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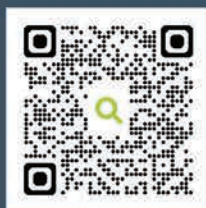


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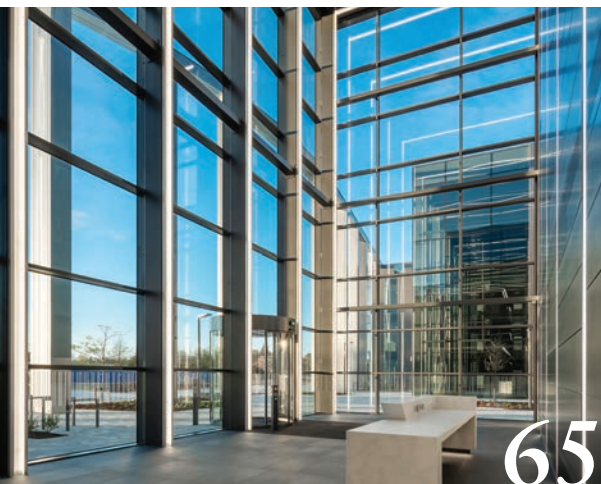
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FROM THE EDITOR



Being an architect, on the surface, might seem to be one of the world's ultimate professions, combining a high degree of creative satisfaction with the solving of complex structural and interpersonal challenges to bring a tangible positive difference to the world.

However, as ever the reality is rarely quite as wonderful as the PR, and currently the profession may be in something that's short of the current mot du jour, 'crisis,' but much bigger than a 'pickle.' The context is that the numbers of ARB registered architects has doubled since 2000, showing that it remains a highly in-demand profession. But that in itself is part of the problem.

The new world of Regulation-riven projects and competence testing comes on the back of a few decades where architects have often been relegated to purveyors of decoration, and sometimes not even present at all in building projects. Conversely, they are still the fulcrum of a vast number of successful buildings across the UK, the cool-headed link between contractors and clients, who often have distinctly different priorities. I'd suggest they are essential.

But with the ARB and RIBA's internal and inter-organisational battles ongoing, who is fighting architects' corner on fees? Traditionally, architects were rewarded handsomely in many cases for the amount of responsibility (and risk) they undertook. Now, as starkly shown by an important comment on bdonline by architect Hien Nguyen of Cambridgeshire practice MCW, pay and margins are cripplingly low against an increasing mountain of work on projects, downwardly-mobile fee bidding. And crucially, architects do not feel they are being advocated for in the sector.

Following the recent furore around Chris Williamson's seeming rejection of ARB, Nguyen has thrown light on pay, and somewhat put her head over the parapet. But it is a light that should not be allowed to dim once the next cause takes up the airtime. The architect's description of a "slow and continual erosion of the profession's value and viability" needs to ring across the sector.

Laudable moves like the Building Safety Act are understandably creating new bureaucracy, but it is not that will likely put off those future graduates. It's more likely to be the sense that architecture may not be a secure profession for them to enter, and firms that are struggling to invest in new staff may find the recruits aren't there in any case.

James Parker, Editor

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ON THE COVER...

A Norman fortress is conquered by Feilden+Mawson, providing an accessible 21st century destination while restoring its intrinsic identity

Cover image © Norfolk Museums Service. For the full report on this project, go to page 34



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Against this backdrop, ROCKWOOL is providing tangible support through a wide range of product, service and training solutions, based on our deep in-house expertise in fire safety. This offering includes our new EN-rated fire-stopping range, FirePro®, the launch of a bespoke Training Academy, an interactive Fire-stopping Standard Details Guide, and ongoing expert advice.

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helping to improve building performance and safety across the board.

ROCKWOOL's Technical Training Lead David Steel – who has a long history of working in the sector as a fire-stopping expert – said: "Specifying the right system, along with the quality of installation, are under intense scrutiny and designers have a huge range of issues to consider now.

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CULTURAL BUILDINGS

Nissen Richards Studio gets an encore for legendary Cardiff music venue's expansion, three years later



Ambitious plans to expand and refurbish legendary Cardiff grassroots music venue Clwb Ifor Bach, drawn up by architects Nissen Richards Studio, have been granted planning permission by Cardiff Council almost three years after the initial submission went in.

The new vision for the venue, which is in a historic city centre Conservation Area, has been subject to complex legal agreements and was also the focus of a major funding drive by the club's owners, with the venue first becoming a Registered Charity in 2019 to help further its ambitions not only to host the best in new music but to support the development of the club's local audience, artists, skills and community.

Clwb Ifor Bach's importance in the Welsh music scene "can't be overstated," said the practice, having helped launch the careers of many big-name Welsh bands, from Stereophonics to Super Furry Animals. The new designs by Nissen Richards seek "above all to retain Clwb Ifor Bach's character, charm and heritage, whilst modernising and future proofing it for generations to come, to ensure it is a fully-accessible venue, welcoming to all."

The revamped 1,270 m² venue will also include improved facilities such as green rooms, increased toilet capacity, new bars, offices and workshops, plus increased capacity to allow for higher-profile acts. Committed to improving

opportunities for younger audiences, Clwb Ifor Bach supports aspiring technicians, promoters, performers, photographers, and more. "The work now goes beyond music event programming and the redevelopment will help take this to a bigger scale," said Nissen Richards.

A remix for Clwb Ifor Bach

The scheme proposes the removal of the site's existing first floor and the creation of a double-height performance space, comprised of a standing area/dance floor that accommodates 375 people, plus a wrap-around mezzanine balcony, creating a total capacity of 500. The scheme will also enable two venues to operate simultaneously, with an additional 200-capacity space on the upper floor that allows for intimate live music shows, events, exhibitions and conferences, with the overall venue capable of holding up to 750 people across four floors.

The architectural treatment refers to the local city architectural vernacular, from Cardiff Castle and the semi-glazed bricks of the Victorian terraces to the render of the local Art Deco cinema. The new building's faceted front features a "slightly abstracted look facing in the direction of the castle, with its verticality more pronounced from the other direction." The verticality "reflects the Art Deco influences, but with a more industrial feel that's right for the venue."

On the building's first floor, there will also be a new cloakroom and an education room, created for use by local schools as a practice room. This space features two major glazed walls, ensuring it links to the local streetscape below. The space represents part of the venue's commitment to having more varied activities going on at different times of the day and night.

The upper floor will be significantly upgraded with a new bar and better acoustics in the form of acoustic window shutters, as well as better toilets, band rooms and offices. The proposed roof terrace plan includes a covered bar space overlooking the castle from the windows, as well as a retractable roof terrace canopy and smoking area.

At the front, there will be a main and a secondary entrance, which also serves as a fire escape. A backlit AV screen will be located where the main entrance used to be. The venue's new identity, designed by Nissen Richards Studio, features twice on the new exterior, recessed into the exterior wall of the reclad existing building. It will face in two directions, each with a different treatment, referring to the two different exterior treatments. The front-facing identity will be in frosted, backlit glass, whilst the side-facing one will be in patinated steel. The logo 'marque', which features on the new building fascia, will also be in patinated steel.

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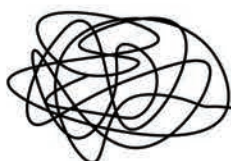
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APPOINTMENTS

BDP appoints Zucchi as chair

BDP, self-styled “original multidisciplinary house of design,” has appointed Benedict Zucchi as chair, effective from 1 July, succeeding Chris Harding after nearly a decade in the role.

The appointment comes at a time of continued evolution for the global practice, as it responds to increasingly complex social, environmental and economic challenges through design.

Benedict brings more than 30 years’ experience at BDP and “is recognised as one of the practice’s most respected design leaders,” said the firm. His work spans healthcare, education, housing and major masterplanning projects across the UK and internationally, including landmark buildings such as Alder Hey Children’s Hospital in Liverpool, Royal Alexandra Children’s Hospital, Brighton, and the new National Children’s Hospital in Dublin.

His approach to design has been shaped by a belief that architecture should “improve everyday life, bringing together disciplines, listening to communities and creating places that respond to people and place.” These ideas are reflected in his recent book, *Big House, Little City*, which offers a compelling approach to the design of projects within an ecological perspective:

the sense that big and small, cities and buildings must be approached holistically.

“Throughout his career, Benedict has been a strong advocate for multidisciplinary working and architecture as a civic art,” said BDP. Alongside Chris Harding, he recently co-authored the *Guiding Principles of Good Design*, “reaffirming values that have shaped BDP since its foundation: socially progressive thinking, collaboration across disciplines and commitment to creating places that stand the test of time.” These principles continue to underpin BDP’s ambition to design a world that is “built for good.”

Benedict will lead the principal group and work closely with the chief executive to support strategy, governance and collaboration across the practice. He will also drive business development, strengthen connections across global studios and reinforce the creative culture that underpins the next generation of BDP’s projects.

Benedict succeeds Chris Harding, who steps down following almost 10 years as chair and more than four decades with the practice. During his tenure, Chris helped guide a significant period of change and growth across BDP, including the development of The Good City initiative



Benedict Zucchi

and most recently the launch of the practice’s new brand. His design leadership also contributed to major projects including the Restoration and Renewal of the Palace of Westminster, the adaptive reuse of the History Faculty Library at the University of Cambridge and many award-winning education projects.

“Benedict’s appointment reflects both continuity and ambition, reinforcing BDP’s founding ethos while positioning the practice to address the future through collaborative, people-centered and innovative design.”

NEW STUDIO

CPMG opens Leeds studio to strengthen northern presence

Architecture and interior design practice CPMG has “invested in its commitment to supporting clients in the north of England,” through the opening of a new studio in Leeds.

Two existing CPMG directors with strong Yorkshire links “have fulfilled long-held ambitions to expand the practice northwards,” and will lead the expansion, the practice commented. Associate director Alex Walker will head up the new studio in Park Square, with support from Nick Gregory and fellow directors.

The new studio aims to build on CPMG’s core strengths in the education, healthcare, residential and industrial sectors, strengthen ties with existing clients, and form new relationships in the region.

With UK studios in Nottingham, London and Birmingham – as well as international hubs in China and India – for more than 30 years, “CPMG has been designing buildings that prioritise human needs, support growing communities, and embrace sustainability and innovation.”



Pictured (L-R): Alex Walker and Nick Gregory

CPMG is already undertaking projects in the region and is on site with new schools in the north east, having recently completed a purpose-built student accommodation scheme in Durham.



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APPOINTMENTS

10 Design appoints studio leads in Hong Kong and San Francisco

10 Design, the global architecture and master planning practice, has appointed new studio leads for its Hong Kong and San Francisco offices, further strengthening its global leadership team.

Louise Browne has been appointed studio lead for the Hong Kong studio. She brings over 20 years of experience across the transport, science and technology, education, culture and mixed-use sectors worldwide. Before joining, Louise spent 14 years at Grimshaw as a principal, where she played a key role in establishing and scaling studios in new regions, working in Sydney, London and Hong Kong and Shenzhen. Her portfolio includes major international projects such as the 900,000 m² Shenzhen East Integrated Transport Hub; Parramatta Learning Precinct, Australia; Dubai, Hong Kong and Sydney Metro; and the Grand Egyptian Museum.

Andrew Liu has been appointed studio lead, San Francisco. He joins us from Arquitectonica International, where he served as managing director/design lead. Returning to San Francisco, where he first began his professional career, Andrew brings more than 35 years of experience delivering high-profile real estate projects across the United States, China and Southeast Asia. His portfolio includes complex mixed-use developments spanning multiple continents, such as The Infinity, Avalon Mission Bay III, Trinity Plaza, Royalton, Imperium, Maven Towers at Capitol Commons, MixC Shenyang, Grand Hyatt Residences III, and the Intercontinental BGC Manila.

Louise and Andrew's appointments follow the strategic announcement of Sabrina Klor as chief executive officer of 10 Design last September and support the



Pictured (L-R): Louise Browne and Andrew Liu

practice's continued growth across key international markets. They will build on 10 Design's established global footprint of more than 400 architects and designers across Europe, Asia, the Middle East and the Americas.

 An aerial photograph of a lush green landscape with a winding river, trees, and a field. The Wates Wildscape logo is in the top right corner. A white circular graphic highlights a specific area in the landscape.

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ADVANCED LAUNCHES NEW CPD ON SMOKE CONTROL SYSTEMS



Smoke Control Systems: Principles, Pitfalls & Protection



Advanced has expanded its Continuing Professional Development (CPD) programme with the launch of a new course focused on smoke control systems and their role in protecting life and property.

Titled *'Smoke Control Systems: Principles, Pitfalls and Protection'*, the free CPD has been developed to provide consultants, specifiers, fire engineers, installers, facilities managers and other fire safety professionals with a practical understanding of smoke control strategies, system types and compliance requirements.

The module explores the principles of smoke movement and the importance of smoke control in supporting safe evacuation, firefighting access and property protection. Attendees will gain insight into natural and mechanical smoke ventilation systems, smoke exhaust and pressurisation methods, as well as the key components used within smoke control systems.

The CPD also examines the standards and regulations that govern smoke control design and maintenance, including Approved Document B, BS EN 12101, BS 7346-8, BS 9991 and BS 9999. Alongside this, the course highlights common design, installation and maintenance pitfalls, helping attendees better understand best practice approaches and long-term compliance responsibilities.

Delivered online by Shaun Scott, Applications Engineer at Advanced, the CPD forms part of the company's ongoing commitment to supporting industry education and improving fire safety knowledge across the sector.

Shaun said: "Smoke control systems play a critical role in modern fire safety strategies, particularly in complex and high-rise buildings where maintaining clear escape routes is essential. This CPD has been designed to provide practical, real-world guidance on the principles behind smoke control systems, the challenges involved in their design and maintenance, and the standards that govern them."

"By helping industry professionals strengthen their understanding of smoke control, we can support them in designing better systems and delivering improved compliance, ultimately creating safer buildings."

All Advanced CPDs are certified by the CPD Certification Service, with attendees receiving a certificate of attendance upon successful completion.

The new smoke control CPD joins Advanced's growing portfolio of educational modules, including *'Introduction to Fire Detection & Alarm Systems'*, *'Managing False Fire Alarms: Tools & Techniques'*, and *'A Guide to Meeting BS 8629'*.

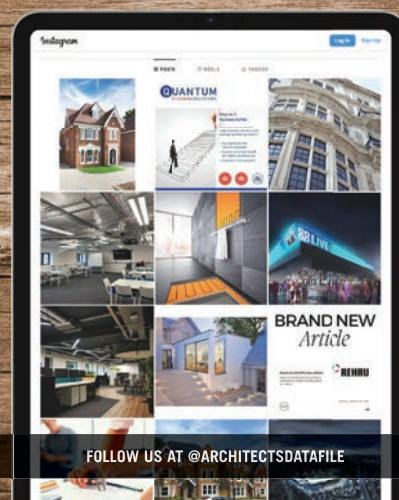
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COMMENT

BIM is part of hard business strategy, not just software

Too many firms still think of BIM as a mere modelling tool, argues Miklos Magyar at chapmanbdsp, when it is capable of adding far more value for designers.

From its first appearance in built environment parlance in the early 1990s to its widespread adoption in the 2000s, and the Government's push towards its usage in the public sector in the 2010s, BIM has now been around for decades.

While for many firms across the construction and engineering sectors, BIM came onto the scene via the software procurement route; today it can and should mean more than keeping an up-to-date Revit licence and employing a handful of trained modellers. There's a real opportunity to use it across the wider business. Properly understood and deployed, it moves beyond a drafting tool and into the realm of a data and decision-making platform. Firms that treat it purely as a modelling exercise are leaving a lot of value on the table.

The business case for BIM can most clearly be seen in two key areas: risk and speed. The logic on risk is pretty simple. In traditional workflows, construction issues tend to show up onsite, which is just about the worst place to find them. By that point you're already looking at delays, rework, possible contractual disputes, and the kind of reputational damage that's hard to shake. BIM shifts that risk to the left of the plan. By recreating the building

virtually before a single piece of steel is lifted, design teams can catch and resolve those issues early, when changes are still relatively painless and inexpensive.

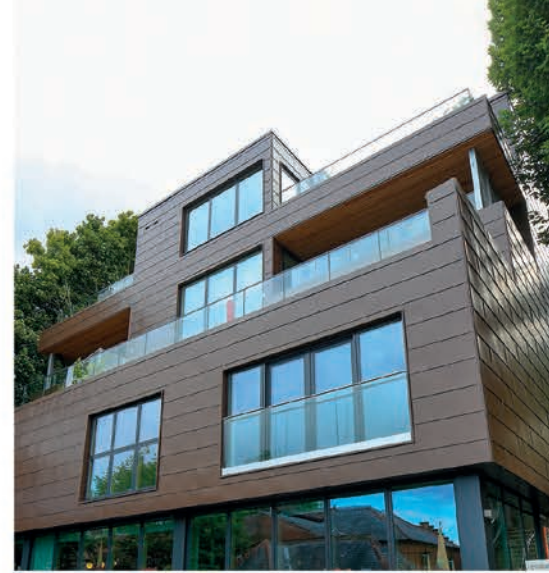
And when it comes to speed, the gains come through better collaboration. Fewer handoffs between parties mean faster project turnaround, and contractors get a richer, more reliable foundation from which to kick off procurement and planning.

