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Nissen Richards Studio voyages to a remote part of Iceland for a joint venture design that embraces its surroundings

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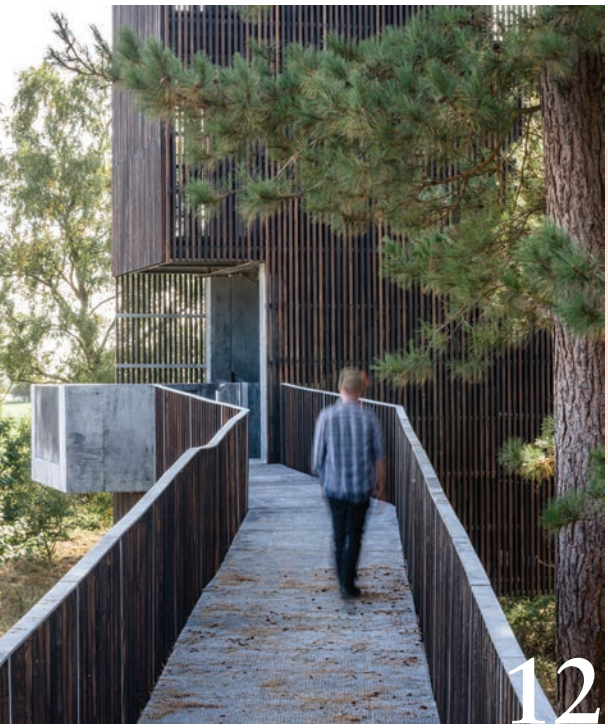

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FROM THE EDITOR

Passivhaus turns 35 this year, but it still feels new to many. There are some great examples of Passivhaus at scale – St Sidwells Leisure Centre in Exeter (soon to be eclipsed in size by Eclipse Leisure Centre in Spelthorne), Agar Grove affordable housing in London, the legendary Goldsmith Street Stirling Prize-winner in Norwich. These are high-profile schemes, as are the student accommodation at Purdown View in Bristol, the largest overall scheme and the urbanest in Battersea, the largest single building, housing over 850 students. We also now have Trafalgar Square student housing, a 100-home block of flats in Salford, and not forgetting Barratt London committing to build all of its new homes being Passivhaus.

But as we found out at our recent round table (together with sponsors Ubbink, Technal and Aeroseal), in the mainstream it's still a case of unrealised potential in the UK. Germany, Austria, and even the US are producing quiet, draught-free, comfortable places to live and work over 50,000 m^2. It's far from a *Grand Designs* single-home model, where the economies of scale mean they are not going to break the bank.

But how are large-scale projects being made cost-effective in practice – we found out at the round table, including how building physics ingeunity was being brought to bear, rather than large-scale projects being led by the tech. As so often, early engagement of Passivhaus Designers (and possibly Certifiers) can be the answer, as several cultural precepts need to be shifted around to enable the rigour required.

There are various examples showing that Passivhaus does not have to be prohibitively expensive – Agar Grove in Hackney's Phase 1A GEA was £2044, not far above the average, and 2019's Stirling Prize winner Goldsmith Street in Norwich, with economies of scale, achieving a relatively unscary 1,875 per m^2 – considering that cost per square metre can range up to 3000 m^2.

The idea of a building's quality is being recalibrated by growing numbers of Passivhauses – as the planet warms, how a building feels is as important, if not more important than how it looks. These are tangible benefits for residents and workers and users, and hopefully growing data on schemes will help to bolster the case for wide-scale investment in Passivhaus.

Scotland is due to bring legislation this year on its 'equivalent' to Passivhaus for all new homes. But partial approaches can be risky – with the full package being designed to avoid perverse performance outcomes. Our round table (full report soon) delved into whether it is all-or-nothing, but also why full Passivhaus is not as scary as it may seem. In our second half Question Time, sponsors again got the chance to pose their practical challenges to specifiers and consultants – from the perspectives of MVHR, facades, and sealing alternatives, all key to getting cost-effective Passivhaus schemes over the line. We also looked at how 'overdesign' is a thing, and how schemes can, and should, be revisited to trim them down to size.

The bottom line is the industry needs to forget the 'that'll do' approach, and embrace a – at the very least – painstaking focus on the details, from thermal bridges to taping everything. Everyone needs to be in the room, and our round table was a great embodiment of this. With the Government not intervening, it's up to us.

James Parker, Editor

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ON THE COVER...
A redesigned visitor centre in a remote part of Iceland saw a collaboration between British and Icelandic practices to immerse visitors in the landscape. Roseanne Field reports.
Cover image © Studio CAPN
For the full report on this project, go to page 32

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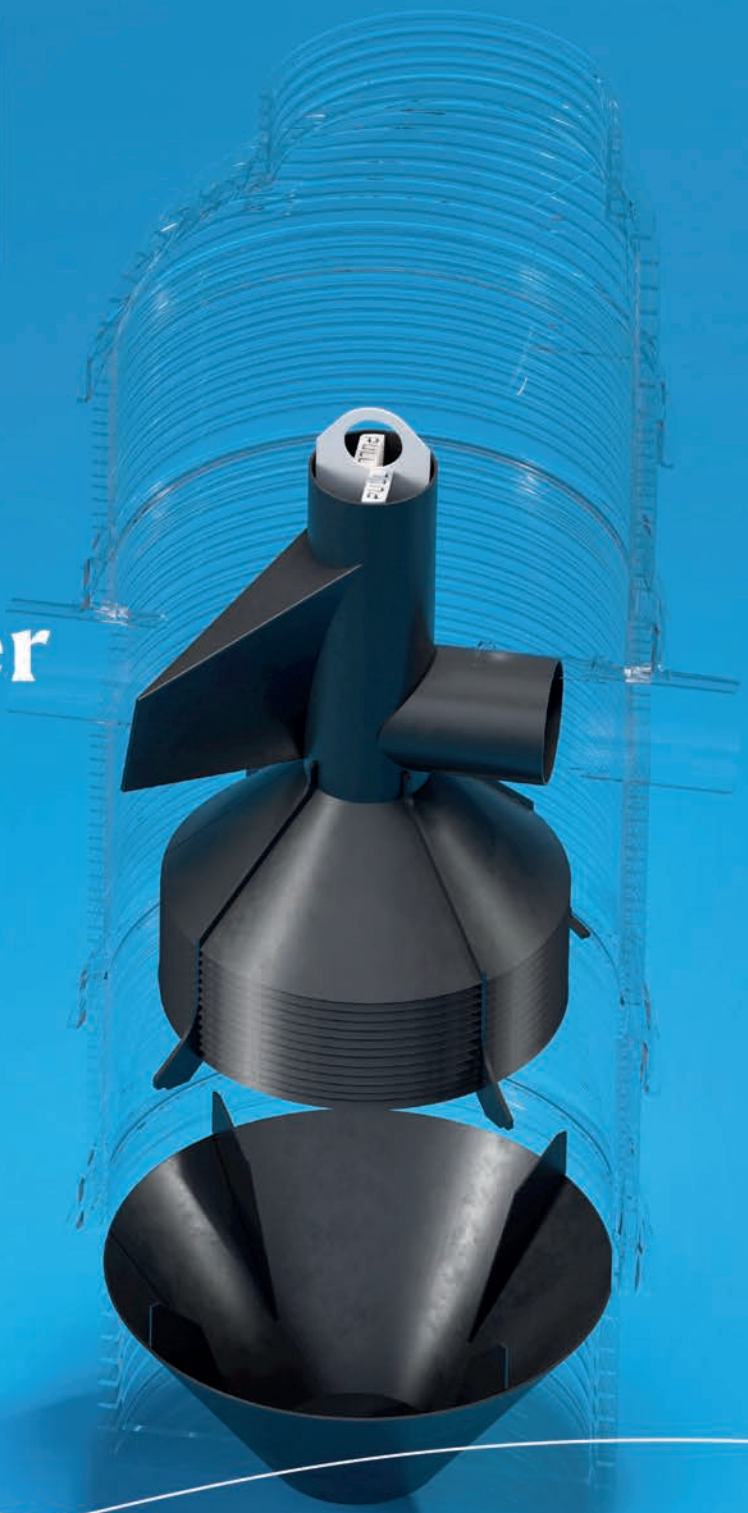

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GATEWAY 2

Knauf launches enhanced HRMO Design Guide to support compliant high-rise design and speed up Gateway 2 specification

Knauf has launched an updated version of its High-Rise Multi-Occupancy (HRMO) Design Guide, "reinforcing its position as a go-to resource for specifiers navigating the demands of compliant high-rise design and Gateway 2 approvals," said the firm.

Building on "strong industry uptake of the original, the enhanced guide brings together the technical guidance, product data and digital tools needed to support fire safety, acoustics and energy efficiency."

A standout feature remains its integrated floor plans, which now link directly to NBS, enabling a "faster and more streamlined route from concept design through to specification." The guide includes layouts for high-rise apartments, hotels and core stairwell configurations, "helping project teams improve both speed and accuracy in early-stage planning." The updated Design Guide has been designed to enable users to:

- Design and specify for fire safety, acoustics and energy efficiency across high rise multi-occupancy buildings
- Navigate Gateway 2 requirements using clear, accessible technical evidence
- Accelerate specification using floor plans linked directly to NBS
- Specify complete systems for all six sides of an HRMO including solutions for exteriors, interiors, flooring and ceilings
- Access technical expertise and assurances from a single source
- Access product information supported by current fire test data
- Access layouts tailored to apartments, hotels and stair core configurations.

The HRMO Design Guide is designed to support project teams in meeting the complex technical and regulatory requirements of high-rise multi-occupancy developments, while simplifying access to the systems, data and documentation needed to specify with confidence."

EMPLOYEE OWNED TRUST

Smith Scott Mullan transitions to employee ownership

Scottish architectural practice Smith Scott Mullan will officially transition to employee ownership from 22 June 2026, with owners Graham Acheson, Eugene Mullan and Rick McCluggage transferring their shares to an Employee Ownership Trust (EOT).

Smith Scott Mullan's transition to employee ownership "secures the long-term future and independence of the practice and ensures continuity for clients and employees. Employee ownership enables the firm to protect and strengthen its business as well as the culture and values that define how it works as a leading practice," said the firm

It added that the practice has "built a strong culture and reputation over the last three decades, delivering projects across a range of sectors. The transition to employee ownership creates opportunities for the wider team to develop, progress and shape the future of the business, as well as rewarding employees for their loyal service. This transition is a planned and responsible approach which will ensure continuity and support long term sustainability."

The practice added: "There will be no change to the way the practice operates with clients. The same leadership team, project teams and client relationships remain in place, and the business will continue to operate under the Smith Scott Mullan name from its existing base at Rutland Square in Edinburgh."

For Smith Scott Mullan, the transition to employee ownership "reflects a proactive and responsible approach to succession, ensuring continuity of leadership, service and relationships, while positioning the business for continued success."

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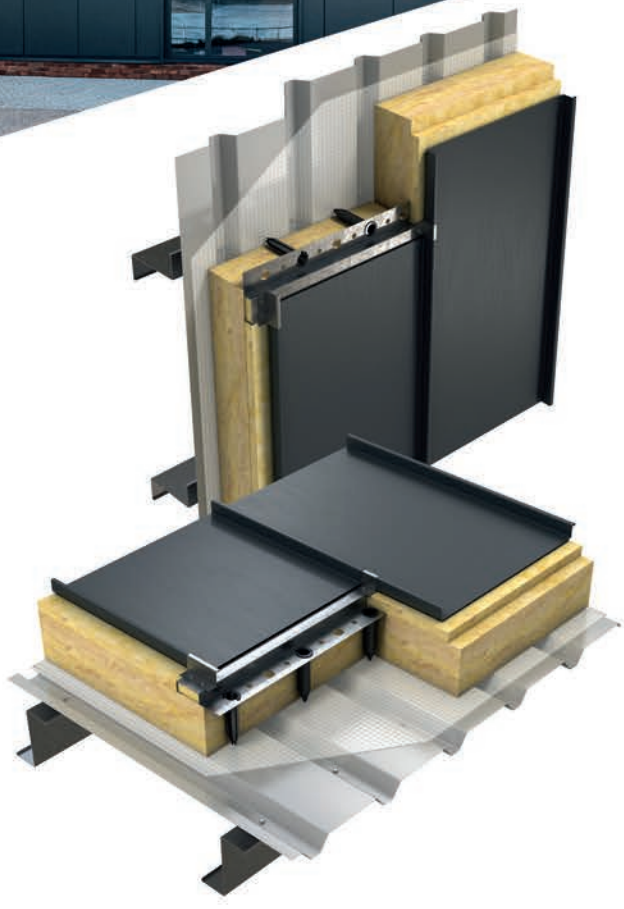

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Vieo

HERITAGE

Buttress completes work on Todmorden's Grade II listed bandstand and a contemporary new community pavilion

Buttress Architects' restoration work on Todmorden's Grade II listed bandstand is now complete, along with a contemporary new community pavilion in Centre Vale Park. Built in 1914, the Edwardian bandstand is the only surviving example known in England of this type*. The works included extensive repairs to the historic timber, a new stage floor and redecoration throughout. Several steps were taken to future-proof the building, including the addition of a terne-coated stainless steel roof and adapting the structure to allow portable lift access and improved circulation.


Photos © Gavin Stewart

Serving as a popular focal point in the park, the bandstand has fully reopened, and local community groups have enjoyed various musical performances over recent weeks.

A short walk from the restored bandstand, the new community pavilion sits within the parkland. Designed by Buttress, it draws inspiration from the original building, reimagined in a contemporary form sympathetic to the conservation area. The pavilion follows the same footprint and uses a simple palette of natural materials: charred Douglas fir, slate and reclaimed stone from the original building.

A deep overhanging roof provides shelter to the viewing area and is fitted with solar panels and a rainwater harvesting system to reduce the building's environmental impact. Large windows and bi-fold doors open onto the bowling greens, creating a strong connection between inside and out.

Todmorden bowls club and other groups make regular use of the four bowling greens in Centre Vale Park and can now enjoy the enhanced facilities of the new community pavilion which is also available as a space for anyone to hire.

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AWARDS

RIBA announces 34 International Awards for Excellence winners

DY Patil Centre of Excellence by Foster + Partners © Nigel Young

The Royal Institute of British Architects (RIBA) has announced the 34 winning projects of the RIBA International Awards for Excellence 2026. Recognising inspiring architecture across 15 countries and four continents, this year's cohort responds directly to urgent social, environmental and urban conditions across the globe.

All winning projects are now in contention for the shortlist of the prestigious RIBA International Prize, one of architecture's highest accolades. The winner will be announced at the RIBA Stirling Prize ceremony on 15 October 2026 at Old Billingsgate, London.

Whether addressing climate, migration, housing, rapid urbanisation, or infrastructure, the awarded projects "demonstrate how thoughtful design can positively impact everyday life and help build a more equitable and resilient future."

The winners showcase how existing structures can be "reimagined as vibrant destinations for culture, community and civic life." In Norway, Kunstsilo by Mestres Wage, BAX and Mendoza Partida transforms a former grain silo into a contemporary art museum, whilst Switzerland's Transformation Warmbachli by BHSF Architektur & Stadtebau reuses a former Chocolat Tobler warehouse for cooperative housing. Similarly, Rockbund Shanghai by David Chipperfield Architects and Arquitectonica converts a historic neighbourhood into a modern cultural district connecting the area with the riverfront and park, whilst Taoxichuan Ceramic Culture Industrial Park by Jie Zhang, Beijing An-Design Architects and THUPDI revitalises two abandoned ceramic factories in China's porcelain capital into a thriving cultural and creative district.

Climate responsive design and the use of local materials are also central to this year's winners, featuring natural ways to cool buildings and lower their carbon output. In France, Chateau de Beaucastel by Studio Mumbai and Studio Mediterranee uses natural airflow and shade to create a naturally cooled winery that honours its historic setting, while Parikrama by SPASM Design Architects in India uses shaded walkways and natural ventilation to deal with the hot temperatures of the region.

The Plus by BIG – Bjarke Ingels Group © Einar Aslaksen

In Australia, Burnt Earth Beach House by Wardle transforms the site of a former beach shack into a multi-generational family home, using handmade terracotta to respond to the demands of its exposed coastal setting, whilst Vietnam's Urban Farming Office by VTN Architects wraps its exterior in vegetation to cool the building while producing local food in the heart of the city. Norway's The Plus by BIG – Bjarke Ingels Group joins sustainability highlights as a carbon-neutral furniture factory and public park built from local timber that uses solar power and rainwater to cut its energy demand by up to 90%.

Winning projects demonstrate how design is being used to strengthen communities by creating new spaces for learning and culture. In Uganda, the Bidi Bidi Performing Arts Centre by Hassell provides a vital new space for arts and community within one of the world's largest refugee settlements, whilst Australia's Darlington Public School by fjcstudio integrates Indigenous heritage directly within a modern classroom setting. The importance of community also extends to public institutions. BRAC University by WOHA transforms a Dhaka landfill into a vibrant and climate-conscious educational hub, while Shanghai Library East by Schmidt Hammer Lassen redefines the library as a "collection to connection" model, housing 4.8 million books with a "largely open, publicly accessible landscape." In Beijing, the Performing Arts Centre by Schmidt Hammer Lassen and Perkins & Will reactivates the Tongzhou waterfront through three monolithic venues for opera, theatre and music, inspired by the site's industrial heritage.

This year's winning projects include work by leading international practices such as David Chipperfield Architects (UK/Germany), Foster + Partners (UK), BIG – Bjarke Ingels Group (Denmark), Schmidt Hammer Lassen (Denmark), Hassell (Australia), and WOHA (Singapore), alongside acclaimed independent studios including Studio Mumbai (India) and MAKER architecten (Belgium).

YIMBY (Yes In My BackYard) by MAKER architecten © Stijn Bollaert

GUIDANCE

CIBSE in collaboration with Arup, Loughborough University and Inkling, launches updated CIBSE TM59 guidance to help tackle overheating risk in homes

CIBSE in collaboration with Arup, Loughborough University and Inkling, has launched the updated CIBSE TM59 Overheating risk in dwellings: A design stage methodology, providing the industry with revised guidance for assessing and mitigating overheating risk in new homes and major residential refurbishments.

Referenced within Part O of the Building Regulations, CIBSE TM59 is widely recognised as a key industry resource for evaluating overheating risk in residential buildings. The updated publication reflects the latest research, industry experience and evolving understanding of how homes can be designed to remain comfortable and resilient in a warming climate.

The guidance comes at a time when overheating is becoming an increasingly important issue across the residential sector in the UK. Evidence continues to show that many new and existing homes are vulnerable to excessive indoor temperatures due to factors such as extensive glazing, insufficient ventilation strategies and building designs that are not adequately adapted to future climate conditions.

