development. The modern, almost trapezoid-shaped homes designed by John Pardey Architects, are juxtaposed with the

historic site they rest in, now restored and revitalised by the developer.

Part of what was formerly the Priddy's Hard Ministry of Defence (MoD) Ordnance Depot, the brick walls retained between six of the homes were once blast defences for a series of shell filling and emptying rooms constructed between 1880 and 1915.

What connects these contrasting historical elements and the homes' modern design however is a distinctly naval air to the development, with all the dwellings – six three-level sitting in bays between the walls, and a further three two-storey properties – right by the water, an inlet off Portsmouth Harbour, and looking out to the Solent beyond.

#### NAVAL HERITAGE

The elevated homes are constructed between retained walls built in the late 19th century to protect against explosions from shells kept on the site

All photos © Richard Chivers





## All the homes were designed and constructed offsite as closed timber panel systems



Looking back towards this expansive view – which includes Portsmouth’s Spinnaker tower – he explains that the team are not stopping here. The Ordnance Yard is in fact acting as the catalyst for a £30m joint venture between the developer and Portsmouth Naval Base Property Trust to regenerate the wider MoD site in Gosport. Elite Homes has an entire new peninsula in mind.

### Acquisition

Planning permission was already granted here, in 2007, for the demolition of six shell filling rooms and the associated structure, plus the construction of nine new homes and the required access, parking and ancillary structures. This before work was abandoned by the site’s previous developer, however.

It was not the easiest site to pick up where they left off. The ‘mudlands’ the homes now reside upon are a Site of Special Scientific Interest, as well as a Special Protection area for birds, and a Wetland site of International Importance (under the International Convention on the Conservation of Wetlands) – to add to the long list of planning and logistical issues that come with both heritage and flood-prone projects.

It was in navigating these barriers that the JV were to embark upon the new community that’s now being created – and perhaps it’s through tackling its major challenges that the unique nature of this project was formed.

### Flood barrier

The houses are situated on a road covered in resin-bonded gravel, adjacent to an existing area of soft landscaping — a planted bank now separating the site from the water, and protecting the homes from flooding; increasingly crucial in the UK’s changing climate.

A thick concrete floodwall sits behind the planted bank, and extends across the frontage of all the homes. Even if the water did come over the top, says David, which would mean “the whole of Portsmouth would be flooded,” the planted banks would then act as swales, forming a further flood barrier. Flood planning has been intensively thought through as part of planning requirements necessitated by this location.

Achieving a flood-resilient design forced the designers to address a wide range of further issues, such as that certain rooms couldn’t be on the ground floor; “They could be a TV room for example, but not a bedroom.”

### Ecology and access

Looking at the road behind the bank, David discusses some of the more difficult aspects of the project, beyond flood control into the many hurdles of building around listed features, and in an area that required “careful treatment of wildlife.” The team working closely with ecology agencies to relocate protected badgers and slow worms that had come to inhabit the dilapidated



area around the site, for example.

David says that having just one long access road for all of the houses proved to be one of the most significant challenges for the build process, it being necessary to provide water, foul, surface and electrical works via the path, as well as use it to ferry materials in.

“It took a hell of a lot of logistics – we had a crane, scaffolding going out in four different sections of each house, and to get the materials in was a real headache.” Remembering the challenge, he says, “It took a lot of time and effort.”

This was one area where the build method helped significantly – all the homes were designed and constructed offsite as closed timber panel systems. “The fabric was up a lot sooner,” says David, “which reduced the number of vehicles, and we also had a watertight structure sooner than we otherwise would, so it was definitely worth doing.”

## A ‘light touch’

The six homes sited within the retained walls are designed to visually ‘float’ within them, their brickwork being a key feature of the composition. They are clad in a dark grey corrugated metal, referencing both utilitarian industrial sheds and Royal Navy battleships. The homes are open-fronted, with glazed walls set back from forward cantilevering fronts, which counterpoints the form of the transverse walls.

The other homes include two further elevated, timber-framed houses that similarly ‘float’ above a continuation of the existing historic blast walls, providing ‘bookends’ to the others, and clad in a lighter grey cladding. A final brick ‘gatehouse’ will complete the set of buildings, helping to provide “a sense of arrival.”

From the outside, the homes don’t look like ‘typical’ offsite timber frame buildings, but as David puts it, “what’s typical?” He continues: “You can build anything with an offsite system, but just like any build method, never try to force a square peg into a round hole. If you force something you’ll always challenge its capabilities; work with it, and you’ll get the very best out of it.”

## Show home

David leads me inside one of the only remaining unoccupied units at the time of my visit; the furthest home along the line of walled properties. Extending underneath the cantilevered front half of the first and second floors is a concrete entrance way leading to the front door, with standing for



up to two cars.

The entrance hall has large storage space on either side, and stairs leading up. David opens a small cupboard door to reveal an Ecodan air source heat pump, which provides all the heating for the hot water and radiators in the house.

“Because there’s no gas on the site,” he says, “we had to go with the most renewable energy source we could.” David says the team looked at “a number of different things” before settling on the final product, which is a 3 kW in, 9 kW out system. “They are excellent bits of kit,” he adds.

## Expansive glass

Off the first floor landing are doors to a utility room, and to an open plan living/dining room and kitchen. Glazing covers the entire frontage of this level, leading out onto a terrace with views over the harbour.

“All the seafront properties over on the other side [David points across the inlet] look straight out onto the sea — which is great — but here, you’ve got so much more to actually look at; it’s a lovely thing to wake up to.”

The glazing of course adds a huge level of daylighting and solar gain too, in what are “very efficient buildings, which don’t need much heating.” Some residents have even put a reflective film up on the glass here because the heat gets too much: “It’s all about balance. You’ve got to give people the

## FLOOD RESILIENT

Achieving a flood-resilient design on the low-lying site meant locating living areas on upper floors, as well as erecting a thick concrete floodwall in front of the homes, sitting behind a planted bank





FIRST FLOOR PLAN

freedom to choose how they want to have their houses; some prefer to have that, some people don't."

We then take a look at the living area. As David demonstrates, close the door to the utility room and residents have an open plan living room and kitchen, with the utility room forming its own space — "keeping out noisy washing machines."

Going up the final set of stairs to the second floor, there's a bathroom, two spare bedrooms, and a master ensuite bedroom, all of which provide plenty of space and functionality for a three bedroom family home.

The rooms at this level get significant levels of daylighting, with the two at the front benefitting most – having long sight lines across the water and to the neighbouring city.

### Wider plans

Before we leave the site, David shows me the Millennium Bridge that leads across the inlet to the Royal Clarence Marina, for the first time giving me an expansive view of the whole of Ordnance Yard.

He gestures to where the new homes will be, saying: "So really we're going to create a whole new peninsula that will revitalise

the area into something new entirely."

Following the visit we head to Elite Homes' site office, located for the time being in the evocatively-named Explosion Museum of Naval Firepower.

He shows me through the plans for the rest of the Priddy's Hard development (the first regeneration phase of which has received planning), which includes 30 new homes, a new Coastal Forces Museum, and a brewery with associated bar/restaurant.

Plans for future phases include many more homes, heritage works, and even a 12-storey tower, which are aimed at "changing the whole peninsula into a residential and tourist hub."

To build the new homes, Elite Homes are utilising the disused land next to the museum to create their own offsite timber factory. He explains: "I've worked an awful lot with timber frame before, so I'm very familiar with all the practices and processes behind what. We are working with the Structural Timber Association to receive accreditation for our production facilities along with BOPAS and our frames will be designed right up to Passivhaus standards."

The developer is starting with timber frame with insulation pre-installed in the factory – and sealed with a spray-on





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**“Taking our inspiration from the site’s incredible history, we are creating something that will benefit this overlooked part of town for future generations”**

David Craddock, director at project developer Elite Homes

#### KEY PROJECT SUPPLIERS

##### Roofing and cladding materials:

Euroclad (specified by IRCC)

**Timber frame:** Elite Offsite

**Air source heat pumps:** Mitsubishi Electric

**Rendering:** K Rend

**Kitchens/timber flooring:** Benchmarx

**Bathrooms:** City Plumbing

**Block paving:** Marshalls

plastic. This means “you don’t have to worry about a membrane, or about an electrician coming along and cutting his holes in plasterboard to get the cables in, and accidentally puncturing the membrane,” says David.

An avid researcher of latest construction technologies, he also tells me of Elite Homes’ plans to incorporate smart home techniques in the new homes, including power systems with battery storage units combined with integrated solar PV panels. Smart heating systems will know who’s in the house, in what rooms, and when, and set the temperature to ensure an ideal temperature at all points.

Another interesting technology he mentions is a ‘wonderwall’ system, which uses ceiling-mounted infra-red heaters which heat specific areas – “people, tables, chairs,” he says, rather than a convection-based method. Combining this with intelligent hot water cylinders that only heat the water you use makes these houses extremely efficient and therefore low in energy use.

#### A consumer-first approach

While all of this is exciting for the builder, he admits that on the whole, such details

aren’t so important for the consumer, compared with the buildings’ function and their architectural design: “To be frank, customers are not interested in the type of insulation we put in the building.” He adds: “The customers are really only interested in what they can see – not the way we built it.”

The possible savings homeowners will enjoy is also key however, he says: “If I said your bills are going to go down from £100 a month to £30, and a smart system is going to learn how you work and how you live in your house, meaning that could drop even further – it’s a great selling point.”

He points out pictures of Ordnance Yard on the office walls, displayed among the many awards the project has already attained – which David is very proud of: “We are creating a development that is unrivalled across the whole of the south coast. From conservation to ecology agencies, to environmental and historical organisations, we have taken a collaborative approach to this project,” he stresses.

“Taking our inspiration from the site’s incredible history, we are creating something that will benefit this overlooked part of town for future generations.” ■



# Let's look at insulation – with Icynene

Icynene is a high performance, spray-foam insulation that expands 100-fold when applied, sealing all gaps service holes and hard to reach spaces where air leakage can occur. It eliminates cold bridging and achieves air tightness standards in excess of those required even for Passivhaus-type construction.

Air leakage accounts for a high proportion of the heat loss from a building and often has a greater impact on the thermal performance than thermal conductivity through walls and roof planes.

Icynene has an open cell structure and soft, yielding texture. This not only provides outstanding insulation properties, but also allows the building to breath naturally, resisting internal condensation – particularly important when insulating heritage-type buildings.

Icynene achieves insulation performance well in excess of the U values required under Building Regulations and helps meet the sustainability and zero carbon targets faced by housebuilders.

For further information on Icynene spray applied insulation please visit their website and Youtube channel.

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Icynene spray applied insulation eliminates cold bridging and achieves air tightness standards in excess of those required even for Passivhaus-type construction.

## An education in multitasking and innovation

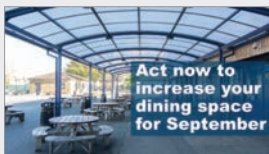


©Willmott Dixon

The iconic 8,500 square metre former Herman Miller factory on the banks of the Kennet and Avon Canal in Bath has been transformed into a new School of Art and Design for Bath Spa University with the help of some innovative thinking by **Structura UK**. Structura UK worked closely with main contractors Willmott Dixon on the complete building envelope from the entrances and glazing through to repairs, refinishing and creating a complete new glass top floor. This is the country's oldest GRP building. In order to renew the classic GRP panels, Structura installed two spraying booths on site to remove the panels then sand, recoat, respray and replace. The ability to set up dynamic on-site spraying booths complete with extraction venting saved time and money as well as minimising the risk of transporting and damage to these aged panels. The glazing throughout the building was also replaced by Structura. The result is a stunning series of spaces which are visually connected but also allow for privacy. The clean sharp steel and concrete interior is complemented by the flowing panels on the exterior while the new roof top extension is set back from edge of the building to avoid being obtrusive.

[www.structura-uk.com](http://www.structura-uk.com)

## Act now to ensure you have extra space



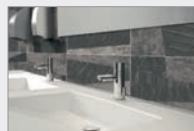
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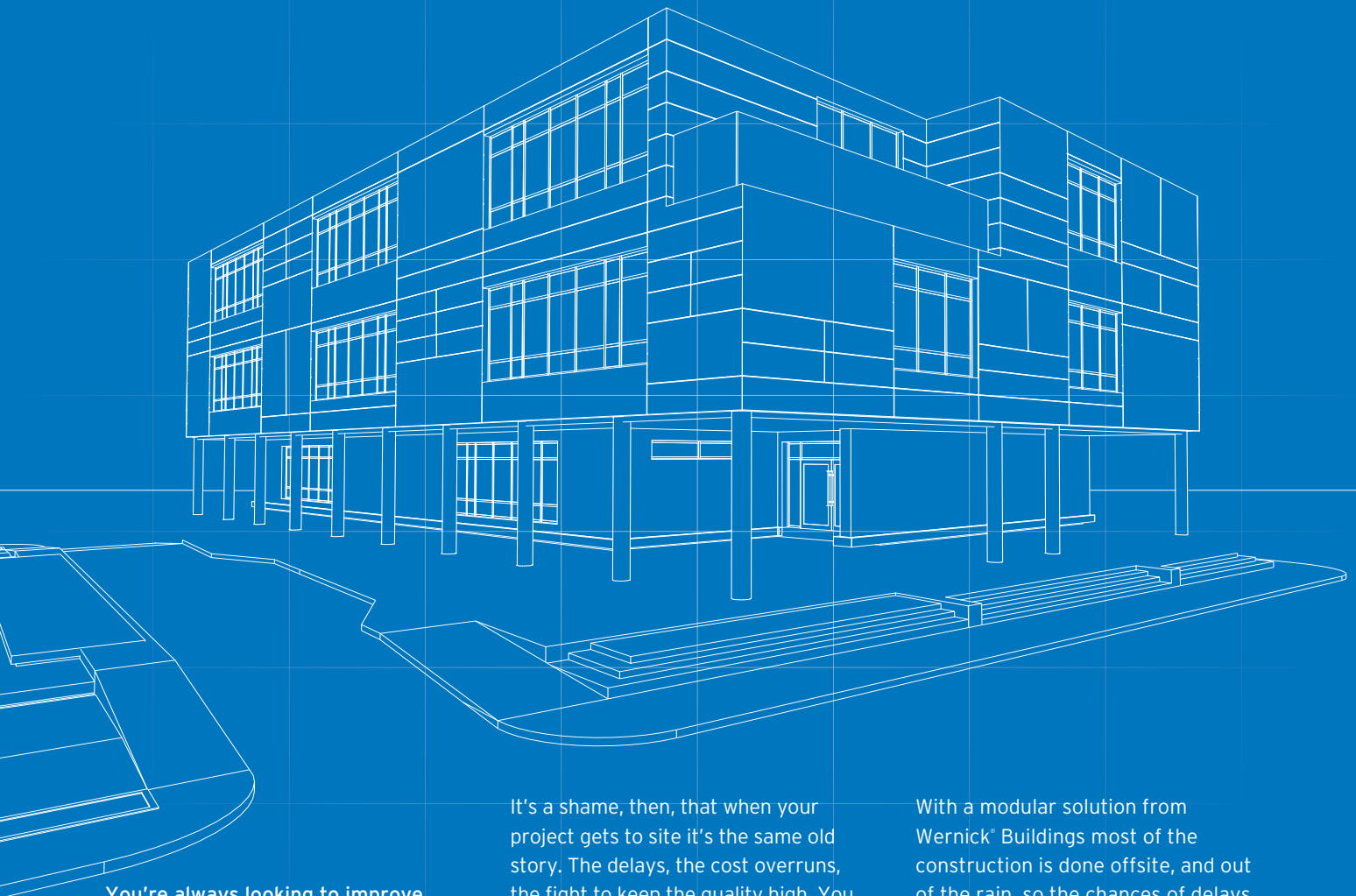


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## BUILDING PROJECTS

### MANCHESTER ENGINEERING CAMPUS

# A showcase of innovation

James Parker reports on the design development of a major new teaching and research facility for Manchester which puts cutting-edge engineering on show in new ways, and connects the city's industrial past with its future

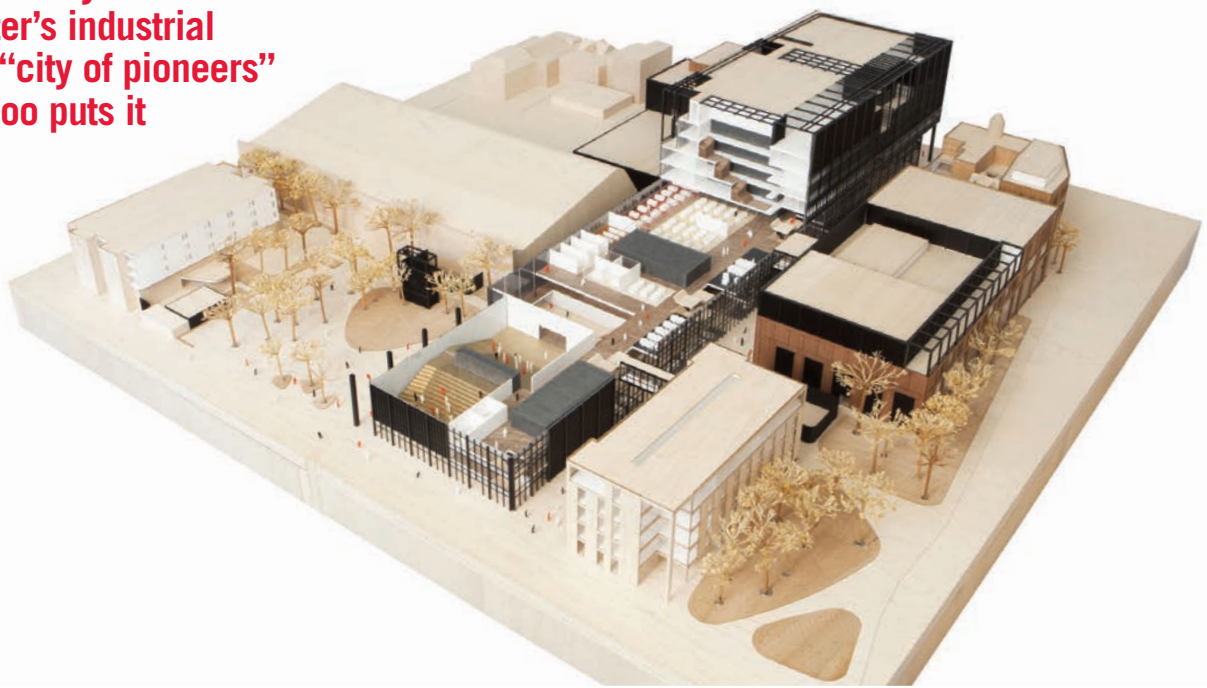
The Manchester Engineering Campus (MECD), currently under construction close to the centre of the city, is claimed to be not only the “single largest home for engineering in any UK university,” but one of the largest ever construction projects undertaken by a higher education body in this country. This £400m development brings The University of Manchester's four engineering and material science departments together in what is a groundbreaking project on a vast scale, and one which taps into Manchester's heritage of innovation while pointing firmly towards the future.