BIM has the potential to put collaboration front and centre in the built environment. Few can argue that there can still be an element of silo working when it comes to the stakeholders involved in the construction programme. With this in mind, one of the most valuable things an experienced digital design manager can do is bring the different disciplines together through their usage of BIM.

The common data environment tools available today, like ACC

Design teams can catch and resolve issues early, when changes are still relatively painless and inexpensive





Attractive roofs and walls for all styles of architecture

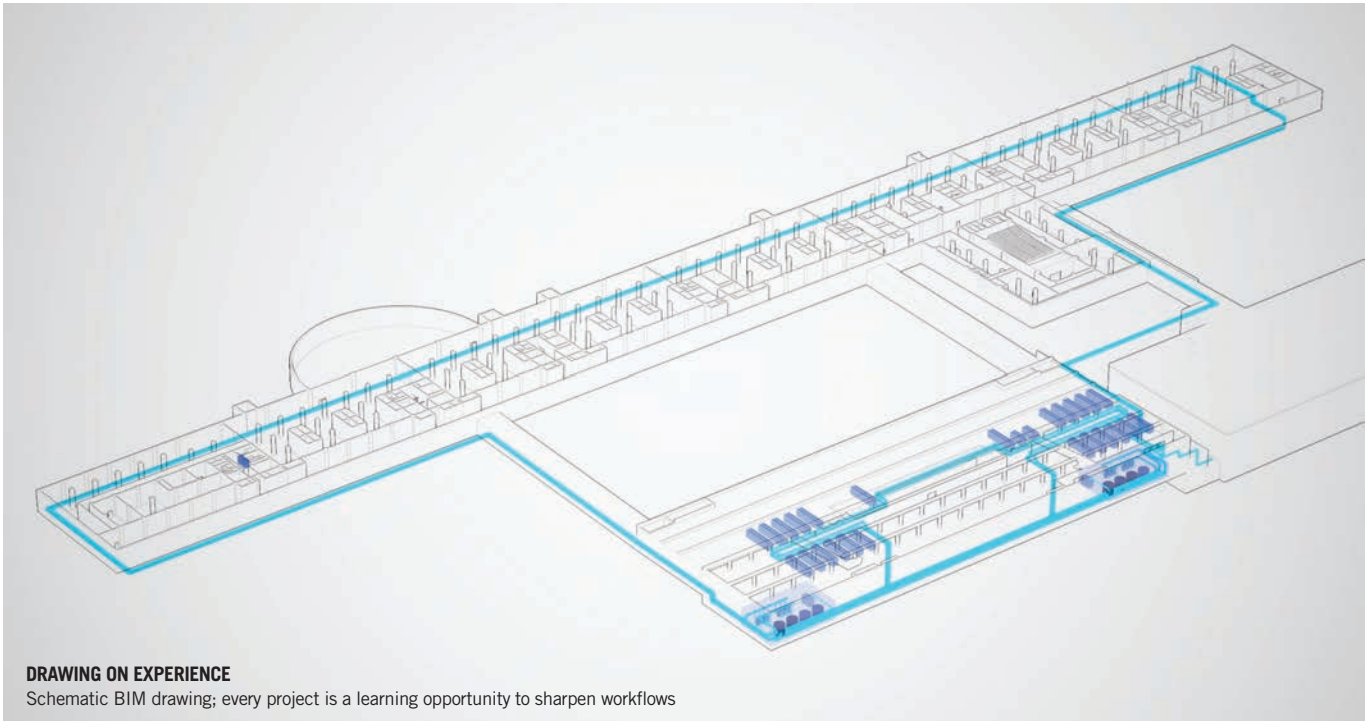
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and Revit, make that coordination traceable and accountable in a way that simply wasn't possible before. Every open question has an owner, a due date, and a clear resolution trail. Perhaps most importantly, when a design team sits in a room together with the model up on screen, everyone is looking at the same thing. There's one single source of truth, and it belongs to everyone. There's none of the misinterpretation that congested two-dimensional drawings of old have perhaps created.

The ability to isolate systems, colour code, and present purpose-built visuals, whether to a fellow engineer or a client with no technical background, translates engineering complexity into something that is far easier to understand.

There's another side to BIM's strategic value that doesn't always get the spotlight it deserves: the way it helps organisations build and hold onto institutional knowledge. Every project is a learning opportunity – workflows get sharper, lessons get captured, and that hard won experience can be shared consistently across teams rather than siloed with individuals. Over time, BIM becomes something of a living record of how your business thinks and works, so that each new project starts from a stronger foundation than the last.

And that can of course help to level out the variations in experience levels and familiarity with technology that exist in most workplaces, including architecture, engineering and construction firms. If everyone's using BIM, that gives the opportunity for senior team members to pass on experience and junior staff to help familiarise their colleagues with newer ways of working. Each generation fills the other's gap.

Despite all of this, BIM has not yet delivered its full promise, certainly in the UK. The fundamental problem is that BIM is sometimes layered on top of existing processes instead of replacing them. In practice, Revit and other similar software available is most commonly used for modelling and drafting with the two-dimensional drawing remaining the main output for many teams.

Over time, BIM becomes something of a living record of how your business thinks and works, so each new project starts from a stronger foundation than the last

And then there's the issue of the variations in, for example, naming conventions and workflows, which can vary considerably from one organisation and one discipline to the next. Since automation depends on a degree of consistency, this represents an ongoing challenge. That said, the pace of change reflects the complexity of what's being asked of the industry.

The direction of travel, however, is clear. BIM is no longer a three-dimensional modelling exercise. The 4D dimension connects the model to scheduling; 5D to cost planning, where quantities of length, area, and volume drawn directly from modelled objects can generate a cost plan automatically. The 6D layer adds sustainability data, with embodied carbon values attached to individual elements so that the full carbon footprint of a building can be calculated as a direct output of the model. The 7D dimension extends into facilities management, enabling predictive maintenance by tracking warranty periods and expected lifespans of individual components, and allowing energy simulations to be run in the model before any operational decisions are made on site. And AI is beginning to take on the most repetitive modelling tasks, annotation and tagging too.

What's clear is that firms that are building their business strategies around BIM now, and who are treating it as a data platform rather than a drawing production tool, will be much better placed in a competitive marketplace.

Miklos Magyar is digital design manager at chapmanbdsp



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ASK THE ARCHITECT

Christopher Gray, director at SLR Consulting, tells *ADF* how he has nurtured the importance of landscape-led masterplanning in his career, and why resilient green infrastructure including sensitive SuDS has to sit at the heart of future development.

WHAT MADE YOU WANT TO BECOME AN ARCHITECT?

My first degree was in landscape architecture and after graduation I worked as a landscape architect at OLIN in Philadelphia. This was an inspirational practice led by dual-qualified staff who were both landscape architects and architects.

Seeing how their unique backgrounds positively shaped the designs inspired me to return to university to study architecture. Being dual-qualified gives me a unique skillset that allows me to approach projects with a greater emphasis on sustainable design.

WHAT DO YOU LIKE MOST ABOUT IT NOW?

No two days are the same, and I get to work across the country, learning about the best ways to approach design and development that consider where the project is based. Through exploring sites, I am better able to understand potential developments and see how they work, which helps me to design unique places for people to live, work, play and study.

I enjoy the collaborative aspect of the job which means listening and working with not just colleagues and clients but the communities who are being affected by changes, understanding their concerns and explaining what we are doing to address them. It is incredibly rewarding to walk through new places that I have helped design, where people enjoy

living and have clearly taken ownership of their surroundings.

WHAT IS CURRENTLY YOUR BIGGEST CHALLENGE IN TRYING TO INTRODUCE GOOD QUALITY LANDSCAPE INTO URBAN MASTERPLANS?

As a practice, we have taken a landscape-led approach for years, however it was the lockdowns of the pandemic that made people appreciate how important immediately accessible landscape and natural green space can be for their personal wellbeing. This elevated general perception and the increasing value the public places on landscape have meant it has become easier to make the case for good quality landscape in masterplans.

We have clients who have calculated the benefit and see the evidence in the form of higher sales value across sites where high-quality landscape is in place early and consistently.

However, this is not the case across the industry. Challenges come from increasing demand for space to accommodate sustainable drainage systems (SuDS) requirements and biodiversity enhancements, which means that it is critical that these landscape spaces are multi-functional and recognised as critical elements of resilient green and blue infrastructure.

DO YOU MANAGE TO INCLUDE ATTRACTIVE SUDS IN URBAN SCHEMES, DESPITE THE FRAGMENTED PICTURE ON RISK?

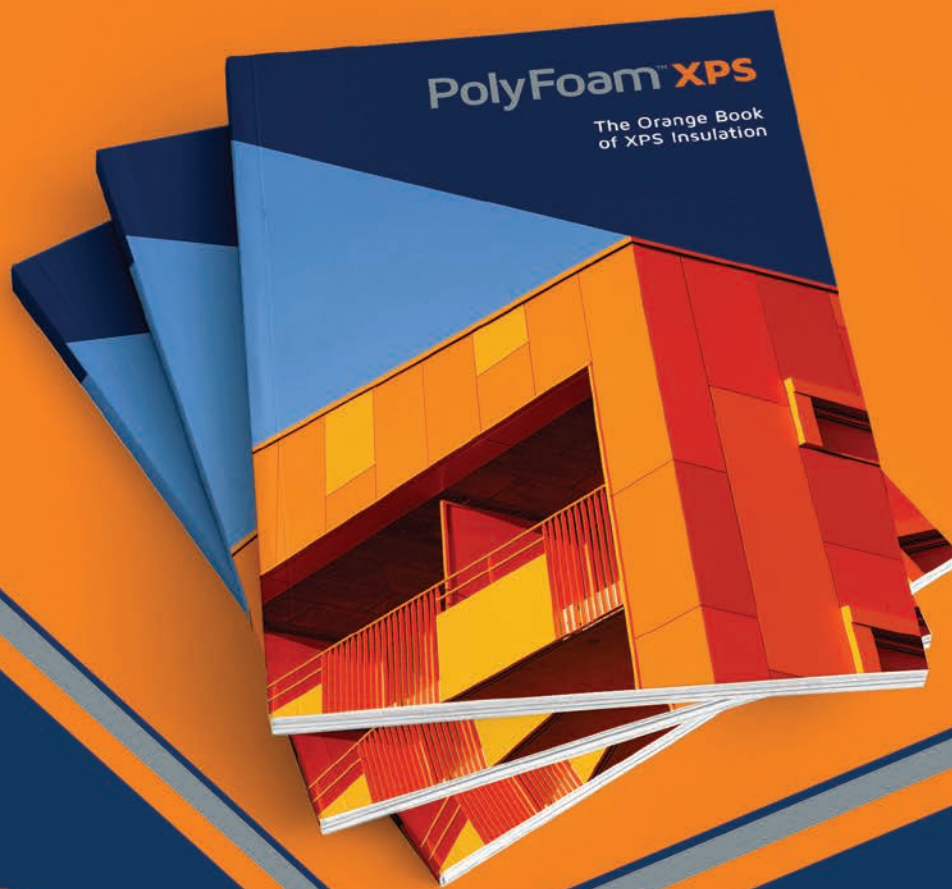
Rather than a lack of regulation, it is the patchwork of requirements and policies from adopting authorities, environmental agencies and client bodies – particularly in relation to their corporate approach to risk – that I feel must be addressed on a site-by-site basis.

The most enlightened agencies recognise SuDS have an interpretive role to play in educating the public on natural processes. We design SuDS that are attractive, biodiverse habitats with seasonal interest and which closely mimic natural drainage systems.

Conversely, as a practice we are sometimes forced down the route of ‘bomb crater’ fenced off basins in projects; benefitting no one, and which – quite rightly – the public hate. National policy to encourage the former and prevent the latter could be transformational for how we approach schemes.



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HOW CAN A LANDSCAPE-LED APPROACH DELIVER LONG-TERM SOCIAL VALUE AND COMMUNITY OWNERSHIP IN MAJOR REGENERATION AND NEW SETTLEMENTS?

A landscape-led approach puts multifunctional green and blue infrastructure at the heart of regeneration and new settlements, supporting health, activity, social connection and everyday contact with nature, rather than simply providing sprawl and leftover open space.

Long-term social value comes from inclusive, accessible places and from giving communities real opportunities to shape and care for them, such as through community gardens and shared spaces that build a sense of pride and belonging.

At Auldcaithie District Park in Winchburgh, flexibility in the design allowed residents' ambition to shape the park, leading to a community-led cricket club, a popular parkrun route and a community garden, demonstrating how landscape can enable social infrastructure to grow organically.

HOW INFORMED ARE CLIENTS ON THE BENEFITS OF LANDSCAPE-LED DESIGN?

Clients are increasingly aware of the value of a landscape-led approach and more willing to involve specialist consultants, including ecologists, early. This allows landscape architects to contribute strategically rather than reactively, as architects and engineers alone cannot resolve the environmental and placemaking challenges of large schemes. Taking a multidisciplinary approach from the outset produces more robust outcomes.

Early engagement is key to applying the mitigation hierarchy for biodiversity risks.

Knowing what exists on a site and what must be protected allows development to work with the assets, ensuring biodiversity requirements are met and meaningful uplift achieved. Delaying this makes delivering biodiversity net gain very difficult.

Policy has increased awareness, and while biodiversity net gain has had some unintended consequences, it has encouraged more careful consideration of landscape and ecology, including retention and integration of significant trees and habitats. While some clients still focus more on built form and marketing, understanding is growing that successful development is about more than clearing a site and starting afresh.

WHAT IS YOUR FAVOURITE PROJECT YOU'VE BEEN INVOLVED IN?

One of my earliest projects was in a junior role designing the landscape around the Washington Monument in the US capital, which remains the highest profile project of my career. However, my favourite project is the masterplan and delivery of the new settlement of Kingsgrove on the edge of Wantage for St Modwen. It's a project that I have been involved with since 2012, helping to secure an initial allocation, outline consent and then subsequent design coding and reserved matters applications for delivery.

Regularly walking the site over the years, I've been able to see our designs come to life, creating a place with generous public open spaces, new woodland and parks and civic spaces for the emerging community to adopt and make their own. I've witnessed the new primary school grow by a new class year by year, with the first class of pupils always being the oldest in the school

A landscape-led approach puts multifunctional green and blue infrastructure at the heart of regeneration

but able to show younger new starts around their new school. Most recently the community orchard and allotments are nearly complete and I'm looking forward to returning to see the first crops.

DO YOU BELIEVE NATIONAL HOUSEBUILDING TARGETS ARE WRONG-HEADED?

We have been underdelivering on building homes for so long that I believe we must continue to set goals, if only to reinforce and remind people of the scale of the housing need. Although the goals might seem daunting, and some say impossible, that need isn't going away and as a society we need to recognise and prioritise delivery. Without goals, we have nothing to aim for and it would be too easy to become complacent and lose momentum.

HOW DO YOU SEE ARCHITECTS' ROLES EVOLVING IN THE NEXT FEW YEARS?

We are in a period of massive disruption and change that is driven in part by two related threads that will directly affect the roles of architects in the next few years. The first is climate change and the critical need to always design with environmental impact, carbon and energy in mind. There is a lot of noise about the adoption of 'regenerative' processes but frankly these are rarely to do with built form and more about processes, systems and the natural environment and best led by disciplines other than architecture. I think the result will be landscape architects and other environmental disciplines will lead projects more frequently rather than architects, as has often been the case.

The second is the influence of AI on every aspect of our lives. Too few people are critically thinking about how AI will change things and that includes architects, who will be directly affected by AI tools as they evolve and improve, making whole processes obsolete while simultaneously making human review and oversight even more important. Architects will have to embrace these tools and a new way of working or face becoming sidelined by more nimble professions that can become more influential.



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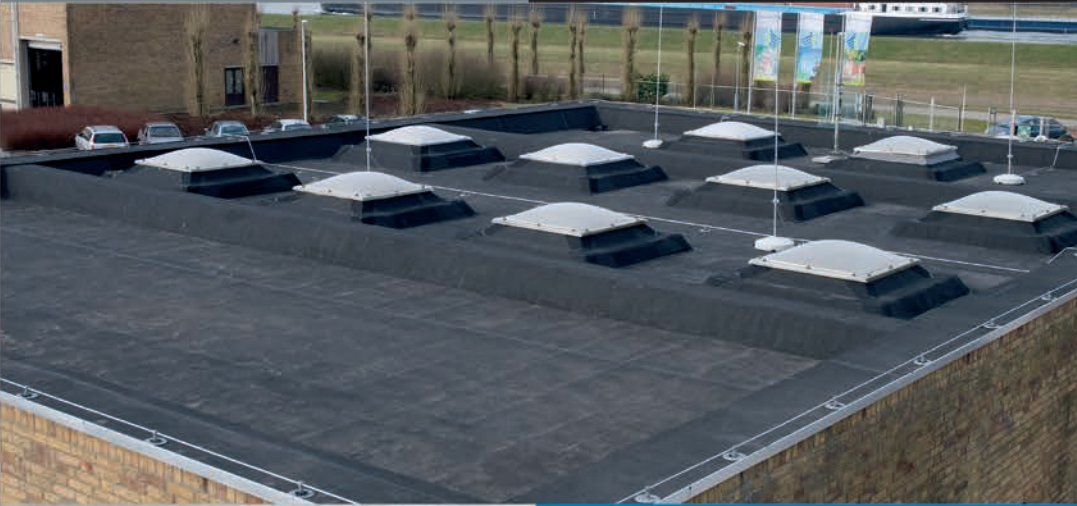


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RENZO BARBERA STADIUM, PALERMO POPULOUS

Palermo FC has unveiled designs for the redevelopment of the Renzo Barbera Stadium, marking the next step in the club's ambitious project announced in March, which outlines plans to modernise the ground. Designed by specialist practice Populous, the new stadium will enhance the fan experience, create new community facilities, and support wider urban regeneration.