Drawing on practical application and academic research, the revised CIBSE TM59 strengthens the methodology used to assess overheating risk and supports the delivery of homes that are resilient, energy efficient and fit for the future. The publication incorporates updated approaches to evaluating bedroom overheating, informed by recent research undertaken by Loughborough University and includes revised modelling guidance for ceiling fans, recognising their role as an effective low-energy measure for improving occupant comfort. The development of the updated guidance has also benefited from industry testing and application across real projects.

A key enhancement within the new edition is the requirement for all homes to be assessed under unconstrained conditions using future weather files representing the 2050s climate. This approach places greater emphasis on passive design measures at the earliest stages of development, helping designers create buildings capable of maintaining comfortable internal conditions without relying on energy-intensive cooling systems.

The updated guidance is expected to strengthen design stage decision making, improve consistency in overheating assessments and support the delivery of homes that are resilient to future climate conditions while reducing reliance on energy intensive cooling.

The publication has relevance across a wide range of sectors and disciplines, including residential design, natural ventilation, building performance, sustainability, retrofit and refurbishment, climate resilience and government policy.

The guide was authored by Susie Diamond of Inkling (Lead Author), Becci Taylor and Antonietta Canta of Arup. The publication was executive edited by Professor Kevin Lomas of Loughborough University.

PRACTICE PROFILE

Pippa Nissen & Jim Richards

Nissen Richards Studio

Since establishing their 'wife and husband'-led practice in 2010, Pippa Nissen and Jim Richards have cemented a reputation for translating narrative into spatial experience. Kim Neville spoke to them about their creativity, collaboration and continual learning.

Nissen Richards Studio was founded in 2010 by Pippa Nissen, joined soon after by her husband, Jim Richards. The goal was to work on projects they genuinely cared about – and were passionate about. Both founders brought extensive experience from having run other architectural practices. As Nissen explains: "Both of us had been directors of other practices before, so we had experience of running companies. I took the plunge first and Jim followed quickly after when I asked him politely to join me (he said yes immediately!)."

The duo brought complementary interests to the new practice. Nissen's background was rooted in architecture and theatre design, while Jim was keen to work across a diverse range of projects. Reflecting on his ambitions for the studio, he states: "I wanted to work on a wide mix of projects at different scales of size and complexity, but ones that would also push us both intellectually and technically."

Nissen's cultural and creative interests were shaped through her education, having studied architecture at Cambridge before completing a postgraduate Master's degree in Theatre Design at the Slade School of Fine Art. This combination of architectural and theatrical training would later influence the studio's strategy to pursue cultural and public projects.

When the practice was first established, the studio consisted of just six people. Since then, it has grown organically in response to the opportunities it has been presented with. Reflecting on this, Nissen notes: "At first, we wanted to create something small and bespoke, but the opportunities we were given drove us to expand. I think now we feel we are at a size that feels really good – just under 30 people."

Currently, the studio is in a happy position where they can say 'no' if projects don't align with their ethos, or the workload prevents it. Nissen says: "It does mean that we love all the projects we do take on though, which is a good place to be!"

Practice culture & ethos

Richards pinpoints the practice's key design objective as "honesty

BURYING THE COMPETITION
A new 'visitor experience' at the Sutton Hoo Anglo-Saxon burial ground combined both exhibition and visitor needs carefully, picking up an RIBA award
© Gareth Gardner


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PORTRAIT DETAIL
The practice's refurbishment of the National Portrait Gallery showcased iterative detail

of materials," and more pragmatically, "consideration of construction." Nissen expands on the approach, explaining that it is fundamentally about creating work that enhances people's lives. She continues, "I liken the design process to creating a piece of music, where there is phrasing, rhythm and pacing, a complex series of events that communicates ideas and has meaning."

A key aspect of the studio's approach is the translation of narrative into spatial experience. For Nissen, this is a considered and iterative process: "We make sure to start slowly! It takes time to shape and create an 'experience'. We try and plot experience into a timeline and then test and plan what goes where." She adds: "Workshops and meetings help us this process."

For Richards, narrative is embedded across all aspects of the practice's work, extending beyond individual projects to the broader role of architecture itself. He says: "The translation of narrative runs through all our work, and we are also interested in our architectural work in how spaces can become a backdrop to people's lives, sparking memory and evoking meaning."

A culture of learning and development is central to the studio's wider ethos. The practice supports work experience placements for students from secondary school through to Master's level, and staff also organise a range of CPD programmes covering a broad spectrum of sectors.

This is managed internally, as is the practice's mentoring strategy. Nissen explains: "We have a loose hierarchy so that people are mentored by someone with more experience who has more of an overview." This approach is complemented by more formal training. Nissen continues: "For example, two members of the team went to the theatre company Punchdrunk for a workshop to explore theatrical design processes. We enjoy learning."

A culture of continuous learning is embedded within the practice, informed by Nissen's own academic work; she has taught at university level for more than 20 years.

Design approach

A commitment to humility, openness, and continual learning underpins the design method of Nissen Richards Studio. As Nissen explains: "We test out all our ideas on the relevant audience sectors to find out where our ideas work and where anything might feel clumsy. Engaging with different audiences and being open, humble and ready to learn are key parts of the process." This iterative and audience-focused methodology allows the practice to evaluate and refine design proposals while ensuring that diverse perspectives are considered throughout the process.

Richards emphasises the importance of communication, arguing that maintaining an open dialogue and encouraging constructive debate are essential to addressing ethical and cultural responsibilities within their work. Through collaboration and critical discussion, the studio seeks to create designs that are both inclusive and socially responsive.

Sustainability is also a central consideration within the practice. Like many contemporary architectural firms, the studio carefully evaluates whether new construction is necessary, prioritising the retention, adaptation, and reuse of existing buildings and materials wherever possible. Material selection forms a key aspect of this strategy. As Nissen states: "We also think about how everything that we design can have a further life within future projects. As well as moving away from materials such as plastic to things that can be reused or recycled, we additionally propose the use of very high-quality materials which are robustly durable and long-lasting." This approach reflects the studio's commitment to reducing environmental impact through circular design principles, material reuse, and the specification of durable, sustainable materials.

Additionally, Richards continues, "In recent projects, especially in the residential sector, we have also engaged with embodied carbon specialists who work alongside our established energy and sustainability consultants to provide a more joined up approach."

The studio also actively seeks to broaden its perspective beyond individual projects through its separate platform, A Museum For Now. Nissen explains further: "We also run a separate website for ideas and discussion, where museum professionals, alongside artists (of the calibre of Jeremy Deller and Rachel Whiteread), share their insights, which ensures that our perspective is always as broad as possible."

This exchange of ideas in turn informs the practice's wider design process. The studio regularly undertakes workshops with clients and collaborators to test and refine design proposals. As Nissen explains: "On specific projects, we hold workshops where we test different approaches and then whittle down our ideas until we have a single approach. We explore different options for delivery too, towards achieving the same result."

Physical and digital modelling also plays an important role in developing and communicating proposals. Nissen continues: "To test ideas out, we work carefully with both 3D physical and digital models, exploring many different ways of representing things to make sure that everything really is as people imagine and nothing is left to chance."

Recent projects

Several recent projects exemplify the company narrative-led approach to design. Sutton Hoo, the Anglo-Saxon burial ground in Suffolk, is a benchmark project for the practice, where the team was able to combine architecture and visitor experience through a strong narrative thread across the whole site. Significantly, the interpretation strategy informed wider architectural decisions, with the interpretation concept leading decision-making on the

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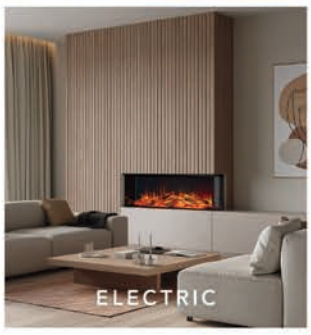
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MODEL CONSULTANTS
The National Portrait Gallery refurb saw Nissen Richards creating a 3D model to test "positioning and object clusters" in advance of designing

larger architectural interventions. This included the design of a new viewing tower, enabling visitors to experience the landscape from "a new and different perspective."

The studio's refurbishment of the National Portrait Gallery similarly demonstrates the iterative and highly detailed design process. As Interpretation and Permanent Exhibition Designers, the team developed a 3D model of the scheme, which Nissen explains allowed them to test "positioning and object clusters" before undertaking extensive onsite testing of colours, materials and content locations. This process ensured that the intended narrative translated successfully into the completed visitor experience.

Technology & AI

While acknowledging the growing influence of AI within the profession, the firm remains measured in its approach. Nissen describes the practice as "open but cautious about AI," viewing it primarily as a tool for improving efficiency rather than generating design solutions. The studio is currently exploring how AI can support administrative and technical processes, helping to replace "mundane tasks" while also allowing teams to test options quickly. However, Nissen emphasises that AI should only ever augment, rather than replace, professional expertise.

Recognition & achievements

Recognition through awards has played an important role in the growth and development of the practice. Richards describes Sutton Hoo's recognition as a national RIBA award winner as "a watershed moment for the practice", representing acknowledgement of the studio's work at a national level. Although the project did not make the Stirling Prize shortlist, it was later identified by a public vote as the 'alternative Stirling Prize' winner.

Since then, the practice has continued to build on this success, having twice been shortlisted for the Stirling Prize as part of wider exhibition and gallery design teams. Collectively, the studio has now picked up over 50 creative awards, which according to Nissen gives both the practice and its clients "a real boost."

For Nissen personally, being named as one of the *Architect's Journal*'s '40 Under 40' architects early in her career proved particularly significant. She explains that the recognition "gave me the courage of my convictions to disband my last practice and go ahead and form Nissen Richards Studio with a view to really shaping the work that we did."

Future moves

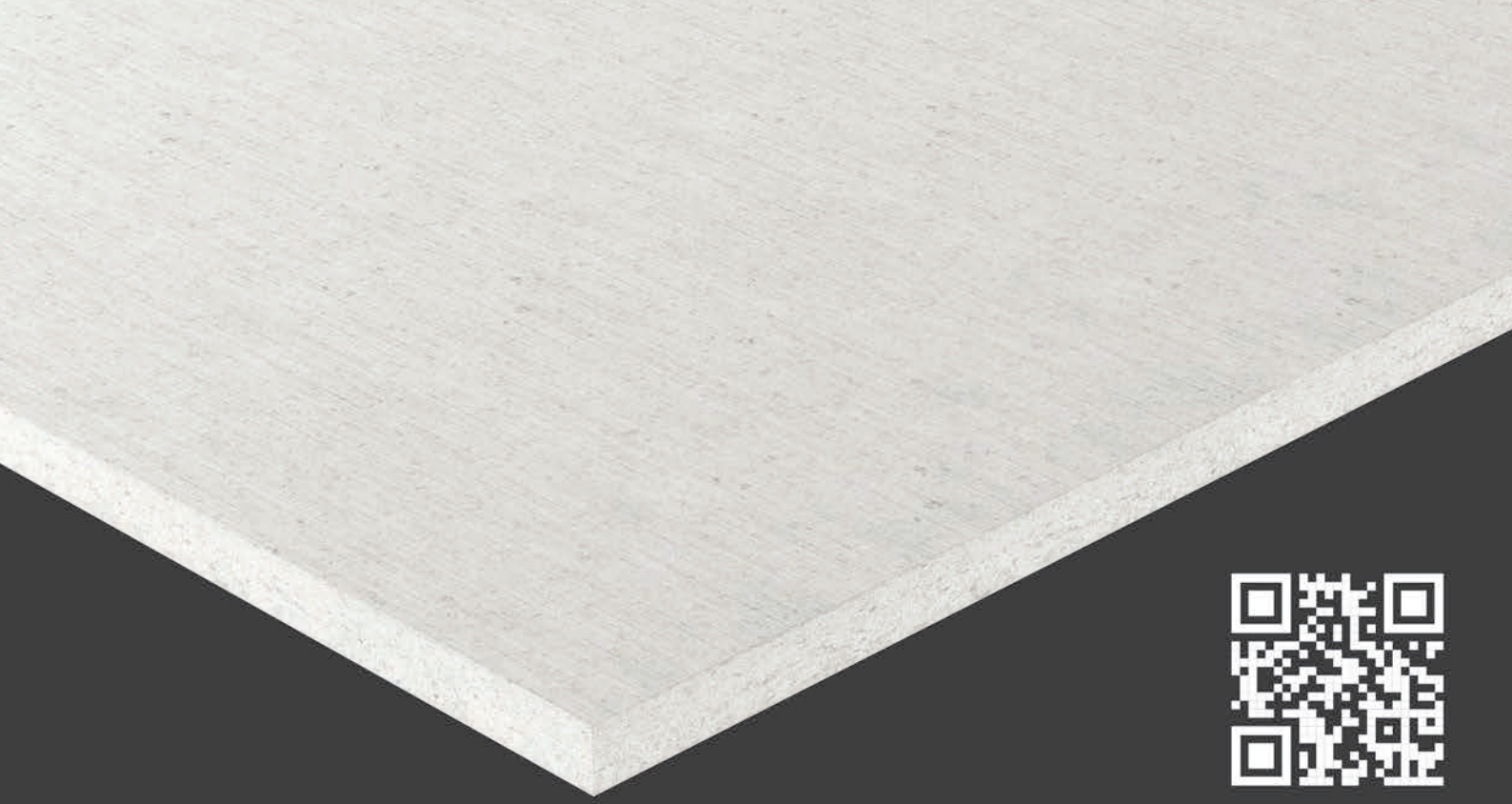
Like many architectural practices, the studio continues to navigate a number of industry-wide challenges. Richards points to the increasingly complex planning system, saying it is "very slow and frustrating," and delays can often be difficult to explain to clients.

Commercial pressures also present ongoing challenges. Nissen identifies maintaining healthy cashflow as a key concern, observing that clients are becoming increasingly slow to pay while project budgets continue to tighten. Nevertheless, she suggests that these constraints are partially offset by the industry's move towards more sustainable approaches, requiring practices to become increasingly imaginative and resourceful.

Sustainability will play an increasingly important role in shaping the practice. Richards explains that the inclusion of zero carbon approaches across all sectors is something the studio is 'fully embracing', citing the completion of its first zero carbon housing scheme as an important milestone and learning opportunity.

They also believe that the profession must become increasingly human-centred, in response to advances in artificial intelligence. She argues that architects should be "more human centric – not less," continuing to guide clients through the design process while demonstrating the value of thoughtful, bespoke design. Within exhibition design, she similarly advocates creating spaces that are accessible, inclusive and encourage a sense of ownership among visitors. Both sides of this wife-husband team express a desire to continue expanding the breadth of the practice.

To find out more about 'A Museum For Now', please scan the QR Code.



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AL NAJD AGRICULTURAL CITY, OMAN
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Foster + Partners has unveiled detailed masterplan designs for the Al Najd Agricultural City in Dhofar, southern Oman. Working in collaboration with Dar Al-Handasah, the Oman-based international multi-disciplinary consultant, self-sustaining agricultural development will be built on fertile soil and respond to the region's unique environmental conditions. The project for the Ministry of Housing and Urban Planning, and the Ministry of Agriculture, aligns with the Oman Vision 2040. It advances food security and agricultural innovation, supports economic diversification, and will become Oman's first zero-waste agricultural development.

The masterplan is inspired by historic developments in Oman, where agriculture has been an integral part of public life. The scheme, say the architects, is "defined by a multi-scalar approach to planning with clusters of rectangular farms, ranging in size (from 10 to 200 ha), efficiently radiating outwards from a compact urban core. Agricultural spaces are also embedded within public areas such as parks, boulevards, and courtyards, creating a distinctive urban identity." The city centre features shaded pedestrian routes, integrated public transport connections, cultural and religious buildings, educational and healthcare facilities, as well as retail and leisure spaces, supporting a projected population of 13,000 residents and 6,500 new jobs. The development is "strategically connected to other regional hubs and farms to create resilient food systems and drive growth."

A team of agricultural consultants have carefully selected crops for the masterplan, focusing on regionally suitable varieties such as date palms, greenhouse-grown tomatoes, and industrial crops that produce raw materials. The project also supports exports and agro-processing opportunities, including the production of dried and frozen produce, oils, compost, and fertiliser.

Integrated technologies include shade nets to filter sunlight and regulate temperature, agrivoltaics for crop protection and power generation, aquaponics to create closed-loop ecosystems, as well as advanced water and energy management systems. The diversified water strategy includes groundwater, collecting runoff water from the mountains via dams, and desalinated seawater, with careful monitoring of irrigation and the selection of water-efficient crops.

Repo House Architects / Chris Taylor Photography

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BUILDING INSIGHTS LIVE

Round table chair, ADF editor James Parker

Embodied Carbon Counts: The Transformational Power of the Net Zero Carbon Buildings Standard & Part Z

A Building Insights LIVE round table we held in London recently saw sustainable design advocates come together to explore the potential for embodied carbon to be raised up the industry's priorities list, despite a range of competing factors. The Future Homes Standard conspicuously ignored embodied carbon, and cost allied to delivery at scale being overwhelming challenges. But how can limiting or at least measuring it upfront in projects – arguably the missing link to achieving true sustainability – be brought into mainstream practice?

The event was sponsored by precast manufacturer Milbank Concrete Products, which has a long-established culture of transparent embodied carbon reporting, given the inherent carbon challenges of concrete, and in a context of a persistent lack of any regulatory requirements. However, we discovered that the comprehensive, data-rich and multi-agency-backed Net Zero Carbon Buildings Standard was beginning to get a foothold in the construction sector. It was helping to focus minds onto at least the importance of upfront embodied carbon, but also whole-life costs,

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ATTENDEES

Will Arnold, Head, Sustainable Materials, Useful Simple Trust
Kirsty Girvan, Senior Policy Advisor, UKGBC
Tim den Dekker, Associate, Feilden Clegg Bradley Studios
Stephanie Baker, Sustainability Consultant, SEES (Sadler Energy & Environmental Services)
Ewan Duffin, Associate Director, Harley Haddow
Simon Sturgis, Founder, Targeting Zero & Chair, RIBA Sustainability Futures Group
Ivan Jovanovic, Director, Sustainability & Environmental Design, Atelier Ten
Simon Wyatt, Partner, Sustainability, Cundall
Ellen Willis, Head of Sustainability, Chetwoods
Diego Padilla-Philipps, Director of Decarbonisation, WSP

SPONSORS' ATTENDEES

Lee Cowen, Managing Director, Milbank Concrete Products

as well as the already foregrounded operational carbon reductions. The hoped-for amendment to the Building Regulations that is Part Z – an industry-led regulation that would explicitly govern embodied carbon (albeit only for schemes above 1000 m^2 or over 10 homes), remains in the wilderness. But the NZCBS, on which Part Z is based, is out, and beginning to alter the landscape.

Our meeting was crucial, however, to not only raise awareness of the need to consider embodied carbon as part of sustainability drivers in projects, but also to identify how it is being sidelined currently in procurement. Among our multi-disciplinary group we were pleased to have embodied carbon trailblazer Will Arnold, now of non-profit group Useful Simple Trust, who was the lead author of Part Z working with Government, and architect Simon Sturgis, who advised the Government's Environmental Audit Committee on whole-life carbon assessment in 2022.