Due to open fully in 2021, MECD serves as a new “gateway” for the university. Also

housing the International Centre for Advanced Materials and the Dalton Nuclear Institute, it pushes practical demonstration of innovation to the fore, closely tied into industry, and often in tandem with sponsors. The four pre-existing departments, which will come together in the colossal 59,000 m<sup>2</sup> ‘MEC Hall’ building, with an intent to foster collaboration, are the departments of Chemical Engineering and Analytical Science; Electrical and Electronic Engineering; Materials; and Mechanical, Aerospace and Civil Engineering.

The development will house 7,000 students and 1,700 employees. They will be engaging in high-tech and often cutting-

**The project ties visually and functionally into Manchester's industrial past as a "city of pioneers" as Mecanoo puts it**



edge experimental research on everything from textiles to lasers to electric car design to robotics, in a wide range of spaces including flexible classrooms, lecture theatres and research laboratories, as well as specialist areas such as flight simulators, robotics, welding, and 'heavy duty destructive testing.' The building, designed by Dutch practice Mecanoo, is itself innovative in putting the research physically on show, and promotes engagement between departments internally and with the locality.

In the words of Mecanoo architect Otto Diesfeldt, a key design aim was "trying to open education up, make it visible, less rigid." In so doing, the designers believe the building will be a major showcase for the creativity of UK engineering.

Breaking down the inevitable scale of such a scheme was the key challenge for the architects (the detail design has been handed to BDP and contractor Balfour Beatty to deliver under the Design & Build contract). Mecanoo's design makes MEC Hall more human-scaled, approachable, and therefore navigable for students and staff.

### Heritage & site

The project ties visually and functionally into Manchester's industrial past as a "city of pioneers" as Mecanoo puts it. It is a past

that was heavily focused on textiles. The university's origins also share this rich industrial history and heritage.

Diesfeldt says that at an early stage the designers identified this "very visual" heritage as an inspiration – weaving machines are still in use on campus for research projects. Textile innovation is a key feature of the current engineering syllabuses, and will feature in research in the new building, incorporating modern materials like graphene.

MEC Hall as the development's main building, manifests itself as the new reference point for the entire campus "like a cathedral in the historic centres of European cities," says the architect. The long, rectangular form sits in a dense site in the south of the city centre, sandwiched between the Manchester Aquatics Centre on Oxford Road, and the major thoroughfare Upper Brook Street, on which sits the university's James Chadwick Building (the Department of Chemical Engineering), and the new Upper Brook Street Building – forming a key part of the development and housing heavy duty materials research and teaching spaces.

To its north is a retained and extended listed building, and on the west flank is a further new addition, purpose-designed with tall spaces for 'high voltage





laboratories’ – providing the necessary clearance for generating lightning for experiments. Following Mecanoo’s appointment, the decision was taken to build on this site and demolish the existing material science facility. This was replaced by the Upper Brook Street Building, with some outdated student residences making way for MEC Hall.

### Briefing & scenarios

As is the nature of such complex, multi-faceted schemes, the brief evolved during its development, although being a Design & Build, the design had to be frozen at a given point. While Mecanoo handed over the design to BDP in 2016, its team have maintained “a very strong contact with the project,” and contributed to some of the changes that have been made since then.

The key aim for MEC Hall was to enable four departments to retain their strong individual identities, but also blend and overlap to facilitate collaboration. The designers had to resolve a host of institutional desires, so the approach taken “wasn’t forcing the departments to merge, it was enabling it.” There were roughly 50 different research facilities to consult, and “people with a clear vision of what the university should be,” says Diesfeldt,

including technical staff tasked with mounting experiments and the logistics of craning in heavy items.

The architects spoke to over 200 individuals during the briefing process; Otto says the most interesting aspect was “meeting a lot of people who don’t see each other on a day to day basis, and through identifying what their future could entail, you notice that they start talking to each other.” He says they also “started understanding how they could benefit from smaller spaces with less equipment, if it’s the right equipment.”

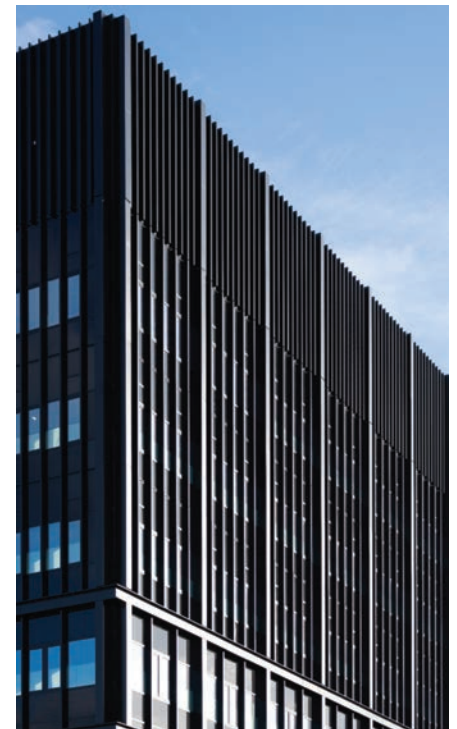
The architects tested multiple ‘high-level’ scenarios with the client postulating where the departments could fit within potential new volumes. “It became very evident that they felt very good about trying to get the bulk of researchers and the undergraduates placed as close as possible together,” says Diesfeldt. The designers took the client to see other facilities, such as Delft University’s architecture faculty, which has a centrally located model-making workshop. This proved something of an inspiration for MEC Hall.

### Form

According to Diesfeldt, Mecanoo was selected because the client was looking for an architect “capable of translating the

### MECH HALL

The 59,000 m<sup>2</sup> Mech Hall building forms the focus of the entire campus, sitting in a dense site to the south of the city centre, and combining four departments of the university





#### BREAKING DOWN THE MONOLITH

Roof terraces leading from the buildings' four atria have been cut into upper stories to break down what would have been a monolithic steel facade

project into a human and inspirational space". He says MEC Hall has achieved this: "In spite of its size, it doesn't impose, it feels comfortable."

The chief means of breaking down the massing of MEC Hall is four glazed atria which form the focus for each of the departments, connected by a 'main street' that runs the full length and height of the building. Situated within the atria are wide steel staircases; the very open overall circulation producing a "walkable and understandable" result. Diesfeldt hopes that students will "quickly start to understand how the building works, and not need the wayfinding signage."

Further breaking down what Otto says is ostensibly a "big brick of a building," are accessible roof terraces cut into upper stories, leading from the atria stairs and creating some variation in the steel mesh

facade. These offset what could have been a very brutal roofline, and contribute to the 'readability' of the building, and to the "variety of spaces which you can relate to and make your own." Similar terraces are also found on the Upper Brook Street Building.

The architects wanted however to strike a contrast between MEC Hall and the brick-clad buildings surrounding it. "We were looking for a building that explained its engineering logic," says Otto. The deliberately factory-like dark steel mesh exterior both celebrates its generous 10.8 m grid, but also creates drama, while alleviating its overall scale with a combination of permeability and strength.

Along with fitting the design intent of a simple structure and a palette of "honest" materials (chiefly steel and brick), the exterior of MEC Hall also subtly weaves in



a link to Manchester's textile heritage. The mechanics of weaving were a "literal inspiration," says Otto Diesfeldt. He continues: "A strict rhythm in one direction is literally interwoven with different textures in other directions."

Running under MEC Hall is a brick Victorian sewer, which posed a key challenge in terms of building over it. However, the architects made a virtue out of structural engineer Arup's requirement to move the building's key loads a certain distance from this obstacle, designing a triple-height covered events space. Featuring a wide stair filling one end that can also function as seating, it will be used for large functions such as graduations.

The campus is targeted to achieve BREEAM Excellent, and features an 'active travel hub' for cyclists and pedestrians. Exterior landscaping promotes biodiversity and the building will have "advanced energy saving, waste management and water conservation techniques."

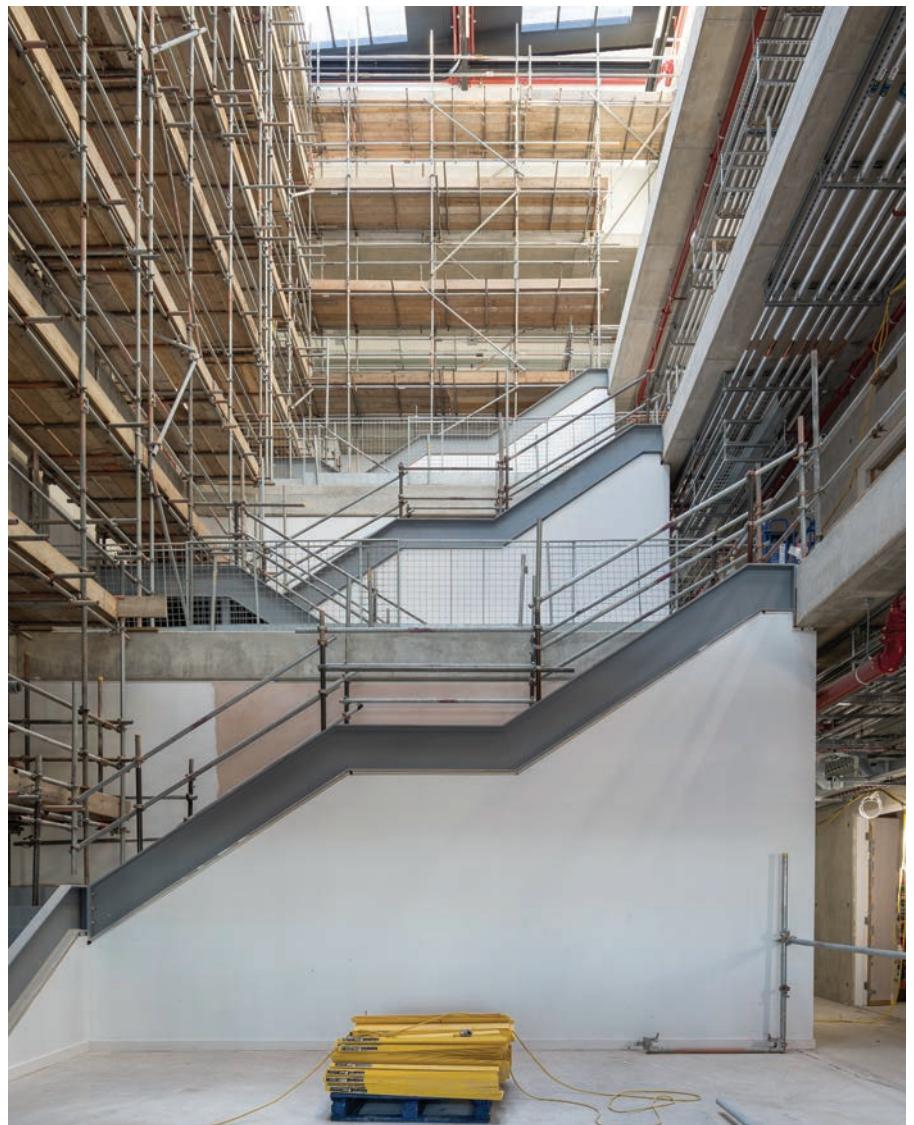
### A flexible learning showcase

The grid, which minimises columns in the exposed concrete interiors, aiding lecture theatre design, also "encourages the building to be used flexibly," says the project architect. Extra columns were only required in "one or two" of the heaviest-loaded workshops. While classroom and research areas can be easily changed over time as needs change, together with their bespoke modular furniture, the circulation logic of street and atria remains fixed so the rest can flex around it, including into spaces deliberately left void. The designers were conscious of the need to "give different groups a place they can make their own, but still plan for it to evolve."

Diesfeldt describes the building as a "scaffolding for change," as well as a "catalyst" driving further necessary changes. A dynamic institution such as this has a high turnover of activities, as research projects run their course and new projects require a different set-up.

Some research spaces are so highly tailored, such as the electron microscope suite, that they're not suitable for a generic, flexible design. However, in general, says Otto, "It shouldn't be a building where if you move a table the composition is off, it's a robust structure that empowers people to change whatever they can."

The building is designed to help academics and students think outside the box and change how they work – to "move away from an old-school class set up, and focusing



more on learning by doing." For example, movable partitions have been included between some teaching labs and lecture theatres, so that classes can become "very dynamic," and move from one to the other.

The building places all of the workshops on the ground floor behind glass to give them maximum visibility. The ultimate expression of the aim to put the research on show is a large, open 'Makerspace' where a host of research projects will be based, sitting adjacent to the main entrance.

While not featuring the often heavy duty equipment on show in some of the other workshops, the space will include equipment like 3D printers in spaces that can be made accessible 24 hours so students can work on projects whenever they want to. It will also demonstrate the collaboration possible across

**The 8 metre-wide staircases that climb through the atria have a large landing providing an observation platform to see what's happening in the ground floor workshops below**



All photos @ Greg Holmes

## PROJECT FACTFILE

**Client:** The University of Manchester

**Architects:** Mecanoo (lead architect), Penoyre & Prasad (refurbishment and extension of Odd Fellows Hall), BDP (detailed design)

**Project managers:** Buro Four

**Briefing consultant:** iDEA

**Structural and M&E consultant:** Arup

**Cost consultants:** Arcadis

**Design and management co-ordination:** AECOM

**Floor area:** 81,000 m<sup>2</sup>

**Laser labs area:** 1162 m<sup>2</sup>

**Chemical labs area:** 2,412 m<sup>2</sup>

**Biological labs area:** 630 m<sup>2</sup>

**Characterisation labs/**

**EM-Suite area:** 1,141 m<sup>2</sup>

the departments that was desired by the client, says Otto, giving the example of a research project to develop 'Formula Student' racing cars: "Students will have the opportunity to work across disciplines." A car being worked on will be on show within a specific 'project space' within the Makerspace, a far cry from the hidden-away areas they previously would have used. Many of the workshops in existing facilities were below ground due to the heavy loadings, but here the designers "made a lot of effort to make those spaces the most visible."

Useful adjacencies have been explored in the design – for example robotics is located between the departments of Mechanical, Aerospace and Civil Engineering and Electrical and Electronic Engineering, enabling both to work together in one 'crossover' area, where barriers can be "dissolved." Each of the departments' glazed atria are visually connected with adjacent areas: "From one you'll be looking into a chemical laboratory, and from another you'll be looking into a flight simulator, from another a dry teaching lab dedicated to tinkering with small electronics, says Otto. "Although similar in expression, each atrium will be given an identity because of everything that's going on around it," he adds.