Conceived as a multifunctional venue, the iconic stadium will be capable of hosting top-level international football, including UEFA competitions, as well as major concerts and cultural events. It will serve as a modern home for Palermo FC, and also as a platform for attracting national and international events, generating long-term value for the city and the wider region.

At the heart of the project is the ambition to create a stadium that is fully integrated with the city and its community. Rather than functioning as a standalone destination, the new stadium is designed to be “open, accessible and active throughout the year.” New public spaces, services and amenities will “strengthen the relationship between the stadium and its surrounding neighbourhood, helping to generate social interaction, a safe activation and a renewed urban identity,” said Populous.

The seating bowl design brings spectators closer to the pitch, with fully covered seating terraces. New hospitality and fan areas, full accessibility for all generations and families, expanded food and beverage offerings and dedicated event spaces will enhance the overall experience for fans while contributing to a higher standard of comfort and safety.

For nearly a century, the Renzo Barbera Stadium and its surroundings have formed part of Palermo's collective memory. The redevelopment seeks to preserve this legacy, maintaining its relationship with the Favorita Park and the iconic views of Monte Pellegrino, while introducing contemporary elements that enhance both the stadium experience and its connection to the landscape.

The redevelopment is designed to operate efficiently and sustainably, with integrated photovoltaic systems, resource-efficient technologies and rainwater recovery strategies aimed at reducing environmental impact and moving towards greater energy self-sufficiency. The surrounding public realm will also promote lower-impact mobility, with provisions for pedestrian access, cycling, public transport and electric vehicles, alongside landscaped areas and permeable surfaces.

Complementing the stadium, the project includes a new adjacent facility that will serve as Palermo FC's headquarters. This building will house offices, a museum and dedicated spaces for supporters and guests, further strengthening the club's presence and its connection with the city.

The unveiling of the designs follows Palermo FC's submission of the required documentation to the Sicilian Region, confirming the club's ongoing financial and strategic commitment to the project. The club will now continue working with the Municipality, the Italian Government and the Sicilian Region, each of which has expressed its intention to contribute to the redevelopment, in line with the procedures and timelines set by the relevant authorities.



ASK THE EXPERT

James Parker speaks to Jonathan Lowy, operational marketing manager at VM Building Solutions UK, about changing perceptions of zinc; exploring its growing use in architecture, sustainability credentials, long-term value, and enduring misconceptions.

How has architects' perception on using zinc evolved over recent decades, it has long been the roofing material of choice in France, but are we seeing it used on more UK roofs as well as facades?

The architectural perception of zinc does vary from country to country, even though it has been used as a building envelope material since the beginning of the 19th century. In the UK, zinc is probably used more for contemporary architecture and regularly for facades, whether that be using traditional systems such as standing seam or rainscreen cassettes.

There are a variety of finishes now available, from darker hues to copper, but which are proving popular with architects currently?

VMZINC has been offering pre-patinated zinc since 1978, but over the last 30 years the options available to designers have multiplied with over 10 standard pre-weathered finishes now being available but Pigmento Red does seem to be very popular.



Is availability of zinc less of an issue than some may believe?

All VMZINC is produced in France, but it is stocked in both the UK and Ireland making procurement relatively straightforward.

What about perceptions of the cost of zinc – why does a long-term view need to be taken to establish its true cost, and has its durability and low maintenance been underappreciated?

Zinc does sometimes suffer from an image of being attractive and durable – but also expensive. The first two points are undoubtedly true but the cost perception is often incorrect, especially when lifespan and maintenance are taken into account.

How and why is zinc a key sustainability choice, based on its recyclability alone?

After a lifespan which can be in excess of 100 years, old zinc can be taken off a roof and is 100% recyclable – with the actual recycling rate being pretty close to 99%.

Is zinc being specified in wider range of buildings/typologies than in recent years, and are zinc facades popular in a range of typologies?

Zinc is used on projects from small residential extensions to large HS2 infrastructure, and everything in between.

What are the accreditations and skills required to install zinc roofs and facades?

For a zinc roof or facade to be attractive and durable both good design and installation are important. VMZINC work

with almost 150 specialist contractors across the UK and Ireland, of which over 65 are VMZINC@WORK partners able to offer 50 year material warranties.

What are the certifications for zinc that support its case for use in an increasingly 'mainstream' variety of settings, including for Building Safety Act compliance, and EPDs?

All VMZINC finishes are A1 non combustible, and many build ups have Brooft4 certification showing no flame spread or penetration. There are also a number of British Standards for zinc roofing and wall cladding as well as BBA certificates for warm roof build ups. EPDs go without saying.

Where is zinc made and stocked?

VMZINC is produced in France and is stocked all around the world – obviously including the UK and Ireland.

Why should architects consider zinc accessories alongside facades and roofs?

VMZINC offer a range of accessories whether it be membranes for substrates, a full range of gutters and downpipes or roof ornaments such as finials or even bespoke dormer windows. These accessories provide both technical and aesthetic advantages for roofs and facades.

To listen to the full podcast and hear more of what Jonathan has to say about the role of zinc in architecture, scan the QR code.



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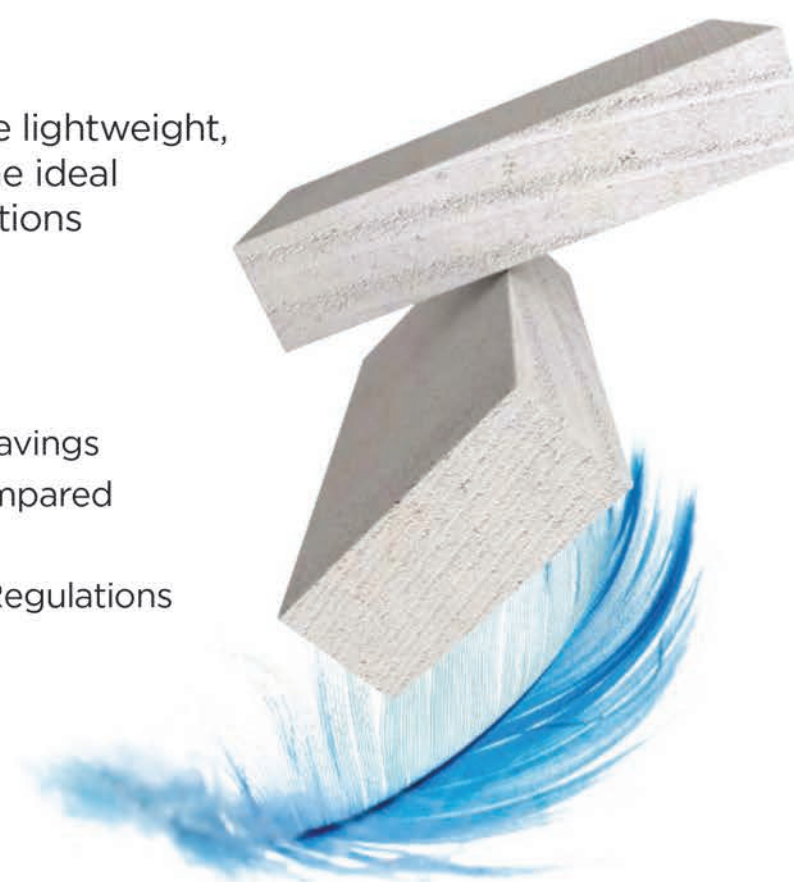
Durox blocks are 620mm long to help build faster.

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Round table chair, ADF editor James Parker

Keeping Fabric First in Future Homes Standard Compliance

A round table of housebuilders, consultants, academics and supply chain representatives convened earlier this year to discuss how to maintain a focus on building fabric for housebuilders complying with the new Future Homes Standard (FHS), in a context of demanding new home delivery targets in England. The meeting had some particularly important insights around how to ‘keep fabric first,’ and therefore obey the original maxim behind the standard, in the face of an industry narrative dominated by heating and renewable technologies, and operational carbon rather than upfront embodied carbon.

The event was held at London’s Building Centre, and was sponsored by Kingspan Insulation, engineered timber provider Medite Smartply, membranes supplier Don & Low, Tarmac Group, Keystone Lintels, and windows firm Eurocell.

Shortcomings in the final published FHS consultation response were highlighted by delegates, although the final implications for housebuilders would not be clear until the publication of the Home Energy Model, expected to come into force in March 2027 alongside the FHS. The fabric requirements themselves didn’t move far beyond the Part L 2021 improvements, apart from a small uplift in air-tightness, and a more rigorous way of calculating window performance, but the response confirmed many key compliance aspects such as the PV requirement. Delegates particularly criticised the fixed ‘functional requirement’ for 40% of the ground floor area to be roof-mounted solar PV, constraining design flexibility around other options for compliance.

Other challenges raised included the persistent performance gap between design and built homes, and how value engineering hampered robust materials specification. In particular, skills shortages across the delivery chain were a barrier to prioritising fabric, and delegates said that even the emergence of the Standard itself, with its associated costs, was thought to have prompted more people to leave the industry. However, with the Government not backing up challenging building targets with good engagement with industry, the sector was likely to have to deliver the initiatives required, from skills to offsite building innovation. Solutions from triple glazing to Building Passports, as well as the likely impacts of



MULTI-DISCIPLINARY VIEWS ON THE MATERIAL REALITIES

The round table once again brought together leading voices from the construction sector with suppliers, to explore the practical realities of compliance

the new National Planning Policy Framework, were all discussed in a practical and highly engaged way at the round table.

Broad-based debate

To give a broad-based picture of the issues around keeping fabric first, the conversation included leading housebuilders, a range of consultants, and sponsors’ representatives. While the Standard has confirmed many compliance aspects, and the transitional arrangements extending until 24 March 2028, delegates said HEM will be essential for clarifying the trade-offs and balances that housebuilders and designers will need to make in schemes.

Industry bodies and associations engaged in advocating a fabric focus in future homes included the Insulated Render and Cladding Association (INCA), the Insulation Manufacturers Association, the Association of Environment Conscious Building (AECB), and The Green Register. The debate took a deep dive into the onsite challenges, the systemic skills gap facing the sector, and possible



ROUND TABLE CHAIR**James Parker**, Managing Editor, Architects' Datafile**ATTENDEES****Naomi Sadler**, Director, SEES (Sadler Energy & Environmental Services)**Tim Martel**, Standards & Certification Programme Manager, Association for Environmentally Conscious Building (AECB)**Dr Marina Topouzi**, Researcher, Energy programme, University of Oxford (Environmental Change Institute)**Simon Storer**, Chief Executive, Insulation Manufacturers Association (IMA)**James Towt**, Principal Energy and Carbon Consultant, Useful Simple Trust**Tom Westwood**, Programme Director, The Green Register**Rob East**, Associate Technical Director, Newland Homes**Ness Scott**, Head of Sustainability, Greencore Homes**Paul Christmas**, Insulated Render & Cladding Association and Head of Technical at EWIPRO**SPONSORS' ATTENDEES****Jon Ducker**, Head of Regulatory Affairs, Kingspan Insulation**Roly Ward**, Head of Business Development, Medite Smartply**Alan Collier**, Business Development Manager, Don & Low**Chris Pears-Ryding**, Commercial Director, Blocks, Tarmac Group

solutions. Key recommendations for both industry and Government are collected at the end of this report.

Jonathan Ducker of Kingspan opened the discussion saying the target of cutting carbon emissions by '75% to 80%' on 2013 Building Regulations under the Standard "isn't actually that big a step." He said it amounted to approximately a "30% to 35% improvement over 2021 regulations, depending on house type" – either reassuring or somewhat underwhelming, depending on your perspective.

On fabric specifically, he said that retaining the Fabric Energy Efficiency Standard (FEES) to nominally prioritise fabric in the FHS is welcome, as it is "what keeps the building honest. The fabric as a whole is the foundation that then allows for the building services and heating systems to perform in a coherent and appropriate way. And if you don't get the fabric right to start with, then those systems may well underperform."

He was confident that fabric was embedded into compliance, thanks to FEES: "The requirements do seem to be structured so that you can't leave the fabric behind and still get the building to pass anyway; you will struggle significantly on FEES, you may even struggle on the dwelling emission rate and primary energy metrics; there is simply no longer the flexibility that you might have had in the past."

Consultant and SAP assessor Naomi Sadler said that she and many others were "disappointed that the baseline U-values weren't lowered further [from the original SAP levels]." While there had

been a "jump" to make to the interim SAP 10.3, she said, it's "very much pointing towards what HEM will be aimed at, looking closely at the small gains, such as secondary pipe insulation and products' thermal conductivity."

The burden of evidence

Sadler added that the new rigour of providing continuous BREL photo evidence on projects, "showing exactly what is put into that building and also precisely how it is built," was the sector's "biggest compliance challenge," and a "massive cultural jump." She said it was mandatory for "absolutely everything, especially thermal conductivity," but celebrated that "cheap and poorly installed insulation will no longer be accepted." She said digital apps that "support multiple authenticated users and preserve ongoing access," were needed, avoiding issues such as site managers "frequently disabling location settings due to surveillance anxieties."

Simon Storer, representing insulation manufacturers, said a culture change had to happen: "We must stop building homes below current environmental standards. Excusing compliance failures because trades turn off geo-location settings is unacceptable."

Ducker added that the new regime should bring more rigour, for example with redesigns being required if air-tightness scores "did not turn out as expected, or changes of specification such as windows are done without full knowledge of energy assessors." Rob East of Newland Homes described how all of the evidence gathering was "adding a layer of bureaucratic work," but benefitted from a SAP assessor with a dedicated software platform.

He advised: "Holding pre-start site meetings across the entire structural supply chain – from groundworkers up – is essential. We warn site managers that failing to log photos at the moment of construction will jeopardise CML mortgage sign-off." Jon Ducker said that the days of design teams "rarely communicating the importance of key thermal details to site installers, and design-stage compliance certificates simply filed away" were now over. "Proactive communication is now vital," he said, as "a single failure in a hidden detail will cause the building to fail its final test."

Industry's fabric first initiatives; from Building Passports to EPDs

Simon Storer said the Government should back a "definitive digital building passport" to collate architectural and material data from BREL photo evidence, to geo-located compliance data, and EPDs in a central hub, providing a "single source of truth" that would thereby drive quality. This would "record subsequent life-cycle modifications, manufacturing traceability, and structural quality," including detailed product tracking provided to support circularity.

Delegates agreed this would ensure data continuity across changes in ownership, and prevent loss of evidence due to subcontractor churn. Naomi Sadler emphasised the need to safeguard homeowners long-term against changes in the supply chain, such as people leaving job roles.

Simon Storer said the industry should be held to the same standards as automotive manufacturing, but while manufacturers in construction faced "intense quality control" such as Declarations of



Performance, contractors “often bypass hidden details because they are difficult to execute.” He said the rigour expected in Passivhaus should be more commonplace; “I don’t think it’s excusable to say it’s a bit difficult.”

With a lack of buyer know-how, “progress must be industry-led,” said Storer, adding that “if left to old habits, our environmental standards will fail.” Roly Ward from sponsor Medite Smartply countered that consumer demand was a driver; “they demand low operational costs, longevity, and durability, even if they do not understand structural material physics.”

Onsite spec changes & feedback loops

Delegates said that post-design changes onsite such as substituting some building elements, often due to availability issues, could hamper performance aims. Naomi Sadler said that in terms of building envelope and block specification, “the reality onsite is that different conductivities and U-values are routinely mixed across different floors.” She added: “Unauthorised material changes are rampant, and while generic, freely available psi value details are helpful, they are legally invalidated if a site switches from aircrete blocks to alternatives.” Chris Pears-Ryding from event sponsor and block supplier Tarmac said it was important to “motivate busy site teams” to ensure that demand was managed appropriately, to avoid mixing: “Compliance data needs to offer direct operational advantages, for example, verifying material volumes via digital photo logs to power automated demand forecasting.”

Rob East said that for Newland, “mixing block types within a single storey is an absolute no-no. If a shortage occurs, we halt construction at a defined plot boundary and revise the compliance calculations.” He said that aircrete blocks “vary significantly by manufacturer, so our buying team identifies available options, and we run SAP calculations based on the worst-case scenario data to ensure a fail-safe compliance route.” His firm has extended its spec to a 125 mm blown-insulation filled cavity, “which fills structural gaps more reliably than partial-fill rigid boards.”

He added that quality control has been tightened up – Newland Homes has reduced air tightness from seven “down to a consistent five.” While he said going to 4.5 would be “comfortable,” dropping down to 3.0 becomes “significantly more demanding on trades and depends heavily on house geometry.”