There was consensus that the industry could not drive such innovations into the mainstream without strong regulation, despite recent industry initiatives (such as NZCBS, and RICS' whole life carbon assessment tools). Whole-life carbon assessment encompasses both upfront and operational carbon, but perhaps more than in any other area of projects, early stage involvement of the supply chain is the only way to ensure the embodied portion is not an afterthought at best.

The bottom line is that there has been scant progress on reducing embodied carbon in construction since Covid. UKGBC, represented by Kirsty Girvan, estimates that it has only dropped a paltry 4% since 2018, so how can the industry be incentivised to do better, and do we wait for regulation at our peril?

The Industry's Embedded Embodied Challenge

Tim den Dekker of Stirling Prize-winning practice Feilden Clegg Bradley opened his comments by saying decisively that mandating embodied carbon was "not something that the markets can sort out; it needs government to set the lead, otherwise we're not going to get embodied carbon down."

HARNESSING INVESTOR CLIMATE GOALS
Will Arnold said that his key motivator as author of the Net Zero Carbon Buildings Standard was to "bring consistency around a green building definition" for investors

ADVOCATING FOR GROWING CARBON LITERACY
With UKGBC reporting a poor level of embodied carbon reduction in the sector, Kirsty Girvan said that increasing 'carbon literacy' in construction was vital

He addressed the issue of potential unintended consequences from a shift to focusing on embodied carbon, and that there's an "assumption that those consequences will be negative," adding: "I think there will be a lot of positive unintended consequences."

Ven Dekker wanted to "dispel this myth that it's really hard to do a good embodied carbon assessment," but said that it was about not "wanting everything all at once," but proceeding in incremental steps: "let's focus on the easy bits first."

Will Arnold characterised a mixed picture in the wider context of both increasing resistance to net zero as a goal, but also increasing uptake of embodied carbon reduction. He said the politicisation of net zero by populist parties had made it "way harder than it was three or four years ago," however also that he saw clients "who want to act being more able to do so because of things like the NZCBS standard. Arnold said he was concerned that mainstream projects were being held back by the "wider rhetoric," although it's "easier than ever to do [embodied carbon reduction]."

He concluded that developers were having to justify pushing the agenda on the basis of being "lower cost, lower risk, all these other metrics, they can't justify it on being lower carbon." Arnold cited one client that "was entirely justifying it around supply chain resilience – alternative cements that they don't have to import, because of the global situation."

Our round table found that, as ever, capital cost is the most pervasive issue, with a downturn in the housing market having unfortunately hampered the case for investing in mainstream sustainability benefits, with speakers citing a lack of demand among consumers for higher sustainability homes. But Simon Wyatt of Cundall said that in certain sectors of the residential market, clients at the higher end of urban residential tend to be powered by investors who are "driven by things like Sustainable Finance Disclosure Regulation in Europe," with the EU having its own requirements on carbon assessment of projects.

Will Arnold said that in writing the Net Zero Carbon Buildings Standard, the key motivator was to "bring consistency" around a definition of a "green building" for financial institutes to validate their investment. He said it "makes it far easier for a major bank to pay its green loans," whereas until now, the financial lever "[hasn't been] working."

Whole Life Assessment & EPDs

Will Arnold called for a Ministerial Statement "setting out a timeline for introducing embodied carbon reporting, as a minimum." He suggested this could be restricted to "products over a certain size,' and it would give the signal the market needs, supporting all of the existing reporting initiatives, including AI-based. Simon Sturgis agreed, but added that Ministers should tackle "whole life carbon reporting, because to make a good design decision you need to understand the upfront, in-use embodied, and the energy use." Stephanie Baker of consultant SEES added that whole life carbon assessment from cradle to grave and back around again, needs to be more in the forefront."

Arnold said early engagement with the supply chain was needed in order to thrash out embodied carbon data, and den Dekker explained how Feilden Clegg Bradley's carbon tool was now regularly used on projects – by 9,000 users. Diego Padilla-Philipps said however that UK designers needed to be incentivised to reduce embodied carbon, as in other markets.

Environmental Product Declarations should be standardised, as well as mandated, to harness their potential to drive reporting and

reduction of embodied carbon. Ivan Jovanovich of Atelier Ten said Government had missed a trick, and that it should have demanded EPDs were "supplied for any product going into public buildings."

Lee Cowen said standardised EPDs could tackle the varied challenges in reporting embodied carbon in products. "Industry bodies produce generic EPDs for certain components that cover 40 or 50 suppliers that are bringing material in from all over the globe." He stressed firms such as Milbank were "often brought in too late to influence what we can do to reduce cement or steel."

Carbon literacy & the knowledge gap

Sustainability specialist architect Ellen Willis said that a lack of early engagement fed into the industry's poor record on selling its benefits, but also missed potential cost savings. She stressed it was important "not to underestimate the knowledge gap we have in the industry." She said that increasing "baseline climate literacy" needed to be the focus, alongside consistent reporting across the industry, supporting this aim.

The knowledge gap extended to architects, said Simon Sturgis, and we needed to "develop carbon intuition" as a long-term strategy. "The numbers don't really matter, you need people to do good things, and for carbon to just be like gravity or sunlight, just part of 'what you do' as an architect."

Kirsty Girvan acknowledged this knowledge gap around what carbon reporting means in practice, and said it is actually amplified by the fact there's "lots of data out there." She said that feedback from Government around Part Z was that "they're just not sure because they're nervous; not just in terms of how to engage with the supply chain, but how to understand that data."

Girvan said the "pushback" to Government should be that the sector propose to them "that if you implement parts, Tier 1 contractors for example will take it upon themselves to make sure that that is scaled up." She added that the explanations required on data to increase that literacy "did not need to be complicated; it's not lots of new training programmes, it's literally 'this is what this means,' similar to an EPC."

Stephanie Baker of consultant SEES said that designers were "asked to collect EPDs in BREEAM projects," but "that doesn't necessarily guarantee that anyone's actually looking at them, and that anyone's actually using that process to make decisions that impact the design and ultimately reduce carbon." However, she said "it doesn't necessarily matter where you start, I think it's important to just start."

Cundall's Simon Wyatt said that most contractors "sign up to embodied carbon targets for the entire building – it's how you break that down into the sub-packages."

Delegates highlighted the need to engage all disciplines in embodied carbon reporting, but also the challenges here. The chair James Parker cited product data directory NBS' reported comments around the issues caused by sets of embodied carbon data being supplied in a piecemeal and inconsistent way by manufacturers, and the firm's calls for a unified framework.

Lee Cowen said the concrete sector's trade body had "worked with members to pull together information," to provide a "generic EPD," but added that the credibility of this "comes back to what is the real truth of what is being delivered by the 40 or 50 members of the trade body, based on their supply chain." He said that the Government should "take on board some kind of mandate around how reporting and EPDs are produced, and then hold the manufacturers to account."

Solutions

The group shared ideas on how industry could collaborate in order to both increase 'carbon literacy' inside and outside the sector, stimulating consumer demand, but also adopt certain proven carbon measurement routes. One was the 'taxonomy' approach of certifying all building elements on carbon emissions, which the EU has mandated (and which is backed by Simon Wyatt for one).

Event sponsor Lee Cowen asked how early in projects choices on materials should be made "to have meaningful impact." He said currently, such decisions could be left until a very late stage, and embodied carbon might not feature at all. Diego Padilla-Phillipps cautioned that the need for pre-stressed concrete meant higher strength precast concrete mixes in many projects, and Cowen once more highlighted "early engagement," as the method to identify the ways to achieve performance while minimising emissions, but asserted "it doesn't happen." Ewan Duffin emphasised that early stage design thinking could for example reduce a column grid, and "reduce concrete usage by 30%" on projects.

Simon Sturgis advocated the 'stick' approach of a "mechanism [requiring developers] to report their square metre carbon rate, in the same way cars and flights do. If people are required to report, it will start the process where people then start comparing to things like the NZCBS, but also becomes a competitive issue." He accepted Simon Wyatt's assertion that EPCs "haven't driven competition," but said they were "absurdly inaccurate."

WSP's Padilla-Phillips mentioned a "simplified calculator" the firm developed with the Future Homes Hub, to "access our data for different wall build-ups," rather than having to "calculate every single level from scratch." Simon Wyatt that working with LETI and the GLA had shown Cundall the benefits of "breaking down carbon budgets into specific disciplines like structural engineers, facades, MEP; where everyone knows their targets." He added: "It's how you optimise every single area, because you could have two buildings on two completely different foundations."

Simon Sturgis concluded: "What I come across time and again is people wanting quick answers, and that is quite often based on preconceptions. So, for example, the classic preconception is that concrete is bad, timber is good, but the concrete industry is making huge efforts to improve the performance of concrete."

Incentives & scale

Attendees generally stressed the need for strong regulation first on embodied carbon to force a pivot in the sector, but also a range of other possible incentives for embodied carbon reporting and minimisation. These included taxing virgin materials, and dropping VAT on other materials with low embodied carbon. Government-backed loans were another incentive (mooted by Ewan Duffin) to drive low carbon residential construction.

Several speakers at the round table noted that reporting

GOVERNMENT NEEDS TO LEAD
Architect Tim den Dekker said that mandating embodied carbon "was not something the markets can sort out; it needs Government to set the lead"

embodied carbon on individual existing dwellings of different sizes and nature within overall developments was challenging – however she warned against over-simplifying data reporting to counter this, if it risked "losing the quality of data." Ellen Willis assured the group that from smaller projects, "a lot of the information is not hugely technical, and I have had the time to find that information."

Conclusion

Our delegates confirmed that we are a long way from being able to say that embodied carbon limits and reporting are becoming part of mainstream building delivery. Helping educate the sector on the benefits, including by growing 'carbon literacy' at round tables, and addressing misconceptions, is the first step on the road to verifying embodied carbon and therefore create truly sustainable projects.

As we approached the concluding recommendations for industry and government from the delegates, Simon Wyatt pointed out that Simon Sturgis (as RIBA's Sustainability Futures Chair) had already made recommendations to the Climate Change Committee, including to adopt Part Z, but its likely fate remains hard to predict. He said that if the regulation does happen, "we're going to be collecting a lot of data, and I'd like it to be available to everybody and not hidden or behind a paywall or hidden. The more data we have, the better decisions we can make."

The big takeaway from this session is that while the construction industry has organically developed a range of useful tools for embodied carbon reduction and reporting, the ball is firmly in the Government's court for mandating the step change that is required. We hope the relevant Ministries will hear and listen to the insights from this expert group as they progress towards net zero.

RECOMMENDATIONS FOR INDUSTRY & GOVERNMENT

- **Ivan Jovanovich, Atelier Ten:** Treat it as an opportunity, and tax virgin materials.
- **Will Arnold, Useful Simple Trust**: A Ministerial statement setting out a timeline for embodied carbon reporting.
- **Kirsty Girvan, UKGBC:** If housebuilders are a barrier, let's look at the commercial sector.
- **Diego Padilla-Phillips, WSP:** Disclose our designs' Scope 4 emissions & a 'Help to Buy Green' Government scheme.
- **Simon Wyatt, Cundall:** Make the data availability publicly – it's heavily used at stages one and two.
- **Lee Cowen, Milbank Concrete Products:** Better standardisation on EPDs and guidance from Government, and people held to account for the content; industry has to engage better with the supply chain.
- **Ewan Duffin, Harley Haddow:** Prioritise maintenance budgets to look after what we already have
- **Stephanie Baker, SEES (Sadler Energy & Environmental Services:** Government to get some regulation out for data consistency and validity, and we need data to build on.
- **Simon Sturgis, RIBA Sustainability Futures Group:** A Ministerial Statement on whole life carbon reporting & the Government to do WLCA on all their own projects.
- **Ellen Willis, Chetwoods:** Government; introduce an imperfect regulation just to get it started. The industry needs to lean into uncomfortable conversations.
- **Tim den Dekker, Feilden Clegg Bradley Studios:** Simplify and prioritise the ask – report whole life carbon but not limit.

INDUSTRY VIEWFINDER

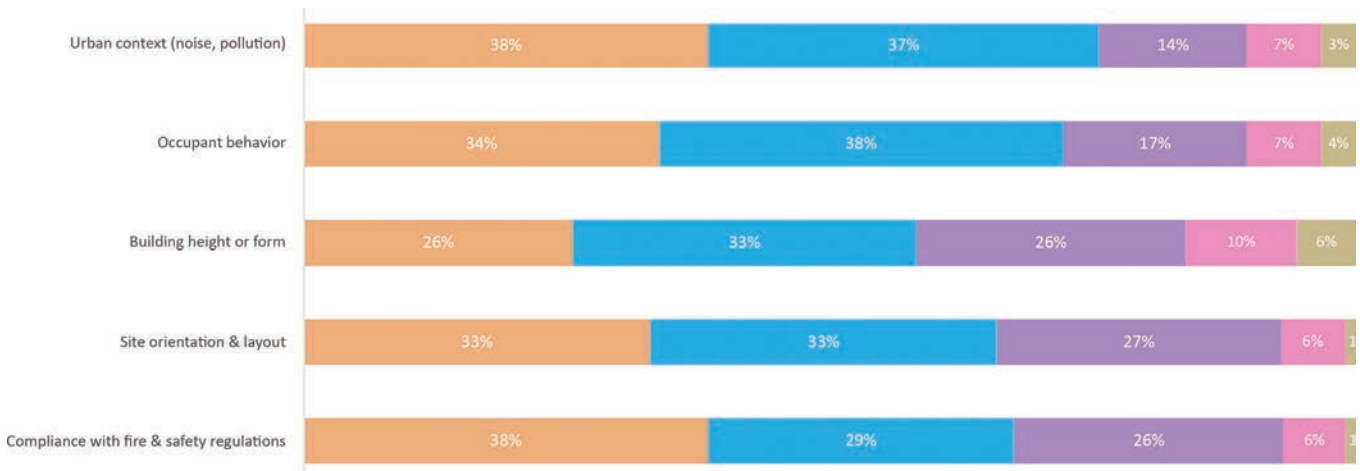
Solutions for Mitigating Overheating in Residential & Commercial Buildings

Executive summary

In 2021 the UK Building Regulations were amended to introduce several new measures, including Part L (Conservation of Fuel & Power). New buildings designed to meet the regulations of Part L are extremely energy efficient, thanks to improved insulation levels and airtightness.

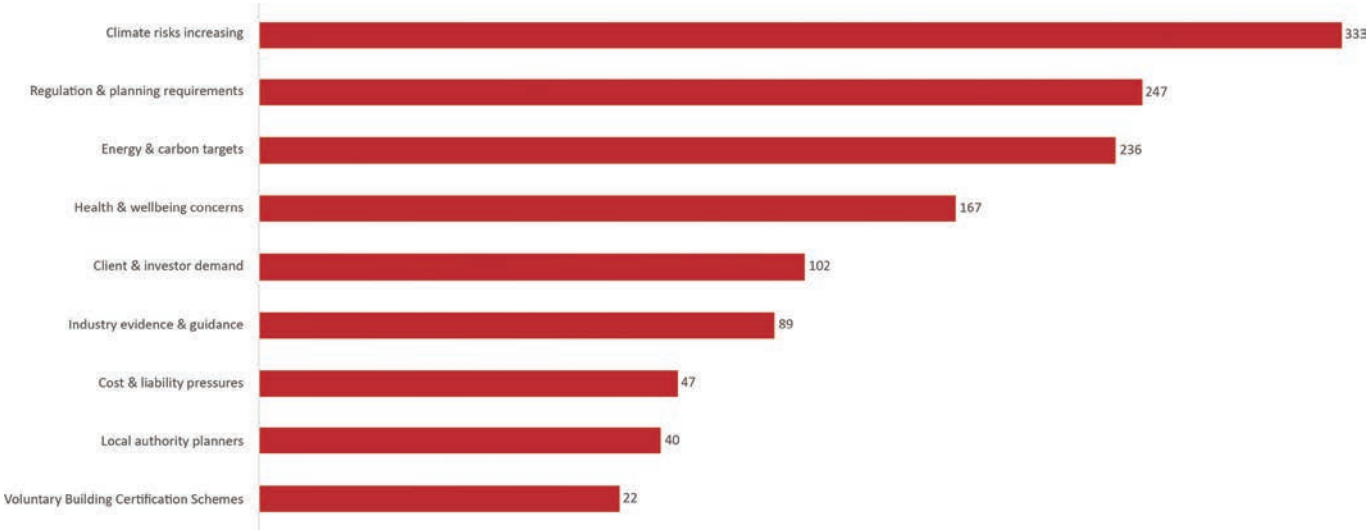
However, while theoretically greatly improved from a performance perspective, these buildings also suffer from a greatly increased risk of overheating. In fact, drives to increase thermal efficiency from Part L are often in conflict with the need to comply with Part O which considers mitigation of overheating in residential dwellings. Occupants in properties designed without adequate ventilation integration and passive or active cooling measures may be particularly vulnerable, meaning they require additional measures to ensure occupant safety as well as comfort.

Writing this white paper during a record-breaking June heatwave in the UK – which has seen schools forced to close for the safety of pupils and staff – brings home the impacts of hot domestic settings and commercial premises. It also reveals how little, even more resilient building fabric can cope with extreme temperatures, and the need for power-hungry electrical devices to take up the slack and provide emergency cooling.



How significant are the following challenges when designing and implementing natural ventilation strategies in your projects

Very Significant *Significant* *Moderately Significant* *Slightly Significant* *Not Significant*



What drivers are pushing you to adopt climate-responsive strategies?

But the most alarming fact is that in 2022, the UK recorded its highest number of 'heat related excess deaths,' at 2,900 people, during periods when the temperature exceeded 40˚C. In 2020, around 2,000 additional deaths were attributed to heatwaves. These statistics are a stark reminder that indoor overheating is not just about comfort, but a genuine health and safety concern.

Surveying architects

By gathering a wide range of architectural insights, we aimed to chart the evolving approaches to thermal comfort and resilience in modern building design – thereby helping to identify best practices and highlight opportunities for innovation and improvement.

While there were positive signs that architects were generally "actively considering 'climate-responsive strategies' that go beyond regulatory minimums" (three-quarters of our sample said they were), there were a range of other challenges in mitigating overheating. As a general concern, 77% believed that medium- or high-rise residential buildings designed to Part L 2021 were at risk of overheating. Volume housebuilding was not far behind at 68%, and education buildings were seen to be the third highest risk with 66% of respondents picking it. Care homes were then very close behind with 60% picking this category. These key sectors for not only comfort, but also safety and vulnerability of users, were seen to be high risks of a combination of tighter thermal performance, and increased solar heat hitting buildings. Our survey also looked at chosen solutions, and views as to their respective efficacy.