The 8 metre-wide staircases that climb

through the atria have a large landing providing an observation platform to see what's happening in the ground floor workshops below. They also provide for student and academic interaction and informal work space; nearby each are computer clusters where students may be developing code for the equipment they can see being tested below.

## Permeability

The other buildings in the scheme help connect MEC Hall to the city fabric, but also provide "interesting permeability of the city block" for pedestrians, says Otto. A "logical" route is created between Piccadilly Station to the north, and the university's south campus, for instance.

A key example of how the scheme interacts with its context is the cafe at the south west corner of MEC Hall, which links to a new public square via a colonnade. Movable partitions can open it up into a lecture space even enabling academics to "literally bring a lecture out onto the street," says Otto, possibly even displaying large equipment such as an aero engine which a standard lecture theatre could not. This tantalising prospect shows how this barrier-breaking project will be a literal platform for showing UK innovation and education to the world. ■



# University Future-Proofs £450m Campus with Networked Fire System from Advanced

Swansea University has installed a network of Advanced fire alarm control panels to protect its 65-acre, £450million Bay campus from the threat of fire.

The University has installed 25 one, two and four-loop MxPro 5 fire alarm control panels throughout its 11 academic Bay campus buildings, specified thanks to their superior networking abilities.

Installed alongside over 5000 Hochiki and Apollo protocol devices, each fire panel has been programmed as a standalone, with all information reporting back to the main security command centre repeater panel. Over the years to come and as the campus continues to grow, further panels can be added to the site-wide network with ease, creating time and cost efficiencies, while minimising disruption to the university's staff and students.

Advanced partner Securus Group was responsible for networking the Bay campus



fire system & commissioning a number of buildings including Swansea University's IMPACT building, Energy Safety Research Institute (ESRI) and Active building.

James Watts, commissioning engineer at Securus Group, said: "Advanced is the ideal solution when protecting large-scale sites with multiple buildings that each have individual cause and effect programming. Advanced panels are very easy to install and configure and provide powerful, resilient networking."

Phil Calvey, Regional Sales Manager for the South West, said: "Our MxPro 5 product range is ideal for any large-scale site, including hospitals, prisons, airport terminals and university campuses, where networking is specified or desirable. Thanks to the work of Securus Group I'm confident that, as new buildings emerge on campus and further control panels are installed, the fire system will stand the test of time."

0345 894 7000 [www.advancedco.com](http://www.advancedco.com)

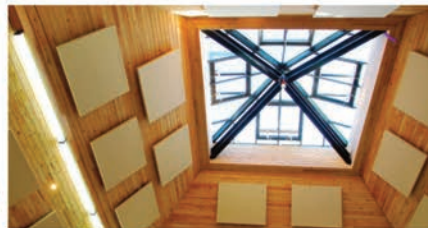


## Acoustic Systems for the Educational Environment



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- Verbal communication difficult due to noise
- Unpleasant environment to spend time in
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## Kingspan TEK gets sporty at new pavilion



The Kingspan TEK Building System of structural insulated panels (SIPs) has provided the bespoke, thermally efficient shell for a minimalist pavilion at Eton College's Willowbrook Outdoor Sports Centre. The stunning single-storey building, designed by Lewandowski Architects, sits at the centre of the site and provides a range of facilities including changing rooms, toilets and a kitchen along with a roof-top viewing platform. Feltham Construction managed work on the project which included the demolition of the building's outdated predecessor. Wood was a key part of the material palette with charred timber fitted for the outer cladding and birch-ply boards fitted internally. This approach extended to the structure, with Bentley SIP Systems using the Kingspan TEK Building System for the walls of the structural shell. Kingspan TEK Building System is formed from SIPs with a high performance, rigid insulation core autohesively bonded between two OSB/3 facings. 142mm thick Kingspan TEK panels were selected for the walls of the pavilion. As Kingspan TEK Delivery Partners, Bentley SIP Systems oversaw the design and factory cutting of the panels before delivering them to site.

01544 387 384 [www.kingspantek.co.uk](http://www.kingspantek.co.uk)

## Luceco lights Tile Cross Academy



Luceco has recently provided LED energy saving lighting for Tile Cross Academy's new facilities. Tile Cross Academy is part of the Washwood Heath Multi Academies' Trust (WHMAT), a family of seven schools, three Secondary and four Primary, serving the city of Birmingham. During the Autumn Term, Tile Cross Academy opened its £7 Million refurbishment with new sporting facilities, food, textiles and art environments, ICT and music classrooms, science and engineering facilities. Luceco's Leren was used in various classrooms. Leren is a contemporary and stylish linear LED pendant luminaire, offering both upward and downward light distribution providing an enhanced overall lit environment, particularly where there are high or open ceiling voids to illuminate. Leren offers over 100,000 hours of maintenance free, operational life with an efficacy of 120 Llm/cW, and three lumen outputs: 4,000, 5,200 and 7,500 lm. Supplied complete with 1.5 m adjustable wire suspensions, Leren benefits from through-wiring, including electrical connectors as standard, to assist with both standalone and continuous run installations.

01952 238100 [www.luceco.com/uk](http://www.luceco.com/uk)

## Contour revamps Sovereign range for 2020



Contour's new range of wall and floor mounted heat convectors combine sleek design and functional usability. The Sovereign range is particularly suitable in spaces where an element of safety is required. Educational facilities will benefit from a safe surface temperature, whilst maintaining efficient heat output to ensure individuals are comfortable during their learning.

The small grille design minimises the risk of any small items, such as stationary, being pushed inside the radiator's internal elements. Additionally, a smaller grille design reduces the potential for users to catch fingers or items of clothing on/in the radiator. The Sovereign's sleek design will blend seamlessly into a learning space's existing decor, and with a wide range of colour options, you have the choice to create a strong aesthetic appeal.

For more information on our Sovereign range, contact Contour today.

01952 290 498 [www.contourheating.co.uk](http://www.contourheating.co.uk)

## British engineering helps deliver European healthcare first



The most advanced clinical healthcare simulation centre in Europe is assured of a healthy environment for its occupants despite planning constraints and almost half of the building being below ground. The award-winning Royal College of Surgeons in Ireland (RCSI) has opened the new centre at 26 York St, in the heart of Dublin's St Stephens Green area, all of which is ventilated by grilles and diffusers from UK-based Gilberts Blackpool. In total, some 500 of Gilberts' ventilators have been installed, via Keane Environmental, throughout the 10,000m<sup>2</sup> building. Gilberts' GSL slot, GSF perforated plate swirl, MBD multi linear blade, GZL zip and DGA four-way diffusers plus LGN slimline linear bar grilles have been utilised to air the space. They have been incorporated into the multiple learning, study and recreational environments throughout the ten floors, including the 1200m<sup>2</sup> National Surgical & Clinical Skills Centre – the first of its kind outside of the USA. Explained Keane Environmental's Ryan Caldwell: "By using Gilberts grilles we were able to provide all the technical expertise, product quality and diversity to meet all of the project complexities."

01253 766911 [info@gilbertsblackpool.com](mailto:info@gilbertsblackpool.com)



# A facade with an eye-catching cloud and sky motif made from perforated sheets

When designing their new headquarters, the Sun-Air Aviation Group wanted an innovative building constructed from sustainable materials.

Using RMIG ImagePerf, the facade depicts a cloud formation – a very appropriate motif for an airline office which also happens to

be located on Cumulusvej. The perforated sheets manufactured and supplied by RMIG, provide shade during the summer and diffuse, glare-free light during the winter months.

For further information or if you are interested in booking our CPD presentation 'Perforation in Architecture' or require further information, please contact [wgw@rmig.com](mailto:wgw@rmig.com).

01925 839610 [www.city-emotion.com](http://www.city-emotion.com)



## TECHNICAL CHARACTERISTICS

### Raw material:

Aluminium EN 5754

**Pattern:** RMIG ImagePerf

**Thickness:** 4.0 mm

**Surface treatment:**

Powder coating RAL 9060



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## Best in class student environment

Designed by Fraser Brown MacKenna (FBM Architects) for AXO Student Living, the new Paradise Street student village in Coventry provides 893 quality homes comprising studio rooms and study bedrooms, with their own kitchens and separate living spaces. The site comprises 1,400sqm of social space including common rooms, a café/bar, cinema and gym, a 24hr concierge with a bespoke lifestyle-app for access control, parcel pick-up and laundry monitoring.

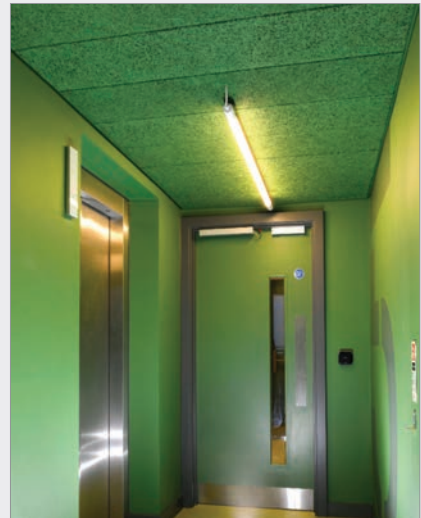
Heradesign ceilings from Knauf AMF have been fitted in the acoustically-demanding



areas to help create an environment that's conducive for both study and relaxation. Heradesign was the first choice for FBM Architects as they had used it in another recent student accommodation project in Coventry and valued its aesthetic properties, acoustic credentials and durability.

FBM Architects, Associate David Taylor, "We chose Heradesign because of its textured effect that would provide a tactile quality and soften the space, both acoustically and visually. We received valuable support from Knauf AMF's specifications manager who guided us through the design phases and helped create the bespoke accessible ceiling finish we required."

Circulation areas are prone to unwanted noise travelling from one area to another, which can be distracting for students working or resting in their rooms. To combat this, Heradesign was chosen to provide Class A sound absorption and a high level of sound insulation to improve privacy. Fire protection



is also a vital requirement. Heradesign is classified A2 fire performance to prevent flame spread. In the cinema, leisure and media zone HERADESIGN®creative was specified in orange and grey hexagonal tiles to form an attractive geometric acoustic feature wall.

0191 518 8600 [www.knaufamf.com](http://www.knaufamf.com)

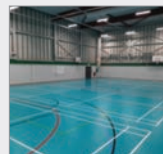


### TORMAX access solution for student accommodation

Developed by L&UK Property Group, Globe Works is a brand new student accommodation facility in the centre of Birmingham that offers stylish living facilities for up to 520 residents. Delivering fast and efficient access for all students, TORMAX was contracted, by DW Hicks Building Co. Ltd, to install their contemporary 4-wing automatic revolving door to the main entrance, with an automatic swing door to one side. Both doors are powered by in-house designed, TORMAX operators, combining unparalleled reliability with simple day-to-day programming, allowing practical adjustment of operating speed and hold open/closing times to precisely match pedestrian footfall.

[sales@tormax.co.uk](mailto:sales@tormax.co.uk)

### Gerflor see success with Taraflex® Comfort



Astrea Academy is a new-build and refurbishment project in the north-east of Sheffield, which in time will become one of the city's biggest schools taking children from nursery age up to sixth form. With the expected levels of growth came the need for vision and future proofing for the school's infrastructure, this included flooring for the all-important indoor sports facilities that the academy provides for both pupils and staff alike. The project would see Gerflor supply 550m² of its Taraflex® Comfort vinyl sports flooring in Teal for the academy's sports hall, with a further 250m² in Oak chosen for the gym area.

01926 622600 [www.gerflor.co.uk](http://www.gerflor.co.uk)

### LAMILUX launch new Glass Skylight



At Futurebuild LAMILUX unveiled the brand new LAMILUX Glass Skylight FE3° – never before seen in the UK. With its 3° inclination and the Structural Glazing Construction, the new LAMILUX Glass Skylight FE provides a functional, and aesthetically pleasing solution which ensures rainwater can run-off easily alongside maximum natural daylight at all times. In 2019, the newly developed LAMILUX Glass Skylight FE entered the market. This non-inclined version has already won numerous awards including the German Design Award and the Red Dot Award.

[www.lamilux.co.uk](http://www.lamilux.co.uk)



# DOORS, WINDOWS & CONSERVATORIES SUPPLEMENT

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Project: TrägerHAUS, Glasgow | Architect: HAUS | Glazing: IDSystems | Photography: Tom Manley



## Deceuninck 22 per cent up in January



Following a record-breaking 2019, Deceuninck's January 2020 sales are up 22 per cent year-on-year. Deceuninck, a leading PVC-U window and doors systems company say this exceptional start is down to a surge in sales of colour and Heritage Flush windows and doors. According to Managing Director Rob McGlennon, these products help fabricators sell more in the growing premium sector: "The top the market is focused on 'aspirational' products like Heritage flush windows and doors, patio sliders and colour. We give our customers the products and service to grow in this sector and our top 20 customers' sales are now comfortably over 50 per cent colour. We've had a storming start to January with sales 22 per cent up on last year, we're confident we'll have another successful year. Post-Brexit we're seeing some much-needed political and economic stability which seems to be boosting consumer and business confidence. There are promising signs in commercial and newbuild too, where Deceuninck fabricators are also very strong. Give Deceuninck a call to see how we can give you the products, service and support to sell more!"

01249 816969 [www.deceuninck.co.uk](http://www.deceuninck.co.uk)

## P C Henderson's Tangent Round the Corner specified for UK's longest heritage railway



P C Henderson has recently been specified for a new build project at the UK's longest heritage railway – Ffestiniog and Welsh Highland Railway. As the oldest independent railway in the world, Ffestiniog and Welsh Highland Railway is a major tourist attraction – taking passengers on a scenic 40 mile journey through the hills between Blaenau Ffestiniog, Porthmadog harbour and Caernarfon. Boston Lodge Works is the railway's main workshop and base for the daily train service. With over 55 carriages in service, the station required a storage facility which could house up to 30 carriages whilst also providing shelter for train cleaning and preparation which could be done away from the public eye. The project brief included the need for a robust entrance solution which could provide easy accessibility to the shed. P C Henderson's Tangent Round the Corner sliding door hardware was specified for both entrances of the storage facility and then combined with vertical multi-hinge round the corner doors to allow for easy access. Tangent Round the Corner is particularly suited to applications whereby a bunch of parked units is not practical.

[www.pchenderson.com](http://www.pchenderson.com)

## What to ask a timber window manufacturer



Choosing which timber window/door supplier to specify can be challenging, there are a few things you should check. Environment – Does the company have ISO 14001:2015 Environmental Management System Certification? What research do they have on the performance of specific windows/doors? A window tested for a bungalow in the Midlands wouldn't necessarily meet the standard for a high rise in Scotland. Ensure thermal performance figures are specific to size and style of window specified not a standard window. Does the manufacturer have ISO 9001:2015 certification? Ask to see the FSC certificate. For more information, visit the [George Barnsdale website](http://George Barnsdale website).

01775 823000 [www.georgebarnsdale.co.uk](http://www.georgebarnsdale.co.uk)

## Slide & turn doors offer unique alternative



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industry-leading thermal performance with U-values from just 1.1W/m²K whilst patented flipper seal technology provides advanced protection from wind and rain making the doors ideal for any project, from urban extensions to the grandest of rural new-build homes.

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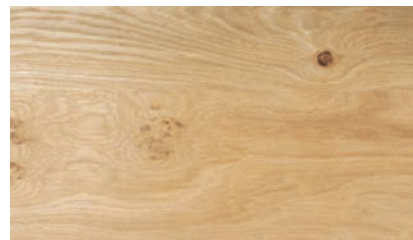


# Taking a leaf out of nature's book

Figurative knots and distinctive woodgrain configurations are both authentic and much loved wood characteristics, that are admired and sought after by specifiers everywhere. This desire for irregularity and a closer affinity with nature, has led leading interior timber door manufacturer, Vicaima to introduce the new Naturdor® Heritage Oak finish. With its open grain and randomly mixed real Oak veneer, it takes a leaf out of nature's book.

As a leading exponent in the use of trend-setting designs and with over 60 years' experience in the manufacture of real veneered products, Vicaima's Heritage Oak doors present figured oak veneer that entices the senses of true rustic wood lovers. This new wood veneer treatment has been inspired by authentic influences of nature and reflects a more recent market trend towards wooden doors that embody materials made from more genuine and under refined materials.