Delegates pointed to the importance of setting up ‘feedback loops’ from developers on the true thermal performance of compliant homes to help grow best practice. Dr. Marina Toupouzi of the University of Oxford said a true fabric-first approach “must prioritise holistic thermal comfort and structural resilience against future cooling demands, not just heating costs.” And “active evidence” needed to form those feedback loops to “instruct installers onsite about structural failures. Currently, we compile data without learning from construction mistakes.”

Another reason that performance may not match expectations was around default values being applied to fabric designs, however, plus a lack of expertise in the sector, however this was exacerbated by certain product substitutions, said delegates. Jon Ducker explained the example of substituting a specified 0.15 W/mK aircrete block with a dense aggregate block, which “significantly



SOLUTIONS FOR GETTING FUTURE HOMES' FABRIC RIGHT

As well as exploring the challenges of keeping fabric to the forefront, delegates looked at solutions including data transparency, onsite checks, and embodied carbon

increases the psi value.” He added: “If this goes unrecorded, the completed home will seriously underperform. If it is caught late, the house will fail its compliance test.”

And he asserted that FEES would not protect against this, being a “holistic score determined by walls, roofs, floors, windows, air tightness, thermal mass, and ventilation. You cannot compensate for a poor fabric design by adding solar PV; individual window variances cause minor swings, but party wall junctions and lintels can cause massive heat loss if developers drop down to poor regulatory default values.”

Naomi Sadler added: “This is where progressive companies utilising intelligent vapour membranes will succeed. BREL requires visual evidence of explicit membrane overlaps, which manages interstitial condensation risks while securing airtightness.” She said that standard site practices, “like incomplete mortar dabs behind plasterboard or unsealed floor joist penetrations,” are primary sources of major air leakage.

Solving the skills and competence gap

Paul Christmas of external wall association INCA described the training initiatives underway to increase rigour and professionalism of installations, in the wake of well-publicised failures around the Green Deal and more recently, ECO. While this focused more on the huge domestic retrofit challenge, tackling the inconsistency within training that he pinpointed was a vital part of the new, more belt-and-braces culture permeating across the industry, which will slowly rebuild consumer trust.

Paul accepted that the standard curriculum still “completely omits proper installation detailing,” and even structural engineers, according to Naomi Sadler, “routinely alter site details without understanding the impact on psi values or fire safety compliance.” She said that further education colleges “refuse to update their curricula,” so it’s left to enlightened consultancy to spot failures and force contractors to remedy them, even rebuilding structures. As Paul Christmas said, it will take some time before the mainstream standards begin to improve as a result of current training efforts.

Simon Storer thought that it was more essential to “build true



competence” than to “hand out training certificates.” He added: “I have seen certified coordinators take photos blindly – simply because they were told to gather evidence, without understanding the underlying building physics.”

Session Two: Suppliers’ Question Time

In the second session of the debate, the sponsors got to ask a series of pertinent questions from their perspectives, bringing a further real-world practicality to the discussion. First, Roly Ward of Medite Smartply raised the issue of the ‘double-whammy’ of achieving lower embodied carbon plus the rigorous performance requirements of the Future Homes Standard for designers of residential buildings. He questioned why less than 15% of homes in England were now built using timber frame, and asked delegates what Government-led initiatives needed to be enforced to enable resi developers to increase uptake. He affirmed how timber was already ahead of the game on EPDs, as they were increasingly “on systems not just on products,” but that selling offsite processes required a whole-life carbon calculation attached.” However, much more Government engagement in driving those approaches.

Jon Ducker from Kingspan Insulation then asked: “Given that Wales and Scotland are maintaining stronger fabric standards, what would encourage developers to go beyond the English notional specification to deliver low-energy homes?” Tim Martel of the Association for Environment Conscious Building said full Passivhaus design only adds around 4% to 8% cost premium but “drastically slashes lifetime running costs.” He said the AECB’s standard was a “pragmatic” new-build space heating target of 40 kWh/m² per year, compared to the Passivhaus target of 15 kWh/m². Roly Ward held that a target of 40 was “well within the grasp of standard builders, and that we “must be entirely pragmatic about volume supply to reduce national carbon emissions rapidly.”

Ducker was followed by Alan Collier, from Don & Low, who focused on membranes for creating airtight constructions, asking “how confident are housebuilders that onsite installation quality of membranes and airtightness detailing matches the performance assumed at design stage, and what needs to change in order to close that gap?”

Ness Scott of Greencore Homes commented that they have a “strong level of confidence” based on their robust onsite QA practices, including a QA manager picking up any issues “very early on.” However, she said she hoped FHS compliance wouldn’t be a case of “suddenly introducing a new quality assurance process.”

Then, Chris Pears-Ryding, Tarmac Group changed the focus onto embodied carbon, asking: “With the Future Homes Standard currently driving the majority of focus to reducing operational carbon, how can we ensure that the potential benefits of reducing embodied carbon get the right level of attention from regulators and housebuilders alike?”

Delegates agreed that reporting or limiting embodied carbon was a glaring omission in the Future Homes Standard, and Simon Storer for one believed that evaluating whole-life carbon must become the priority, “not just upfront embodied.” However Ness from Greencore Homes gave a possible explanation for the short-term focus, that whole-life carbon models such as over a 60-year cycle



SHARING THEIR SKILLS

Our delegates brought their skills to the fore, including around the skills crisis and how offsite methods could point to a solution

“rely on highly speculative assumptions, while upfront embodied carbon can be accurately and verifiably assessed today.”

Questions were also submitted by Eurocell and Keystone Lintels on the ramifications of the Standard when it came to windows and openings, and these were tackled during the debate despite the absence of company representatives. Eurocell wondered if, without further government support, the “escalating costs and regulatory complexity associated with achieving net zero would limit the growth of UK housebuilding,” and Keystone Lintels posed the issue of whether an overt focus on walls and insulation values could ignore how thermal bridging at openings can “quietly undermine performance,” and whether its impact was underestimated. Several delegates commented on the importance of detailing including junctions and openings, such as Naomi Sadler, who said that this threw SAP Assessors’ shortcomings into sharp relief.

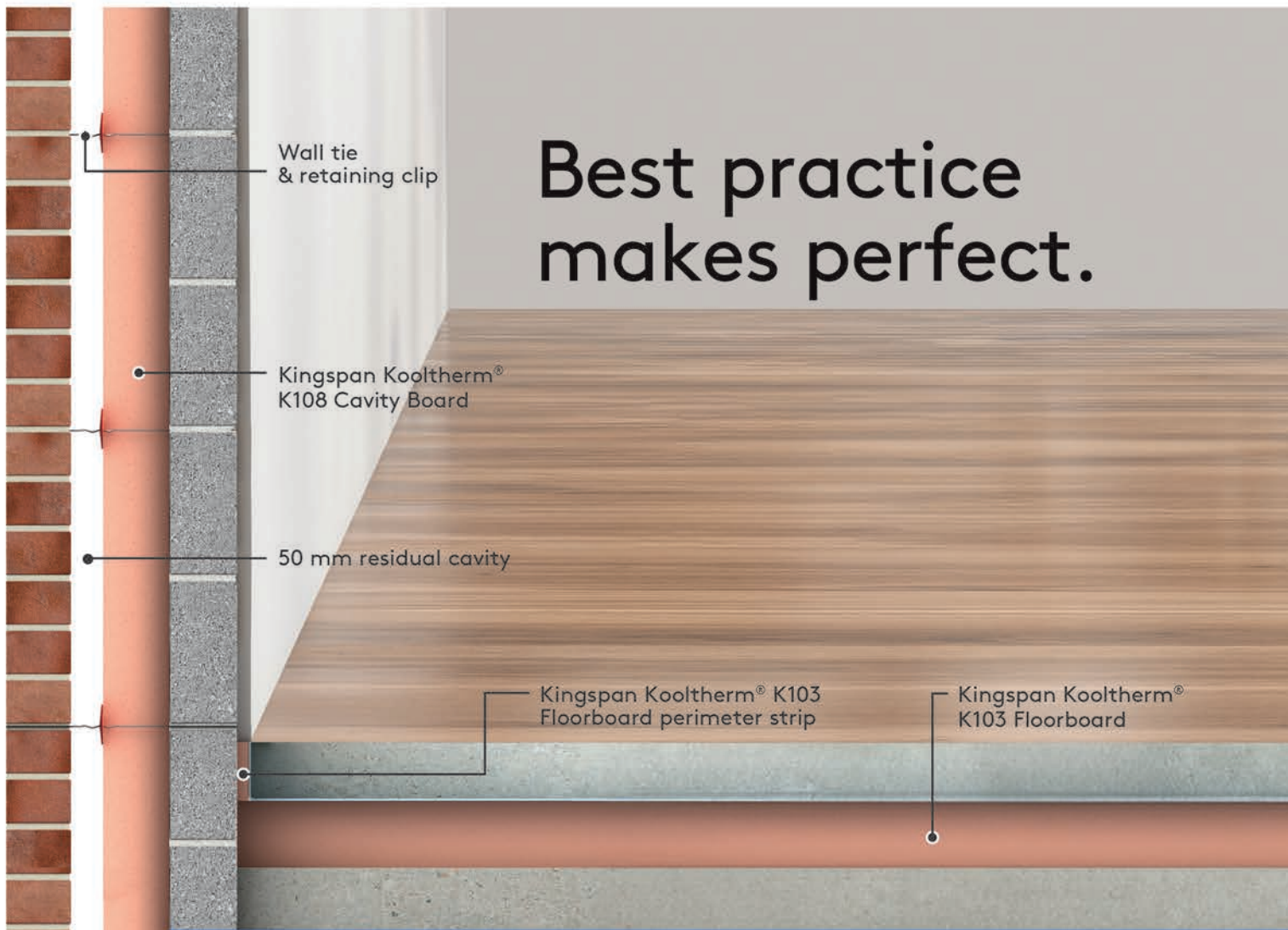
Sadler said this challenge also affected the overall envelope design: “Most SAP assessors lack practical site experience and do not understand physical construction. So when structural engineers alter block specifications for loading or foundation depth without consulting the energy assessor, the thermal implications on sills and lintels junctions are ignored.” Naomi came back to the issue of default U-values, saying that assessors typically apply generic values; in reality, large structural window openings require custom lintels, and this causes late-stage compliance failures.”

She also commented on issues around window specification from the new Standard: with architectural trends specifying large areas of glazing with slim frames, consequential structural steel posts “disrupt thermal junctions.” She added: “Most site teams cannot define a Y-value, and uncalculated changes in block conductivity can completely destroy the validity of the SAP calculation. Delegates also looked at the realities of triple-glazing’s performance and structural ramifications, as well as impacts on G-values, and therefore solar gain.

Conclusion

One of the most interesting takeaways was when several delegates backed the idea of bringing back the long-lost Clerk of Works

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AT THE CENTRE OF THE INDUSTRY DEBATE

Building Insights LIVE continue to host the leading round tables for construction sector academics and associations to come together with supply chains

role, to coordinate delivery of designs onsite, spot cost-cutting, and enforce quality. Rather than a national regulator policing energy efficient buildings, delegates supported the Clerk of Works option, pointing out that Berkeley Homes for one still employed them.

Simon Storer summed up the simple maxim why fabric had to be ‘first’ for FHS-compliant homes: “If fabric fails, the heat pump cannot operate efficiently.” Jon Ducker said the proof of poor outcomes would be seen in consumer complaints; “any structural fabric failure will be immediately evident to the consumer through poor heating performance.”

Storer pointed to the future, saying that part of recruiting the next generation of construction professionals was that “we must create specialised, well-paid compliance roles,” as opposed to box-tickers. Ducker was optimistic that “systematically tracing real-world building performance will force the industry to address underperformance.”

Simon Storer offered a strongly-worded conclusion in making his recommendations for industry and government, which homed in on the fundamental problem of Government setting targets, and sometimes imposing measures, without any depth of industry knowledge. This spoke to the need for industry initiatives on maintaining focus on good fabric such as those highlighted at the round table to receive greater consideration by the Government, especially rigour and transparency.

He said that the Government “needs to stop beating the industry up and imposing so much on it. How many consultations have there been in the past five years, and what do they do with them? Release another consultation because they don’t like the answers?”

Pinpointing the knowledge gap between the Government and industry on building performance, he said “a much better, collegiate relationship” was needed, given the challenges the whole value chain was undergoing. “Work with us, trust us to prove it, and stop doing things ‘to’ construction.” He asserted that the industry was “seen as the enemy,” but there was huge scope to improve on the interface between the sector and Government, for the good of all.

RECOMMENDATIONS FOR INDUSTRY & GOVERNMENT

- **Tim Martel, AECB:** You have to have someone on site to check that what has been designed is being built, and you can’t prove they are doing it right unless you have a photo. Setting up toolbox talks and dummy examples can bring all of the site team together; things like taping junctions are not easy.
- **Jon Ducker, Kingspan Insulation (event sponsor):** Signposting from Government would be hugely welcome plus onsite performance evaluation and certification.
- **Marina Topouzi, University of Oxford:** It’s not fabric or renewables first, we need both, and we need understanding at all levels, from design until operation.
- **Naomi Sadler:** I’d like more transparency from industry and for the Government – to be able to upload photo evidence to a Government portal to be accessed by all.
- **Rob East, Newland Homes:** When you produce something that’s substantially better than an EPC ‘A’ rating, it ought to be recognised, in a way that’s easy for a home buyer to see at a glance.
- **James Towt, Useful Simple Trust:** We need transparency around the direction of travel from the Government.
- **Alan Collier, Don & Low (event sponsor):** Communication and education; training onsite such as around VCLs, and onsite supervision, and I’m all in favour of bringing back Clerk of Works.
- **Ness Scott, Greencore Homes:** Regulation for embodied carbon is absolutely essential, that would drive the change we are all looking for. The industry needs to do more post-occupancy evaluation.
- **Roly Ward, Head of Business Development, Medite Smartply (event sponsor):** The proposed Part Z is key, mandating measurement of embodied carbon, to shift focus from operational energy. We need encouragement and engagement from the Government, their high targets weren’t really backed up with any substance or assurance.
- **Paul Christmas, EWIPRO:** The Government should focus on reducing energy consumption via fabric first, rather than putting all their focus on cheaper energy.
- **Chris Pears-Ryding, Tarmac Group (event sponsor):** We need that embodied carbon information from the Government.
- **Tom Westwood, The Green Register:** The Government could partly ease the transition to increased regulatory requirements by funding training.
- **Simon Storer:** We need to move to the Building Passport idea as soon as possible; it may be difficult to get going, but once it’s in place you build on it, you don’t have to have the final model from day one. And unless you have a proper inspection regime, the standards don’t mean anything.



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Conquering the castle

Transformed from a forbidding symbol of Norman power to an accessible heritage destination, Norwich Castle has undergone one of the UK's most ambitious historic refurbishments. Stephen Cousins reports.

When William the Conqueror laid siege to England in 1066, ravaging vast areas of the country to establish his rule, he oversaw construction of a system of fortifications to suppress Anglo-Saxon rebellions.

Just one year after the Battle of Hastings, William I ordered the demolition of around 100 Saxon homes on a site in Norwich to make way for a wooden fort surrounded by deep defensive ditches.

The fort was later replaced by a stone castle, commissioned by William's son King William II in 1094 and eventually completed by King Henry I in 1121. Over the following centuries the building went through various transformations, becoming a prison in the 1300s, and a museum in the 1880s.

Fast forward to the 2010s, and despite being the most well preserved Norman stronghold in Europe, a scheduled monument with a Grade I listing, the museum was no longer fit for purpose. The upper levels were notoriously difficult to reach, the original castle's floor levels had been stripped out, and essential visitor amenities were non-existent.

A major refurbishment, green lit in 2018, sought to address these issues and return the castle to its medieval roots. Designed

by Feilden and Mawson architects and completed last summer, the revamp cost £27.5m with the funding split mostly between the National Lottery Heritage fund and client Norfolk County Council.

For the first time in over 900 years, the original medieval floors and rooms in the stone keep have been reinstated, and kitted out with historically accurate furnishings. A new staircase and lift provide access to all floor levels, from basement to rooftop battlement. Meanwhile, a new entrance built next to the keep opens onto a cafe and museum shop, and a light-filled glazed atrium provides impressive views of the looming keep above.

But getting the project over the line was a historic battle for designers and contractors. The discovery of significant archaeology on site required extensive redesign work, notably in relation to a planned lift in the keep.

Erin Davidson, project lead at Feilden+Mawson told *ADF*: "The lift touched the ground archaeology, which was a scheduled ancient monument and therefore we had to consult with Historic England [who manage the strict consent process], as well as the above ground archaeology, which was the responsibility of the local authority. Dealing with both



PEELING BACK THE LAYERS

Despite a series of interventions to the castle over the years, there was a realisation that the core of the complex – the keep – needed radical improvements to remedy 19th century additions

parties, we had to explain the issue, and the need for a big change to the design intent.”

Punching through the three-metre thick keep walls to create new access was another source of contention, requiring millimetre precision to avoid historic features. In addition, designing authentic-looking oak fire doors and adapting Victorian-era rooftop handrails to meet current Building Regs required extensive design iteration and liaison with experts to agree on a solution.

People's palace

The richly layered history of Norwich Castle involved several changes over the past two decades, including works on the keep roof, improvements to physical access and connectivity and better environmental control in gallery spaces.

But despite these interventions, there was a realisation that the core of the museum complex, the castle keep, needed radical improvements to address alterations when

the former prison was converted into a County Museum in the 19th century.