Barriers to bringing in more passive design approaches were also explored, such as cost perceptions, added design complexity, user behaviour, solution longevity, and client resistance, as well as the relative 'lack of regulation support' of specific strategies, and a limited amount of data on building performance to validate such approaches.

Introduction

Climate change and the consequential higher summer temperatures and increasing number of extreme heatwaves is worsening the impact of Part L introducing better building performance standards, when it comes to solar gain and overheating.

The Met Office says the number of days exceeding 30˚C in the UK more than trebled between 2015 and 2024, compared with the 1961-1990 average. The current hottest temperature was recorded in July 2022 when it hit 40.3˚C – before 1990 the UK hadn't reached 37˚C. In fact, Met Office projections say temperatures in the mid-forties could be a serious possibility by 2050 if global warming continues at its current pace.

It's indisputable that the risk of indoor overheating has gone beyond a seasonal concern and become a year-round health and safety issue. This is particularly true for buildings used by some of society's most vulnerable, such as care homes and student accommodation which, as well as all new build residential buildings, are covered by Part O.

However, no such regulations apply to other buildings with vulnerable occupants such as schools and offices, where guidance on maximum temperatures is also vague, and clients and design teams must assess their own risks and responses.

While overheating in commercial buildings is not currently subject to regulatory requirements, Part F (Ventilation) has two volumes covering both domestic and non-domestic use. It requires all buildings to have adequate ventilation provisions – such as trickle vents – to provide continuous airflow and extract pollutants and excess moisture to prevent occupant health issues.

Working with Parts L, F & O

Though Parts L, F and O are all worthy in their own regards – and obviously not intended to conflict with one another – competing design pressures can be difficult to navigate. In particular, balancing

the airtightness standards required by Part L with the ventilation requirements of Part F be difficult, often requiring larger trickle vents or mechanical ventilation to compensate for the lack of air leakage. Similarly, large expanses of glazing can prove beneficial for energy performance, but simultaneously increase the risk of overheating, conflicting with the requirements of Part O.

While there is the potential for conflict when considering Parts L, F & O, there are ways architects can design buildings to mitigate overheating and comply with Part L, with passive measures generally preferred before utilising mechanical ones.

Survey findings

Although we discovered that most of our respondents said they were "actively considering 'climate-responsive' strategies that go beyond energy efficiency regulatory minimums" in the majority of their design projects, they had varying opinions on the sectors which were suitable. While mixed use, medium and high rise resi, and education were seen to be likely to see 'fully climate-responsive approaches' used (59%, 56% and 54% respectively), some others fared less well. Cultural buildings (12%), sports and leisure (16%), and somewhat surprisingly, hotels and hospitality (16%) were all seen to be relatively unlikely to see such approaches taken.

We also asked respondents what they meant by 'climate-responsive design solutions,' and the most popular answer was natural ventilation (potentially explaining the poor figure on new build hospitality). However also popular were building orientation (79%) and optimisation of glazing (76%). This was likely to mean reduction of glazing on facades as a key approach, which is being taken on brand new and existing projects of different types to resolve the conflicts between Parts L and O. However, it also means use of low-e and smart glazing, which is covered later in the study, and has its own pros and cons for building performance by limiting solar gain.

Both dynamic (such as external blinds and awnings) and fixed (brise soleil) external shading were popular – 76% and 73% respectively. Less popular – unsurprisingly so given its known limited effectiveness – was internal shading which only 31% of respondents chose. It's also something many residential new builds are unlikely to even consider, with the installation of blinds or shutters internally usually left to the future homeowner.

Respondents also had the option to add their own solutions not included within our list, with verbatim mentions provide diverse insights including "climate risk mapping", "embodied carbon benchmarking," and "blue-green infrastructure". One respondent mentioned that relevant solutions depend on the climate of the project's location and its related concerns: "Depends on the climate and hazards. Adaptive stormwater solutions in Rotterdam are a very good example. Cooling towers in Middle Eastern culture seem like a great solution."

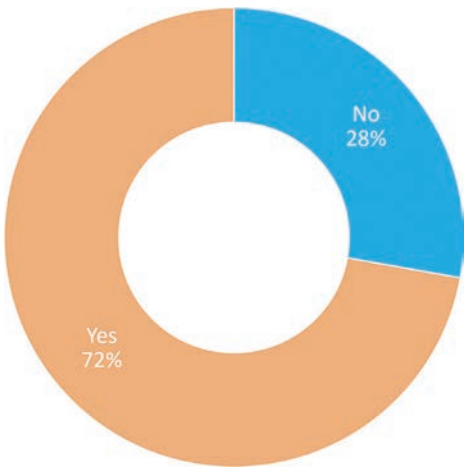
It's equally important to understand what drives architects to pursue climate-responsive strategies. We gave respondents a list of potential drivers, asking them to rank their top five, with their top answer scoring five points down etc; the fifth answer scoring one point. Proving climate change and extreme weather events are a genuine concern, the top answer was 'climate risks increasing' which scored 333 points; significantly more than the second most popular choice which was 'regulation & planning requirements' with 247 points. It's reassuring to see so many architects understand the need to be more climate aware when designing buildings, and not just because regulation says they must.

Continuing with the more humanitarian and ethical drivers, the next two most selected choices were 'energy & carbon targets' (236 points) and 'health & wellbeing concerns' (167 points). At the other end, seemingly less likely to be a key driver for architects, were 'voluntary building certification schemes' (22 points), 'cost & liability pressure' (47 points) and 'local authority planners' (40 points). The fact local authority planners are so low-scoring could be indicative that while architects are clearly aware of the need for climate-responsive design, more needs to be done to ensure it's being encouraged or even enforced at a local level.

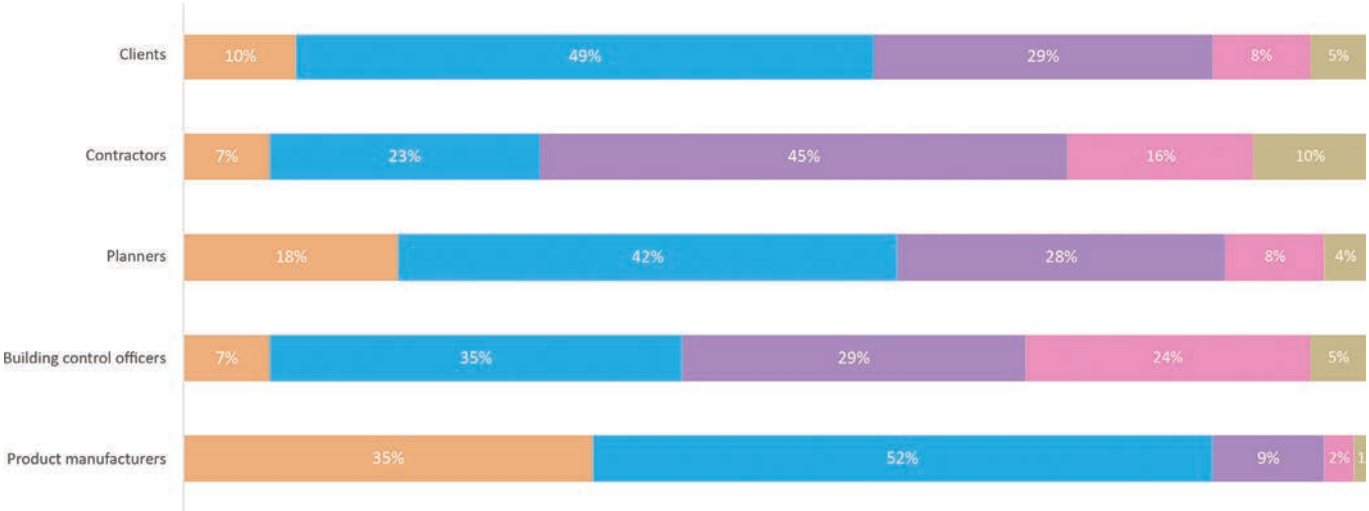
Challenges

One of the biggest challenges the industry as a whole faces is the significant number of project and building types that are susceptible to overheating when designed to Part L. The problem is evidently worse in our homes – topping the list was medium- or high-rise residential projects, which 77% of respondents believe are at risk, followed by volume low-rise residential projects (68%). Not far behind, 66% see education buildings as at risk and 61% believe care homes are – particularly concerning given the occupants of both of these are some of society's more vulnerable. Workplaces were only just behind, with 60% of our cohort selecting it as an option, before individual houses (50%) and mixed use (43%).

At the other end, the buildings considered least at risk include industrial (13%), hotels & hospitality (13%) and retail (14%), which may explain why they were also among the least popular responses when we asked about which sectors climate-responsive design approaches are most likely in.



Do you actively consider 'climate-responsive' strategies that go beyond energy efficiency regulatory minimums in the majority of your design projects?



How supportive are the following stakeholders of innovation in climate-responsive design?

Very Supportive *Somewhat Supportive* *Neutral* *Unsupportive* *Not Engaged*

Passive cooling, shading & ventilation

Passive cooling measures undoubtedly have a key role – they can be cheaper to install, have minimal running cost and maintenance requirements, and have good longevity – making them generally the more energy efficient and environmentally friendly option. However their effectiveness is limited, generally working well to limit or reduce heat gain, but ultimately not able to fully maintain comfort during extreme heat.

There are many strategies which fall under the passive cooling umbrella, so we asked respondents which of them they've used. Cross ventilation came out on top, having been used by 77% of our cohort, followed by night time ventilation (72%). 68% have used fixed external shading, 67% have used thermal mass, 65% have used dynamic shading and 63% have used stack effect design. Other mentions from respondents included "solar chimneys", "retractable shading systems,", "thermal labyrinth systems," and "ventilated facade cavities."

Less popular were evaporative cooling which only 7% have used, earth tubes (11%) and courtyard cooling (13%). With evaporative cooling in particular only really suitable in consistently hot and arid climates, it's no surprise it's not been highly utilised in UK-based projects, where humidity is notoriously high. Similarly, humidity and general dampness can cause problems with earth tubes developing condensation and consequently mould, making them less suitable for projects within the UK.

While it's encouraging to see so many passive cooling strategies already being utilised, it's arguably more important to determine how effective these are, and what barriers architects are facing when considering implementing them. When asked about the former, some measures were reassuringly voted by the majority as either 'very effective' or 'somewhat effective' – external shading received a combined total of 80%, natural ventilation received 79%, and stack effect design received 67%.

Unsurprisingly, receiving the most votes for 'not very effective' was internal shading (27%). Other options – courtyard cooling and earth tubes – also received a poor number of votes for either very or somewhat effective, though these did receive a high number of 'not used' votes, which correlates with the findings from our previous question.

However, while many solutions are being utilised and deemed as effective, that's not to say there aren't some significant barriers too. When we offered respondents a choice of potential barriers and asked them to rate each as either 'most', 'very', 'moderately', 'slightly' or 'not significant', worryingly all of them received a combined majority of most, very or moderately vote. The top 'most significant' barrier was cost perception (24%), with a combined total of 88%.

Indicating that getting building occupants to take responsibility for certain passive cooling strategies is a problem, 'user behaviour' received an even larger combined vote (92%). This was closely followed by limited performance data (88%) and design complexity (86%), although these both received low votes for 'most significant' – 7% and 9% respectively. Nonetheless, it's clear the range of potential issues is vast, and that while better from an environmental perspective, the use of passive cooling alone is not viewed as a viable option.

Designing in shading is another way to help reduce the impact of extreme heat. The most suitable type of shading solution is project-dependent, so we asked respondents how suitable various solutions are for residential, commercial, education and healthcare projects. Receiving the highest percentage of 'very suitable' votes in each category was 'dynamic external shading' for residential (26%), 'smart glazing' for commercial (21%), and 'fixed shading devices' for healthcare (36%). For education there was a tie as to which solutions are 'very suitable', with fixed shading, smart glazing and

overhangs & balconies all receiving 21%.

It's undoubtedly encouraging that all of the options received at least some 'very suitable' and 'suitable' votes for every sector, and interesting that the best solution is clearly sector-dependent. However, there were also a high number of 'unsuitable' and 'not used' votes for each option and sector, but this could again be a case of certain solutions only being suitable for certain sectors. For example, while fixed shading devices were only deemed as very suitable for residential projects by 14% of respondents, they're viewed as very suitable for healthcare projects by 36%. Conversely, overhangs and balconies are more likely to feature on residential buildings (25% very suitable) and less likely on healthcare buildings (15% very suitable).

It's reasonable to conclude from these findings that no solution is totally unsuitable, but rather a good understanding of all solutions is required, enabling architects and specifiers to determine which is the best fit for each project on a case-by-case basis.

Ventilation is also critical in projects, not only to mitigate overheating but also to be compliant with Part F. Overlapping with passive cooling measures, natural ventilation measures can be effective at not only cooling buildings but ventilating them too. The benefits are equal in that they are more environmentally friendly than mechanical measures, but like passive cooling they too face challenges.

Worryingly however, when we asked how significant certain challenges are in relation to natural ventilation, all options received an overwhelming majority of either 'very significant', 'significant' or 'moderately significant' votes. These include urban context (such as noise and pollution) which had a combined total of 89%, site orientation & layout (93%) and compliance with fire & safety regulations (93%).

Receiving the fewest combined votes was building height or form with a total of 85% – still significantly high. However, with safety concerns related to opening windows, the need to rely on building occupants to follow certain protocols, and many built environments – particularly busy urban areas – suffering from high noise and pollution levels, it's perhaps unsurprising that natural ventilation methods face a myriad of obstacles, making them largely unsuccessful on their own.

Modelling & stakeholder support

Many architects are using modelling systems known as dynamic thermal modelling, whereby a computer simulation assesses and predicts the likelihood of overheating in new buildings, taking into consideration factors such as solar gain, building orientation, occupation, insulation levels and so on. While a great idea in principle, when asked if the modelling systems our respondents use accurately assess the overheating risk, the balance just tipped to 'no' (51%). Though not a significant majority, it's concerning that in the digital age we're in the technology in use is ultimately seen as not fit for purpose.

This viewpoint is highlighted further in the next question when we asked if better tools for modelling overheating and ventilation would improve architects' uptake of passive strategies, to which an overwhelming majority (91%) said 'yes'. Evidently there's a strong belief that not only is modelling technology not up to scratch but it's actually hindering the use of passive strategies, emphasising just how important it is that improvements are made to the tools at architects' disposal.

As well as needing the right tools, support from stakeholders is also crucial in order for architects to really pursue climate-responsive design. Unfortunately it seems support is currently mixed – we asked how supportive certain stakeholders are, asking respondents to rank each from 'very supportive', 'somewhat supportive', and 'neutral' to 'unsupportive' or 'not engaged.'

The most supportive according to our surveyed cohort were product manufacturers, which 87% of respondents rated as either very or somewhat supportive. At the other end, contractors received the lowest amount of very or somewhat supportive ratings (30%), and receiving the most votes for unsupportive (24%) was building control officers. Planners and clients fall somewhere in the middle, achieving a combined very and somewhat supportive total of 60% and 59% respectively.

While the results aren't drastically bad, they don't show signs of clear support from all stakeholders either. Product manufacturers showing the most support is arguably unsurprising, given that they will likely have both a better understanding of climate-responsive design and the need for it, as well as have 'personal' investment if they have relevant products to sell. Perhaps more needs to be done to educate those elsewhere in the industry to ensure the cruciality of climate-responsive design is more universally recognised and supported.

Conclusion

The challenge of overheating in buildings is no longer a concern for the future, but something that needs addressing now. Overheating will only intensify as the climate continues to evolve, and evidence shows it's no longer just an issue of comfort, but a health and safety concern too.

While our findings show encouraging progress, there's also evidence that significant barriers remain too. Architects are increasingly embracing climate-responsive design, with many already integrating passive cooling, external shading, natural ventilation and thoughtful building orientation into their projects. Importantly, the industry appears motivated not only by regulatory compliance, but a genuine recognition of the growing risks posed by climate change and the consequential responsibility to create more climate-responsive buildings.

While it's undisputedly important that buildings are designed to slow climate change as much as possible by conserving energy, it's equally vital to protect the health, comfort and wellbeing of occupants – particularly vulnerable ones – through increasingly extreme weather events. With the Met Office confirming June 2026 was England's hottest on record and news headlines warning of the growing frequency of heatwaves, it's more important than ever that the industry works together and adopts best practices now in order to create a built environment that's adaptable and better prepared for the challenges ahead.

BUILDING PROJECTS

A visit to a volcano

GÍGUR VISITOR CENTRE, ICELAND

A redesigned visitor centre in a remote part of Iceland saw a collaboration between British and Icelandic practices to immerse visitors in the landscape, provide an engaging exhibition, and protect users from a harsh climate. Roseanne Field reports.

NORTHERN LIGHT
The new visitor centre is located in a remote part of the huge Vatnajökull national park, in the 'Northern Lights capital of Iceland,' which created a host of challenges
All photos © Studio CAPN

The volcanic Vatnajökull National Park is the largest national park in Iceland, located on the south of the island and covering 1.4 million hectares – nearly 14% of Iceland's territory. The park is a UNESCO World Heritage Site and is centred around the Vatnajökull glacier, with a landscape defined by everything Iceland is famed for – glaciers, ice caves, snowy mountain peaks, and active geothermal areas.

At the northern end of the national park is the Mývatn nature reserve, formed by Lake Mývatn and its surrounding wetlands. The self-proclaimed 'Northern Lights capital of Iceland,' the area is also known for its volcanic and geothermal activity and an ecosystem critically supported by the lake, which maintains the lifecycle of the region's birds and aquatic life.

The area already had a 400 m^2 visitor centre, though it had chiefly served as more of an information office, staffed by park rangers who could provide guidance on local trails, accommodation and natural attractions.

In a joint venture, the Vatnajökull National Park and Environment Agency of Iceland decided the area needed an overhaul, to create a permanent exhibition that would house educational displays and galleries relating to the surrounding volcanic landscape and ecosystem, Icelandic folklore and the landscape's cultural connections, and environmental pressures including climate change. The centre would also comprise a cafe and shop, and an overall design that connects visitors to the

surrounding protected landscape.

Meanwhile, UK-based architectural practice Nissen Richards Studio had been approached by Karl Kvaran of Sp(r)int Studio in Iceland with an idea that the two could work together on joint pitches in the Nordic region, based on their "similar practice ethos and sensibility," explains Pippa Nissen, director and co-founder of Nissen Richards Studio. "We got on very well, and agreed to the idea of finding work we could do together."

Based in Iceland, it was Kvaran who came across the opportunity to bid for the project; and suggested they jointly pursue it.

Going remote

While the national parks of Iceland are undeniably popular with visitors, numbers are considerably lower in the winter months, with the country often experiencing sub zero temperatures and extreme weather events – particularly in remote areas such as Mývatn. Even in the summer months, temperatures only average between 10 and 15 degrees, making a comfortable indoor environment an essential part of the experience.