Naturdor® Heritage Oak reflects the unexpected harmony of nature, with veneer mixed randomly in a choice of either vertical



or horizontal designs. These can have either a matt or standard sheen surface depending on taste. Heritage Oak can be enhanced yet further by the potential collaboration of decorative face grooves, or the option of deep texturing. Introduced for 2020, Deep textured allows real veneer to take on a more rustic feel for an even greater tactile experience. Other combinations are afforded by a choice of available frame finishes, ranging from Naturdor® Oak and Stained Ash to Dekordor® foil or Lacdor paint, creating a unique style to the whole door assembly. This fusion between a rustic oak veneer appearance, optional face grooves

and choice of frame finishes, allows Heritage Oak to blend in and accentuate modern living and working space for a multitude of applications.

Emphasizing its commitment to the planet and to the sustainable use of natural resources, Vicaima Heritage Oak is covered by FSC® certification. Where performance criteria are demanded, Heritage Oak is also available in fire, acoustic and security solutions. In addition to door only and door and frame assemblies, matching wardrobes and wall panels can also be provided.

01793 532333 [www.vicaima.com](http://www.vicaima.com)

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# AluK aluminium windows chosen to replicate Crittall originals



AluK's 58BW ST aluminium windows replicate the look of steel frames so successfully that they were approved to replace the original Crittall windows in a landmark redevelopment project which has just been completed in central Birmingham.

Herbert House, a 115-year old 52,000 sqft commercial building in the Colmore business district, has been converted into one of the city's newest and most prestigious apartment blocks.

Now christened 'The Lightwell', it features 316 windows in the 58BW ST system and 3 suited doors in the GT55 system, all in a standard AluK Anthracite grey finish. They were fabricated and installed by AluK's Luminia Select Partner EYG Commercial, based in Hull.

With traditional square sections and sightlines of just 43mm in a fixed light, the 58BW ST windows are specifically designed for this type of steel replacement application and come

with the benefit of impressive thermal and acoustic performance and high level security.

They form part of AluK's versatile 58BW window range which allows fabricators to manufacture a huge range of traditional and contemporary window designs and configurations using a core range of profiles and ancillaries.

Floor to ceiling windows are an integral part of the design scheme in many of The Lightwell's 77 one and two-bedroom apartments which surround a central courtyard, so the slim sightlines of the 58BW ST are crucial in maximising the natural light coming in.

EYG also had to ensure that the exterior aesthetic of the original five storey Herbert House remained as unchanged as possible so fabricated bespoke fanlights and round windows in the same AluK 58BW ST profile to replace the steel ones being removed.

The architects on this project were Glancy Nicholls, the main contractors were The Torsion Group and the client was Adapt Real Estate.

More details at: [www.aluk.co.uk](http://www.aluk.co.uk)

## Crittall helps Oxford college get top marks



An innovative glazing system that combines the technical expertise of **Crittall Windows** and **Crystal Units** has contributed to state-of-the-art energy efficiency at Mansfield College, Oxford. Crittall MW40 double-glazed windows incorporating high performance CUIN insulating units were installed throughout. CUIN, supplied by Crystal Units, utilises a thin film inserted in the mid-point of a double-glazed unit so as to convert it to provide triple-glazed performance. In the Hands Building the CUIN/Crittall partnership has enabled a 0.6 W/m<sup>2</sup>K centre pane U-value in a 32mm thick IGU.

01376 530800 [www.crittall-windows.co.uk](http://www.crittall-windows.co.uk)

## New Coastline brochure from VBH



Hardware specialist **VBH** has created a new six page brochure to help explain the benefits of its greenteQ Coastline range of stainless steel entrance door furniture. The range includes pull handles, lever and knob handle sets, letterboxes, door

knockers and butt hinges, all in hard wearing stainless steel. All products are available in brushed stainless steel, with the levers, knockers and letterboxes also available in polished stainless and PVD gold finishes. For more information on the Coastline range or to request a copy of the brochure, visit the VBH website.

[www.vbhgb.com](http://www.vbhgb.com)

## greenteQ Oval handles add touch of style



Award winning hardware specialist **VBH** has expanded the greenteQ Coastline range of stainless steel pull handles with the addition of two new Oval profile designs. The stylish new Oval products offer an attractive alternative to the standard circular profile pulls that are

already very popular on contemporary entrance doors. VBH advise that Oval pulls are manufactured from hard wearing grade 304 austenitic brushed stainless steel and, as with all the products in the Coastline range, benefit from VBH's 25 Year Coastline guarantee.

[www.vbhgb.com](http://www.vbhgb.com)

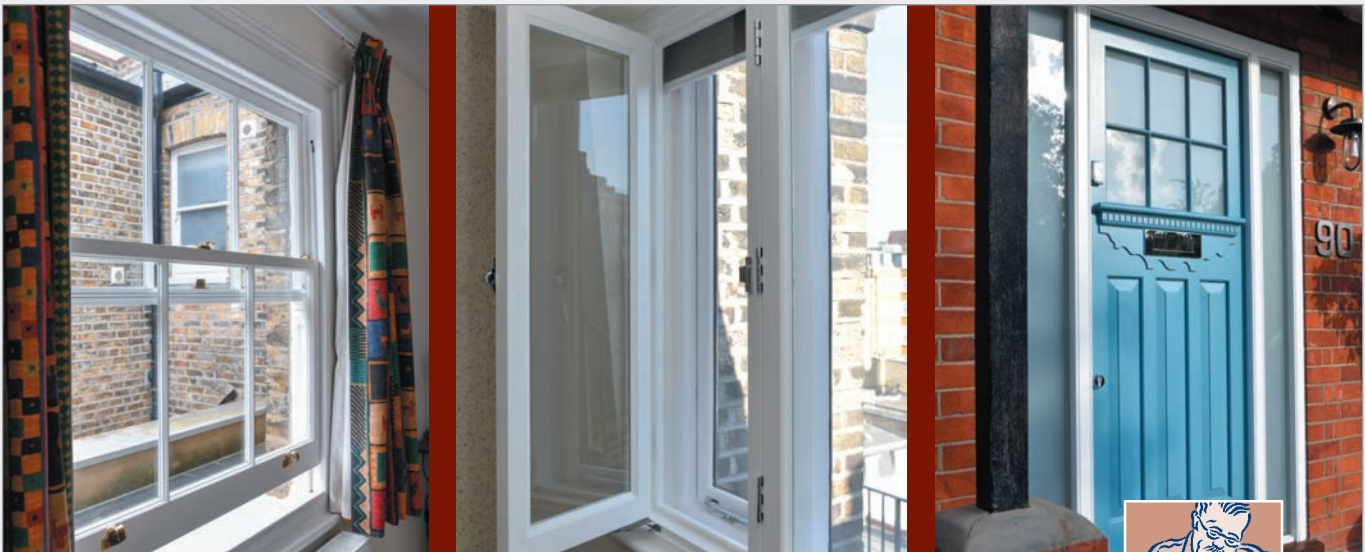
## SWA member's restoration work



The detailed repair and maintenance work undertaken by a member of the **Steel Window Association** on Bush House, part of a former broadcasting premises on London's Aldwych, has not only helped restore the appearance of the facades; it has seen the

specialist contractor rectify wartime bomb damage and preserve a system of antique bronze postboxes. Associated Steel Window Services is widely experienced in such work and had successfully completed a similar contract on Phase 1 which addressed the central and north-eastern blocks now occupied by Kings College University.

[www.steel-window-association.co.uk](http://www.steel-window-association.co.uk)



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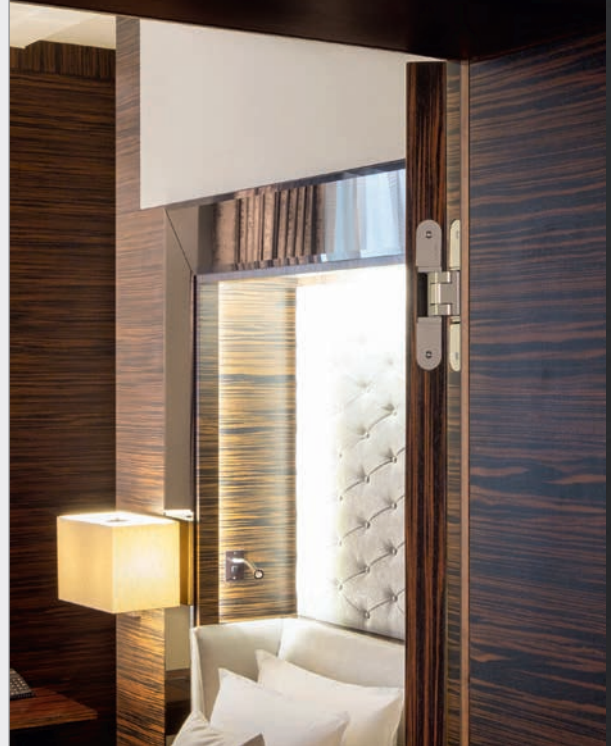
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# Aluminium or PVCu – which is best for your Local Authority project?

Leading window and door manufacturer Shelforce is Birmingham City Council's chosen manufacturer of choice for local authority building projects, specialising in social housing, education and the new build sector. With extensive experience in delivering window projects on time and in budget, Shelforce's Business Manager Howard Trotter tackles one of the age-old debates when it comes to windows – which are better for your local authority project, aluminium or PVCu windows?

When a debate is as longstanding as which material is better when it comes to windows, aluminium or PVCu, it's usually a sign that it's almost impossible to answer.

Historically, aluminium was the material of choice for windows in the 60s and 70s, but due to poor thermal efficiency and quality, PVCu took over the mantle and has proved the most popular choice for window frames since the 80s thanks to its affordability.

Aluminium windows, however, have come a long way over the past decade in terms of affordability, durability, and thermal efficiency.

While aluminium is a firm favourite with architects and commercial entities, housing associations tend to lean more towards PVCu.

But what it really comes down to is budget and the kind of project being undertaken.

## Strong, stylish and sleek

The surge in popularity of aluminium windows can be traced to the stylish look they offer, with sleeker frames and slimmer sightlines creating a clean and modern look.

Slimmer window frames allow for a bigger pane of glass meaning a better view and more natural light coming in.

Aluminium is fantastic for curtain walling, shop fronts and commercial entrances due to its durability and strength, while it's also the best product for achieving stringent wind load calculations.

Thanks to advances in technology, aluminium windows are now among the best-insulated on the market due to an innovative polyamide thermal break within the frame which prevents too much heat from being conducted.

And because aluminium is a highly durable metal that doesn't rust, the frames are



practically maintenance-free and can last up to 45 years

## Significant advances – and still good value

The popularity of PVCu windows is down to their affordability thanks to material costs and being much quicker to manufacture.

But there have also been significant advances in the PVCu market with respect to design and PVCu systems have been introduced that replicate both aluminium colours and sight lines, as well as more traditional finishes, such as flush sashes for traditional timber alternatives.

Thanks to the new PVCu designs and colour options, more cost-effective solutions to aluminium are available which now provide the aesthetics called for by architects.

PVCu is also resistant to rot which means they require little maintenance and provides good insulation ability, while a PVCu window has a lifespan of 35 years and as a hugely sustainable material it can be recycled 10 times, meaning PVCu can offer up to 350 years of service.

Multi-chambered PVCu frame profiles can also help reduce noise and are also warp-free, which means there will be no distortion in the frame which can seriously reduce the effectiveness of the seal.

## Application is everything

It's clear that aluminium windows have developed over the past 10 years but there will always be a place for PVCu thanks to its affordability and the significant advances in the PVCu market.

But as to which one is better, it comes down to application.

For curtain walling or wide span projects, aluminium should be favourite. When it comes to affordable housing, however, PVCu is the material to consider.

Founded in 1839, Shelforce has been involved in a whole host of local authority building projects including, most recently, Birmingham Council's first ever 'ModPod' and a revamp of a 20-storey tower block in Aston to help homeless families. For more information please contact Shelforce.

0121 603 5262 [www.shelforce.com](http://www.shelforce.com)



# Printing and scanning the future: taking 3D design to the next level

Nick Godfrey of Central Scanning explores how architects are using 3D printing and scanning to not only visualise but also create their projects with greater efficiency and accuracy than ever before

**3**D scanning and printing are increasingly innovative and powerful tools that are single-handedly changing the way the world works.

They've already revolutionised the medical and aerospace industries, with technological advancements enabling them to be used to create all manner of objects. From prosthetic limbs and recreating people's jaws, to alloys that are capable of making planes lighter and faster, the possibilities are endless, and now the architecture industry stand to benefit from this advanced technology.

## Overcoming historical complexities

While they may be tried and tested, using traditional methods to design and deliver projects takes time. And if the end results are wrong, refinements will undoubtedly need to be made, which can come at a cost, as well as put pressure on deadlines.

However, it can be difficult to guarantee the end result will be 100 per cent right – particularly where more complex and unique briefs are concerned. This is especially true when working with listed buildings, where it's essential that the historical architecture isn't compromised. Any alterations that are made need to be in keeping with the property and carried out in accordance with relevant building and planning legislation.

But the sheer size and scale of some of these sites can be immense and the intricacies of the interior and exterior design can be incredibly detailed. 3D scans are frequently used to capture these types of buildings, providing before and after scans to verify that work has been performed within agreed planning regulations.

It's also common for historic buildings of interest to be scanned to maintain real-life



records of erosion. Having these scans on file means that in the event of a fire or any other damage taking place; the 3D data can be used to re-commission or restore the building exactly back to its original state. And in the case of the historic Rosslyn Chapel in Midlothian, Historic Environment Scotland have been using 3D scanning since 2008 to create meticulous scans of the chapel to make the landmark more accessible for people with visual impairments, creating tactile 3D prints of the chapel's best-known features.

## Bringing new build visions to life

3D printing and 3D scanning also provides widespread assistance in relation to newer builds too. One application that's particularly popular is scanning multiple buildings so that any new buildings can be

**At Rosslyn Chapel, Historic Environment Scotland have been using 3D scanning to make the landmark more accessible for people with visual impairments, creating tactile 3D prints of its best-known features**

## One application that's particularly popular is scanning multiple buildings so that any new buildings can be designed to visually match the look and feel of the existing structures



designed to visually match the look and feel of the existing structures. It's a really effective way of visually checking the appearance and making sure it's consistent. What's more, the data can also be 3D printed to create scaled models of the proposed new building(s) for public consultation and/or display at planning meetings, open days and public forums etc. In our experience of producing these models, people find it much easier to picture the end result, as 3D is far more life-like than 2D.

### Eliminating uncertainty

To take the concept of visualisation one step further, architects can also use 3D printing and 3D scanning to deliver some of their more day-to-day activities more effectively. For instance, if their client is struggling to visualise their drawings, then it's possible to scan the site or building in question and then 3D model their proposed changes on to the scans. They can also take the visualisation process one step further, by printing a miniature version of their vision. Not only does this enable everybody to be on 'the same page,' it also helps make sure any mistakes are avoided from the outset.

It can be easy for errors to creep in when you can't gain access to or fully see the entire space that you're required to work with. However, this is an area where 3D scanning really comes into its own. We're often asked to capture 'hidden rooms', such as boiler rooms, to provide our clients with a clear view of what's within the space, e.g. every hidden pipe, wires and hidden capacity etc.

The same principle applies to loft space, cellar space, and any other form of space that's impossible to get a clear gauge of in person. Having this clarity enables you to see what can and can't change and, if the spaces are ever cleared out, this tells you in advance exactly how much room there is to work with without being caught out by any unforeseen surprises.

Historic or new build, large or small, 3D scanning and printing is continuing to redefine briefs with greater levels of ingenuity, accuracy and efficiency than ever before. What may once been impossible is becoming increasingly possible – and the results are truly remarkable.

*Nick Godfrey is managing director at Central Scanning*

## Quelfire introduces enhanced package to support specifiers



Quelfire has been providing a range of valuable products and services to architects, designers, main contractors, firestopping and other specialist contractors for over 40 years. Quelfire has rolled out a range of value-added services to provide architects and designers with a wealth of information from the offset, to ensure that they are able to confidently design the most appropriate firestopping solutions. Quelfire has launched a range of Building Information Modelling (BIM) objects through bimstore, making the specification of firestopping solutions even easier. A range of Quelfire's core products including the QWR Fire Collar, QRS Fire Sleeve, QuelCoil Intumescent Pipe Wrap, QuelCast Cast in Fire Collar and QuelStop Fire Batt are now available on the platform, allowing architects and designers to search and download the components for free to use in their own BIM model and understand how a product will work in the real world. All Quelfire products are now available from the NBS Plus library. Written in NBS format, architects and specifiers can gain direct and easy access to Quelfire product information via the specification tool, and products can be dropped straight into a project.