Limited vertical circulation and escape routes and a lack of space in galleries meant that only 150 people could visit the keep at any one time, limiting the museum's income.

Other problems identified by the client included poor reception areas and wayfinding in the museum, a lack of visitor awareness of the keep once they were inside the museum, and a complicated internal floor configuration.

Feilden+Mawson was appointed to develop the design at RIBA Stage 2, and its scheme focuses on two critical but opposing requirements. The first is to return the keep to its original medieval layout circa 1121, reinstating the original principal floor where the King's Chamber and Great Hall were once located (in the 12th century there was only a basement, a principal floor and the roof). The second is to maximise

physical access so that visitors can access all the museum areas without having to take a guided tour.

Contentiously, the decision was made to strip out all of the keep's Victorian-era floors, designed by Norwich-born architect Edward Boardman, leaving just the four limestone external walls. The Victorian Society strongly objected to this plan saying that destroying the Boardman elements "will flatten out this character."

However, Davidson contends that removing the floors was necessary to create the structure to support the new principal floor, also noting that one section of Victorian floor was reinserted to create a British Museum gallery space that wraps around a mezzanine level.

Feilden+Mawson worked with a committee of 14 academic historic specialists to determine the original medieval layout. "We knew we had the correct height because of the scarring around the outside of the wall, pockets where the medieval timber would have been inserted were reused to house new steel

work," said Davidson.

Using historic evidence and signals from the building itself, the King's Chamber, Great Hall, chapel and kitchen are all reinstated to their original positions with replica internal walls inserted. Interestingly, the King never lived at the castle, only staying there once in the 12th century.

Given the many layers of history to the building, it was very important, says Davidson, not to "over-reach with restoration and do too much." As a result, efforts were made not to disturb archaeology or artifacts uncovered onsite and instead make them "part of the building's future story."

A key example of this is the new lift and stair core inserted in the southeast corner of the keep. When an area of untouched archaeology was found in the ground at the intended location, rather than dig it up, the size of the lift was reduced so it could remain undisturbed.

That meant switching the lift's structure from glass to metal – a major change to the design intent because Historic England

PROJECT FACTFILE

Client: Norfolk Museums Service
Architect: Feilden+Mawson
Engineer: Conisbee
Project Manager & QS: Artelia
MEP: Sweco
Fire consultant: Sweco
Museums consultant: HSD
Surveys: Roland Harris – Downland Partnership
Main contractor: Morgan Sindall Construction
Architectural metalwork: Olympic Welding
Main steelwork: Crofton Engineering
General carpentry: Prospect Carpentry
Specialist joinery: Coulson
Stonemasonry: Brown and Ralph
Partitioning and dry lining: Great Yarmouth Ceilings
Decorative stonework: Stevensons of Norwich
Blacksmith: Holkham Forge





LIMITED PALETTE

Feilden+Mawson was appointed at RIBA Stage 2 to develop a scheme which reinstated original elements but also introduced a limited palette of materials and colours to make additions “cohesive but also distinct”

wanted a transparent lift to enable visitors to read the interior of the building as they moved vertically between floors. A degree of transparency was ultimately achieved by using mirrors on the lift’s interior.

Some ambitious opening up of the keep structure was required in the design in order to create a fully accessible and fire compliant building – it can now accommodate up to 500 people at any one time – and ensure at least two means of escape from any location inside.

Precision tunnelling

Creating a new doorway through the three-metre-thick north face of the keep at ground level meant precision tunnelling through solid stone. The structural engineer developed a clever metal structure that could be progressively inserted and bolted together inside the one-metre wide opening to maintain structural integrity as 100 mm sections of wall were removed. The

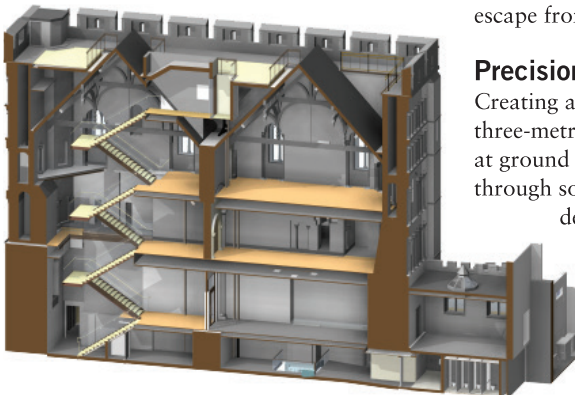
painstaking process took six months.

“If they had tunnelled a little bit too far to the right or to the left we would have been in trouble, potentially hitting a buttress or a retained Norman sill, which at would have been a disaster as far as Historic England were concerned,” says Davidson, adding that the same opening served as the entrance point for the main contractor to bring in all the project’s steel work.

Another opening was created on the east side of the keep to enable wheelchair access to the principal floor via a bridge connected to the 1960s museum block east extension. “The client wanted to make sure that anyone needing assistance to get up to the principal floor was still brought in on a very noble historic route and wasn’t squirrelled away on some weird back access staircase,” said Davidson.

Mix & match

While the bridge itself is modern with a timber floor and glazed roof and walls, the design of the door opening had





to match the language of the original architecture (as did all the other dug out openings). Elaborate new edging was designed to give the impression it had always been there.

With a range of architectural languages to respond to across the castle site, ranging from Norman, Georgian and Victorian, to the 1960s, a limited palette of materials and colours was chosen to make things cohesive but also distinct.

Inside the keep, modern materials including bronze, micro cement, engineered timber and black light fittings are juxtaposed against the Norman fabric. Across the rest of the site the focus is on white materials and fittings, black metal work, and oak. Glass is used throughout both areas.

“Using this simple palette we were able to respond to any surprises, but still have any changes remain legible within the scheme,” said Davidson.

Entry to the castle site is still via the impressive original Norman bridge, but the

museum entrance was significantly modified to improve circulation, wayfinding and access to amenities.

The previous arrangement was convoluted and often heavily congested because various types of visitors arrived through a single doorway and were crammed into a narrow hall with three sets of staircases, two built in Boardman’s time, one built in 1969.

Feilden+Mawson resolved this situation by creating separate entrances for school parties and weddings and redesigning the main reception area to improve flow. Access to the museum is now via a new entrance created by transforming an existing window into a door.

The entrance space is illuminated by a glazed three-storey high glass atrium, formed by demolishing a small tunnel-like area with a low roof. “Now you come into what would have historically been the yard and get to stand back and see the full extent of the keep wall,” said Davidson.

Next to the atrium, the museum shop is

Punching through the three-metre thick keep walls to create new access was another source of contention



TERRACE TROUBLES

On the rooftop terrace a plan emerged to retain and adapt Victorian-era balustrading to the north and add LED lighting into new handrails; however this proved “hugely complicated”

located on the ground floor and the cafe on the first floor. The second floor contains an education space.

Boardman’s main entrance staircase leading up to the Bigod Tower (the ceremonial entrance to the keep) was dismantled and re-constructed to match his original, preferred, alignment, which also matches the original 12th century construction.

Restore & renew

Modern additions aside, the project involved diligent conservation work, including repairs to the keep’s roof, external stonework and key structural elements. Archaeological remains and

surviving pier bases have been revealed, with former column positions marked by sculptural light installations.

Efforts to adapt certain historic fixtures for contemporary use, or recreate new versions that comply with current standards were a particular design challenge.

New replicas of elaborately decorated medieval oak doors are constructed as true to the Norman period as possible, using timber boards bound together with metal straps and hung on pintels rather than hinges. Designers worked with a Norfolk-based forge to develop and produce bespoke threaded nails that connect into concealed bolts to ensure the doors hold together for at least an hour in a fire, as per



Building Regulations requirements.

“There is strong academic evidence that a solid oak door would last for an hour, but nevertheless we had to get a certificate to satisfy building control and the fire brigade,” said Davidson, adding that the design went through several iterations.

Upstairs on the rooftop terrace a plan emerged to retain and adapt Victorian-era balustrading on the north side and add LED lighting into new handrails. This not only required tests on the existing balusters to prove they meet contemporary loading requirements, designers had to also figure out how to get light to the hand rails, which proved hugely complicated.

“It took months and months,” says

Davidson, “We went through about eight different iterations of how to get power to the hand rails without having to go through the inside or outside of the building to create new holes in the historic fabric.”

Although most visitors will be unaware of these huge efforts taken by the designers and contractors, Davidson notes: “It’s exactly right, and we’ve kept a layer of history that’s important to the keep.”

Norwich Castle’s successful transformation has clearly been a careful balancing act between restoration and reinvention, not just preserving over 900 years of history but opening it up to create a fit for purpose civic landmark to be enjoyed by future generations. ■

Getting the project over the line was a historic battle for designers and contractors

GEZE UK shortlisted in 11 categories at the National Fenestration Awards 2026

GEZE UK is proud to announce that it has been shortlisted across an impressive range of categories at the prestigious National Fenestration Awards 2026, recognising both individual excellence and product innovation across the business.

GEZE UK has received nominations spanning sales, customer service, leadership, and technical innovation, highlighting the strength and depth of talent within the organisation, as well as our continued commitment to delivering high-quality solutions for the built environment. These nominations reflect the dedication, expertise, and hard work of colleagues across multiple departments, as well as the company's ongoing focus on delivering exceptional products, service, and support to customers throughout the UK.

The full list of categories GEZE UK has been nominated for are:

- BDM/Sales Executive of the Year – Andy Iredale, GEZE UK
- Customer Service / Operations Person Of The Year – Tracey Hickling, GEZE UK
- Customer Service Company of the Year – GEZE UK
- Managing Director/Director Of The Year – Kaz Spiewakowski, GEZE UK
- Door Component Of The Year – UFO NT, GEZE UK
- Fire Door Product of the Year – Slimdrive EMD-F, GEZE UK
- Hardware Company Of The Year – GEZE UK
- New Product Of The Year – MCRdrive, GEZE UK
- Office Manager Of The Year – Tracy Mason, GEZE UK
- Window Component Of The Year – myGEZE Control, GEZE UK
- Young Person Of The Year – Hope Kendall, GEZE UK

How to Support GEZE UK

The process is simple, simply visit the official National Fenestration Awards website by scanning the QR code, enter your details and select the dropdown for each respective award and press submit.

Every vote helps to recognise the hard work and achievements of both our people



and products, and we are grateful for the continued support of our customers, partners, and industry colleagues. We appreciate all the support.

About the National Fenestration Awards

The National Fenestration Awards are widely regarded as one of the industry's most respected accolades, celebrating the very best in the UK's window, door, and glazing sector. Winners are determined by industry votes, making these shortlistings

especially meaningful as they reflect recognition from peers and customers alike. The awards provide an important platform for recognising innovation, excellence, and outstanding contributions across the sector.

GEZE UK extends its congratulations to all fellow finalists and looks forward to the awards ceremony later this year.

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Schlüter-Systems launches display at Material Source Studio, London

Schlüter-Systems Ltd has announced the launch of its new display at Material Source Studio in London, strengthening the company's presence within the architecture and interior design community. A market leader in system solutions for tile and stone installations, Schlüter-Systems develops innovative products designed to protect, support and enhance tiled finishes, delivering long-term durability, performance and design flexibility across residential, commercial and hospitality sectors.

Located in the thriving capital, the new display showcases a curated selection of Schlüter's systems for tile and stone installations, including KERDI-LINE-G3, KERDI-DRAIN, KERDI-BOARD, storage solutions (DESIGN-NICHE and SHELF), movement joints and floor and wall profiles. The space has been designed to demonstrate how Schlüter products work together as a fully integrated system, supporting durability, performance and design freedom in commercial and hospitality environments.

In addition to serving as a product showcase,



the studio provides an excellent central location for Schlüter's Technical Specification Consultants to meet with architects, designers and clients, discuss live projects and offer tailored technical guidance in an inspiring setting.

Speaking on the launch, UK Managing Director Joachim Backes commented: "Having a presence at Material Source Studio in London is an important step for us. It puts

Schlüter-Systems right at the heart of the design community and makes it easier for architects and specifiers to engage with our solutions in person. Being able to see and handle the products, and to talk through live projects with our team, makes a real difference at specification stage. This display reflects our long-term commitment to supporting the industry with practical, reliable systems that help deliver high-quality, durable installations."

The display offers visitors the opportunity to see and handle product samples, explore colour and finish options, and gain insight into best practice specification. Schlüter's technical team will also be on hand to provide expert advice and guidance for upcoming projects.

The launch reflects Schlüter-Systems' ongoing commitment to supporting architects, designers and specifiers with robust, reliable solutions that prevent costly failures and ensure long-lasting installations.

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BEWI announces new staff appointments to strengthen civils market capabilities

BEWI, a leading manufacturer of insulation and construction products, is announcing senior staff appointments which strengthen the company's focus and capabilities in the growing civils sector.

Civils and structures solutions specialist Simon Roberts joins the company as national infrastructure manager – civils and structures. He is well-known in the sector, having held various technical roles at Cordek Ltd over a period of 20 years. His aim at BEWI is to raise the profile of the brand in the product specification sector with engineers, designers and concrete specialists.

"We are seeing growth coming from a range of civils sectors, including infrastructure, road building, concrete frame, industrial construction, educational and health sector building, as well as high rise residential," says Simon, "and we have a lot to offer to the sector from our HeaveMaster GHP, FormMaster and FillMaster ranges, as well as our piling products.



Simon Roberts,
National Infrastructure
Manager -
Civils and Structures

Photo shows: (l to r) Stuart Cox, Paul Hodge,
Stefania Cappiello, Martin Harragan,
Stephen Broadhurst

Miguel Jaen,
Technical Manager
Building Systems

"Strengthening the business further we have Stephen Broadhurst, who is our technical director, overseeing a team which includes Martin Harragan as head of specification, Stuart Cox as specification manager, Stefania Cappiello as new product development manager and Miguel Jaen as technical manager building systems. His team also includes: Paul Hodge, thermal floor systems design manager; Arkadiusz Kusz,

design estimator; Brent Lofthouse, technical support & design manager."

"We believe we now have the strongest team in the business and that BEWI is well-placed to win new business in this dynamic sector and to support our customers in their civils projects," says John Cooper, managing director of BEWI UK.

0870 600 3666 bewi.com/uk

AIM adds to specification strength with two appointments

Acoustic, fire and thermal insulation manufacturer AIM Acoustics & Insulation Manufacturing has expanded its sales and specification team with two new appointments. Karen Viccars has joined as Specification Manager for the Greater London area and Campbell McGregor as Specification and Sales Manager for Scotland and northern England.

“These two new roles reinforce AIM’s commitment to fully support customers in making the correct choice of fire, thermal and acoustic insulation products,” said AIM’s Commercial Director Ian Exall.

Recruited to provide additional capacity, Karen and Campbell add to AIM’s external sales team.

In addition to Karen and Campbell, the external sales team includes Chris Dale who is now Business Development Manager for the Central region, Phil Reynolds Business Development Manager West and AIM is recruiting for the South East region.

Specification is now covered by Campbell across Scotland and northern England, by Karen in the London area with Simon Mayes as Specification Manager for the rest of England & Wales.

Karen and Campbell bring considerable experience. Karen’s career in the construction industry spans over 30 years. Involved in facades and rainscreen cladding for commercial and residential high-rise buildings, she has liaised closely with architects to support them in the face of new safety regulations.

“The specification process has changed so much over the last nine years. The requirement for technical input is far greater,” Karen comments. “AIM provides an exceptional degree of customer support and it’s great to be part of that.”

Campbell’s construction industry career began aged 16. He joins from Rockwool where, as a regional manager, he worked with architects and contractors. He has



L-R: Phil Reynolds, Chris Dale, Karen Viccars, Campbell McGregor and Simon Mayes

been involved in specifying large projects, including Aberdeen Exhibition Centre, Edinburgh University and the Department for Education’s schools rebuilding programme, spanning student accommodation, leisure complexes, high rise buildings and reclad schemes. “AIM has an excellent reputation in the industry. With compliance so important, it’s good to be with a business that gives customers product advice that is second to none. This role involves building commercial relationships with early stage correct product specification – a great combination for me.”

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Schlüter Systems expands DILEX range with high performance DILEX-STF structural profile

Schlüter-Systems is proud to introduce the new Schlüter-DILEX-STF, a structural movement profile engineered to deliver long-lasting performance in both underground and overground applications. For projects and environments where durability, safety, and reliability are critical, the DILEX-STF sets a new benchmark for structural protection.

Designed to absorb both horizontal and vertical movement, the DILEX-STF ensures floor coverings remain intact when subject to movement in the structure. continuous foot traffic and heavy loads. This makes it an ideal solution for area with extensive foot and forklift traffic such as warehouses, airports, shopping centres, railway stations and any area where floor surfaces are maintained with cleaning machines.

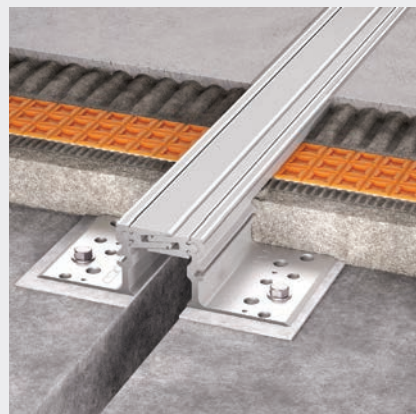
Maintenance free and made from aluminium, DILEX-STF is available in two widths and three heights, for flexible specification options, ensuring

seamless integration into a broad range of project requirements.