The key overall element of the brief, therefore, was to "create a place that could offer shelter, especially in more challenging weather," explains Nissen. "A place that would provide a focus at the centre of the landscape and also a place that would unpack the fascinating geography, geology and ecology of the immediate landscape." It was also important to all involved in the project that this be accessible to visitors of all ages, "with a special focus on family groups," adds Nissen.

While the remote location formed the key design cues, it concurrently presented a unique set of challenges to Nissen Richards Studio. "This was one of the most challenging locations we have ever dealt with in that it was so difficult to access, not only for us but for the wider team," Nissen explains.

For the UK team, getting to site meant a flight to Reykjavik, followed by an internal flight and a long car journey. The project had a deadline in that it needed to be finished in time for the busy summer seasons, meaning construction had to take

"This was one of the most challenging locations we have ever dealt with in that it was so difficult to access"

Pippa Nissen, Nissen Richards Studio

place during cold and dark winter months. "Winters are long and very hard in the region, with a lot of snow as well as long nights, so the environmental factors were challenging for all the team," says Nissen.

The remote location also meant a lack of specialist constructors, both for the exhibition and the associated graphic design elements, which were significant and included display boards, infographics, maps, illustrations and descriptions. The team opted to work with a Danish contractor whom Nissen Richards Studio had worked with previously on a number of Nordic projects and who they knew to be reliable. Also, this contractor had an Icelandic employee; they functioned as a "key link person to build and liaise," explains Nissen. Much of the exhibition itself was built remotely, both in Denmark and elsewhere in Iceland, and then assembled onsite.

Although the remoteness added challenges, the practice benefitted from experience of exhibition design. "We're specialists, so we were able to pull on aspects from many previous different exhibitions," says Nissen. Having worked internationally for a number of years including multiple Nordic projects, "undoubtedly helped in our approach here," she adds, "especially in terms of working with international teams and suppliers."

Responsive design

From the outset the design of the exhibition was "entirely responsive to the surrounding landscape," Nissen says. Initial ideas in terms of design, materials and colour were all driven by the volcanic nature reserve the centre sits within which is "renowned for its birdlife and unique volcanic and geothermal activity," she explains.

Specifically, the lake and surrounding wetlands proved a direct source of inspiration for the exhibition's colour palette – blues and greens. It also inspired the use of stained timber furniture in the space; this was "in keeping with the stunning landscape all around," Nissen says.

However, also important – arguably more so – was to not compete with the panoramic views that surround the centre, "but to design the exhibition in harmony with them," explains Nissen. "This meant that the exhibition design is arranged at quite a low level to frame the views, so that individual exhibits act like elements of the landscape, rising up from the table level."

The team were working with the existing building, which had been primarily functioning as more of an information

centre. It already featured glazing to all four sides, with an existing rooflight and external terrace. While changes made weren't particularly substantial or significant, they were intentional, done so to bring the overall building "into harmony with the exhibition," Nissen says, "in terms of changing the colour of the timber and peeling back some existing layers to simplify the building and ensure the exhibition design became the main focus."

There were also some more practical changes and additions – namely upgraded lighting and the introduction of translucent screens to help with the low summertime sun. The existing roof was also "very visually noisy and spacious" which conflicted with the team's desire to focus visitors' attention on the landscape outside, and the exhibits and window level. To negate this, "we diminished ceiling details to bring people's eyes down, and also incorporated some suspended elements to close the gap," she explains.

With timber already present within the existing structure, plus its "obvious natural connotations," it was used extensively for finishes in the exhibition, "stained to match the wonderful blues and greens of the external landscape," says Nissen. Timber also features at the welcome desk and within the shop and cafe, which follow the same "timber design language" as the exhibition space itself. "Timber is warm, tactile and comfortable and we looked at lots of samples to get the feel just right."

This attention to detail is a key factor in the project. The team wanted to focus on everything from the bigger elements, right down to smaller details. It was important the exhibition and its data visualisations and interactives would clearly represent not only the science but, continuing the overall theme, the "beauty of nature," Nissen explains. This saw them "prioritise the use of circles, curves and organic shapes whenever appropriate."

As well as colour and material choices, the topography of the landscape inspired the placement of furniture within the exhibition. It was intentionally placed at the level of the bases of the windows, "so that

EXTERNAL ENVELOPE
The 400 m^2 exhibition space is glazed on all four sides, enveloping users in the surroundings

To appeal to children in particular, the team decided to put the emphasis on play and sensory elements, steering clear of the classic 'look but don't touch' rule

the interior landscape of shapes and the dramatic external landscape are reflections of each other at different scales, but don't compete," Nissen explains.

To draw visitors to the external surroundings, interactive displays and listening devices have been placed along the outer edge of the exhibition against the windows. This allows them to look out as they're reading or listening, or in many cases touching the various displays, with "tangibility" being a major goal of the exhibition design, says Nissen.

Building-in flexibility was also a core requirement. For example, there is an 'active' space within the exhibition that houses different examples of the local flora and fauna which will be switched out over the years. It was therefore important that this exhibit be designed in a way that would allow it to be updated regularly.

Prioritising people

Visitor flow is "paramount," when it comes to any exhibition design, says Nissen. The team therefore predicted how visitors would prefer to move around the exhibition space, choosing the layout carefully based on this. It has been designed to be deliberately open, allowing visitors to weave in and out of the "exhibition landscape" and view the various models, drawings and specimens

from different perspectives, explains Nissen. "Additional content specifically relates to the perspective from which the visitor is looking – whether research, conservation or community, for example – and enriches the experience," she continues. "We designed clusters of objects and elements that relate to each other so that there is unity and integrity from every angle."

The content of the exhibits themselves is, in places, somewhat complex, and presenting this in a way that still engages visitors was another important topic of discussion. "Engaging people with difficult content and making it interesting and accessible is a vital consideration," Nissen says. "We worked with local illustrators to make content relatable and used 3D printing for maximum tangibility."

It was also crucial that exhibits could be enjoyed and understood by visitors of both different nationalities and different ages, particularly given its focus on appealing to family groups. All information in the exhibition is given in both Icelandic and English, with audio devices also providing information in other languages.

There was a balance to be found between making "complex geological and geographical concepts comprehensible for visitors of all ages" while not oversimplifying anything, explains Nissen.

While the original roof was "very visually noisy," the architects "diminished ceiling details to bring people's eyes down"

"It's fine to have layers of complexity, so that everyone understands something rather than everyone understanding everything," she says, "but it was absolutely one of the main goals of the exhibition design to make the content engaging for all ages."

To appeal to children in particular, the team decided to put the emphasis on play and sensory elements, steering clear of the classic 'look but don't touch' rule. "Play is a powerful tool for learning and it was important that this was a playful space where younger visitors can explore, touch, experiment and engage in a multi-sensory way," Nissen says. "Information includes plenty of sturdy physical interactives for children, with 'touch' very much encouraged throughout."

There are also child-specific elements and activities included at child height, such as drawing and other interactive activities, and 'troll tunnels' that only children can access. All of these features have proved to be an "immediate success," says Nissen.

While educational content and displays on the formation of the surrounding nature reserve and its vital ecosystem is at the core of the exhibition, so too is the way people and nature coexist and the impact that humans are having on the area. The team wanted visitors to consider how our interaction with and inhabitation of landscapes affects them, encouraging younger visitors in particular to "imagine their role in preserving fragile ecosystems over time."

Each themed area of the exhibition includes stories that relate to both the geology and biology, as well as "the coexistence of man and nature," says Nissen. "Stories relating to research and nature conservation also run as threads through the exhibition." In particular, the threats and adaptations forced by climate change are key themes.

The exhibition also details the cultural significance of the landscape and its associated folklore. This is where Nissen Richards' collaboration with Sp(r)int Studio really paid off. "They are very rooted in the local culture and were very involved in the concept," explains Nissen.

NATURALLY TACTILE
The exhibition itself invites users of all ages to touch the exhibits and features copious use of wood

"This really added to the richness of the project's resolution."

This collaboration was key at every stage of the project, from the early design stages through to the graphic design elements and delivery and construction onsite. "Everyone was very collaboratively-minded," says Nissen. "We managed the process like a relay race, with Sp(r)int Studio managing the client relationship and contractor onsite, where we were more biased towards the front end in the design and detailing. The whole project was an example of good collaboration."

The emphasis on locale and people was woven through the project, with a "clear approach to sustainability that favoured the natural and the local at all times and on every level," Nissen says. This included many locally-made elements, such as films, interactives, using a local illustrator, local installation labour and construction done within the Nordic region.

Sustainability was reinforced by reusing existing elements where possible, and building "for the long term" through the use of high quality materials.

Nissen describes the construction process itself as being more like a "theatrical production" in that so much was produced offsite and brought together "in a very fast end process – including, in typical theatrical fashion, some last minute tweaks!"

Once all final amends were achieved, the centre opened to great acclaim. Nissen cites TripAdvisor reviews as testament to this; the overwhelming majority rank the centre as 'Excellent' or 'Good.' Though not without its particular challenges, she says the whole team thoroughly enjoyed working on the project, thanks in particular to the uniqueness of the location and the resultant content of the exhibition. She concludes: "The brief was incredibly interesting, and it was a great voyage of discovery for all our team." ■

TORMAX concealed automation for historic church entrance

Two advanced iMotion 1401 underfloor door drives from **TORMAX** have been installed at the main entrance to All Saints Church, Bingley, automating new bespoke glass and timber swing doors crafted by Roy C Smith. Engineered for superior performance, the iMotion 1401 delivers smooth, intelligent operation with precise microprocessor control, ensuring safe, obstacle-sensitive movement and remarkably quiet opening and closing. Fully concealed beneath floor level, the operators preserve the architectural integrity of the historic building while providing effortless access for all parishioners and visitors. Central to the iMotion 1401's performance is a highly engineered motor design that eliminates the components typically subject to wear, such as gears and brushes. This advanced technology delivers outstanding durability with an exceptionally long lifespan making installation beneath the floorspace an entirely practicable option. By specifying underfloor automation, TORMAX has ensured that no visible mechanical components interrupt the heritage exterior.

sales@tormax.co.uk

ARDEX GROUP UK awarded prestigious BSI Kitemark for Service Excellence

The ARDEX Group UK – manufacturer of high-performance flooring, tiling and general construction brands across the UK – has been awarded BSI Kitemark™ for Service Excellence, recognising the company's unwavering commitment to delivering outstanding customer experiences across its operations. This respected certification, issued by the British Standards Institution (BSI), is a mark of quality and trust, demonstrating that an organisation consistently delivers a high standard of service and places customers at the heart of its business. David Lyman, UK general manager at ARDEX Group UK (pictured) said: "We are delighted to have achieved the BSI Kitemark for Service Excellence. This recognition reflects the dedication and passion of our teams, who work tirelessly to support our customers, respond to feedback and continually improve the service we provide. While we are proud of this achievement, we remain focused on raising the bar even further." For ARDEX Group UK, this achievement reflects a company-wide commitment to listening to customers, investing in service innovation and embedding a culture that prioritises customer satisfaction at every touchpoint.

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Clade strengthens leadership team

Clade Engineering Systems, a leading manufacturer of natural refrigerant air source heat pumps for commercial & industrial use, has appointed Tom Wilson as its new sales director, reinforcing the company's strategic growth ambitions as it prepares for full integration into the Groupe Atlantic portfolio. Tom's appointment comes at a pivotal time for Clade, as demand for natural refrigerant heat pump solutions continues to grow across commercial and industrial applications. Tom will play a key role in supporting consultants, specifiers and contractors navigating the transition to low carbon heating.

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NEWS FEATURE

Why grout selection matters on commercial projects

Nick Bratt, National Technical Sales Manager at tile adhesive and grout manufacturer Palace Chemicals explains that the specification of appropriate grouts is critical to the success of any commercial project.

While tile specification is the main focus for architects and building designers during the design and procurement process of a building, the selection of grouts will also be a key factor in the long-term performance and appearance of any commercial project. Since they are both a functional and an aesthetic component, grouts can influence durability, hygiene and visual appearance of tiled installations within commercial environments.

Commercial spaces place unique demands on tiled surfaces. High foot traffic, frequent cleaning, exposure to moisture and chemical attack can quickly expose weaknesses in poorly specified grout systems. Selecting the appropriate grout should therefore be considered an integral part of the overall design strategy, rather than something to be viewed solely as a colour consideration in the final stages.

Performance is key and traditional cementitious grouts remain widely used due to their cost-effectiveness and versatility. However, in demanding environments such as healthcare facilities, commercial kitchens, laboratories, swimming pools and public areas, higher-performance solutions may be required. This might include grouts with inbuilt additives designed to inhibit the growth of black spot mould, such as Palace ANTI-MOULD GROUT. Epoxy grouts offer exceptional resistance to staining, chemical and moisture penetration, making them particularly suitable for areas where hygiene and durability are paramount. Hybrid and advanced polymer-modified grouts also provide enhanced flexibility, colour consistency and resistance to cracking.

Aesthetic considerations are also important. Grout colour significantly affects the visual impact of tiled surfaces, either highlighting tile geometry through contrast or creating a seamless appearance with complementary tones. Large-format porcelain tiles, increasingly specified in commercial developments, often benefit from carefully selected grout colours that minimise visual interruption and reinforce a clean, monolithic aesthetic. Some manufacturers offer enhanced grout ranges which include a full palette of colours and alternatives to OPC cement, allowing an efflorescence-free finish, such as the Palace COLOUR-LOCK range.

Grout systems that resist deterioration and require less frequent replacement can also contribute to reduced lifecycle costs and lower environmental impact. Additionally, some manufacturers now offer products with lower embodied carbon or containing recycled content. Specifiers are therefore advised to check the Scope 2 and Scope 3 emissions of grouts which are being specified on a project. Manufacturers are increasingly able to provide this information.

Supplied by Nick Bratt, national technical sales manager for Palace Chemicals

FUHR launches pivot door solution with Automatic locking on both sides of the door leaf

Door lock manufacturer, FUHR, has introduced a new automatic locking solution for pivot doors, designed to secure both the wide and narrow sides of the door leaf. The locking system supports the demand for large-format entrance doors in premium projects, where scale and design impact must be matched by security, airtightness and reliable operation.

The system combines the autosafe 835Pivot on the wide side of the door with the autosafe 835 automatic locking system on the narrow side. Both are supplemented by an autotronic motor drive, enabling synchronised opening and secure automatic locking across the door.

FUHR's DuoSecure locking technology features strong hook bolts to lock the door securely, while additional latching bolts help create a tight seal. This is important for large pivot doors, where movement, stability and weather performance need to be considered.

The autosafe 835Pivot also incorporates switching contacts, allowing the motor drives on both sides of the door to synchronise. Opening is activated using an access control system, push button, lever handle or cylinder, providing flexibility across different requirements. An optional permanently open function is also available without the need for an additional control unit.

Paul Balfe, business development manager at FUHR UK, said: "Pivot doors are often specified for their visual impact, but the locking system has to support the way the door actually performs. Locking on both the wide and narrow sides of the leaf helps provide the security, sealing and stability these larger doors require, while motorised opening keeps operation convenient."

The system uses standard components across a wide range of requirements, with extensions available for taller doors and solutions suitable for different door materials. Access control systems and SmartAccess can also be integrated where keyless or automated entry is required.

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fuhr.de/en/solutions/areas-of-application/pivot-doors


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Senior calls for greater clarity over low carbon aluminium claims

As part of its What You See Is What You Spec campaign, Senior Architectural Systems is reinforcing the clarity of its environmental information and calling on the wider fenestration industry to move beyond top-line figures and also adopt the same transparent, evidence-based approach.

The call to action follows Senior's publication of a suite of product-specific Environmental Product Declarations (EPDs) for its aluminium doors, windows and curtain wall systems which challenge the traditional format to provide more accurate data to specifiers.

As part of this unprecedented move, Senior's EPDs include the environmental impact of all system components, including thermal breaks, gaskets, and fixings, as well as fabrication and delivery to site via Senior's fabricator network. The energy-intensive extrusion process is also accounted for, but importantly the glazing has been omitted. This is because glazing, which is not typically supplied by system houses, can artificially lower the carbon figure for the aluminium system. Senior argues that for complete accuracy, glazing should always be reported separately through its own EPD.

Senior's campaign is focused on the belief that specifiers should only be given accurate and useful information and is being headed up by the manufacturer's dedicated UK sustainability lead Luke Osborne. Under Luke's stewardship, Senior is reframing the way it communicates information about its low carbon aluminium to provide more detail and context so that specifiers are empowered to challenge some of the bolder claims that are often made. A key part of this is Senior's desire to see the industry move away from the over reliance of quoting carbon figures relating to aluminium billets in isolation as this doesn't account for the extrusion and profiling process and therefore doesn't reflect the products that are actually installed on site.

For its part, Senior is keen to provide greater clarity around its own aluminium extrusion processes and how that affects the billet figure that is so often quoted. Senior currently offers two options – its standard aluminium, known as ReAl 4.0 and its lower carbon option which is available on request, ReAl 2.0.

Senior's standard ReAl 4.0 aluminium has a billet figure of 3.5 kg CO_2e/kg and an extrusion figure of 0.75 kg CO_2e/kg to give an overall carbon footprint of 4.25 kg CO_2e/kg for mill finish aluminium profiles. ReAl 2.0 has a billet carbon footprint of 1.61 kg CO_2e/kg, which when added to the 0.75 kg CO_2e/kg figure for extrusion process, gives an overall figure of 2.36 kg CO_2e/kg for mill finish aluminium profiles.

Commenting, Senior Architectural Systems' UK sustainability lead Luke Osborne said: "As carbon figures relating to aluminium billets alone don't give an accurate picture of the products installed on site, the extrusion process must be factored in to any carbon calculations as well as all the individual components that make up the specific system. Otherwise, there are significant discrepancies in terms of what has been claimed, and what is true in reality. With many public sector projects now engaging with carbon auditors to check for this very issue, the need for full transparency is not only an ethical matter but also a commercial one.

"We have developed our EPDs specifically to address this widespread problem and to hopefully buck the trend to create a more accurate benchmark for how the environmental performance of aluminium fenestration systems is positioned and communicated. I firmly believe that EPDs should be open to interrogation, audit, and robust scrutiny, making them a useful resource for specifiers rather than simply a marketing or sales tool."

Senior's full range of EPDs are available to download via the website.

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RMIG SOLUTIONS

Passion for perforation

Technical characteristics
Size of the project: 18,500 m²
Material: Pre-anodised aluminium
Pattern: LC20X80U35X95
Thickness: 2.0 mm

Dynamic and distinctive look through creative perforation

Varner Arena, ice hockey arena, Asker, Norway

In Asker Municipality, 20 km southwest of Oslo, IF Frisk Asker is the pride of the city. The team competes in Norway's most prestigious ice hockey division, the EliteHockey League, and has a history dating back to 1935. Known as The Tigers, Frisk Asker has won the national championship multiple times. However, over the years, their facilities became outdated. Consequently, a collaboration agreement was established between the club, the contractor and the developer to construct a modern, multifunctional arena with a rink that meets NHL standards.