[www.quelfire.co.uk](http://www.quelfire.co.uk) [www.bimstore.co/manufacturers/quelfire](http://www.bimstore.co/manufacturers/quelfire)

## Don't let Rusty ruin your render!



Building regulations outlined by NHBC and LABC only advocate the use of austenitic stainless steel or PVCu beads in all external rendering applications, anywhere in the UK. Galvanised steel beads are no longer approved for external rendering in any situation. Simpson Strong-Tie Sales Director Jon Head explains: "Although it's generally known for its corrosion-resistant properties, galvanised steel can react with the chemical components in render, which will lead to quality issues, from unsightly rust stains, to the degradation of the bead and possible cracking in the render. Simply put, galvanised steel in external rendering may rust and can be costly to put right. But the good news is it's easily avoided. Stainless steel beads are specifically designed for cement based renders, and our range of stainless steel angle beads, bellcast beads, stop beads and movement beads, and the PVCu plastic alternative has been engineered to provide reinforcement and resist impact damage. Our range of beads makes bellcasts, corners, stops and abutments all easier to form, and they can be cut to size as required." Download the Simpson Strong-Tie 2020 catalogue... and make sure you stay away from Rusty!

01827 255 600 [www.strongtie.co.uk](http://www.strongtie.co.uk)



# Ancon offering enhanced non-combustible balcony connector range

Ancon is leading the way in developing solutions to meet the Government's tough new fire safety requirements for buildings, with the launch of an upgraded range of non-combustible insulated balcony connectors.

The development follows news that the existing 18 metres height limit for combustible materials in high rise multi-occupancy buildings is to be further reduced to 11 metres, extending the scope of the regulations to buildings over four-storeys and affecting the vast majority of new flats, hospitals, residential care premises and student accommodation. This has again increased the focus on fire safety with contractors and developers looking to future-proof their buildings.

Ancon's insulated balcony connectors have been re-engineered and now feature non-combustible mineral wool insulation and improved fire-rated thermal pads to maintain their impressive thermal insulation properties



and provide the required A1/A2 reaction to fire rating.

As well as complying with the combustibility requirements in the current Building (Amendment) Regulations 2018 for wall components in high-rise residential buildings over 18 metres in height, the Ancon

connectors provide contractors with a fire-safe solution for all multi-occupancy buildings, regardless of height.

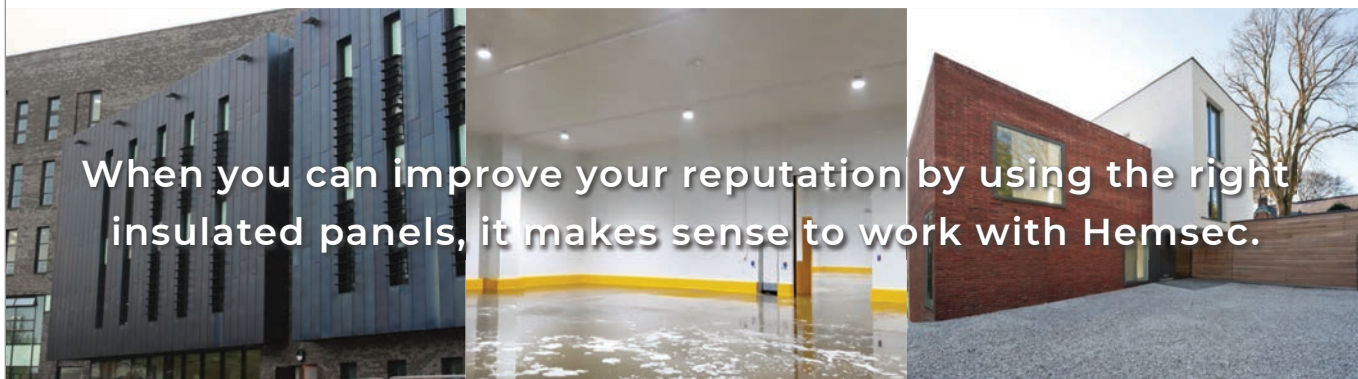
Connectors are available in a range of types, including Ancon Isotec for concrete to concrete applications, Ancon STS for anchoring steel balconies to a structural steel frame, and Ancon STC for steel to concrete fixing.

Ancon Isotec, which features high grade 100 per cent non-combustible mineral wool enclosed in a protective stainless-steel U-shaped profile, carries Class A1 fire rating – the highest level of fire safety performance. Ancon STS, for steel to steel applications, and Ancon STC, a two-part connector used for fixing large cantilever steel balconies to concrete floor slab, are both A1/A2 rated. Like Isotec, both now fully comply with the new regulations.

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# Graf UK urges early design involvement for long-term gains

David Stagg, technical product specialist for sustainable water management specialists Graf UK, is urging specifiers of wastewater treatment plants to think long term and life cycle to avoid landing clients with unplanned and unsupported servicing and maintenance.

Graf UK is currently heavily involved in helping specifiers, installers and end users meet new septic tank regulations which came into force in January. And even more topically, advising developers on storm water management systems.

As part of its advice on the new septic tank regulations, an option for which is to replace existing septic tanks with wastewater treatment plants, David suggests that architects designing buildings off the mains sewage network factor in risk management (for themselves AND their clients) and look beyond initial material costs towards lifetime costs.

While maintenance costs are generally the largest cost on any asset, they are rarely taken into account during the design and construction phase, after which the client is liable for the maintenance and servicing and has to bear those lifetime costs.

So a long-term approach should be developed at design stage, and specifiers should consider that while an intelligent system may have more up-front costs, it is designed specifically to minimise running costs and would be a much more effective solution, both cost and quality wise, over the long term.

Graf UK, which has more than 20 years' expertise in the wastewater treatment market, urges specifiers to involve manufacturers

early on in the design process, specifically manufacturers who are prepared to visit site to analyse all aspects of the scheme so the most cost-effective long-term solution can be designed. This is the time when specific site issues such as high water tables/tidal waters can be identified and taken into account within the design.

Schemes such as remote hotels or holiday parks\* have their own site issues. The seasonal highs and lows would benefit from a multi-line wastewater treatment system where one or more lines are shut down during the off-peak season to cater for lower numbers but still maintains a high effluent quality which would result in significant power savings over time.

Another element for savvy specifiers to factor in is where wastewater effluent volume may increase in future years. Here, the design of the treatment system can be future proofed to allow for the retro-fitting of additional tanks to increase the overall capacity of the system. This is only possible if the tanks can be gravel backfilled rather than surrounded in concrete - the more traditional and time-consuming (and therefore money-consuming) process.

Yet another future-proofing element is the use of a SBR (Sequence Batch Reactor) treatment process which produces high-quality effluent discharge that adheres to the most stringent effluent levels imposed by local regulating bodies and is optimised against regulation changes.

This process can also deal with systems that are up to 75 per cent under-loaded (where a system designed for 100 only has a population of 25). In addition, the use of underload detection can lead to huge savings in running costs, as evidenced below from a live scheme:

- Number of cycles under normal operation = 2,212
- System calibrated to detect unloading (actual cycles run = 895)
- Reduction in power usage = 50 per cent+

And where three-phase power is not readily available and would be expensive to install, the design can also utilise multiple lines to allow the use of single-phase power.

More advanced systems have control panels that allow for the very simple process



of plug-in retro fitting of add-ons such as carbon dosing, chlorine dosing and PAC dosing as well as the further reduction of pathogens and salts in the effluent, pumped outlets and remote monitoring via LAN/GPRS.

After all these design elements have been factored in, Graf UK advises specifiers also bear in mind installation, and opt for manufacturers with networks of approved contractors/service providers. The same for commissioning (to ensure a system is installed and operating correctly).

And then once a system is up and running, maintenance and servicing requires regular visits, again by manufacturer-approved service providers.

Last but not least, when it comes to the long-term future of our environment, designing sustainability into a wastewater treatment system is easily done by specifying a system manufactured from recycled plastic.

\*For the Sands of Luce holiday park, Graf designed a bespoke two-line 165PE Klaro sewage treatment plant which can not only be run on single-phase power but also meets the stringent effluent levels set by the Scottish Environment Protection Agency.

Park manager Jack Copper said: "Our contractors and electrician both commented on the intelligent design of the Graf system, allowing for a simple install and convenient maintenance. I have been very impressed by the product and service provided by Graf UK. I will certainly use them again in the future and would recommend them to any operator."

01608 661500 [www.grafuk.co.uk](http://www.grafuk.co.uk)





# Groundworks for private pumping stations

When gravity drainage from a property is not possible, a pumping station is usually required to pump wastewater and sewage to the public sewer. David Johnson of Pump Technology explores the correct specifications for pumping stations

For single or multiple dwellings that are not going to be adopted by a water company, a private sewage pumping station can be used. Selecting the right size pumping station, chamber sizes and pump/s are critical for the future reliability and long life of the station. Because of this, it is good practice to seek advice from a pump expert.

The chamber should be sized to provide 24-hour storage for the property. This calculation is based on 120 litres per person, per day. The pump is sized based on the differential head and friction losses to the discharge point. Additionally, the internal pipe diameter, and the number of bends and distances also needs to be taken into consideration.

The location for any pumping station and its associated groundworks needs careful planning to account for pipe runs, on-going access routes to discharge points, service access and traffic flow (vehicle or pedestrian) over any covers which are fitted.

The best pump station manufacturers and suppliers offer stations with a wide variety of tank sizes and pump options to allow the exact matching of the pumping performance to the application. Tanks can range from relatively small (e.g. for a single dwelling) to much larger (e.g. for multi property developments). Ideally tanks should be supplied with customisable invert and discharge options to ensure that groundwork needs can be met.

Pump options range from those fitted with shrouded impellers for wastewater, rainwater or final effluent applications, to systems with free-flow vortex impellers or a cutter/impeller design for sewage pumping. The latter type is suitable for high head applications, or for small-bore piping, nominally 50 mm diameter.



In addition to the pump performance matching the required lift, the flow should be capable of generating a velocity through the pipe of a minimum 2.5 litres per second. This ensures debris does not attach itself to the side of the pipe, and therefore blockages are avoided.

If the whole property or properties are relying on the pump station, then the

**The location for any pumping station and its associated groundworks needs careful planning**



**The installation, like the pump station, should follow strict guidelines – in essence the chamber should be considered as a waterproof liner, any hydraulic water pressure on the chamber being prevented by the concrete surround**

pump station should be fitted with two pumps. These pumps will operate as 'duty standby,' each pump capable of the full pumping duty requirement. The pumps are located within the pump station via a duck foot/pedestal with guiderails to allow them to be lifted easily and then lowered and re-seated accurately for inspection and maintenance.

When groundworks and a simpler pump station is required for a house extension, kitchen, toilet or utility room for example, and the property has toilet facilities that are gravity fed to the public sewer, a single pump can be used.

The ideal pump selection for this is one which features a free-flow vortex design, with a free flow passage of 60 mm or greater, and the discharge pipework being 80/100 mm diameter. For small house extensions, a smaller free flow passage pump is often used. This is purely a price saving exercise as the small diameter free flow passage means a more efficient and hence smaller motor pump. In practice the larger free flow diameter allows the easier passage of foreign items, like sanitary items for example. These items should not be flushed, but commonly are.

Floats commonly determine the control of the pump station (four floats for a two-pump station) – start, stop, duty assist and high-level alarm. The control panel will automatically configure a new duty pump every cycle. If the high-level alarm is activated, or if a pump should trip due to clogging or electrical fault, then an alarm will be activated. This alarm can be any, or a combination of: a local beacon, buzzer, connected to a building management system or telemetry remote monitoring.

Again, the size of the pumping chamber – just like the pump – can be configured to suit the site conditions; depth of the inlet, or inlets and position of inlets relative to the discharge. This means that the best practice pipe runs can be used, and installation is made easier.

The installation, like the pump station, should follow strict guidelines, in essence the chamber should be considered as a waterproof liner, any hydraulic water pressure on the chamber being prevented by the concrete surround.

*David Johnson is business development manager at Pump Technology*



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## Picture Frame finish from Metalline



Unit 25 Cambridge Science Park is a state of the art facility featuring an external facade of glass, metallic panels and fins for solar shading. At each corner of the building a chamfered picture frame feature of curtain walling and panels, adds to the modern design. Metalline

supplied in excess of 1000m<sup>2</sup> of A2 Ultima insulated panels, Unity interlocking rainscreen panels, interlocking soffits, copings, pressings and cills for the project. The picture frame finish to the corners of the building were finished in a slate grey polyester powder coating.

01543 456 930 [www.metalline.co.uk](http://www.metalline.co.uk)

## Render finish based on Magply performance



The Port of Chatham faces regular assault by storms, prompting the designers for an apartment development on an elevated site to specify a weather resistant render finish to the elevations, applied across Magply boards. For the upper storeys, the 12mm Magply boards are secured across the timber framework infilling the main structure, while concrete blockwork features right around the ground level podium. This will have timber battens secured to it to create a cavity behind the Magply boards, ready to carry the render treatment. Magply boards carry a variety of internationally recognised accreditations.

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Copper: Nordic Brown Light honeycomb core panels; Project: Edge Hill University Catalyst building, Ormskirk  
Architects: ABW Architects; Photo: Infinite 3D

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# Eurobrick make an impression on Borough High Street

Brick slip cladding specialists Eurobrick have been busy in South East London recently, with their approved installers working on two redevelopment projects on the same road, the busy Borough High Street.

At 218-220 Borough High Street, ML Brickwork (Southern) carried out refurbishment of the facade of a mid terraced 5-storey building that included both commercial and residential space. Eurobrick supplied 95m<sup>2</sup> of their 50mm thick X-Clad system, with EBS Sanded Red Stock slips and corners from their Classic Range and Zena White slips and corners, which were installed to the upper floors. The design of this project illustrates the versatility of X-Clad as brick slips were built out on different planes and areas of soldier courses to add depth to the facade. The 50mm thick X-Clad also helps to improve the thermal performance of the building.

Just along the road at 280 Borough High Street, LB&F Ltd installed 1190m<sup>2</sup> of Eurobrick's P-Clad system, along with specially sourced Pagus Grey and Con Mosso brick slips and corners. Eurobrick's specialist mortar Europoint in light grey and charcoal was used to create the final finish to this mixed-use new build development. The project occupies a prominent corner position where existing buildings were demolished to make way for the new 5-7 storey building that also includes commercial and residential space.

The different aesthetic styles achieved in these projects demonstrate the flexibility of Eurobrick's systems.

To find out more about Eurobrick and their products and systems go to the Eurobrick website.

01179 717 117  
www.eurobrick.co.uk



280 Borough High Street

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Photographs: Tim Crocker



Crest's Belgavia Buff Multi & Grosvenor Grey Multi, a mix of the two brick types created a bespoke and unique blend, now called Crest Goldsmith Blend.



Crest Nelskamp specifically designed 70° angle H14 black clay roofing tile. The unique roofing system flows without interruption continuously from eave to ridge.



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# Getting rainscreen (bracket) details right

As rainscreens continue their popularity in both new builds and retrofits, David Fraser of SFS discusses the finer details behind these building envelope systems, and how correct bracket specification simplifies complex challenges

There's no doubt that rainscreens are becoming ever more popular on both new and old buildings. The rainscreen cladding market is set to continue to increase with the rise in 'global construction' (innovation, remodelling, and maintenance) where sustainable cladding and improved building aesthetics are at the top of the list for specifiers and architects.

New cladding solutions and materials are being developed daily, and these building envelope systems are offering architects and developers a wide array of choice in finishes that enable them to explore new design possibilities. However, with more choice can often mean more complexities.

Architects and specifiers face the challenge of ensuring that they specify the correct solutions that not just meet the aesthetic requirements of the project, but are also safe, appropriate to the building application and environment, long lasting, and cost-effective. They must take into account the regulations around thermal performance, ensuring that rainscreens do not lead to poor heat retention and higher energy usage.

## A matter of structural integrity

Brackets are integral to holding everything together. Choosing the right bracket for the right application is vital for the building envelope's durability and safety – and there are numerous options available from differing materials; big to medium to small.

When specifying brackets, specifiers need to consider the structural integrity of the building. This includes looking at the local wind loads, the corrosive substances in the air, and the substrate the brackets are fixing back to.

There are many options when it comes to rainscreen and cladding materials, including zinc, stainless steel, aluminium, natural stone, and fibre cement. It is



imperative that the brackets specified can assure the deadweight of the cladding that is being installed on them, as well as being fire-rated.

Balancing these considerations might suggest an endless trawl through production system specifications and datasheets. However, this need not be the case when using tools such as SFS' Nvelope Project Builder. This online resource can run static calculations completely free of charge and determine the specific requirements of the facades.