Key benefits

- Suitable for both underground and overground applications
- Absorbs horizontal and vertical movement in the structure, protecting floor coverings
- Available in two widths and three heights for installation flexibility
- Ideal for areas with high footfall or heavy loads
- Long-lasting and maintenance-free solution

With the DILEX-STF, Schlüter-Systems continues its commitment to delivering technically advanced innovations that combine functionality, durability, and design excellence. This latest addition to the Schlüter range ensures that specifiers and installers have a robust, future-proof option



for safeguarding tile, stone and other floor coverings in demanding environments.

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eu.schluter.com/en-GB/movement-joints-cove-shaped-profiles-280/c/36223/dilex-stf

A different view of durability

Manuela Fazzan at wienerberger UK explores why adaptable as well as durable housing design is essential for future resilience in the housing sector, as demands evolve.

Current housing specifications are often driven by immediate compliance targets, but the future of housebuilding depends on creating homes that are designed to endure. As climate pressures intensify, retrofit demands increase, and homeowners become more conscious of building performance, the industry must shift focus from short-term compliance to long-term durability.

This means designing homes that not only perform efficiently today, but continue to deliver safety, comfort and resilience throughout their lifecycle. Durable housing is no longer simply about material longevity – it is about creating buildings that can adapt to changing environmental conditions, evolving regulations and future technologies without requiring extensive intervention.

In this context, durability and adaptability are closely linked. A durable home is one that has been designed to accommodate future upgrades, minimise maintenance requirements and support long-term occupancy needs. This requires a more holistic approach to specification, where resilience, sustainability and lifecycle performance are embedded into decision-making from the earliest design stages.

Going beyond compliance

The construction industry has seen significant regulatory change in recent years, from the Building Safety Act and Future Homes Standard to increasingly ambitious energy performance requirements. While these measures are raising standards across the built environment, they should be viewed as the baseline minimum, rather than the end goal.

Future-ready homes must be capable of maintaining performance over decades of use, even as environmental and societal demands continue to evolve. This means considering how buildings will respond



to more frequent extreme weather events, overheating risks and changing occupant expectations over time.

Durability therefore extends beyond the structural lifespan of a building. It includes designing facades, roofing systems and building envelopes that can withstand long-term environmental exposure while remaining easy to maintain and repair. It also means specifying systems and materials that support straightforward future retrofit, whether through improved insulation, low-carbon heating integration or renewable energy technologies.

Importantly, durable design also reduces the risk of premature obsolescence. Homes that can be upgraded efficiently are less likely to require extensive refurbishment or replacement in the future, helping to reduce waste, embodied carbon and disruption for occupants.

For architects and developers, this places

Durable housing is no longer simply about material longevity – it is about creating buildings that can adapt



Designing for durability ultimately requires a collaborative and forward-thinking approach across the entire sector

greater emphasis on selecting materials and systems with proven performance, transparent environmental credentials and traceable technical data. For manufacturers, it reinforces the importance of providing robust technical guidance, verified sustainability information and long-term product assurance to support confident specification decisions.

Durability & sustainable performance

Sustainability and durability are construction deliverables that are intrinsically connected. Buildings that last longer, require fewer interventions and support future adaptation are inherently more sustainable over their lifetime.

As the industry works towards net zero, whole-life performance is becoming increasingly important. Operational efficiency remains critical, but there is growing recognition that material selection, embodied carbon and lifecycle maintenance must also be considered as part of a building's long-term environmental impact.

Whole-life thinking asks broader questions about how products are sourced, how they perform over time and how easily they can be maintained, repaired or ultimately reused. Durable specification is therefore closely aligned with circular economy principles, encouraging materials and systems that support longevity, flexibility and reduced waste.

Transparent product data is essential in enabling this approach. Environmental Product Declarations (EPDs), third-party certification schemes and clear technical documentation allow architects and specifiers to make more informed decisions around durability, sustainability and lifecycle performance. However, durability is rarely achieved through individual products alone. Instead, it depends on how systems work together as part of an integrated building design strategy.

This is where early collaboration across the supply chain becomes increasingly valuable. By involving manufacturers, technical specialists and design teams at the outset of a project, it becomes easier to balance durability, sustainability, aesthetics and buildability from the beginning. Digital specification tools and coordinated design approaches are also helping to streamline this process, consolidating technical, compliance and sustainability information into more efficient project workflows.

Redefining long-term value

Delivering durable housing also requires a broader understanding of value in construction.

While lower upfront costs may support immediate project viability, they do not necessarily deliver the best long-term outcomes. Durable homes designed with resilient materials and future adaptability in mind can significantly reduce maintenance demands, improve energy efficiency and extend building lifespan over time.

This long-term perspective is particularly important as retrofit becomes an increasingly central part of the housing conversation. Homes that are designed to accommodate future improvements – whether through enhanced insulation, upgraded building services or renewable technologies – can be adapted more cost-effectively and with less disruption for occupants.

As a result, value should no longer be measured solely through initial capital expenditure. Instead, specifiers must consider operational performance, maintenance requirements, occupant wellbeing and long-term environmental impact as part of the overall equation.

Building homes that last

Designing for durability ultimately requires a collaborative and forward-thinking approach across the entire construction sector. Regulators, manufacturers, architects, developers and contractors all have a role to play in delivering homes that are capable of performing well far beyond current compliance requirements.

Access to specialist technical expertise, transparent product information and digital modelling tools is helping to support this transition. Performance simulation and predictive modelling can increasingly be used to test building resilience, assess long-term outcomes and ensure that design intent translates into real-world performance.

As the housing sector continues to evolve, the industry's success will not simply be defined by how efficiently it meets today's standards, but by how effectively it prepares homes for the decades ahead. By prioritising durability alongside sustainability and resilience, the built environment can deliver housing that remains adaptable, efficient and fit for purpose for generations to come.

Manuela Fazzan is director of commercial propositions at wienerberger UK

Going underground

Jon Whittingham at T-T Pumps explores how below-ground drainage and pumping strategies need to influence early architectural decisions, particularly where adoptable and package systems are required to manage site constraints, flood risk, and complex water movement on constrained urban sites.

In contemporary architecture, the most successful projects increasingly demonstrate a consistent trait: critical infrastructure decisions are made early, not deferred. Among the most overlooked of these is drainage strategy, particularly below-ground systems that determine how water is collected, managed, and discharged from a site.

As urban development becomes denser and sites more constrained, architects are more frequently encountering plots where conventional gravity drainage is not feasible. Changes in ground levels, basement requirements, flood risk considerations, and complex urban utilities all contribute to a growing reliance on engineered drainage approaches, including below-ground pumping systems. These systems are not simply technical add-ons; they are spatial and strategic constraints that directly influence architectural form and layout.

When gravity is no longer enough

Traditionally, drainage design has relied on gravity to move wastewater and surface water away from buildings. However, in practice, many modern developments now fall outside the conditions that make this possible. Deep basements, low-lying sites, and developments situated below surrounding sewer levels often require mechanical assistance to ensure reliable water movement.

In these cases, below-ground pumping stations become a fundamental part of the drainage strategy. They collect water at a low point and actively discharge it to a higher-level sewer or outfall. While the principle is straightforward, the implications for architectural design are significant. The inclusion of such systems affects floor levels, external landscaping, structural design, and the coordination of underground space.



Crucially, the need for pumping is often identifiable at the concept stage. Yet it is at this earliest point that it is most frequently overlooked, only becoming fully addressed during technical design, when options for spatial adjustment are more limited.

Adoptable & private systems: an early strategic choice

One of the key decisions influencing the below-ground drainage strategy is whether a system is designed to be adoptable by a utility provider or retained as a private installation.

Adoptable pumping stations are designed to meet the requirements of water authorities, enabling long-term maintenance and ownership to transfer after completion.

Architects are more frequently encountering plots where conventional gravity drainage is not feasible



The effectiveness of any drainage strategy is ultimately determined by how early it is integrated into the design process

These systems must comply with specific standards relating to access, resilience, and operational reliability. While this pathway can offer reassurance around long-term management, it can also introduce design constraints that need to be understood early in the architectural process.

By contrast, package pumping systems retained under private ownership can offer greater flexibility in configuration and spatial integration. However, they also place ongoing responsibility for maintenance and performance on the building owner.

The choice between these approaches has a direct impact on below-ground planning, maintenance access requirements, and service coordination. The choice as to which option is often influenced by the owner of the asset to which the pumping system discharges into.

The hidden spatial cost of drainage infrastructure

Below-ground drainage systems are often underestimated in terms of their spatial requirements. Pump chambers, storage capacity, access provisions, and maintenance zones all occupy physical space that must be integrated into the overall building design.

On constrained sites, this can present challenges. Basement layouts may need to accommodate additional plant space, while external areas such as landscaped zones or car parks may be affected by the need to house buried infrastructure. Structural coordination is also critical, as drainage systems must align with foundations, retaining walls, and other below-ground elements.

Where these requirements are not considered early, they can lead to costly redesigns or compromises in architectural intent. Conversely, early integration allows the drainage strategy to be embedded within the design, reducing conflict between disciplines and improving overall efficiency.

Climate resilience and changing expectations

The increasing intensity and frequency of extreme rainfall events are also reshaping expectations around drainage design. Sites that may previously have been suitable for gravity-based solutions are now being reassessed in light of updated flood risk data and planning requirements.

As a result, architects are now expected to engage more directly with

water management strategies as part of broader climate resilience considerations. This includes not only surface water management and sustainable drainage principles, but also the capacity to safely and reliably move water through a site under peak conditions.

Below-ground pumping systems are therefore becoming part of a wider resilience toolkit, ensuring that developments remain functional and safe even under challenging environmental conditions.

The importance of early coordination

The effectiveness of any drainage strategy is ultimately determined by how early it is integrated into the design process. When considered at the concept stage, below-ground requirements can be aligned with structural grids, building levels, and landscape design in a coordinated way.

This early collaboration between architects, structural engineers, and drainage specialists reduces the likelihood of late-stage changes and helps ensure that drainage infrastructure supports rather than constrains the architectural vision. It also improves confidence during planning submissions, where drainage and flood resilience are increasingly scrutinised.

Case study: constrained urban residential development

On a recent urban residential scheme, the site's topography and surrounding sewer levels meant that gravity drainage alone was not viable. The project included basement accommodation and limited external space, requiring careful coordination of below-ground services.

By addressing drainage strategy at the concept stage, the design team was able to integrate a below-ground pumping solution within the basement footprint without compromising usable space or external landscaping. Early coordination ensured that access requirements, maintenance considerations, and structural interfaces were all resolved before planning submission. This approach enabled the architectural layout to remain largely unchanged through later design stages, avoiding the need for significant reworking and supporting a smoother delivery process.

Jon Whittingham is pumping stations manager at T-T Pumps

The Warm Homes Plan – Building fabric in the age of high-tech homes

The Warm Homes Plan has arrived to replace the Energy Company Obligation (ECO). It represents a shift in focus away from a fabric first approach to instead prioritise high-tech solutions such as PV, battery storage and heat pumps.

This change in emphasis raises an important question: is abandoning the long-established principle that improving the building fabric is the best way to deliver energy-efficient homes with improved thermal comfort and indoor air quality as well as low running costs really the right course of action?

Is addressing the building fabric first a fundamentally good idea for energy efficiency?

The fabric first strategy is founded on sound principles. Improving the thermal performance of the building fabric, including the walls, floor, roof, windows and doors, enhances the overall energy efficiency of a home by:

- Reducing the rate of heat loss through the building envelope by using insulation effectively
- Carefully detailing junctions to minimise thermal bridging and associated heat loss
- Reducing gaps in the building fabric to improve airtightness and prevent draughts and unwanted heat leakage

Whenever the fabric is enhanced, it is important that an adequate ventilation strategy is also in place to remove stale air and moisture vapour to maintain good indoor air quality.

The fabric first measures reduce the demand placed on the heating system. As a result, it has to work less and consume less energy.

What part does building fabric play in the Warm Homes Plan?

The £15bn government Warm Homes plan is designed to cut bills, tackle fuel poverty, create jobs and deliver energy security.

Energy efficiency is very hard to achieve without paying attention to the thermal performance of the building fabric. This is supported in the Warm Homes Plan document, where it states that, “Fabric insulation measures, when installed with appropriate ventilation, remain a cornerstone



of energy efficiency”.

Due to issues with the quality of solid wall insulation in the ECO scheme, there appears to be a reluctance to continue to support this under the Warm Homes Plan and cavity wall insulation barely gets a mention in the document. This seems strange as according to the Energy Saving Trust around 33% of heat can be lost through the walls of uninsulated homes.

What are the challenges faced when applying the fabric first approach to existing buildings?

The warm homes plan, ECO, is aimed at existing buildings. Existing homes can present challenges when it comes to upgrading the thermal performance of the building fabric:

- It can be difficult to know exactly what has been built with regards to the composition and construction of an existing home
- Houses may have been subject to home improvement such as loft conversions or extensions that can change the thermal dynamics and ventilation of the original home design
- The quality of the work can be variable, and a record of plans and materials used may not be available
- Measures such as thermal bridging can be harder to address as access may be limited and the exact existing design of existing junction details may be unclear

It is important to carry out a thorough survey of an existing home in order to be able to evaluate and plan the most appropriate energy efficiency measures taking a whole-house approach. This has been addressed by using a Publicly Available Standard 2035 (PAS 2035).

What benefits can a fabric first bring that a technology-led approach cannot?

Upgrading the fabric first can:

- Increase homeowner’s thermal comfort by reducing draughts
- Reduce the chances of condensation forming that can lead to mould growth
- Help to limit the effects of overheating by use of insulation materials such as STEICO’s wood fibre boards

A technology led approach where PV, batteries and a heat pump is installed will give homeowners the benefits of access to cheap electricity and help to reduce carbon emissions. It may not be able to match the benefits that addressing the fabric first can bring.

Both approaches bring different benefits – together they can work in harmony to deliver high-tech homes that support thermal comfort, low energy use and lower energy bills.

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Hörmann UK delivers high-performance garage door solution for YouTuber's dream workshop

Hörmann UK has successfully completed a striking installation of three RollMatic 2 roller garage doors together with a matching side door for well-known automotive YouTuber George Austers. With a growing audience of over 100,000 subscribers to his 'Everything Cars' channel, George has been documenting the creation of his ideal garage and workshop through his popular video series, 'Dream Car Workshop Build'.

The installation forms a key part of a bespoke three-bay oak-framed garage and workshop, designed to combine premium aesthetics with high functionality. Hörmann UK was selected for the project due to its renowned German engineering expertise and strong reputation within the garage door market.

The project features three RollMatic 2 roller shutter doors and a matching side door, all finished in Jet black RAL9005. The bold finish provides a contemporary contrast that



enhances and complements the natural oak structure of the building.

Specified and installed by Hörmann UK's technical door team, the choice of roller doors was driven by both practical and visual considerations. With plans to install a car lift in one of the bays, space efficiency was critical. Unlike traditional up-and-over or sectional doors, the RollMatic 2 system eliminates the need for internal horizontal

tracks, maximising usable space within the garage. Maintaining a cohesive aesthetic was also a priority, leading to the selection of matching materials and finishes across all doors, including the side entrance door.

Each roller shutter door is equipped with advanced features, including wind locks, compensation fitting kits, and integration with Hörmann's 868 MHz BiSecur remote control system. Additionally, the doors benefit from built-in Bluetooth connectivity, enabling operation via the Hörmann BlueSecur app on smartphones and tablets.

For added reliability, the doors are spring counterbalanced, allowing easy manual operation in the event of a power failure – eliminating the need for cumbersome crank handles.

A step-by-step video of the installation process, presented by George Austers, is available to view by scanning the QR code.

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Minimalist curtain wall screens prevent Netceed office from overheating

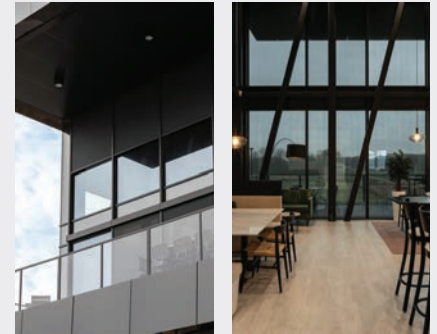
Netceed's employees are thoroughly enjoying their new office buildings in Breda. Space, all the modern facilities, plenty of natural light... but fortunately also sun protection to prevent the huge glass sections of the south-west-facing curtain walls from causing the office to overheat when the sun is at its strongest.

The curtain walls of the new-build complex feature no fewer than 64 screens, each measuring approximately 1.80 m by

3.50 m. Renson Ambassador Jaleco Havaró BV from Papendrecht was responsible for the engineering, supply and installation of these screens. Stefan Bakker (Jaleco Havaró): "It was the main contractor, Molenschot Industriebouw, who approached us in search of suitable screens for the curtain walls."

"In consultation with the client, the Fixscreen Minimal CW50 fabric sunshades were chosen because they are the least obtrusive," says Dario Claassen of construction contractor Molenschot Industriebouw. "They didn't want them to be visible from the inside."