Important landmark for the town and club

The partners maintained close communication throughout the process, as the new arena needed to fulfil many requirements beyond the NHL standards. JoB Arkitekter from Stavanger won the project by proposing a large, versatile design to house 3,750 spectators, featuring an underground car park and the capability to host not only ice hockey and figure skating, but also a variety of other events. For the new arena to serve as a landmark for the entire city, significant emphasis was placed on the facade's design to convey a sense of modern dynamism. Therefore, the design process involved specialists from RMIG Solutions.

Modern yet timeless perforated facade

The architects opted for a blend of on-site cast concrete elements, prefabricated grandstand components and extensive steel construction. Early on, RMIG Solutions was consulted regarding the optimal use of perforation and material selection, as well as the production and delivery of the 1,300 panels required to cover 18,500 m² facade. These anodised 2.0 mm aluminium elements envelop the entire building and are interspersed with glass sections across its full height, adding variation and lightness. The facade also incorporates glass doors, windows and wooden surfaces.

Vibrant and engaging variations

Zooming in on the perforation itself, it consists of square holes with varying open areas that contribute significantly to the dynamic design. Furthermore, the panels are arranged irregularly, giving the facade an airy and elegant appearance while also being highly vibrant. This reduces the visual mass of the large building and instead imparts a floating quality that complements the modern functionality visitors encounter inside.

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The case for an evidence base

Adam Boumnaia from product testing laboratory Attain RTC details the exhaustive methods used to help translate fire test results into reliable, evidence-based applications under the UK's evolving standards framework.

In recent years, the UK construction sector has transitioned from historic BN British Standards to European (EN) test methods and classification systems as part of a wider effort to strengthen fire performance standards and legislation. This transition has created a more structured framework for demonstrating performance, with clearer links between what is tested in the laboratory and what is ultimately installed on site. True assurance depends not only on how products are tested, but also on how the results are interpreted and the extent to which those results can legitimately be applied.

Transitioning from single test results to defined applications

Historically, fire testing has often been conducted as a one-off exercise: build a sample system, test it, and record the result. The challenge arose when applying that result to products of different sizes or configurations, as the limits of application were not always clearly defined.

The transition from historic BS 476 test methods to BS EN test standards and classification systems addresses this issue. It incorporates rules for practical application directly into the standards framework, enabling performance to be more clearly defined, traceable, and consistently applied.

The result of a fire resistance test, such as BS EN 1364-1 (which replaces BS 476-22), is used to classify the tested system in accordance with BS EN 13501-2. For example, a classification of EI 240 indicates 240 minutes of integrity and insulation fire resistance. However, the classification itself is only the starting point.

Direct Field of Application (DIAP)

DIAP rules are incorporated directly into the test standard. They define specific, limited variations that are automatically covered by the test result without the need for further assessment. Depending on the relevant standard and construction type, DIAP may permit defined modifications such as reductions in size, increases in certain component thicknesses, or other dimensional changes specified within the test standard.

DIAP provides a clearly defined baseline scope of application, ensuring that every fire test result is accompanied by an inherent and published range of permitted use.

Extended Application (EXAP)

EXAP standards provide a structured, rules-based method for extending fire test results using recognised technical principles. EXAP is carried out in accordance with the relevant EXAP standard, which may be supported by:

- EN extended application standards
- EN product standards
- European Assessment Documents (EADs)
- Relevant European Commission Decisions or delegated acts

There is currently insufficient evidence to support broad conclusions regarding how products previously tested to BS476 will perform when assessed using harmonised European test methods

True assurance depends not only on how products are tested, but also on how the results are interpreted and the extent to which those results can legitimately be applied

- EN 13238 (conditioning procedures)
- CEN/TS 15117 and other sector-specific technical specifications.

The process typically follows one of several recognised methods:

1. Direct reference to product technical specifications where extension rules are already defined
2. Relationship-based assessment, demonstrating how performance varies with defined parameters
3. Experimental or empirical programmes, using additional test evidence to map performance changes
4. Recognised calculation methods where validated models are available.

The objective is to ensure that any extension remains technically justified and consistent with established European testing methodology.

Navigating the pathway from test to classification

The final classification report records not only the fire resistance performance, but also the permitted field of application derived through DIAP and EXAP.

Avoiding misinformation

While BS EN 1364 and BS 476 are fundamentally different test standards, there is currently insufficient publicly available evidence to support broad conclusions regarding how products previously tested to BS 476 will perform when assessed using harmonised European test methods.

The transition should therefore be approached on the basis of evidence rather than assumption. It would be inappropriate to suggest that products achieving a particular level of performance under BS 476 will automatically achieve an equivalent classification under BS EN 1364 without supporting test data. Equally, claims that such performance cannot be achieved should also be supported by robust evidence.

The most reliable approach is producing representative test evidence to demonstrate performance, testing and classification exist to provide objective proof of performance. Discussions surrounding the transition should be informed by data and technical evidence rather than speculation.

Adam Boumnaia is general manager at Attain RTC

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- **Fire-resistant:** Cedral cladding is fire performance classified to A2-s1, d0
- **Low maintenance and durable:** Cedral cladding is low maintenance and lasts longer than traditional cladding materials with a minimum life expectancy of 50 years.
- **Stands up to the harshest weather conditions:** A strong, versatile and sustainable material containing cement and fibres, Cedral does not rot, rust, warp or crack. It can withstand severe frosts, torrential rain, high heat and direct sunlight. and has a minimum life expectancy of 50 years.
- **Style and creativity:** Cedral cladding offers two principal cladding profiles. Cedral Click uses a tongue and groove fixing system to deliver a clean, flush contemporary finish. Cedral Lap offers a traditional shiplap profile. Boards can be mounted vertically or horizontally and can perfectly complement brick, natural stone, tiles, stucco and even metal. Cedral is available in two finishes and in 21 different factory-applied colours across four collections each inspired by the world around us.
- **Ease of installation:** Cedral planks are easy to cut, there's no need to predrill and there's a comprehensive range of matching trims.
- **Ventilation:** Cedral Facades are installed using the ventilated rainscreen system which helps to support energy efficiency improvements and enables the rapid drying of external walls. A cavity is created between the wall insulation or substructure and the cladding, allowing air to flow in at the base and out at the top.

- **A sustainable material:** Cedral cladding uses fewer raw materials and less energy in its manufacture and produces less waste than some traditional building materials.
- **CCPI accreditation:** Cedral Sidings have been CCPI assessed and certified.

Transforming a home in Scotland with Cedral

Eòlas Architects, based in Aberfeldy, Glasgow and Aberdeenshire, were called in to modernise a tired split-level home which was built in the 1990s on an elevated site with beautiful Highlands views.

The architects specified Cedral cladding for the clean, modern look the owners wanted, transforming their home from dated to timeless. It also ticked other boxes including sustainability, energy efficiency and comfort.

Having previously fitted Cedral cladding on a housing estate project, Eòlas Director Oliver Hardiman said: "We knew the classic look Cedral provides would fit the brief and it's also low maintenance for ease and comfort. The cladding was fitted by the building contractor and the whole process was very straightforward."

Cedral also works well with insulating materials to improve both thermal and acoustic insulation. Oliver explained: "The house had recently lost power for a few days after a storm and they were very keen that the renovation would provide a certain degree of self-sufficiency in future storms, as well as high energy efficiency." Solar panels connected to batteries were installed to provide heat and power even in power cuts and new external wall insulation ensured heat retention for longer periods.

The project used three different Cedral materials: Cedral Lap in C18 Slate Grey formed the eaves box and fascias, Cedral Click in C51 Silver Grey covered the main body of the building and Cedral Click in C05 Grey was used on the ground floor balcony and lower ground floor level

"Cedral absolutely lived up to our expectations," says Oliver. "The clients were really pleased with the finished look and pleased with the energy efficiency. Cedral cladding is very stable, doesn't expand and contract significantly, is very resistant to water and frost damage, maintains its appearance and is low maintenance. I would absolutely recommend Cedral."

Cedral's UK technical team supports specifiers through the process. Cedral's dedicated Professionals hub at cedral.world offers a material calculator, an augmented reality cladding visualizer and a full document library covering datasheets, installation guides, BBA certificates and sustainability information. A RIBA-assessed CPD seminar on ventilated fibre cement rainscreen facades is available. Visit here to read Cedral latest whitepapers, Building the Future and Fit for Purpose.

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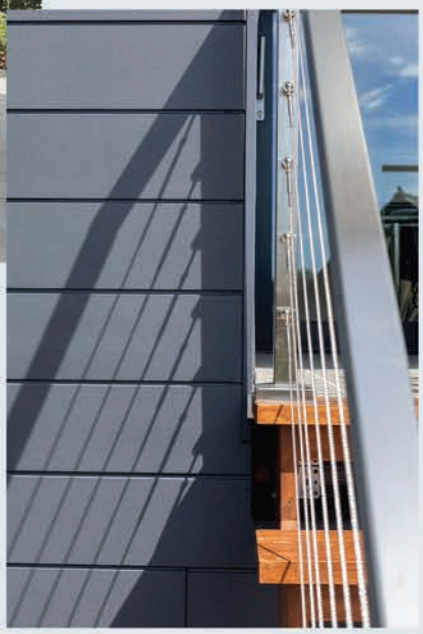
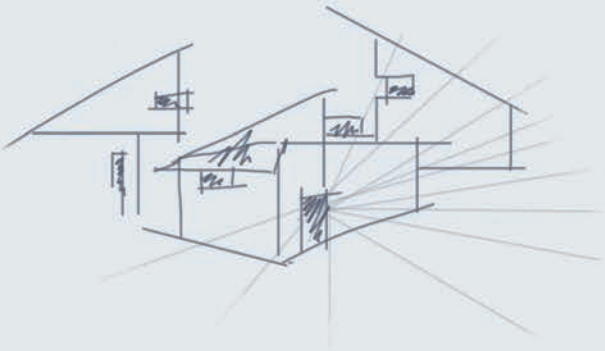


Contrast with brick adds proper weight + texture shift.



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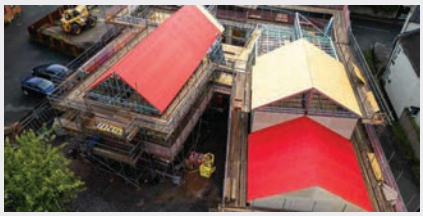
MMC build system featuring Wraptite® membrane delivers lower carbon solution

Just eight weeks on site were all that was required for JPSE (John Plummer Sustainable Engineering) Construction Ltd to erect their light gauge steel frame system on a derelict pub site on Whitchurch Road in Telford. Working on behalf of Tailored Lifestyle Group, the work included fitting cement particle sheathing boards and applying Proctor Group's Wraptite® membrane.

Thanks to Wraptite's proven performance characteristics, the entire structure had its airtightness line in place, and enjoyed temporary weather protection, less than two months after the screw pile foundations and ground beams were first installed – a testament to the benefits that modern methods of construction (MMC) can offer.

As well as employing MMC to best effect, Tailored Lifestyle Group integrates low carbon principles on every scheme it develops – including reduced concrete use and fabric first design.



The lightweight steel frame is central to that approach. Not only does it impose lower loads onto the screw pile foundations, but it also makes constrained sites more viable. The brownfield site at Whitchurch Road had been subject of numerous failed redevelopment attempts. Despite a constrained site, Tailored Lifestyle Group were able to arrange just in time deliveries of the steel frame components, all offloaded without the use of a crane.

"There is no 'one size fits all' solution in construction," said Kieran Danby, co-founder of Tailored Lifestyle Group. "We called ourselves 'tailored' because we believe in adopting the right approach for our client and the site. At Whitchurch Road, the light gauge steel frame was a perfect solution. There would have been so much more risk had we adopted a different solution."

As a self-adhered membrane, Proctor Group's Wraptite provides a consistent airtight seal without the need for additional primers or adhesives. It places the building's airtightness line on the external face of the structure, away from the 'services zone' at the internal face. Continuing the Wraptite from the walls to the roof further reduces thermal bridging and delivers a better standard of airtightness.

At the same time as providing a high level of airtightness, Wraptite is also vapour permeable. Allowing moisture vapour to pass through the structure eliminates any potential for condensation risk within the wall or roof build-up.

01250 872261 www.proctorgroup.com

RapidTray: Designed for faster, compliant cavity tray installation

RapidTray is a new cavity tray and DPC system from OBEX, developed to help contractors and specifiers address increasing pressure around compliance, installation speed and build consistency. With tightening building safety requirements and growing programme demands, the system is designed to remove uncertainty from cavity tray installation while maintaining high standards of fire and moisture performance.

The new product is a next generation addition to the wide range of construction products offered by OBEX. RapidTray simplifies on-site installation through a combination of pre-formed components, integrated fixings and a flexible membrane, reducing complexity and helping ensure consistency across the build.

It achieves a Class A2-s1,d0 fire classification, offering performance which is supported by a comprehensive programme of independent testing and verification. Fire classification has been tested in accordance

with BS EN 13501-1:2018, with testing carried out under conditions representative of real-world applications, including ventilated cavity scenarios.

The system has also undergone BBA water-flow testing and has a Kiwa agrément, demonstrating its effectiveness in managing moisture and protecting the building fabric over the long term.

David MacDonald, global chief revenue officer at OBEX, says: "Across the industry, there is increasing pressure to deliver compliant buildings without impacting programme or cost. RapidTray was developed to simplify installation at the point it matters most, reducing complexity on site while maintaining the levels of fire and moisture performance that specifiers expect. It's about giving teams greater certainty that systems are installed correctly, first time."

Suitable for residential and commercial brickwork facade applications, RapidTray is designed to support faster construction programmes while maintaining compliance with current building standards.

As an OBEX Cortex product, RapidTray is supported by a structured delivery package that includes design input, specification guidance and on-site support through to final sign-off, helping ensure the system performs as intended throughout the build process.

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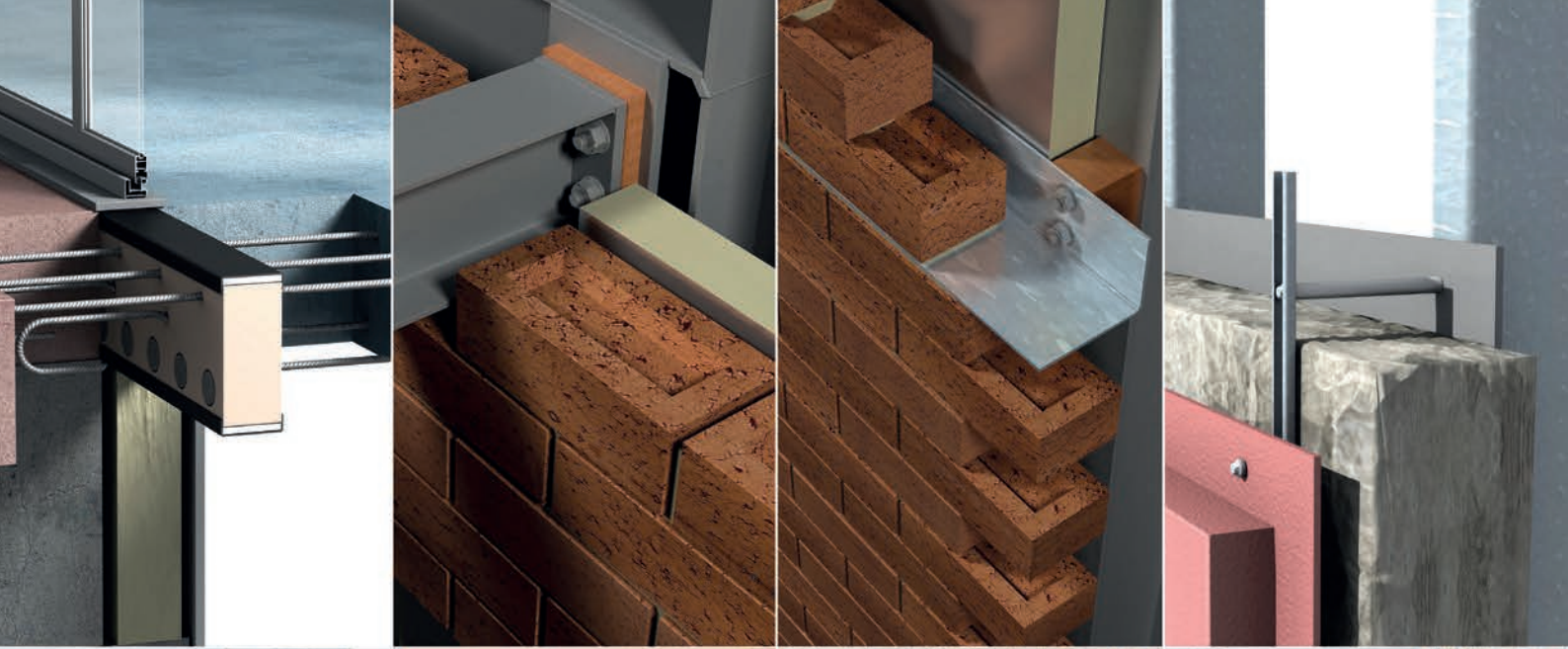

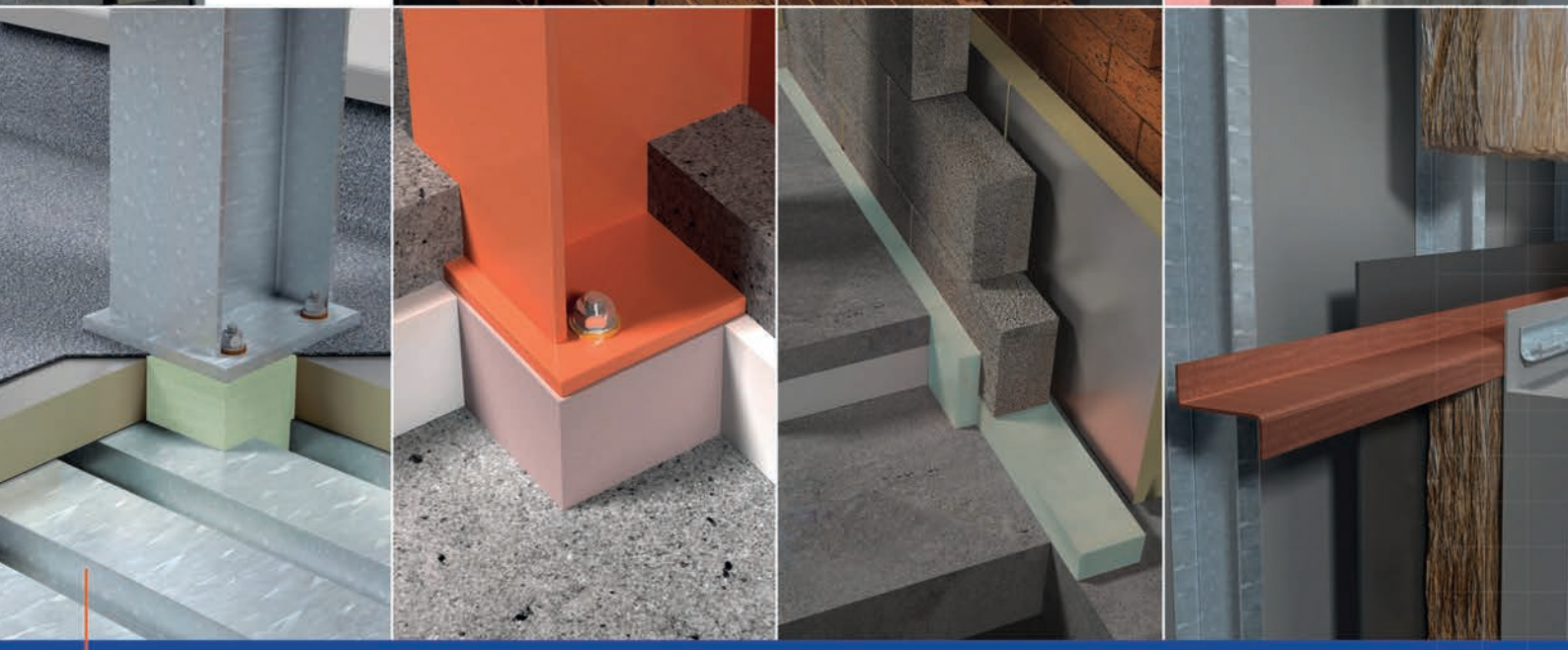

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Proctor Group launches new fire-rated external wall membrane

Facadeshield® FR Class B is the latest addition to Proctor Group's range of external wall membrane solutions. The new vapour permeable membrane can serve as the breather membrane in external wall build-ups. Applications range from low-rise timber and steel frame structures to high-rise rainscreen facades, as well as offsite modular systems.