It is critical that specifiers know what the bracket is being fixed back to, whether it is to steel, concrete or timber etc., so that the correct primary fix can be specified. For masonry concrete especially, specifiers should also ensure that the correct number of pull-out tests have been completed. If these are not completed, there is a potential risk of issues arising over time.

## Satisfying thermal performance needs

As well as looking at structural integrity,

**It might sound simple, but when looking at designing or redesigning the exteriors of buildings, it really pays to know the environment and the purpose of the building**



specifiers also need to consider the impact the building envelope will have on the thermal performance of the building, in accordance with Part L of the Building Regulations. This helps address energy efficiency requirements in buildings, casting a light on the importance of airtightness and energy efficiency for specifiers and installers.

With building envelopes, it is inevitable that there will be points where heat loss occurs, due to thermal bridging. Thermal bridging happens when there is a thermally conductive connection between the inside and outside of a building. In the case of brackets, thermal bridging can also occur with the fixings used to secure the bracket backs on to the substrate.

Often, the choice is to increase the external layer of insulation to combat this issue and help retain heat in the building. However, this solution isn't quite so straightforward, as it means that brackets need to be larger to accommodate the thicker layer of insulation, which impacts on the structural integrity of the envelope and costs.

To minimise this thermal bridging effect and to not have to use oversized brackets

and thick layers of insulation, specifiers can either look to use alternative bracket materials or use insulated thermal pads attached between the bracket and the fixing structure.

## Building a better future

The materials used for brackets, fixtures and fittings are often an overlooked factor at the beginning of a build. It might sound simple, but when looking at designing or redesigning the exteriors of buildings, it really pays to know the environment and the purpose of the building. To minimise misspecification issues before a project begins not only ensures the ongoing safety of the building and its occupants, but reduces costly follow-up maintenance. Therefore, it is vital specifiers bring fastenings, fixings and brackets much higher up the RIBA plan of work.

Newer generations of fasteners, fixings and brackets are being developed by SFS to constantly support more choice, and to aid a quick and easy installation for the buildings of the future.

*David Fraser is Nvelope business unit manager at SFS*



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# Specify responsibly



## Wraptite®

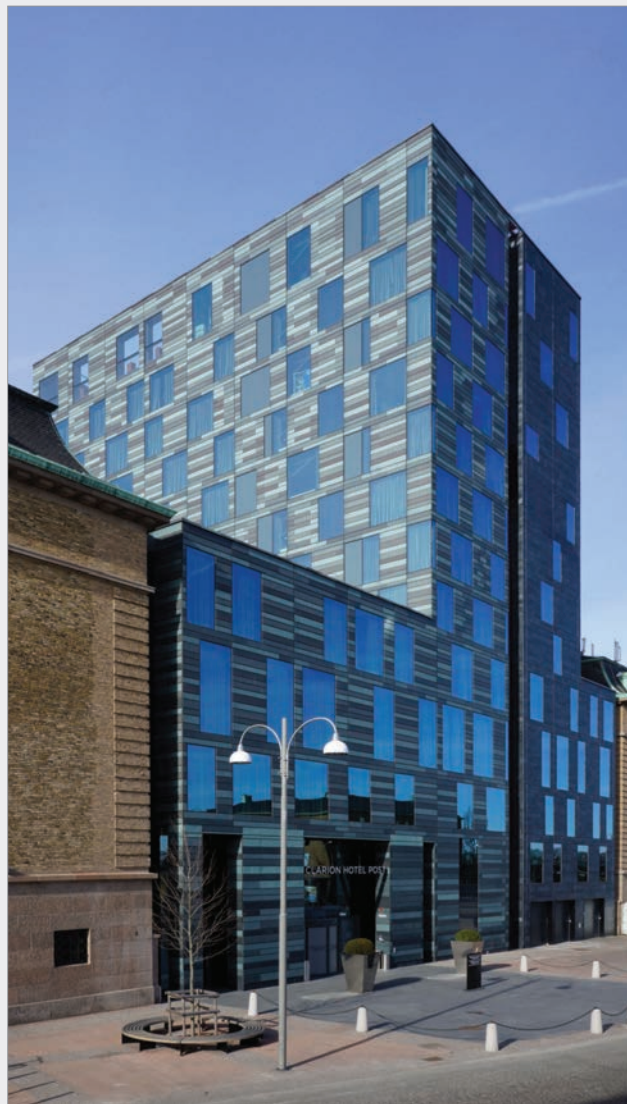
Construction membranes may be hidden after the project is complete, but their role in ensuring proper heat, air and moisture movement through the building envelope and safeguarding the health of the building and occupants is essential.

Wraptite is a unique BBA-certified external airtightness solution. This membrane not only provides airtightness and vapour-permeability, its self-adhering installation method reduces programme length, installation costs and material waste.

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**It's what's on the inside that counts.**

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The Nordic Copper range includes Nordic Standard ‘mill finish’ and Nordic Brown pre-oxidised copper in two intensities. The

extensive Nordic Blue, Nordic Green and Nordic Turquoise ranges have been developed with properties and colours based on the same brochantite mineralogy found in natural patinas all over the world.

They utilise copper mineral compounds, not alien chemicals or coatings. As well as the solid patina colours, ‘Living’ surfaces are available for each, with varying intensities of patina flecks revealing some of the dark oxidised background material.

Copper alloys include Nordic Bronze, Nordic Brass – also available pre-weathered – and the innovative Nordic Royal, an alloy

**Copper has an unrivalled lifespan, no maintenance and full recyclability**

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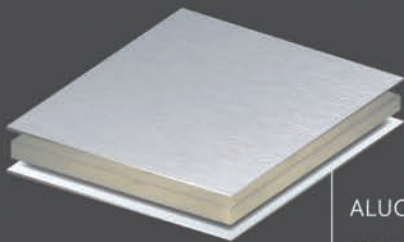
# ALUCOBOND® PLUS | A2

ALUCOBOND® is the original aluminium composites material



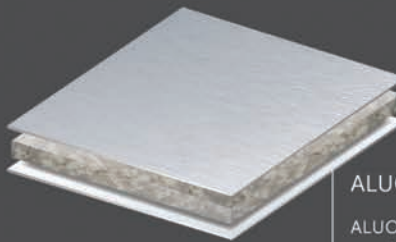
- ALUCOBOND® PLUS and A2 have been in continuous production for over twenty years.
- 3A Composites, the manufacturer of ALUCOBOND®, has only promoted and sold fire retardant material since 2013, pre-dating regulation changes.
- ALUCOBOND® PLUS and A2 were tested to BS8414 large scale tests pre June 2017.
- 3A Composites is member of the MCRMA and furthermore collaborating with National & European Authorities to enhance regulations and standards.
- 3A Composites has strategic partners enabling comprehensive training on design, fabrication and installation.

Centre Square Building 1, Middlesbrough  
ALUCOBOND® A2 spectra Desert Gold  
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ALUCOBOND® PLUS

ALUCOBOND® PLUS is a composite panel consisting of two aluminium cover sheets and a fire-retardant mineral-filled core (70%).



ALUCOBOND® A2

ALUCOBOND® A2 is a composite panel consisting of two aluminium cover sheets and a core with a high content of non-combustible minerals (>90%).

For rear-ventilated façades, we recommend ALUCOBOND® PLUS (EN classes B-s1, d0) or ALUCOBOND® A2 (EN classes A2-s1, d0) in combination with non-combustible mineral insulation. This combination shows no flame propagation or critical temperature rise, and even exceeds the requirements of BR135.



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Business Development Manager UK / IE  
Richard Clough  
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richard.clough@3AComposites.com

## Fixfast initiatives seek to raise standards in fastener specification



Fixfast, a leading manufacturer and supplier of fasteners, has launched two major initiatives to support the correct specification of fasteners for the building envelope. Architects and contractors can access a comprehensive technical support service providing guidance on project-specific fastener selection and testing. Complementing the new service, a highly-detailed Specification Guide can be downloaded by specifiers as useful reference material. Both initiatives have been introduced to encourage more consistent and improved specification of building envelope fasteners, and therefore enable the construction of better, safer, and longer-lasting buildings. Against a construction industry background of increased scrutiny on building product safety and quality, Ken Lynes, Managing Director of Fixfast, explains: "Our experience shows that fasteners can sometimes be overlooked. Although a small detail, it's critical that the right fastener is used for the right building application. The consequences of a building or its sub-systems failing could be very serious." The Fixfast Specification Guide for Building Envelope Fasteners can be downloaded at [www.fixfast.com/SpecificationGuide](http://www.fixfast.com/SpecificationGuide)

0800 0590955 [www.fixfast.com/SpecificationSupport](http://www.fixfast.com/SpecificationSupport)

## LIQUIROOF insulation boards available exclusively from SIG Design & Technology



To support their range of liquid waterproofing products, SIG Design & Technology are working with EAP to exclusively supply their innovative LIQUIROOF insulation boards. This partnership combines their expertise on both the insulation and waterproofing under one package. LIQUIROOF interlocking PIR boards deliver a super-flat surface ideal for liquid and flat roofing systems. Liquid waterproofing coatings are typically between 1.25 to 2mm thick meaning even the most minor imperfections in the substrate surface can create alignment issues and stress points on the outer surface coating. LIQUIROOF fully supported PIR insulation boards interlock on all 4 sides, from top to bottom, to create a strong and solid surface with no raised edges, misalignment or gaps. Faced with a lightweight 8mm OSB 3 panel on the topside, LIQUIROOF panels are designed for use on old or new boarded structures. The polyurethane rigid foam insulation core provides maximum insulation with minimum panel thickness. The serrated edges on the boards slot together easily to cover large uneven surfaces, and with minimised alignment time are quick to install.

01509 505714 [bit.ly/LIQUIROOF](http://bit.ly/LIQUIROOF)

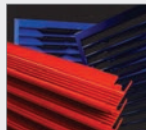


## Stertil loading bays for prestigious project

Stertil Dock & Door Products has installed 26 loading bays to support the prestigious Baytree project in Dunstable, Bedfordshire. Each loading bay incorporates the Stertil WE 574 collapsible frame dock shelter measuring 3400mm wide by 3600mm high. Comprising rugged head and side curtains, the W Series range of dock shelters can be tailored to fit and effectively seal almost every type and size of vehicle. Within the dock shelter, at the heart of the loading bay installations, is the Stertil X-Series dock leveller, type XF3020, which offers a safe platform capacity of six tonnes. All docks also feature a Thermadoor dock door complete with panoramic windows plus the latest generation PE450 dock bumpers to provide unrivalled protection for vehicles, loading bays and buildings. The Stertil installation also includes three level access doors, measuring 4000mm x 5000mm, to provide free movement of fork trucks and other wheeled loads into and out of the warehouse.

0870 770 0471 [www.stertil-dockproducts.co.uk](http://www.stertil-dockproducts.co.uk)

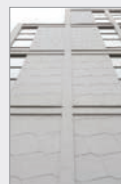
## Colour me (any shade other than grey)



Dare you venture beyond the grey? That is the challenge being thrown out by Gilberts Blackpool, in a bid to brighten British buildingscapes, particularly where large banks of louvres are involved. The company – a leading independent manufacturer of internal and external ventilation components – has invested almost £0.5m in state-of-the-art powder coating line that quadruples its colouration capacity, and can apply to any BS or RAL colour. Ian Rogers, Gilberts Sales Director said: "We have all the colours of the rainbow to choose from. It would brighten everyone's day if they looked around and saw more colour."

01253 766911 [info@gilbertsblackpool.com](mailto:info@gilbertsblackpool.com)

## High performance building materials



Baumit is a leading European manufacturer of sustainable and high performance building materials. Baumit offer an extensive and versatile range of BBA approved External Wall Insulation Systems, indoor plasters, facade renders and paints across the UK and Ireland. True to its philosophy 'Ideas with a future', Baumit continually develops and produces innovative products and systems tailored to the needs of the end user. Product research and development, combined with excellent service are an important part of the Baumit values, and work in close cooperation with its partners to ensure every project is a success.

01622 710763 [contact@baumit.co.uk](mailto:contact@baumit.co.uk)





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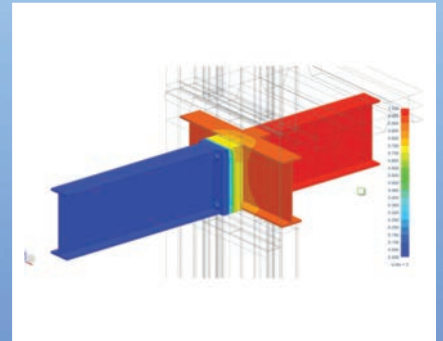
**Minimising energy loss and improving building envelope performance**



**Armatherm™ is one of the leading suppliers of structural thermal break materials for the construction industry.**

**Our goal is to provide architects, structural engineers and building design professionals with effective solutions to prevent thermal bridging.**

**Armatherm™ structural thermal break materials minimise heat loss at balcony, canopy, parapet, masonry shelf angle and cladding connections.**



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# Enhanced thermal insulation – technology and design from one manufacturer

**T**hermal insulation is a great solution to reduce energy consumption by preventing heat gain or loss through the building envelope. By incorporating thermal insulation the energy generated inside the building will be maintained thus the thermal comfort increases. Damaged or inadequate insulation can lead to mould and rotting that does not only impact the building structure but is also harmful for health.

The bathroom is a predominantly humid environment with lots of condensation; therefore the issue of heat insulation coupled with waterproofness should be given special attention when discussing the creation of thermal barrier in both renovation and new build projects.

wedi is well known in the architectural community for its precision engineered, versatile system solutions for wet areas. Being the first of its kind in the construction industry, the wedi building board with its blue XPS core, still leads the way as an all-round tile backer with superior quality.

Its 36 years pedigree, guaranteed 100 per cent water tightness and thermal insulation value of 0.036 W/mK<sup>2</sup> together with its decoupling effect and 133kgs vertical load capability provides unrivalled system security.

As the core material of wedi's pre-formed



shower elements, shower seats, niches, partition walls and all other directly tileable elements, the wedi building board is the base of the wedi system.

In 2020 wedi's newest building board, the Vapor 85 is introduced to the market. It is a panel type sealing system: a building board with a pre-integrated vapour membrane barrier applied in the factory, providing an SD value of 85. Perfect for challenging applications in areas with high levels of humidity such as in wet rooms that are constantly under a heavy strain, in wellness areas such as steam rooms or as an interior lining of swimming pool halls. Thanks to its excellent thermal insulation properties (same as) it prevents heat loss, it can be directly tiled onto and its 100 per cent water tightness guarantees an all-round seal - the perfect solution for use in the construction of low-maintenance and energy efficient pool areas.

In recent years wedi became 'visible' for the end user. The wedi Top Line expanded quickly since its introduction and today there are a multitude of pre-formed design surfaces and large format wall surfaces available in five colours and two finishes. These design elements are the perfect alternative to traditional tiling; with their seamless nature and antibacterial surface they promote hygiene around the bathroom and thanks to their low heat conductivity they further enhance the thermal insulation properties of wedi elements. All pre-formed surfaces are a perfect match to the backing wedi elements with matching gradients. Fundo Top surfaces,

designed for shower floors, are also slip resistant (PTV38-55/R11) and wheelchair accessible. However, they are not only functional but aesthetically pleasing too; whether homogenous pure white to match common sanitary ware, natural stone look in any of the four available shades or a mixture of those - they offer a timeless, modern look and a warm, natural feel.

wedi operates a sustainability management system, which provides quality and environmental management in accordance with international standards ISO9001, ISO14001 and ISO50001. Its products are manufactured with 100 per cent renewable energy, the XPS core is produced with halogen-free co-propellants and foam waste is recycled then fed directly back into the production process. An independently verified and registered document, the Environmental Product Declaration (EPD) confirms the aforementioned information as well as the environmental footprint of wedi products through their entire life-cycle.

Keeping clients' interest at focus, wedi refuses to compromise on quality making its products all the more honest and authentic. Every element, individually as well as a part of the system, does what it is designed for and does it in a secure and safe way without placing unnecessary burden on the environment.

For more information, please email [enquiries@wedi.co.uk](mailto:enquiries@wedi.co.uk).