"For a project like this, Renson's CW50 Fixscreen Minimals are a brilliant solution," says Stefan Bakker with conviction. "Precisely because they integrate seamlessly into the curtain wall and fully respect the sleek architectural design. That's no coincidence: as a joint product development between system house Reynaers Aluminium and Renson, the Fixscreen Minimal CW50 is a comprehensive



solution to be reckoned with. The dimensions of the frames, fabric box and link guides are perfectly matched. What's more, the screens are fully wind-resistant up to 130 km/h. That not only offers comfort, but also the assurance that, as a user, you hardly have to worry about them at all."

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Hybrid education theory

Louise McHugh at Breathing Buildings puts the case for hybrid natural/mechanical ventilation to balance air quality and energy efficiency, to support school learning.

The publication of updated Government guidance in February 2026 has reinforced the importance of ventilation in education settings for healthy and productive learning environments.” The guidance places renewed emphasis on how ventilation should be managed in practice, particularly in balancing ventilation with energy efficiency and thermal comfort.

For architects and building services engineers, this reflects an increasingly complex design challenge. Ventilation must now respond to dynamic internal conditions, fluctuating occupancy and external climate, while also supporting compliance with energy and overheating requirements. The guidance identifies natural, mechanical and combined approaches to ventilation, and highlights the importance of adjusting ventilation rates to suit conditions, maintain comfortable internal temperatures and conserve energy.

This represents a shift towards more responsive, operationally driven design. In school environments where occupancy density is high and internal heat gains vary throughout the day, the ability to modulate ventilation is essential to maintaining acceptable indoor air quality (IAQ) without incurring unnecessary energy penalties.

As school buildings continue to improve in terms of airtightness, reliance on designed ventilation systems has increased. Reduced air infiltration improves energy performance but removes a degree of passive air exchange, making controlled ventilation critical. The guidance reinforces the role of ventilation in removing polluted air and airborne contaminants, while also highlighting its contribution to reducing the spread of respiratory infections. However, increasing ventilation rates, particularly during colder months, can increase heating demands if not carefully managed.

This highlights the challenge of balancing IAQ, thermal comfort, and energy efficiency, particularly in education settings where

both operational cost and occupant wellbeing are key considerations.

Hybrid ventilation

Natural ventilation systems rely on facade openings, vents or stacks, with airflow driven by wind, buoyancy and temperature differences. Mechanical ventilation systems provide controlled airflow using fans and ductwork. This allows designers to achieve consistent IAQ and thermal comfort. Combined with heat recovery, these systems can reclaim energy from exhaust air, reducing heating demand.

Hybrid ventilation brings together the strengths of both in one system to optimise IAQ, thermal comfort, and energy efficiency. For commercial buildings with high heat gains, hybrid ventilation makes use of free heat, reducing demand on heating systems and cutting energy bills. Schools can maximise health, comfort and sustainability without having to invest in significant building works, making it ideal for retrofitting.

The addition of a low-resistance heat exchanger cell, providing both heat recycling and heat recovery, can reclaim more heat, providing greater occupant comfort, and allow users to include it within building energy assessments (SBEM).

The guidance also highlights the role of ventilation in preventing overheating and maintaining comfortable internal conditions. This aligns with BB101 (2018) ‘Guidelines on ventilation, thermal comfort and indoor air quality in schools’, which sets limits on temperature and overheating in teaching spaces. Natural ventilation, when carefully designed, can effectively manage internal temperatures in mid-season and summer conditions. Strategies such as appropriate facade design, window sizing, shading and the use of thermal mass can help prevent overheating, while maintaining a low-energy approach.

Meanwhile, with MVHR, features such as summer bypass and night-time cooling

The recent Government guidance reinforces that ventilation is central to both health and building performance

allow the systems to respond effectively to warmer temperatures, providing good year-round thermal comfort.

The hybrid approach means ventilation optimises IAQ, comfort and efficiency by automatically switching between natural, hybrid and mechanical ventilation, maximising the benefits.

A key theme within the Government guidance is the importance of monitoring ventilation and air quality. In practice, this requires the integration of sensors and control systems capable of responding to real-time conditions.

CO₂ concentration, internal temperature and external conditions can be used to control operation. Ventilation supplied with external temperature sensors, and internal temperature and CO₂ sensors, as well as an intelligent controller can adjust ventilation rates dynamically, maintaining IAQ while minimising energy use.

The recent Government guidance reinforces that ventilation is central to both health and education, linking ventilation to pupils' concentration, comfort and infection control. Achieving the right balance between IAQ, thermal comfort and energy efficiency is essential and requires a coordinated



approach, integrating ventilation within the wider building design. And of course, ensuring it operates as designed.

Louise McHugh is product manager at Breathing Buildings

Pyroguard and Schüco deliver high-performance fire-rated facade for Belfast station



Pyroguard, a leading independent provider of high-performance fire safety glass, has partnered with leading framing manufacturer, Schüco to deliver a complex fire-rated façade solution for the landmark Belfast Grand Central Station. Located in Belfast city centre, the £340 million facility replaces the former Great Victoria Street Station and Europa Buscentre and is designed to accommodate up to 20 million passenger journeys annually. Pyroguard worked in close collaboration with Carey Glass and specialist contractor William Cox to develop and deliver a fully certified system. More than 400 m² of Pyroguard Protect fire safety glass was supplied and integrated within Schüco's curtain walling, ensuring a cohesive facade solution that met both design and compliance requirements. Pyroguard Protect T-EI60/25-3 was specified for its ability to achieve 60 minutes of fire resistance while supporting large pane sizes, enabling uninterrupted sightlines across the facade. Installed within the Schüco FW 50+ FR 60 system, the glass plays a critical role in the building's fire strategy while maintaining the visual lightness intended by the architects.

01942 710 720 www.pyroguard.eu

Cast iron radiators... from Stelrad



Stelrad is expanding its cast iron radiator offering with two new products, in addition to the current cast iron product that has been well received, giving customers more choice within this growing part of the market. These radiators are floor standing with in-built feet for extra stability as they are significantly heavier than their steel counterparts. To find out more about Stelrad's new Cast Iron Column radiator offering please visit the website. For more information please send an email. Alternatively, you can also see regular updates from Stelrad on Twitter @Stelrad and Facebook @StelradRadiators.

marketing@stelrad.com www.stelradprofessional.com

A smart boost to Saniflo's Clear Water range



Following the successful launch of its Clear Water range in 2025, Saniflo has introduced the Saniboost Smart – a variable-speed mains-boosting pump designed to deliver high pressure and flow in mains-fed systems. Capable of boosting flow up to 97 l/min and pressure up to 5.5 bar, it overcomes issues such as low pressure, poor multi-outlet performance, and inadequate supply to upper floors or property extensions. Ideal for larger homes, HMOs and light commercial settings, it can also suit smaller properties where space allows.

020 8842 0033 www.sfaniflo.co.uk

Style Group creates flexible acoustic workspace for Overbury Manchester

Style Group delivered a bespoke acoustic and partitioning package for Overbury's new Manchester office, located on the 13th floor of Chancery Place. Working closely with architect SpaceInvader, the team created a flexible, high-performance workspace designed to support collaboration, focus and adaptability.

Creating a distinctive visual impact, Overbury's nautilus shell-inspired acoustic ceiling feature combines with custom teardrop-shaped acoustic baffles to provide effective sound control. In addition, a varied selection of Autex acoustic wall panels – including printed, grooved and Groove Duet panels – delivers both acoustic performance and design creativity.

“The acoustics have become a standout feature, sparking conversation and drawing attention from everyone who visits,” says David Vaal, managing director of Overbury North.

Adding flexibility to the design studio, a



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Dorma 52dB glazed partitioning system with black profiles was paired with a Dorma 55dB solid movable wall finished with Autex panels. These systems stack neatly into compact pocket doors on either side of the room, allowing the

space to be quickly reconfigured for meetings, collaboration or private working.

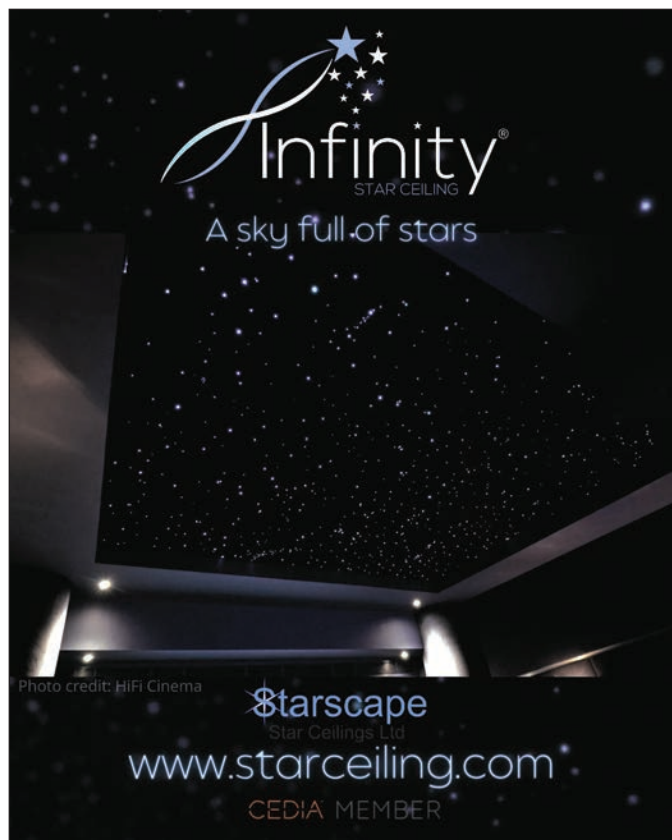
As Nick Gibson from Style North explains: “This project highlights what can be achieved when acoustics are considered as part of the design process rather than an afterthought, delivering a solution that balances performance with a clean, high-quality aesthetic.”

Further demonstrating its attention to detail, Style incorporated an automatic track blocker within the cross junction of the two movable wall systems, minimising sound transfer and delivering optimum acoustic separation.

Existing Autex finishes within the room were also updated, further enhancing both the acoustic performance and overall aesthetic.

“From concept through to completion, the outcome has fully lived up to expectations,” adds Vaal, “creating a space that reflects both innovation and quality.”

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Keller Kitchens launches 'SUITE LIFE' design



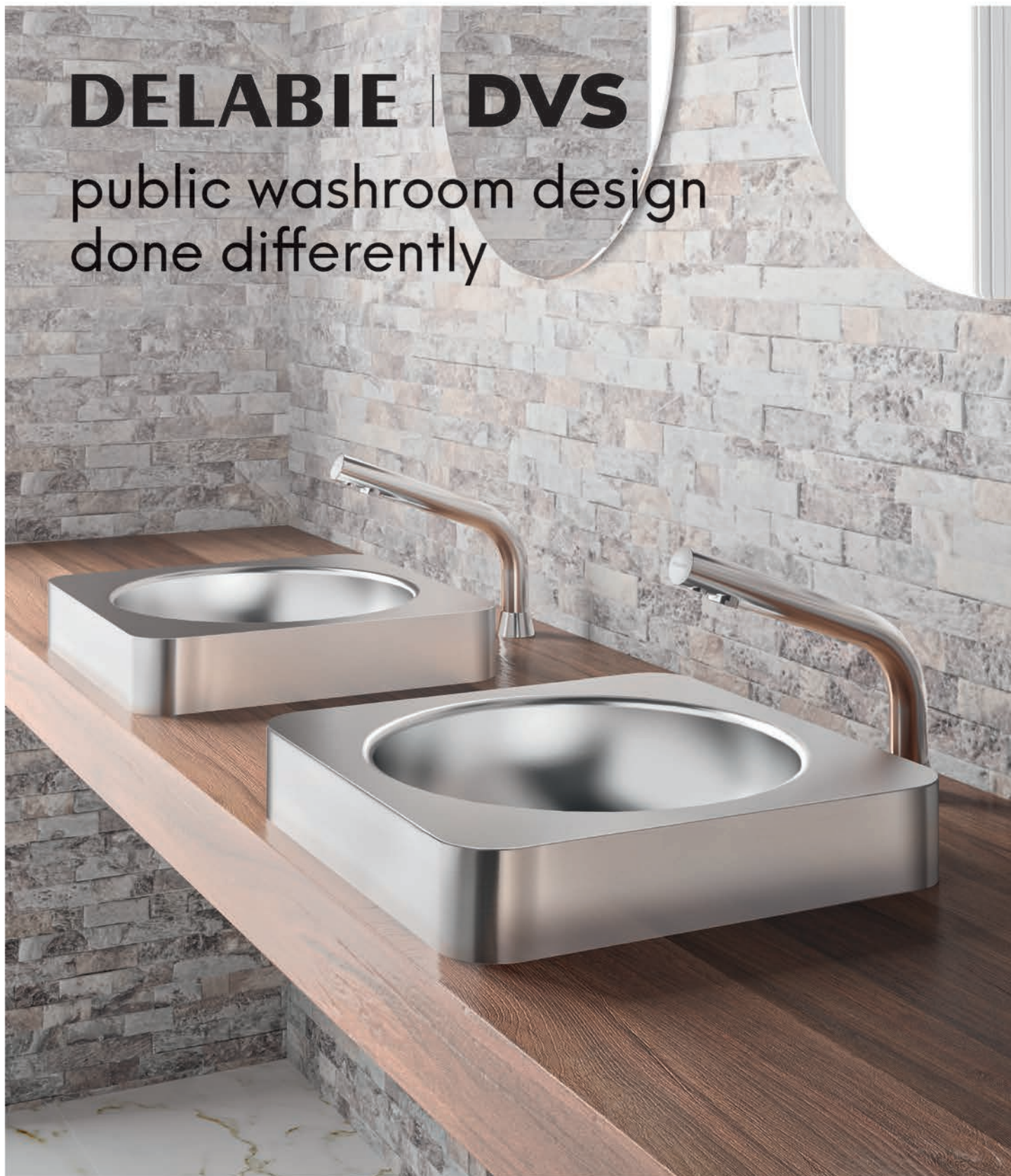
This new “Hotel Chic” look from Keller brings the exclusive atmosphere of a luxury hotel into the kitchen. The scheme centres on premium materials, clean lines and a refined finish that evokes the feel of a sophisticated suite in a top-tier hotel.

Named the Suite Life, the designer can create a space that exudes luxury, without being excessive, with rich tones like oyster grey and deep black, chrome accents, and statement lighting. As always with Keller, the colour, finish and handle options are limitless when considering exciting schemes.

www.kellerkitchens.com

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PWS announced as one of the first fabricators to receive the WFF's Quality Mark



PWS, UK manufacturer and fabricator of quality bespoke worksurfaces, is one of the first businesses to officially receive the new Quality Mark accreditation from the Worktop Fabrication Federation (WFF).

PWS has been instrumental in setting the standard for best practice, working closely with the WFF to lead the industry benchmark for fabrication standards across the sector. The new quality mark introduces a structured framework for fabrication businesses to ensure commitment to operational excellence, and workforce protection.

Chris Wragg, Managing Director of the Danesmoor Group: "We have always encouraged a culture of responsibility and continuous improvement in the sector, so to be announced as one of the first businesses to be awarded the Quality Mark from the WFF is an honour. The introduction of this accreditation will transform the industry, ensuring that customers now have full visibility and transparency of leading, well



invested fabricators that they can trust to uphold the best safety and working practices for their employees. We are delighted to be recognised for our strong internal processes, and robust health and safety measures. This new landmark guidance is a positive step forward for the industry and we fully support measures that raise standards and encourage best practice."

01325 505599
www.pws.co.uk/section/worksurfaces

Dulux supports NEET Youth with East End Boxing Club Regeneration



Following Dulux's Colour of the Year Community Competition, which was part of the Dulux Let's Colour programme, an iconic East London boxing club is being transformed using Dulux's 2026 Colour of the Year palette, The Rhythm of Blues. The refurbishment is being delivered by young people who are not in education, employment or training (NEET), as the UK faces a growing youth joblessness crisis. The club is being given a new lease of life by young volunteers, supported by Dulux's Let's Colour partnership with social enterprise Volunteer It Yourself (VIY). The project will see the volunteers gain vital trade skills, which means the project is not only revitalising a historic community space, but giving those involved the chance to learn on the job and take steps towards employment. Delivered through the long-standing partnership between Dulux's Let's Colour programme and VIY, the initiative supports young people aged 14–24 who are NEET or at risk. Participants gain hands-on experience, work towards recognised City & Guilds qualifications and build pathways into work.