Key to Facadeshield FR's development has been ensuring the right balance of fire performance, water hold out and ultraviolet (UV) resistance – all in addition to vapour permeability that meets the definition given in BS 5250:2021.

Classified in accordance with BS EN 13501-1, Facadeshield FR achieves a reaction to fire of Euroclass B-s1,d0 and supports projects in meeting the fire safety requirements of national building regulations.

Assessed against the test methods in BS EN 13859-2, the membrane achieves the highest water resistance classification of W1.

Facadeshield FR's monolithic construction ensures its water hold out performance is unaffected even after months of UV exposure.

This is far longer than other similar membranes offer and is the biggest differentiator of Facadeshield FR compared to similar solutions in the marketplace. The membrane has been tested to 5000 hours of UV exposure.

"Delays are an unavoidable reality on many projects today," said Adam Salt, head of business development at Proctor Group. "That's why specifiers, main contractors and installers need certainty that, if a delay arises, the breather membrane on a building's external walls can remain in place without costly removal and reinstallation."

Proctor Group supplies recommended tapes to support the installation of Facadeshield FR, and is on hand to provide expert technical support and toolbox talks. The membrane can be installed with a range of sheathing board substrates, including the company's own Proctor A1 Cement Board.

Keira Proctor, managing director of Proctor Group, added: "Facadeshield FR completes our comprehensive range of external wall membrane solutions. It sits alongside solutions like Wraptite®, our fully self-adhered, vapour permeable airtightness system; and Facadeshield A2, for projects that need additional fire performance."

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Commercial cool comfort

Steve Molloy from Daikin explores how well-designed HVAC systems can contribute to thermally resilient commercial buildings as the Earth continues to warm.

With four of the UK's hottest years on record occurring between 2022 and 2025, the conversation around climate control in the built environment has become increasingly urgent. Indeed, according to a report published by the Climate Change Committee in May, the UK is 'built for a climate that no longer exists' and current heat mitigation policies are unlikely to be sufficient in the face of rising temperatures.

The landmark report advocates for greater use of mechanical cooling in public buildings, particularly in those intended for vulnerable populations such as care homes and schools, and calls for the Government to set a maximum temperature for work environments.

For architects working in commercial spaces, the report is another clear signal of the direction of travel: overheating is no longer an operational issue to be managed but a key design priority that must be considered in the earliest stages of a project. Decisions made at RIBA Stage 1 and 2 about building orientation, glazing strategy and structural thermal mass will either ease or compound the demands placed on any mechanical system. Getting the building envelope right is vital, of course, but the mechanical strategy should be given equal consideration and as the mercury continues to rise, it should be equally ambitious.

After all, a carefully planned HVAC system must perform against a wide breadth of criteria. It must deliver thermal comfort year-round, contribute meaningfully to carbon reduction targets and remain capable of performing reliably in ambient conditions significantly warmer than today's. Crucially, decarbonising the heating and cooling of commercial buildings is inextricably linked to the question of thermal resilience. A design that solves the overheating problem through energy-intensive cooling, powered by the grid without regard for carbon content, is only a partial solution.

Heat pumps are the most credible pathway to low-carbon heating and cooling in commercial buildings, and the technology has matured. Air-source heat pumps (ASHP) extract heat from ambient air and remain the dominant choice in the UK market, where a suitable water source or appropriate geology for ground or water source alternatives is not always available. Ground and water source systems offer more consistent year-round performance given the stability of ground and water temperatures relative to air and are worth investigating where site conditions permit.

A key design advantage of heat pumps is that the refrigerant cycle can be reversed for cooling, making a single technology capable of addressing the full thermal comfort range. For buildings with complex or mixed requirements, four-pipe multipurpose configurations can deliver heating and cooling simultaneously to different zones, capturing and redistributing heat rather than rejecting it; particularly efficient during seasons when some spaces require warming and others need cooling.

Achieving domestic hot water

The UK is 'built for a climate that no longer exists' – Climate Change Committee, May 2026

The challenge facing architects is no longer simply how to reduce operational carbon, but how to ensure buildings remain comfortable, healthy and productive throughout their lifetime

temperatures above 70°C has historically been a constraint on full heat pump specification in commercial projects, but advances in refrigerant technology such as the development of high-temperature heat pump products have largely resolved this.

Several design considerations are non-negotiable, beginning with a fabric-first approach. The lower flow temperatures at which heat pumps operate make building envelope performance a critical variable, not a secondary concern. Electrical infrastructure must be assessed early as heat pumps increase demand significantly, and engagement with the Distribution Network Operator should happen at the earliest possible design stage to avoid abortive work. Plant footprint, noise and the risk of cold air recirculation from air-source discharge must be resolved in the layout.

For offices, hotels, retail and education buildings, Variable Refrigerant Volume (VRV) air-to-air heat pump systems offer a practical and efficient route to integrated heating and cooling in new builds. Direct expansion systems respond immediately to changing indoor conditions, a compelling advantage in buildings where solar gain, occupancy and IT loads can shift rapidly.

Heat recovery configurations allow simultaneous heating and cooling in different zones, recapturing rejected energy and redistributing it where needed. Compact refrigerant pipework and a self-contained installation make VRV systems straightforward to integrate structurally, and the industry's ongoing shift towards lower GWP refrigerants like R-32 makes them particularly suited for projects seeking BREEAM, LEED or WELL.

As temperatures continue to rise, the challenge facing architects is no longer simply how to reduce operational carbon, but how to ensure buildings remain comfortable, healthy and productive throughout their lifetime. Thermal resilience and decarbonisation should be viewed as complementary objectives rather than competing priorities. By considering building fabric, mechanical systems and electrical infrastructure as part of a unified design strategy from the earliest project stages, commercial buildings can offer resilience and support the transition to a lower-carbon built environment.

Steve Molloy is sustainability & commercial solutions manager at Daikin

New look column radiators from Stelrad

Stelrad Radiators has introduced an Italian designed new look, improved range of its popular Column radiators – in both its vertical and horizontal column radiator ranges. With effect since 01 July 2026, the new range is available through all existing outlets streamlining the existing range, enhancing the performance from its Column radiator selection, and strengthening long-term value for purchasers of the range. The most obvious changes are to the design of the radiators that will now feature a new rounded column design.

marketing@stelrad.com www.stelradprofessional.com

New Ultra-Line 360 Fan Coil Unit

British heating and cooling equipment specialist **Diffusion** has launched the new Ultra-Line 360 fan coil unit (patent-pending) designed specifically for exposed-ceiling applications. Ideal for office, retail, and hospitality projects, the UK-designed and manufactured Ultra-Line 360 combines the proven performance of Diffusion's established award-winning Modular Highline Fan Coil technology with a unique diffuser and integrated plenum developed to deliver high-performance heating and cooling and thermal comfort, while complementing contemporary architectural aesthetics.

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HLM Architects specify Gerflor's Creation 55 LVT and Gradus Lunar Carpet Tile for Design Studio

HLM Architects has completed a new studio environment in Cardiff featuring a coordinated flooring specification from **Gerflor**, designed to support the demands of a growing architectural practice. The project incorporated 330 m² of floor finishes, combining Gerflor Creation 55 Looselay LVT with Gradus Lunar carpet tiles across circulation areas, meeting rooms and breakout spaces. Relocating to larger premises to accommodate continued business growth, HLM required a durable and adaptable workspace capable of supporting both collaborative and focused working environments. The flooring specification needed to balance long-term performance with a cohesive interior finish suitable for a busy, design-led studio. Gerflor Creation 55 Looselay LVT was selected for high-traffic circulation routes, providing a durable and flexible flooring solution with simplified installation and future adaptability benefits. Gradus Lunar carpet tiles were specified within meeting rooms and informal breakout areas to improve acoustic comfort and create a softer underfoot experience.

01625 428 922 www.gerflor.co.uk

On the front line of design innovation – Vicaima doors open to new lifestyle at former Military HQ

The conversion of a Grade II listed building, with a history spanning over 130 years, requires thoughtful and imaginative planning at the best of times. However, this is all the more important when the building holds a special affection and relevance for a town steeped in an illustrious military past. In this instance it was more than just bricks and mortar. The building has a lineage dating all the way back to 1894, when the Duke of Connaught, Queen Victoria's son and General Officer Commanding for the Aldershot District, inaugurated this important headquarters for the armed forces.

This challenge however, was more than successfully met by Weston Homes, when they re-imagined the 4th Division Military Headquarters in Aldershot. They transformed the historic site into an exclusive collection of contemporary apartments and cottages, while seamlessly retaining its original character and charming architectural features.

To complement the interior layouts and design, Vicaima supplied interior timber doors from their Visual Sensations collection. For this, Weston Homes selected Dekordor® SD Forest in a cross-directional woodgrain styling. Forest, with its rich and luxurious walnut like hue, perfectly complements the tone of the surrounding joinery and flooring and its combination of both vertical and horizontal grain directions adds an interesting design statement, as you traverse between living areas.

Multi-award winning Weston Homes and WhatHouse? Housebuilder Of The Year 2025, has long been an advocate of Vicaima innovative door products, incorporating them throughout many of its residential developments across London and the South East. Weston Homes choice of Vicaima provides a seamless interior finish to every home, combining exceptional design with lasting quality. Working in conjunction with ABL, a Colchester based installation company, Weston Homes specified a variety of dimensional requirements to perfectly meet the project requirements.

The Visual Sensations collection provides a wide finish and design spectrum with no less than 12 base woodgrain shades, that are each available in a selection of vertical, horizontal or cross-directional grain patterns. As with all Vicaima products, this collection is fully adaptable to meet specific project requirements. Whether that be performance fire doors, security entrance or acoustic solutions or custom configurations, such as single leaf, pairs, glazed options or decorative grooved embelishments, ensuring the interior doors perfectly enhance the desired design vision.

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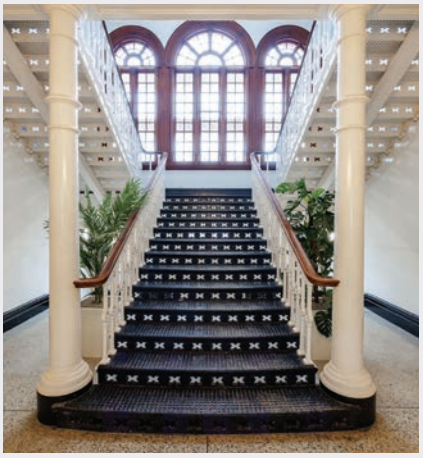


Style blends heritage with high performance acoustic design

Style has delivered a bespoke acoustic solution as part of an extensive CAT B refurbishment of The Pattern Shop, a Grade II listed industrial landmark in Newcastle. Working alongside Overbury, Style installed Autex acoustic products across four floors, introducing high-impact design features that enhance the building's heritage character while delivering effective acoustic performance for a contemporary workplace accommodating around 600 employees.

A defining element of the scheme is the installation of more than 1,000 linear metres of Beam 100 rafts. Drawing on the site's railway heritage, the ceiling system forms a distinctive architectural feature across the top floor, balancing strong visual rhythm with superior sound absorption that contributes to an acoustically controlled environment.

Complementing this, Autex acoustic wall panels were integrated throughout key areas to improve overall sound quality and occupant comfort. Carefully positioned within the building's existing fabric, the solutions support a layered acoustic strategy that enables a mix of collaborative, focused and social working environments, while respecting the architectural integrity of the original structure.

Originally built as part of Robert Stephenson's pioneering locomotive works in the early 1800s, The Pattern Shop remains one of Newcastle's most significant industrial heritage buildings. The Grade II listed structure has been sensitively reimagined, with original features such as exposed beams and cast iron columns carefully retained to preserve its historic identity. The refurbishment demanded a highly considered approach to material selection and design integration, ensuring modern workplace requirements could be maintained without diminishing the character of the building. Style's acoustic interventions play a key role in achieving this balance, introducing a design language that responds directly to the site's industrial past.

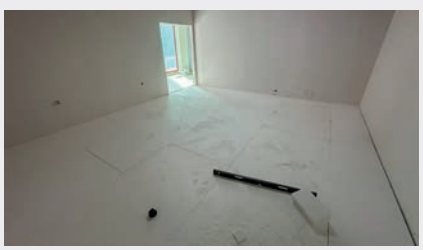
Through a combination of technical expertise and architectural sensitivity, Style has contributed to the transformation of this landmark building, demonstrating how acoustic design can enhance both performance and spatial experience within complex heritage environments.

01202 874044 www.style-group.co.uk

BEWI plays key role in new Shrewsbury hospital project

One of the latest builds in the Government's £50 billion new hospital building and extensions programme is a new hospital currently being constructed over a period of three to five years within the grounds of the existing Shrewsbury hospital. The new build is part of Shrewsbury and Telford Hospitals - Hospital Transformation Programme.

BEWI has been delighted to supply Jabfloor Floor Insulation Boards on each level of the new building, in a total area of 20,000 ft^2 during the course of the build.



The BEWI product was specified due to its enhanced operating specification and durability, as well as the fact it can withstand high loads, such as hospital beds and trolleys.

Jabfloor boards provide a cost-effective solution, while achieving impressive U-values and excellent compressive performance, making them suitable for a range of different floor applications. These include below ground supported slabs, above slabs and below chipboard, above slabs and below the screed, precast suspended concrete and cold stores. On this project the boards are being used below the screed as part of the underfloor heating system of the hospital.

The insulation boards are made from high-quality expanded polystyrene (EPS), and can be used primarily to provide thermal insulation in both domestic and commercial floors. They meet building regulations and offer a durable, rot-proof, and lightweight solution for ground-bearing and suspended construction.

They are available in a number of different thicknesses for different applications, ranging from Jabfloor 70 for standard domestic loads, up to Jabfloor 150 – 250 for heavy commercial or industrial use. Boards in a range of thicknesses, installed to a rigorous QA system, were used on this project to suit specific design requirements in differing areas within the hospital, including a specially produced Jabfloor 300, demonstrating how BEWI is willing to work with its customers to produce tailored products to meet specific market needs.

The BEWI technical sales team is supporting the project throughout, providing specific site installation guidance, QA visits, technical advice and knowledge during the installation.

0870 600 3666 bewi.com/uk

Commercially sensitive

Jemma Saunders at Crown Paints says colour has long been seen as a 'finishing touch' in commercial settings, but it is key to get it right for increasingly multi-purpose spaces.

Colour shapes how a space feels and how well it works for the people using it, supporting more inclusive environments across workplaces, healthcare, and hospitality. For neurodivergent people, who may experience heightened sensitivity to colour, light and spatial change, the physical environment isn't just a backdrop; it can affect wellbeing and day-to-day experience. And what calms one person may overstimulate another.

With around one in seven people in the UK estimated to be neurodivergent, there is increasing awareness that environments are experienced very differently depending on sensory sensitivity, cognitive processing and perception.

What became clear through our research with architects and specifiers was both a strong appetite for designing more inclusively, and a genuine knowledge gap around how elements such as colour, contrast and sensory stimulation affect people in practice. This underlines the need for a more considered approach – looking at colour in context, and how it works alongside light, texture and acoustics to reduce sensory load and make spaces easier to use.

From aesthetics to experience

Architects have always understood, instinctively, that colour affects mood. Today, that intuition is increasingly being supported by research – and by real-world feedback from building users.

In commercial settings in particular, spaces must now do more. Workplaces should feel focused and functional while still encouraging collaboration; healthcare environments should be calm and reassuring; and hospitality spaces need to balance atmosphere with comfort, creating spaces that feel welcoming and memorable for every guest.

Colour is central to achieving that balance. Subtle shifts in hue, saturation and contrast can transform how a space is perceived and experienced – influencing everything from stress levels and concentration to a clearer sense of flow through the space.

Highly saturated palettes and visually busy schemes may energise some users while causing discomfort or fatigue for others. But this doesn't mean specifying bland or neutral schemes. Instead, it requires a measured approach, recognising when colour should stimulate and when it should calm within different areas of a space.

Low-intensity tones often benefit environments where focus and calm are essential. Both dark and light colours can promote a restful calm space vivid bright colours on the other hand, run the risk of becoming a distraction, especially if someone has a particular sensitivity to colour.

Architects have always understood, instinctively, that colour affects mood

Workplace design: performance, focus and flexibility

In office fit-outs, colour psychology is increasingly tied to performance. As offices evolve into hubs for collaboration, social connection and focused work, a

Colour can also reinforce behavioural cues – using calmer tones to signal quiet zones and bolder accents to frame creative or social areas

single, uniform colour strategy no longer makes sense.

Architects are increasingly using colour as part of spatial planning: not simply to 'finish' a scheme, but to support how people move, work and recover throughout the day.

Different tasks require different sensory conditions. Softer, low-contrast palettes can support concentration and reduce visual fatigue in focus areas, while brighter accents and higher contrast can energise collaborative zones and aid orientation. Colour can also reinforce behavioural cues – using calmer tones to signal quiet zones and bolder accents to frame creative or social areas – helping people adjust their pace and expectations as they move through the workplace.