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# Addressing the construction climate emergency

Tom Bovan of Armatherm looks at the carbon agenda in the light of 2020 and 2050 emissions targets, and how insulation advances are key to innovating in building envelopes to assist the sector towards its goals

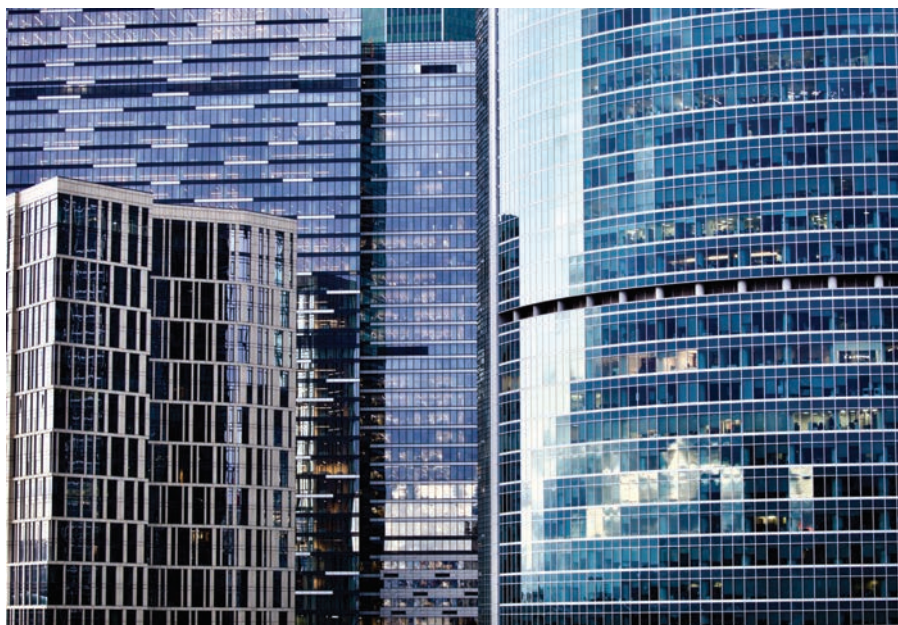
In recent years there's been huge amounts of pressure exerted on architects and specifiers to drastically improve the energy efficiency of new and existing buildings. Following the 2008 Climate Change Act, a target was set to reduce carbon emissions by 80 per cent compared to levels seen in 1990, all by 2050, with an initial reduction of at least 34 per cent seen by 2020.

The building environment counts for 45 per cent of the total UK carbon emissions (27 per cent from domestic buildings and 18 per cent from non-domestic), making it a key area to target in the fight to reduce carbon levels.

As this need to reduce carbon emissions becomes more vital, it's imperative for energy efficient solutions to be developed and incorporated within building structures. Revolutionary designs are now appearing on the market in a bid to light the way for more efficient structures to meet the upcoming regulations.

Roof-to-wall parapet locations require structural framing for support, preventing continuous insulation from roof to facade. This creates a thermal bridge where temperatures can transfer, and subsequently, energy is lost. The inclusion of a thermal break under the parapet, connecting the facade and roof insulation, can improve the effective R-value by as much as 30 per cent. This can easily be done as part of a renovation project, or during the construction stages of a new build.

Another key element assisting in the decline of carbon emissions over the years is incorporating effective, new methods of glazing and insulation within a structure, as ensuring less energy loss through windows and walls is a key way of keeping temperatures stable within a building. New double and triple glazing solutions have layers of pressured gas within the glass for added insulation. Incorporating insulation



within the wall space can dramatically improve efficiency too, and as so much heat is lost out of a building's roof, it's essential these are properly insulated. Products on the market such as multifoil, have been developed specifically to improve efficiency with vapour control and space saving properties. It can also be made from up to 40 per cent recycled materials, and has a life expectancy of more than 50 years.

When it comes to keeping heat within a building, cladding is often used to add an additional layer of insulation. It also offers structural support and protection from the outside elements. If the steel cladding framework is used to bridge the insulation envelope, it will conduct heat straight out of the building. Inserting a non-metallic thermal break to support cladding structures can eliminate this heat transfer, with the additional benefit of preventing condensation and temperature changes



when extending into the building envelope. The Z-girt system we created, for example, is designed to improve a wall assembly's efficiency by as much as 98 per cent.

Thermal breaks are an essential part of creating more efficient structures. More often than not, they're overlooked; meaning that any other methods of making a building efficient, such as cladding, can be made redundant as the fixtures used to attach the cladding can cause thermal bridges.

Using a thermal break can cut down energy loss by up to 80 per cent for commercial properties, making massive savings on the running costs of these buildings. Now we are in 2020, emissions will need to have dropped 34 per cent since 1990 to ensure the industry is on track to meet the 2050 regulation. So, how can buildings continue evolving to be more efficient?

It's essential that thermal breaks are used within these new builds and renovation projects. The most advanced methods of energy saving can be made completely redundant if the fixings and fastenings, concrete columns, steel framework and building envelope aren't

**With the potential to improve efficiencies by up to 80 per cent, architects simply can't afford to ignore these solutions**

properly isolated and protected from thermal bridges. With the potential to improve efficiencies by up to 80 per cent, architects simply can't afford to ignore these solutions.

As architects continue to work with developers to create sustainable, energy efficient buildings, understanding the latest technologies available on the market has never been more important. A detail that is commonly overlooked – a simple yet effective thermal break – can save hundreds of thousands on the overall energy costs of a building, making thermal solutions one of the most important elements an architect can invest in when working on major construction projects.

*Tom Bovan is project engineer at Armatherm*

## Additional commercial space and value



Kingspan Insulation has launched a free online calculator and App to make it easier than ever to estimate the additional space and value you can add to a commercial property by using Kingspan's thinner, more thermally

efficient wall insulation solutions. The RVoS calculator can be downloaded from the Google Play and Apple App stores or accessed at [realvalueofspace.co.uk](http://realvalueofspace.co.uk). Users can choose from five common external wall constructions, each comparing Kingspan Kooltherm solutions with lower performing alternatives.

01544 387 384 [kingspaninsulation.co.uk/realvalueofspace](http://kingspaninsulation.co.uk/realvalueofspace)

## AET Flexible Space secures contract



AET Flexible Space, the British-based underfloor air conditioning pioneer, has won the contract to supply its innovative underfloor air conditioning system to the £60 million renovation of landmark London building,

Citygate House. Architects Stiff and Trevillion are leading the extensive refurbishment of the building, which is due for completion in Winter 2020. All nine floors of Citygate House will be supplied by AET's system, which makes use of the space beneath a raised-access floor to create the air ventilation path.

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What's more its open cell structure lets the building breathe naturally.

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Managing the project from conception to completion, our delivery teams collaborate closely with architects to determine product specification, efficient manufacturing, and a timely final product installation and certification.

Alufire's fire resistant glazing products are used extensively throughout the UK and Europe. With office owners investing further in passive fire solutions, we are proud to showcase our recent project at Warsaw Spire.

## LUXOFT OFFICES, WARSAW SPIRE – CASE STUDY

Client: Luxoft

Products utilised – Vision Line

Fire resistance - EI30

Total weight of the construction/glass - 3694kg

Area: 82M2 (882.64 FT2)

## PROJECT ANALYSIS

Warsaw Spire is considered to be one of the most reputable Polish office building projects. The building consists of 49 floors,

spreading across 129,336 m2. The 220-metre main tower features a hyperboloid glass façade and has two auxiliary buildings - Warsaw Spires B and C.

Warsaw Spire is the second tallest building in both Warsaw, and Poland as a whole. It has been constructed by the Belgian company, Ghelamco, and is arguably regarded as the most prestigious office building in Poland.

Aiming to inspire in both aesthetics and security, these offices empower employees from all around the world to innovate by providing as much natural light as possible, along with ensuring optimum fire safety.

## THE RESULT

With the global consulting power that is involved in end-to-end digital solutions, Luxoft exclusively features Alufire products in its head offices in Warsaw Spire, providing comprehensive and proven fire-protection solutions.



For this project, the corridors are filled with Alufire Vision Line Partitions; this ensures a noise-free workplace and gives a modern, transparent look to the office space. Specifically, the Vision Line partitions do allow the light to get to difficult to reach places in the office, providing as much natural light as possible.

## THE PRODUCT

Alufire Vision Line gives architects the option to specify clear, sound-insulating, fire-resistant glazed partitions with fire resistance of up to 60 minutes. The system features sound reduction of up to 47 dB and is certified as EI, providing integrity and insulation. Vision Line can also certify as REI, subject to certain criteria being achieved.

The system offers unlimited possibilities to designers who wish to create sophisticated interiors with extended transparent sight lines, which are both visually stunning and offer a high degree of safety. With Alufire Vision Line, the black opaque silicone often used in frameless systems has been replaced with an almost transparent 4-6mm silicone layer that can be painted in 3 different colours.

Additionally, the glass-to glass connection options give the architect or interior designer the tools to create the most amazing interior spaces without having to compromise on fire resistance.

01422 376436

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**Diagram Labels:**  
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Cementitious Fibre Mesh Reinforced Face  
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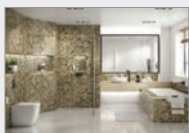
## New design: Free hanging solo in textile



Ecophon's free-hanging sound absorber, Solo, has a new design with an exclusive textile fabric cover. Ecophon now offers a full range of high-quality acoustic solutions; including both textile and standard free hanging units. "By adding texture and colour, Solo Textile adds a design aspect to a great acoustic environment. It creates an atmosphere that engages the ear, eye and mind" says Jonathan Cherry, Managing Director at Ecophon. The free hanging sound absorber is square shaped (1200x1200 mm) and comes in seven complementary colours. The textile is a high-quality polyester with a pattern of fine ribbing which gives the fabric a subtle texture. Ecophon's sound absorbers have a small environmental footprint; they are 100 per cent recyclable and are made-up of 62 per cent recycled glass. Ecophon's products meet the highest standards for circularity, indoor air quality and fire safety. "Solo Textile is a good example of how design and function can harmonise, and create, environments that are both eye-catching and foster well-being. It opens up ways to express different styles, without sacrificing the quality of the product or the environment" says Jonathan.

01256 850977 [www.ecophon.com/uk](http://www.ecophon.com/uk)

## New tile mosaic range rolled out

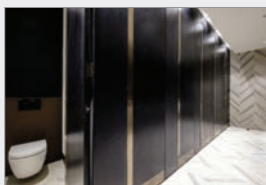


Designers and developers, as well as specialist bathroom and wetroom contractors all stand to benefit from the introduction of the new Slicedstone mosaics range on a roll, launched by Marmox (UK) Ltd. The palette of colours available under the Slicedstone brand extends

from Copper, Bronze, Beige and Graphite to Autumn Leaf, Mars Stone and Sea Stone. There are also three mosaic mixes: comprising Beige Stone, Copper Stone and Slate – Lava Stone and Lauze – then Slate, Lava Stone and Sea Stone. The laser cut 25 x 25mm or 50 x 50mm tiles provide a crisp and regular finish offering stunning visual impact.

01634 835290 [www.marmox.co.uk](http://www.marmox.co.uk)

## Highest turnover for Washroom Washroom



Last year, leading washroom designer and manufacturer, Washroom Washroom, enjoyed its eighteenth consecutive year of growth, achieving its biggest single year-on-year increase in turnover – up 30.5 per cent on 2018's previous record. As well as completing more

projects than ever before, last year the company also undertook an extensive refurbishment programme to extend its factory and increase its in-house manufacturing capability by around 20 per cent.

[www.washroom.co.uk](http://www.washroom.co.uk)

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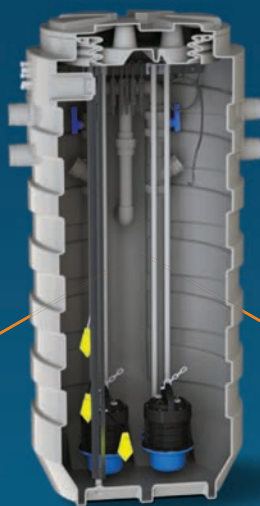
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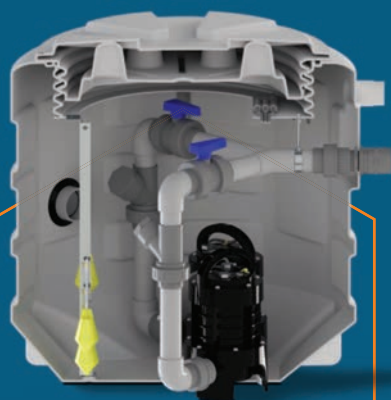
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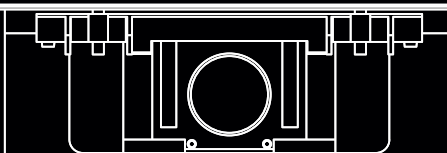
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# Looks that last

Matthew Brook of Moduleo explains how luxury vinyl floors can help to ‘futureproof’ a property

According to the Hiscox Renovations and Extensions Report 2018, 53 per cent of homeowners have carried out home improvement projects in the last 10 years, showing a desire for residential refurbishment. With an abundance of renovation shows on the TV and the number of ‘interiors influencers’ continuing to grow, consumers are continually on the lookout for ways to breathe new life into their home. And a popular way of doing this is with flooring.

While there is a wealth of floorcovering options out there, consumers rely on advice in order to make the right choice. Whether it’s through the mainstream media or a tradesperson in the know, people are increasingly turning to luxury vinyl flooring (LVT). A perfect foundation on which to create stunning spaces, the flooring mimics the natural look of wood and stone, but has been engineered to last – an important element for specification.

Developments in manufacturing processes now mean that products offer solutions for a range of installations. Some engineered vinyl, for example, benefits from integrated underlay, offering quicker installation and less sub-floor preparation; ideal for ‘fit and forget’ jobs.

Helping any build by speeding up the fitting process they offer a 2-in-1 option and are planks as little as 6 mm thick. The lower layers make it extremely strong and suitable for every space and setting. Fool proof for uneven subfloors, ‘non-telegraphic’ cores in integrated LVT has the ability to bridge gaps in the floor such as tile grouts. With no levelling preparation needed, the underlay covers imperfections, protrusions and undulations in the subfloor.

And when it’s time to ‘forget’, specifiers can rest easy with the accompanying guarantees of 15 or 20 years, or even, in some cases, a lifetime.

## The science behind LVT

Where design meets innovation, LVT is

manufactured using state-of-the-art methods. The more intricate designs can comprise up to 12 layers, incorporating design, performance, comfort and strength.

Extremely resistant to dents, scratches, stains, protective layers shield against dirt penetration ensuring the design stays in tip-top condition for longer.

And when it comes to moisture ingress, the water-resistant qualities in the protective layers of LVT repel liquid and stop moisture soaking into the material – something that is almost guaranteed with natural wood or stone, particularly in areas with variations in temperature or humidity.

## The beauty

The benefits don’t stop at the manufacturing process and continue into the timeless designs that can be created with a desirable material.

Flooring solutions need to be able to handle every property’s unique requirements and LVT is a great option to create a hardworking but beautiful aesthetic.

With a variety of colour variations from light to dark, stone and wood designs can be used to reflect every style and personality.

Bringing to life the smallest details of its natural counterparts, the ‘embossed in register’ process creates a textured finish to accentuate depth and individuality of the material. Unlike its natural counterparts, LVT has a soft and warm feel underfoot and can be a great alternative to solid stone in areas such as the bathroom and kitchen. The flexibility of a stone palette can be paired with accent colours to create a room that is chic yet homely.

However, LVT really comes into its own with statement floors, particularly with areas that need ‘zoning.’ An open plan apartment, for example, can easily be sectioned into designated areas with different floor laying patterns or colours, with the kitchen/dining space featuring





monochrome hexagons and herringbone in the lounge.

### Moving towards more sustainable flooring options

LVT is an environmentally friendly choice because it can be made from up to 50 per cent recycled materials and incorporate water-based inks and PU coatings. Tiles can include a proportion of plastic, which is a highly recyclable material, and technological advancements mean the material is lightweight and durable while remaining realistic. Maintenance must also be a consideration, too. LVT requires no harsh chemicals when cleaning, meaning the planks or tiles are not contaminated with toxic substances when they need replacing.

With the state of the environment increasingly on the consumer agenda it's important to note that being eco-conscious does not have to stop at flooring. Standing the test of time, luxury vinyl flooring with detailed aesthetics and silent acoustics will futureproof any home.