0333 222 7171 www.dulux.co.uk/en/letscolour2026

Design the space between

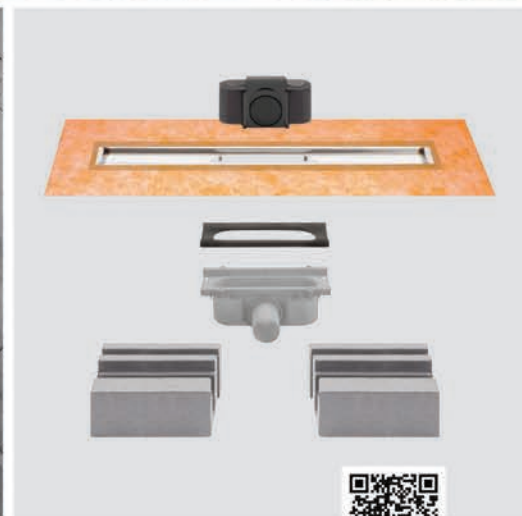
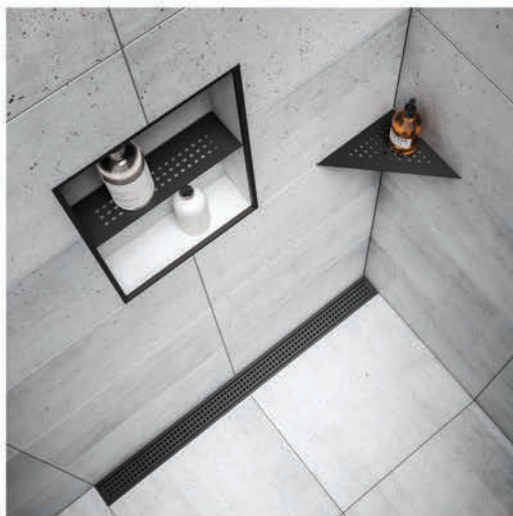


Grout is often an afterthought, chosen from a limited range of colours to get an approximate match to the tile. It doesn't have to be. Kerakoll's Fugabella Color is a resin-cement hybrid grout range with 50 different shades of particularly rich intense colours that do not fade. This allows you to use colour with purpose. Choose between close coordination with the tiles creating the illusion of a continuous surface or making the joints stand out with a bold contrasting colour. Not only does Fugabella Color maintain the depth of colour but it is not subject to efflorescence formation, as it does not contain Portland cement. Waterproof and flexible, it stands the test of time without cracking or staining and has been intensively tested over and above industry norms. The grout is inherently safe with very low VOC emissions and contains natural bioactive substances to protect against fungus and mould.

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 **SFA** Saniflo

Designing out water waste

Washrooms are a significant source of water waste; early design decisions can determine how buildings perform for decades, so specifications must tackle both usage and leakage to reduce consumption. Richard Braid at Cistermiser explains.

Energy performance has long dominated design discussions, but water efficiency is moving up the agenda. It's not before time; the UK might have plenty of rainfall but it still faces a growing water shortage.

The drought of 2022 saw temperatures reach record highs, river levels record lows and reservoirs fall to around 65% of typical summer levels. It wasn't an isolated event. The spring of 2025 was one of the driest on record, and computer modelling suggests these conditions will only become more frequent. An ageing infrastructure, population growth, climate change and the demands of emerging technologies like data centres are placing huge pressure on water supply. By 2055, the daily shortfall could reach around five billion litres.

Policy is beginning to reflect this change. The Government's recent White Paper sets out a strategy aimed at improving water efficiency to reduce customer bills, safeguard future supplies and protect the environment. Water entering public supply is to be reduced by 20% by 2038 and per capita consumption to 122 litres per day; 110 litres by 2050. Non-domestic buildings are not overlooked; targets have been set to reduce business water use by 9% by 2038 and 15% by 2050. This requires meaningful changes in how buildings are designed and specified; water efficiency cannot be resolved through management alone if the underlying specification works against it.

Continuous flow: a built-in cost

Washrooms are a clear example of where design intentions and operational reality can diverge. Despite being high-use spaces, they are frequently specified using familiar, traditional approaches that allow avoidable waste to continue.

Smart meter data provides useful insight; showing between 25% and 30% of water use in commercial buildings is continuous flow (where the meter shows a reading of



one litre per hour or more, every hour, for 14 consecutive days or longer). Although this can be genuine usage, in many cases it points to leaks or unnecessary waste.

Urinals are a major culprit. Traditional systems often flush at fixed intervals, sometimes as frequently as three times per hour, regardless of occupancy. Over the course of a year, this can amount to hundreds of thousands of litres of treated water being discharged without purpose.

Sensor-based systems work are a solid solution to this problem; Thames Water suggests that sensor controls can reduce water consumption by up to 80%. They only activate a flush cycle when a facility is used, removing the water waste associated with timed systems.

Retaining automatic flushing in new or refurbished buildings effectively builds in inefficiency from day one. In contrast, occupancy-based controls match water use to demand, improving performance and

Smart meter data shows that between 25% and 30% of water use in commercial buildings is continuous flow



Washrooms may be a relatively small proportion of total construction cost, but they have a disproportionate impact on water consumption

reducing cost. WCs can be another problem; leaks often only appear as small trickles down the back of a loo which can be difficult to spot. But a single leaking toilet can waste up to 400 litres daily.

Traditional drop-valve systems rely on seals that lie below the waterline. This means they are prone to deterioration as scale and debris builds up. Choosing a flushing valve that doesn't have a flush seal below the waterline means the seal won't degrade and it won't leak.

Leaking cisterns are another frequent issue, because the standing water makes them vulnerable to scale and impurities, which can quickly accumulate and compromise the watertight seals. Direct flushing removes the need for a cistern entirely. Instead, it uses mains pressure to give an effective, controlled flush. Without a stored volume of water, the risk of leakage is removed along with many maintenance requirements associated with cisterns.

Part G of the Building Regulations sets out requirements for water efficiency, hygiene and safety. Compliance is often achieved at handover, but performance needs to be maintained over time, and that depends on the durability and suitability of

the installed systems. The growing use of smart metering will make this more visible. As more buildings are closely monitored, actual usage will become harder to ignore. Continuous flow, excessive flushing and undetected leaks will all appear in the data.

This has implications beyond utility costs. ESG reporting is placing greater emphasis on operational performance, with water use forming part of broader environmental metrics. Buildings that fail to perform as intended may fail to meet client expectations or regulations over time.

As the industry responds to tightening targets and greater transparency, water efficiency is likely to receive the same level of attention as energy performance. Washrooms may be a relatively small proportion of total construction cost, but they have a disproportionate impact on water consumption. Early specification decisions carry long-term consequences. Selection must involve assessing how systems will operate over time, how they respond to real patterns of use, and how they contribute to overall building efficiency.

Richard Braid is managing director at Cistermiser

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Hard landscaping made easy with Create & Construct



Designing effective hard landscaping schemes is rarely straightforward. With this in mind, in December '25, Tobermore launched Create & Construct, the most comprehensive hard landscaping support hub on the market. Here, Lisa Gow, Head of Specification at Tobermore, looks at recent projects to see how architects, landscape architects and specifiers have used different elements of the service to overcome design and specification challenges.

Bringing ideas to life

Working on a site that contains both new builds and listed buildings adds complexity because hard landscaping materials must be carefully chosen to ensure the scheme feels cohesive. This was the case at The Old Brewery in Salisbury, which saw the construction of a new residential development against a backdrop of listed 15th-century buildings.

It was important that the paving for pedestrian walkways and resident parking bays aligned with the historic appearance of the location. However, it can be difficult to visualise what products will look like in situ.

Here, the project benefited from paving

visualisation support. Using a 3D project visual from the architect, Barclay & Phillips, Tobermore presented a selection of paving options for the communal courtyard and paths. This enabled the developer, Derek Warwick Developments, to envision how the hard landscaping could complement the project. The 2D and 3D Landscape Design Service for commercial projects is a popular element of Create & Construct.

Tobermore's vintage themed Tegula block paving in Charcoal was chosen as the primary hard landscaping material. The product's antique appearance helped maintain the location's historic character, offering an aged yet traditional style finish. Due to its durability, Tegula was suitable for both the walkways and parking bays.

Specifying permeable paving for a SuDS scheme

Climate crisis has increased the intensity and frequency of rainfall in the UK, so to mitigate the risk, Sustainable Drainage Systems (SuDS) should be utilised on housing and public realm schemes where possible. Architect and developer firm Vabel chose

Tobermore's Hydropave permeable paving for the residential development in Lawrence Road, Seven Sisters, London.

Senior Architect at Vabel, Tommy Devine, explained how the project benefitted from elements of Tobermore's Create & Construct approach: "We received excellent support from conception to completion, including expert guidance on SuDS. The 'Virtual Sample Studio' was invaluable in reducing the number of physical samples we had to order – a more sustainable and environmentally friendly approach. The process was inspiring, project-focused, and gave us complete confidence in specifying their products."

As a result, Tobermore's Hydropave Braemar & Hydropave Fusion products were selected for their aesthetic and performance characteristics.

Using laying patterns to deliver form and function

Well-designed hard landscaping can help with wayfaring, add character, and create delineated spaces for leisure and socialising. Berkley Group's The Green Quarter demonstrates how this can be achieved.

One of the UK's most biodiverse developments, with 50% open green space and parkland, the hard landscaping design at The Green Quarter needed to tie in with the vibrant nature of the area. A functional yet aesthetically pleasing solution was required, ensuring commuter-friendly paving options.

Tobermore worked closely with architects, Applied Landscape Design and groundworker Kings Landscapes throughout the design process. They provided complimentary paving visualisations, bespoke sample panels and laying patterns – services which all form part of Create & Construct.

This provided confidence in the final product selection, and Artro block paving was laid in an interesting five-way colour mix of Heather, Bracken, Autumn, Slate and Carbon in a trendy herringbone pattern. Other pedestrianised zones feature Artro in warm clay-like tones of Heather and Autumn in a stretcher bond laying pattern. Artro's ability to create unique design patterns by seamlessly blending various colour tones adds originality and personality to the scheme.

Creating valuable space with retaining walls

Sloping sites can be problematic for hospitality operations such as John O'Gaunt Golf Club, which wanted to create a new outdoor seating area beside the clubhouse.

The project architect had specified a single gabion wall to retain the expanded patio area. Keen to look at alternatives, the management team consulted Tobermore's experts about the Secura mortarless retaining wall system. As part of the Create & Construct service, Tobermore offers a range of services to



The Old Brewery in Salisbury

support Secura products, ranging from retaining wall design and materials and labour pricing tools through the Secura Portal to toolbox talks on installation best practice.

To address both functionality and visual appeal, Tobermore's retaining wall team proposed a tiered retaining wall approach using the Secura Grand retaining wall system in Bracken. This created space for a more expansive patio area. For the main patio surface, Mayfair slabs in Silver, along with Sienna Setts in Silver, were recommended, adding a sleek granite aggregate finish that enhanced the overall modern feel of the space.

"Tobermore's team played a pivotal role, not only transforming the initial concept into a fully realised design but also guiding us through the process," said Gordon MacLeod, General Manager, John O'Gaunt Golf Club.

As we've seen, Create & Construct helps take the hassle out of hard landscaping design and specification. The Create element combines 19 services at the moment, designed and curated to support projects throughout the detail design and specification stages, encompassing everything from easy-to-use online tools to access to Tobermore's in-house design and technical experts. This comprehensive support helps specifiers, architects and designers deliver projects more efficiently and with greater confidence.

Simply visit Create & Construct, move the slider to select your project's stage, and discover how Tobermore can help make hard landscaping easy for you.

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Entering a safer future

Darren Hyde at the Automatic Door Suppliers Association says architects can balance architectural vision with the competing demands of safety, security and accessibility when designing modern building entrances.

Entrances are among the most defining elements of architecture. They frame the first interaction between people and a building, shaping expectations and guiding movement. Yet these spaces must also meet a complex mix of requirements: accessibility, circulation, fire safety and increasingly, protective security. A visually open, welcoming entrance must still support emergency escape and, in some cases, controlled access. Achieving this balance requires careful planning of both the entrance and the approach to the building.

Architectural entrances often prioritise openness and clarity. Large glazed facades, wide openings and generous arrival spaces help orientate visitors and encourage intuitive movement. However, these features must also suit the realities of building use.

Primary entrances handle the greatest volume of pedestrian traffic and must remain fully accessible. Automated door systems are frequently used to support inclusive access and smooth circulation. The choice of door type (sliding, swing or revolving) depends on the entrance's scale and purpose.

Secondary entrances serve operational or controlled functions, such as staff access or service entry. These may require higher levels of access management or security. Understanding how each entrance contributes to the building's overall movement and safety strategy is essential.

Growing role of security

Security is now a key factor in entrance design, particularly in public or high-occupancy buildings. The proposed Terrorism (Protection of Premises) legislation – commonly known as Martyn's Law – is expected to introduce new responsibilities for organisations to assess risks and consider protective security within publicly accessible spaces.

Although the legislation focuses on operational preparedness, it also influences



how buildings are designed and managed. Architects are increasingly expected to incorporate proportionate security measures that do not compromise usability or visual openness.

Often, these measures can be integrated discreetly. Monitored reception points, access control systems or speed lanes placed within internal transitional zones can provide effective security without dominating the architectural expression. They can also boost a building's efficiency, combining eco measures with integration of technologies for smart building control and integrated management.

Designing the approach

The route leading to an entrance is a key part of how people experience and navigate a building. Landscape design, pathways and sightlines all help guide occupants towards the appropriate entry point. Intuitive wayfinding and well defined thresholds create a sense of order while subtly supporting safety and security strategies.

A carefully planned approach can discourage unauthorised access to secondary entrances, and naturally direct

Buildings evolve over time and entrance systems must be flexible enough to adapt.



visitors to the primary access point where management or oversight is in place. External spaces must also support safe evacuation and allow clear access for emergency services.

The entrance sequence – from the external approach to the internal foyer – should be considered as a unified spatial experience, not single architectural features.

Safety considerations

Fire safety remains fundamental in entrance design. Door systems must support emergency escape, with powered pedestrian doors configured to release, unlock or fail safe during evacuation. Smoke control or compartmentation strategies may depend on doors performing specific functions during a fire.

Ensuring any added security features do not impede emergency egress is especially important in public buildings or spaces with large occupant numbers, where evacuation routes must remain clear and reliable.

Shared & multitenant buildings

Design challenges become more complex in multi-tenant or shared buildings. A single primary entrance may serve several

organisations, each with its own security expectations. ‘Speed lanes’ or access control points may regulate movement to different areas while maintaining the welcoming character of the overall space.

In these buildings, the foyer becomes a transitional zone that must balance open circulation with controlled access. Spatial planning is essential to ensure that security features do not create bottlenecks or obstruct escape routes.

Designing for change

Buildings evolve over time and entrance systems must be flexible enough to adapt. Changing occupancy patterns, new building uses or shifting security expectations may alter how entrances need to function.

For example, an office building may later incorporate public services or community facilities, introducing new demands for access management. In refurbishment or adaptive reuse projects, architects must reassess whether existing entrances still meet the building’s operational and safety requirements.

Darren Hyde is technical & training manager at ADSA

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VBH has developed the greenteQ ORION ICE 3-star profile cylinder for UK door manufacturers.

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ORION ICE is available in key/key and thumb turn options, in singles and keyed alike pairs, and each cylinder is supplied with five keys as standard, which is a real benefit to end users.

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ORION ICE is recognised by Secured by Design as a Police Preferred Specification product.

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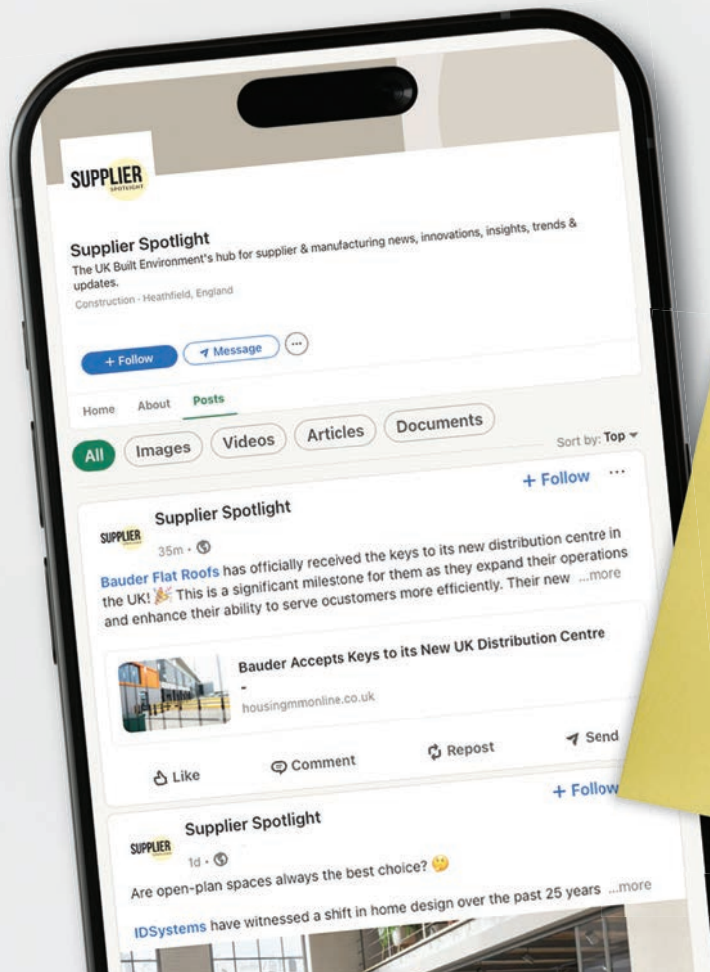
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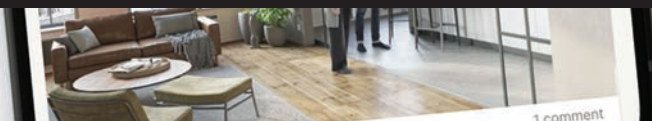
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