Crucially, neurodiversity reminds architects that control matters. Designing workplaces with a range of colour experiences – rather than one 'middle ground' compromise solution – allows users to choose spaces that best support how they work on any given day. That flexibility is fast becoming a marker of good workplace design.

Healthcare design: calm, clarity & reassurance

In healthcare settings, the psychological impact of colour is particularly pronounced. When a space can feel high-pressure or emotionally intense, colour can help steady the experience – easing sensory strain and supporting a calmer, clearer atmosphere.

Muted greens, soft lilacs and warm neutrals are often associated with calm and reassurance, helping to create environments that feel less institutional and more human. In these contexts, contrast remains essential: careful differentiation between floors, walls and doors can improve navigation and safety without the need for excessive signage.

At Cygnet Kenney House in Oldham, a mental health hospital for women, the design brief centred on creating a 'home away from home.' A warmer alternative to traditional white was used to soften the clinical feel and help people feel more at ease while bedrooms were kept purposefully neutral to avoid overstimulation and allow personalisation.

Hospitality settings: atmosphere without overload

Hospitality environments perhaps face the greatest balancing act. They must establish a strong sense of identity while remaining comfortable and inclusive for a wide range of guests.

Colour plays a vital role in establishing identity and ambience, but overly intense palettes, high-gloss finishes or excessive contrast can contribute to sensory overload.

Increasingly, architects are using more layered approaches: combining grounding base colours with moments of accent and texture, and using colour zoning to offer choice – from lively, social areas to quieter retreats.

Colour as a creative & technical discipline

What unites the approach across all of these different settings is a shift in mindset. Colour is no longer just a creative flourish; it's a technical discipline grounded in research and empathy. Designing with colour psychology in mind means asking different questions: who is this space for, how will it be used throughout the day, and where do people need clarity, calm or stimulation? Inclusive design isn't about perfection; it's about engaging, listening and responding.

Ultimately, colour allows architects to design environments that don't just look good but actively support the people who inhabit them – and that, increasingly, is what good design is about.

Jemma Saunders is colour consultant at Crown Paints

Colour with cork

In a natural cork texture recoloured across a 24-strong palette that ranges from blues, greens to warm terracotta, saffron and cream; Recolour from **Granorte** is a unique engineered cork floor with the performance for commercial projects. Recolour is ideal for use in commercial offices, hospitality and retail, where its class 34 rating is comparable to other commonly used smooth planks. Unlike these planks though, Recolour brings the aesthetic and comfort qualities of cork for a floor that looks and performs like no other. To achieve its unique look and performance, Recolour FIX features top and bottom layers of cork for glue-down installation, sandwiching a Uniclic HDF core in Recolour (click installation). Thanks to the agglomerated cork bottom layer, both specifications make the most of cork's thermal, comfort and acoustic properties, using a decorative top layer to achieve the one-of-a-kind aesthetic. The floor's Wearplus finish is highly chemical, impact and wear resistant and the bottom layer is Microban® treated for anti-bacterial protection.

info@granorte.co.uk www.granorte.co.uk

The critical role of specifying the correct floor

When designing a performing arts venue, dance studio, theatre or educational facility, every specification decision contributes to the long-term success of the space.

For architects and specifiers, flooring is far more than a finishing surface. It directly affects performer safety, artistic performance, user confidence and the operational lifespan of a venue. Selecting the correct performance floor for all projects creates spaces that not only meet the technical requirements but also supports the performers who use it daily.

Unlike conventional flooring, performance floors are engineered to meet the physical demands of dance and the performing arts. Every jump, landing and movement places repeated stress on a performer's body, making the floor an active part of the performance environment rather than simply a finished surface.

Harlequin has worked alongside architects, dance scientists and biomechanics specialists to advance understanding of how flooring influences performer health and safety. This research demonstrates that correctly specified performance floors should provide consistent shock absorption, appropriate energy return and reliable traction. Together, these characteristics help reduce fatigue, support freedom of movement and minimise the risk of injuries such as shin splints, tendinitis, joint pain and ankle strain.

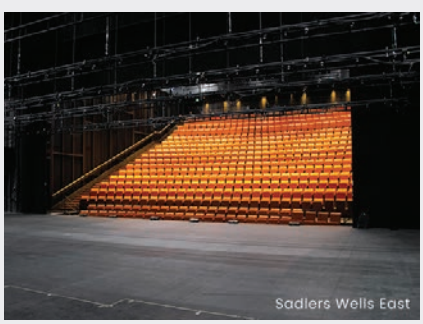
For architects, this creates an important duty of care. A performance floor should be specified according to the intended activity rather than appearance or budget alone. A floor suitable for general sports or commercial use may not provide the specialist characteristics required for dance, leaving performers at greater risk.

With more than 45 years of experience, Harlequin has worked alongside architects, consultants and contractors on projects ranging from schools and universities to prestigious theatres, rehearsal studios and cultural venues around the world. This collaborative approach enables project teams to receive technical guidance throughout every stage of the specification process, from concept design through to installation and completion.

Supporting architects extends beyond project delivery. Harlequin provides RIBA-approved CPD seminars focused on the science behind performance flooring, helping specifiers understand current research, industry terminology, standards, testing and sustainability considerations. All technical information is available on the Harlequin website and through RIBA NBS Source and the National BIM Library.

To find out more about specifying dance floors for the performing arts venues, theatres and schools, contact the Harlequin team today, or visit **content.harlequinfloors.com/l/1005282/2025-11-05/6wljn1**

01892 514 888
enquiries@harlequinfloors.com



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AdvancedLive remote fire monitoring strengthens protection at University of West London

The University of West London (UWL) is benefitting from enhanced fire safety visibility and streamlined system management thanks to the integration of AdvancedLive across multiple campuses.

Over the past three years, the University has undertaken a significant investment programme to upgrade its fire protection infrastructure. This included systematically replacing legacy MxPro 4 and Kentec systems with next-generation MxPro 5 panels, ensuring consistency across six campuses in West London and Oxford.

Most recently, Ruskin College, now part of the University of West London, underwent a seamless upgrade across its historic Oxford estate, which includes five main buildings such as the Rookery, first constructed in 1913. Despite the complexity of integrating newer extensions like the Callaghan Library, the project was completed without disruption, thanks to the adaptability and flexibility of the MxPro 5 platform.

With more than 27 Advanced panels installed across education, office, and residential buildings, the University has now connected three of its main campuses to AdvancedLive, with plans to extend the platform further. Using map-based views, facilities teams and security staff gain a real-time overview of their fire system estate, enabling faster incident response and more efficient day-to-day management.

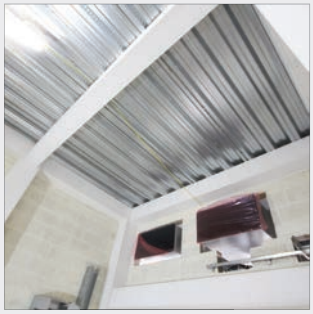
For a large and dispersed organisation like UWL, the ability to locate alarms or faults quickly across complex buildings has been transformational. AdvancedLive's intuitive dashboard and remote access capability allow fire isolations, enablements and weekly testing to be managed digitally, eliminating unnecessary site visits and reducing both costs and carbon footprint.

The system configuration reflects the unique requirements of each campus:

- St Mary's Road Campus operates 13 panels, with Apollo REACH wireless devices deployed within library pods and coincidence detection programmed across third-party systems.
- Ruskin College Campus features six panels, each building configured with bespoke cause-and-effect strategies, all reporting to central security points.
- Paragon House integrates four panels with phased evacuation and delays across its 12-storey tower block.

0345 894 7000 www.advancedco.com

Krasi delivers 120 minutes fire protection using Promat board encasement



As a highly experienced specialist contractor, **Krasi Fire Protection Ltd** carried out the precision installation of the Promat VERMICULUX®-S board encasement system to protect the structural steel frame throughout an existing industrial building near Oxford; coordinating its efforts with the main contractor to help ensure the programme targets for the refurbishment were met. The Midlands based company has invested time and resources in having a large proportion of its operatives trained in the installation of the Promat systems, so that contracts can be completed in full compliance with relevant EN standards as well as site specific quality requirements. In the case of the 600 m^2 facility, the scope of the works encompassed the protection of lift shafts and staircases as well as the multiplicity of steel columns and beams. The 10-strong workforce installed a total of 950 m^2 over the 12-week period of the project. The 20, 30 and 35 mm thick calcium silicate boards were installed by screw fixing them to steel angles, aligning and sealing the cut-to-size boards as necessary to guarantee the 120 minutes integrity will be achieved in an actual fire emergency.

info@kfplimited.co.uk www.kfplimited.co.uk

Keller Kitchens introduces 'Calm Flow'

Calm Flow is **Keller Kitchens'** response to the growing demand for composed, understated interiors. Defined by a fluid, organic aesthetic, the design aligns closely with the soft minimalism trend, where simplicity, gentle forms and restrained colour palettes are key. Rounded end panels and muted tones such as Sesame, Sand and Sea Salt contribute to a balanced, uncluttered look for a calm, contemporary living space. The kitchen also incorporates Keller's 75 cm cabinets which create a consistent, well-ordered layout.

bit.ly/42uJrSx?r=qr

Innovation meets modular design

Forbo Flooring Systems has unveiled its refreshed collection of high performing Flotex Planks, introducing re-imagined digitally printed designs inspired by natural textures and contemporary colour stories. Launching in the first wave, the Woven and Stone ranges effortlessly combine durability with comfort, acoustics and design versatility for today's demanding commercial interiors. A longestablished modular flooring solution, Flotex Planks is engineered for environments where hygiene, resilience and comfort are essential.

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

Pedestal super structures hold it together

Suspended deck systems are the unseen hero of many successful paving/decking schemes. For hidden beneath ultra flat porcelain tiles or composite boards, for example, is a carefully planned substructure of plastic or metal pedestals supporting the surface finish. Not only are suspended decks quick and clean to install (no sand or mortar required), they even-out height differences across site, make flush fitting with doors etc a breeze, deliver built-in drainage and provide a void for services. Paving/decking can be removed for access to the void, facilitating maintenance. **Wallbarn** is a UK leader in pedestal and substructure systems, with more than 40 years of experience. Recent projects include the ground-breaking outdoor critical care unit at King's College Hospital, London, and the newly renovated Harrods Helideck event space. Wallbarn has also completed public paving schemes and supplied solutions for restaurants, offices and hotels, quite literally paving the way for designers to furnish these spaces with planters, seating, tables etc.

020 8916 2222 www.wallbarn.com

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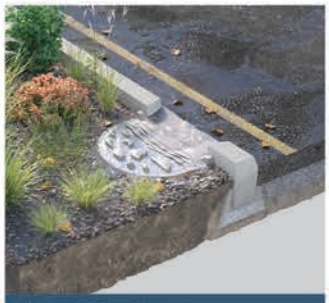
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SuDS design principles for a compliant, climate resilient solution

Michael McIvor-New at Tobermore explains how Sustainable Drainage System (SuDS) schemes are a viable and cost-effective way to achieve climate resilience and biodiversity net gain on both modern housing schemes and commercial projects.

According to the 2023 State of Nature report, 86% of habitats in the UK are not in good condition, and one in six species is at risk of extinction. To ensure new projects don't further damage our fragile ecosystems, Biodiversity Net Gain (BNG) is now mandatory in England under Schedule 7A of the Town and Country Planning Act 1990 (as inserted by Schedule 14 of the Environment Act 2021).

All projects (barring exemptions) must deliver a BNG of 10%, providing more and/or a better quality natural habitat than before construction started. This must be maintained for a minimum of 30 years.

As well as driving habitat loss, climate change has altered the British weather. Winter rainfall is now 16% higher than it was between 1960 and 1990, and rainfall on the stormiest days increased by approximately 20%. At the same time, the desire for clean lines and practicality has led to the use of hard surfaces in many urban environments. Rainwater cannot be absorbed onsite, leading traditional drainage systems to quickly become overwhelmed, exacerbating flash and surface flooding. In England and Scotland, the National Planning Policy Framework states that SuDS must be used on developments with 10 dwellings or more (or the non-residential equivalent), unless it is inappropriate.

Although Schedule 3 remains unlikely to come into force in England, Lead Local Flood Authorities (LLFAs) are pushing SuDS through as part of planning requirements. This does, however, vary between the different authorities. For example, Westminster, Haringey and Essex, amongst others, incorporate SuDS as a requirement for planning approval. Meanwhile, over in Wales, Schedule 3 has been adopted, making SuDS a mandatory design component on all schemes. The legislation is backed by 22 SuDS Approval Bodies (SAB), which ensure projects meet national standards.

Legislative compliance with SuDS

When designing SuDS, it's best practice to ensure that the first five millimetres of rain, essentially normal rainfall, never leaves the site. On a well-designed SuDS scheme, 40% of the water volume can be accommodated by soil alone.

For effective, compliant SuDS schemes, there are four design principles that should be followed:

- Managing quantity of rainwater runoff;
- Managing water quality and preventing pollution;
- Create amenities for people;
- Improve biodiversity.

The need to comply with both environmental legislation and ensure projects are climate resilient means that it is essential that architects rethink drainage and landscape design

Taking a holistic approach to SuDS design allows architects to employ the best solution for the site

These principles are all interlinked, and most SuDS schemes will include a variety of solutions for maximum effect.

Taking a holistic approach to SuDS design allows architects to employ the best solution for the site. This means they may choose to use a combination of SuDS devices such as permeable paving, rain gardens, tree pits and blue/green roofs to create a series of small 'sub catchments.' This can often better manage the water volume than one device alone, as well as enhancing the quality of the water and contributing to biodiversity.

However, that's not always possible. Permeable paving can be used across projects of all types as a standalone solution for managing water run-off and creating amenity spaces; it also filters water by trapping and breaking down harmful pollutants within the stone. This means it supports three out of the four SuDS principles directly.

Permeable paving can also prove to be a good solution if the local planning authority requests that architects provide a 'betterment' of SuDS and water management. That's because the scheme's hard surfaces, such as asphalt roads, footpaths, roof space, and car parking, etc, can all be switched to permeable paving relatively easily.

Addressing concerns about costs

There's a misconception that SuDS can be too expensive for all but medium to large projects. Certainly, making late design changes to add SuDS to a scheme will increase project costs. Planning SuDS into the scheme from its inception will not only help with planning compliance, but also help ensure they are more cost-effective than standard drainage; they may not require the extensive excavation, pipework, manhole covers or gullies required etc.

Traditional gully drainage systems also require regular cleaning to prevent the drainage system from becoming blocked by debris; otherwise, flooding can occur even during normal rainfall. In contrast, maintenance for SuDS schemes can be incorporated into the normal landscaping budget – permeable paving, for example, requires minimal maintenance.

Michael McIvor-New is permeable paving specialist at Tobermore

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Historic Whitby Abbey facilities benefit from lift modernisation

One of England's most famous historic monasteries, Grade I Whitby Abbey, has invested in a lift modernisation by Stannah Lifts to offer reliable step-free access to visitors.

Originally founded in AD 657 and occupied by the Anglian community, Whitby Abbey was later rebuilt as a Benedictine monastery. Today, the 7th-century ruins remain a popular heritage landmark in North Yorkshire, now housing an award-winning visitor centre repurposed from a 17th-century banqueting hall.

Whitby Abbey House Visitor Centre, developed in the early 2000s beside the abbey ruins, includes a souvenir shop, museum and café. The passenger lift is located on the ground floor, providing access to the museum and exhibition area on the first floor.

Due to the age of the existing lift, modernisation work was needed to maintain smooth and reliable operations for visitors who require step-free access.

Whitby Abbey is managed and maintained by English Heritage, who issued a tender for the lift works. Following a rigorous tendering process, Stannah, acting as the lift supplier, worked with Cundall consultants to determine the best approach for this modernisation project.

Ben Harrison Photography
www.BenHarrisonphotography.co.uk

The challenge

Whitby Abbey attracts over 150,000 visitors each year, so keeping the visitor centre open was important to fulfil the customer experience. The shop's closure was kept to a minimum to ensure the safe transportation of equipment and initial start of works. This also allowed the on-site team to establish a safety perimeter, prioritising visitor safety. Following this, the shop remained open for the duration of the project.

As this was the only functioning lift in the building, it was important to complete the modernisation as quickly as possible to avoid long disruptions to shop operations and visitors.

The solution

Working collaboratively with Cundall, lift modernisation was proposed in place of full replacement, a recommendation supported by Stannah Lifts to achieve a cost-effective outcome with minimal impact on day-to-day operations.

By upgrading key mechanical and control components, the lift's reliability, performance and long-term serviceability are improved while shortening installation time and minimising downtime.

The lift modernisation solution included a new Hydroware control panel to improve reliability and lift response times, a hydraulic tank unit for more efficient system operation, and a borehole ram to provide safer and smoother travel.

A new stainless steel car operating panel (COP) and landing push stations were installed to improve passenger usability, accessibility and lift reliability.

The installation of a variable voltage variable frequency (VVVF) electronic drive improves ride comfort by delivering smoother acceleration and deceleration, reducing any jerking movements and mechanical wear, while also improving energy efficiency. The shaft lighting was also upgraded to LED to improve visibility for engineers during future maintenance work.

New vinyl flooring was chosen to enhance the interior appearance while providing a durable, hard-wearing, and easy-to-maintain surface suitable for high-traffic use.

The modernisation package covered all major components, offering a practical solution that optimised performance and restored reliability.

Results

The lift modernisation was completed within five weeks. Overall, these modernisation upgrades successfully enhanced the lift's reliability, operational efficiency, ride comfort, safety and energy performance, while reducing the risk of breakdowns frequently associated with ageing components.

The new stainless steel COP, updated indicators and vinyl car flooring also modernised the appearance of the lift car, providing a more durable, accessible, and user-friendly experience for passengers.

Upgraded lift components, such as the VVVF drive, help to deliver a smoother ride while also reducing operating costs by more efficient motor control and reduced energy consumption.

Visitors can now enjoy reliable transportation from the only lift on site to the museum, where they can explore the heritage of one of the UK's iconic landmarks through its exhibits and displays.

Lift modernisations are particularly effective for systems experiencing frequent callouts, breakdowns, repeated repairs, high running costs from outdated systems that consume a lot of power and worn finishes.

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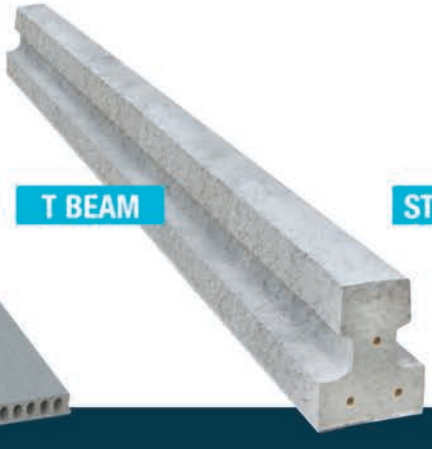

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