*Matthew Brook is national sales manager for Moduleo UK and Eire*

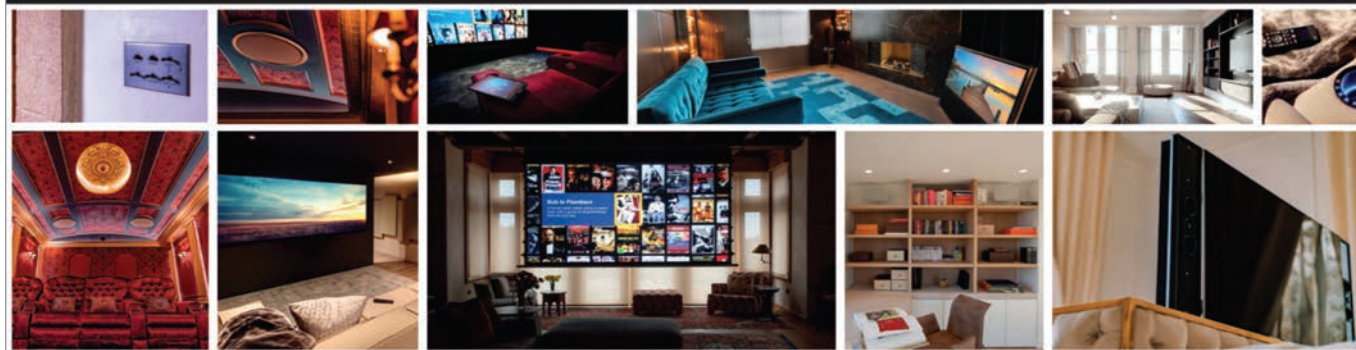
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## Deanestor wins £1.3m fit out contract



Deanestor has been awarded a £1.3m contract by Laing O'Rourke for the manufacture, supply and installation of furniture and fittings for the new £350m Grange University Hospital in South East Wales. Deanestor will manufacture

around 3,000 items of furniture for this 55,000m<sup>2</sup> hospital, including laboratory furniture, shelving, base and wall cabinets in compliance with all relevant HTMs. Its team will procure and fit more than 22,000 products for around 1,450 rooms – from mirrors and medi rails to drug cabinets and specialist catheter storage units.

[www.deanestor.co.uk/healthcare](http://www.deanestor.co.uk/healthcare)

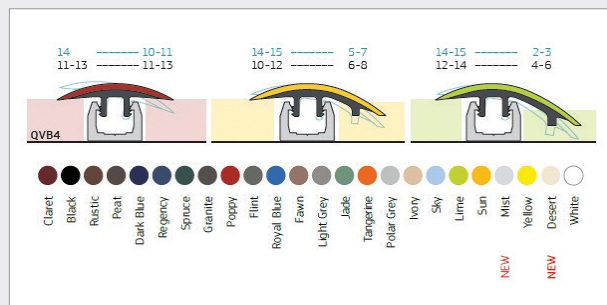
## Altro's adhesive-free floors collection grows



Altro has added innovative new ranges to its award-winning, adhesive-free, sustainable floors to offer adhesive-free options for a host of applications in the building. Benefits include enhanced comfort underfoot and greater sound impact reduction, as well as greater creative freedom as more colour and

wood design options give complete flexibility for differing application areas. Altro's adhesive-free floors also feature the most advanced Altro Easyclean technology, while retaining the benefits of reduced installation time and 100 per cent recyclability.

01462 489 516 [www.altro.co.uk](http://www.altro.co.uk)



## Quantum Flooring Solution's TopClip

TopClip is Quantum Flooring Solution's Transition Profile range. The four clip-in profiles which make up TopClip provide safe junctions between practically every mix of adjacent floorcoverings. This is down to the unique design and manufacturing techniques which have gone into the creation of TopClip. Each of the TopClip Transition Tops are easily fitted onto Quantum's renowned base technology. The high performance transitions have three sets of teeth, allowing the flattened tops to be applied flush to every type of flooring, minimising trip potential. The tread material is proven to be slip-resistant and durable, while being malleable enough to negotiate curves. TopClip is available in 23 colours. This, along with the streamlined, clean design finish makes it great for specifying in dementia friendly environments. It is also ideal for projects with aesthetics in mind.

Email to request a sample of TopClip and see the benefits.

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# Finishes for the future

Steve Grimwood of Osmo UK provides an insight into the various benefits of wood flooring, and why specifiers should choose natural finish options

**W**ooden flooring is a beautiful feature of any home, but it is important to understand that as an organic matter, it will continue to need nourishment to ensure it stays in the best possible condition, both aesthetically and structurally. My best advice to architects, specifiers and contractors is to make use of a high-quality finish, one that's full of natural ingredients, to complement the wood's properties. This will ensure that the wood continues to breathe and respond well to environmental conditions, removing any possibility of cracking and or blistering.

## Protection

A desired result for many is the natural, rustic look. To maintain this, the finish applied needs to add durability to the wood surface, protecting it from every day wear-and-tear, stains and dirt. In this situation, a clear matt finish would be the answer. The finish will not detract from the overall beauty of the natural wood, but will make it more robust, adding to the longevity. Oil and wax finishes penetrate deeply into the wood to create a micro-porous finish. This allows the wood to breathe, moisture to evaporate and ensures a flawless finish both upon application and for many years to come.

After treatment the wood is strengthened from within, and retains its elasticity. It becomes water repellent, stain resistant and more hardwearing, because it meets the wood's natural requirements, and does not crack, flake, peel or blister. This makes it an ideal choice for commercial projects where the wooden flooring needs to last, alongside remaining aesthetically pleasing.

## Colour

Another feature of wooden finishes is the ability to apply colour to your flooring. Tired or dull rooms can quickly be converted to gain a vibrant and exciting appearance. Whether it is a simple tint to change the shade of the wood, or a complete overhaul to a refreshing bold colour tone – this can be a quick-fix way of



improving the appearance of the room.

Products are available on the market that address these needs; they have been designed to combine creative design and perfect protection. Not only do they offer visual enhancement, but also a finish that maintains the natural characteristics of the wood.

A current trend within UK homes is for light-wash appearance flooring. Going for a pale finish can give an impression of increased space – essential when many people are investing more in improvements, over relocating. Additionally, a lighter finish can really open up the room – this is especially helpful when designing a space with limited natural light.

## Safety

Depending on the location of the floor, safety needs to be considered when specifying the finish. Like any hard-flooring material, wood can become slippery when

**My best advice to architects, specifiers and contractors is to make use of a high-quality finish, full of natural ingredients to complement the wood's properties**



wet, resulting in a slip hazard. To rectify this issue, many anti-slip finishes have been introduced to the UK market. These products apply a clear anti-slip finish to the floor, which doesn't compromise the overall appearance.

Prior to the application of finishes, it is essential to ensure the flooring is adequately prepared in order to achieve the best results. Whether it is a newly laid floor or an old renovation, sanding out uneven surfaces will enable the finish to achieve a better result. Without proper preparation and the removal of pre-existing treatments and varnishes, new finishes may appear uneven and will not saturate the surface sufficiently to perform the required job.

### Natural finishes & wellness

For many years, finishes for hardwood floors have been criticised for the odours they produce and this has left clients complaining about the smell or having to leave their home during hardwood floor refinishing. This situation arises because most conventional oil-based hardwood finishes contain high levels of VOCs (volatile organic compounds), which produce gases that can be detrimental to

health when breathed in. VOCs can be found in stains, lacquer and other finishes and when applied, the gases become airborne. Not only is this unpleasant to put up with, but it can be harmful.

The reason oil-based finishes are formulated with solvents (or VOCs) is to improve performance and durability. These benefits need to be balanced with the real cost. If the continuing use of this type of product comes at the price of customer satisfaction, as well as a long term detrimental effect on the environment, then their future use needs to be called into question. Thankfully, awareness is growing of the possible health risks associated with effects on air quality, and this concern has driven the demand for products with lower VOCs. Extensive research and development has bought about a situation where there are products available that are low in VOCs, which release minimal gas and are virtually odour-free during application.

My advice would be to pick eco-friendly oil/wax-based finishes that contain natural vegetable oils and natural vegetable waxes.

*Steve Grimwood is managing director of Osmo UK*

## Introducing Frammenti, the new terrazzo-inspired tile collection



The latest collection to join CTD Architectural's growing portfolio of terrazzo-effect tiles, Frammenti offers a truly contemporary twist on the traditional patterned design. Reflecting its roots as a handmade product, the new range of wall and floor porcelain tile designs combines the appearance of fragments of earthenware, marble and glass in four distinctive colourways.

Specifiers, architects and interior designers can choose from the on-trend hues of terracotta, light white, calming blue or deep black in either a micro, macro or décor design to create statement wall and floor features within all styles of residential and commercial settings. For a perfectly balanced scheme, a heavily glazed maiolica brick tile accompanies the terrazzo-inspired tiles beautifully in eight complementary shades of terracotta, pink, black, blue, white, grey, green and sky blue.

Part of the Saint-Gobain family, CTD Architectural Tiles specialises in the supply of high quality ceramic tile finishes and tiling solutions across all sectors in the UK commercial specification market.

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## Replacing kitchen doors and drawers



Changing your kitchen doors can be a great way to create your new kitchen without the cost and hassle of starting all over again. It is now easy to freshen up your doors quickly if they are getting tatty or create a new kitchen more to your style. The range of colours and styles of

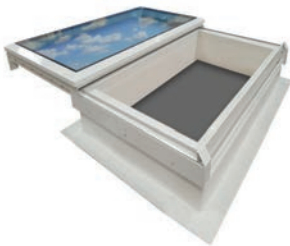
kitchen doors has grown dramatically over recent years with quality of manufacturing improving all the time. With replacement doors ranging from vinyl wrap to solid wood; the choice is yours; not to mention there are 100's of colours and styles to pick from. For more considerations visit Granite & TREND Transformations' website.

[www.granitetransformations.co.uk](http://www.granitetransformations.co.uk)



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# Hauraton high capacity surface drainage installed at Vertex Business Park, Bristol

The Vertex Business Park is a 4.8 acre site located in the Emersons Green Enterprise zone. Being just four miles from junction 19 on the M4 motorway, the 11 warehouse/office complex has tree lined boulevards and generous landscaped areas incorporating dedicated car parks, concreted access and hard standing designed to handle HGV traffic. With such a large concreted area an effective surface water drainage system was essential.

Having supplied high capacity surface water drainage channels for hard-standing areas at numerous distribution centres thorough out the UK, Hauraton were confident their RECYFIX® HICAP® high capacity channels would comply with the stringent specification asked for by the contractors.

Three sizes of RECYFIX® HICAP® F-2000, 3000 and 5000, with a loading category Class F900 (900kN) were used to drain the HGV hard standing and car park areas at the Park. All the sizes supplied had fixed ductile iron,



14mm open slot inlets finished with KTL, a rust resistant coating. By affording a superior overall hydraulic performance, the 216 metres of channel installed, provided a water storage volume totalling 8,904 litres.

The HICAP® system generally allows engineers and contractors' flexibility in layout by reducing number of channel runs normally required to drain a given area. This can mean less underground excavations, materials and vastly reduced installation time. Usually as there are fewer runs required, the surfaces strength is not compromised whilst future maintenance and cleaning will also be reduced.

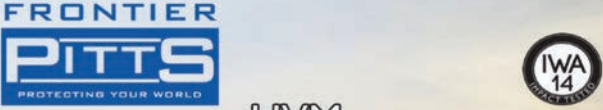
With laden HGVs weighing up to 44 tonnes, manoeuvring trucks impose an enormous

twisting stresses on the surface drainage components. So not only must the area be efficiently drained, the installed system has to withstand the twisting forces exerted by truck wheels.


Cat Jones, the Hauraton Project Manager, was certain the company's high capacity channels chosen for this job would easily match the specification demanded by Kore Construction; "The RECYFIX® HICAP® F channel components are made from specially formulated tough RECYCLED polypropylene (PP) and as each one metre channel used, including its ductile iron inlet, weighed less than 25kg it allowed one-man-lift, so greatly simplified the handling and logistics for the contractor who found the combination of a tough PP channel and ductile iron slot inlet highly resisted to site damage during installation".

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## Blazing a trail with the help of Pyroguard



Fire safety glass manufacturer and supplier, Pyroguard, has announced the release of its 2020 Technical Document, which features product information and certification for its fire safety glass solutions. The new document provides technical assistance for

the application of Pyroguard's products. This includes all solutions from E30/EW30 to EI180. As Pyroguard provides the widest fire-rated glazing range of any manufacturer, it allows the company to be fully flexible in meeting customer needs with bespoke, high performance glazing solutions, unrestricted to specific configurations.

01942 710 720 [www.pyroguard.eu](http://www.pyroguard.eu)

## Resiblock sealing is easy-peasy



Resiblock and their 'Legendary' Resiblock '22' have been specified for Sealing Works for over 1,600m<sup>2</sup> of Concrete Block Paving at the new Rainbow Lane development in Peasey Hills, Malton, North Yorkshire. Resiblock '22' is to be used to prevent Paver Destabilisation associated with sand loss from vehicular trafficking. The sealer will also prevent sand loss through cleaning regimes such as road sweepers. Resiblock were able to call upon previous examples of Resiblock '22' being specified for this use, following success at Alexandra Meadows in Hampshire and Mersey Way and The Greenway in Oxfordshire.

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# Green-tech adds a touch of green to Edinburgh's McEwan Hall

Bristo Square sits on part of the estate of The University of Edinburgh, nestled against the southerly edge of Edinburgh's old town.

Officially opened in 1983, and bordered by the famous McEwan Hall, Reid Concert Hall and the Teviot Building; Bristo Square soon established itself as a communal place where all aspects of Edinburgh society could meet, making it amongst other things, an epicentre for the Edinburgh street skating scene.

In 2015 a £33m redevelopment project was undertaken to include a major refurbishment and expansion of McEwan Hall and to the front of Bristo Square, with the external works and landscaping to make it more accessible and safer, designed by Landscape Architects Ironside Farrar Ltd.

In 2017 a completely new outdoor festival arena was unveiled, in keeping with Edinburgh's reputation as a festival city. Bristo Square is now a customary location for sections of the Edinburgh International Fringe Festival. As part of the design, artist Susan Collis was commissioned to create a meandering sculpture of bronze drips running 68m across the square.

Works in Bristo Square included tree planting, creation of more social spaces and improved accessibility. It was designed to give a light, open space, with tiered seating steps around the central events area. Bordering this paved pedestrian area are ten semi-mature trees set in hard landscaping. These trees help to soften the cityscape and provide much needed shade during the summer months.

In order to protect the tree pit soil from compaction, Landscape Architect Ironside Farrar specified Green-tech's ArborRaft tree planting system which is widely used across the country in urban tree planting projects. The ArborRaft System combines nutrient-rich ArborRaft soil with exceptionally strong geocellular units. Together they create a healthy growing space for trees in areas subject to vehicle loadings and trafficking. Individual ArborRaft units are locked together to form a raft system that sits within the tree pit. The system works by spreading the load of any vehicle movements around the tree's rooting area which eliminates soil compaction within the pit and helps to create the ideal growing environment for the trees to establish and mature.



In conjunction with Landscaping and Forestry Contractors M W Groundworks, Green-tech supplied over 200 tonnes of Green-tree ArborRaft topsoil and subsoil. Both of these manufactured soils meet British Standards and are regularly tested to ensure quality of composition and consistency across deliveries.

Green-tech also supplied the gt Sleeper and Kerbstone tree anchoring systems, along with gt RootBarrier and Mona Relief tree irrigation pipes.

The gtSleeper and Kerbstone Anchoring system utilises heavy objects such as sleepers and kerbstones to weigh down the tree and act as anchor points. Well compacted subsoil

is then placed over the sleepers and kerbstones to provide added weight and security for the tree. This is a well tried and tested system that has been incorporated into many rail, utilities and urban projects throughout the UK.

gt RootBarrier was supplied to control and protect the tree roots, as well as protecting structures from the root system. This helps the tree to establish quickly and keep it healthy, especially in the first five years of life.

Lack of water at the tree's root ball can be detrimental to the lifespan and survival of the tree so the Green-tech Mona Relief irrigation system was supplied. Installed with a perforated pipe that surrounds the tree's root ball, the Mona Relief system delivers water straight to the tree roots at a consistent level.

Each tree pit was given a contemporary finish with the inclusion of Green-tech's Fortress tree grilles installed into the surrounding paved surface. These heavy-duty urban grilles enable paving to be laid almost up to the tree trunk, protecting the tree roots, whilst at the same time, allowing rainwater to percolate through. The Mona irrigation pipes are finished off with the aluminium Piazza filler cap, to match the Fortress grilles.

## The Outcome

A couple of years' on and the latest visit to McEwan Hall showed that the tree pits are doing their job well, and the trees are thriving.

Ian Dooner – Ironside Farrar, Associate Project Manager commented, "It is always good to work on a project that seamlessly links historic buildings to the client's needs of today. The ArborRaft tree planting system from Green-tech does the job perfectly, allowing more rooting volume for the tree; and we were very pleased how the Fortress grilles blended in with the surrounding paving."

Mark Browne – Green-tech, Key Account Manager added, "This was a great project demonstrating the perfect tree pits. From the Green-tree ArboRaft soil, giving the trees the best chance of establishment, strong geocellular ArborRaft units, Mona irrigation, anchors and grilles; all coming together to form one simple yet stylish solution."

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