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BAO'AN PERFORMING ARTS CENTRE, SHENZHEN, CHINA

Part of a new cultural district of Shenzhen, Rocco Design Architects' performing arts building is the development's flagship scheme, responding to coastal geography

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FROM THE EDITOR



The Environmental Audit Committee (EAC) has called on the industry to rethink the default setting of new build over reusing and refurbishing existing buildings, in its recent report. And where retrofit isn't possible, the EAC says that 'efficient' low carbon building materials should be used.

Conservative MP Philip Dunne, EAC chair, said that Minister needed to "urgently" address the fact that significant amounts of sequestered carbon are wasted when buildings are knocked down. He praised Michael Gove's "pausing" of the demolition and rebuilding of the Marks & Spencer Oxford Street branch on "environmental grounds," in the face of construction industry business imperatives.

He also says that "much more needs to be done," including "baseline standards for action," whatever that may be. However, calling for "mandatory whole-life carbon assessments, and targets to crack down on embodied carbon," are clearer aims. Dunne believes contractors can then decide which 'low-carbon materials' they want to use, but the EAC wants the mandatory assessments in place by December 2023.

This all ties in with RIBA's 2021 aim to move from a bias towards new build to one of reuse, as part of its 2030 Climate Challenge strategy. It feels like a paradox which also bolsters the credibility of a designers' body making such pronouncements. This is because you'd perhaps assume architects would normally prefer to have control over an entire design vision from the ground up, rather than working with a previous designer's concept.

Times have changed, and growing numbers of architects are embracing adaptive reuse and refurbishment as rich territory for realising interesting and harmonious concepts – working with previous responses to a building's context but in a new light. Of course, the climate crisis has brought the need to prioritise reusing everything we can to the forefront, and buildings are one of the most obvious examples of where this be harnessed to make a major impact. With buildings being blamed for 25% of greenhouse gases, maybe avoiding the loss of stored carbon should be the overarching aim of all projects.

Reusing existing buildings isn't the panacea for low energy; refurbishments must be as rigorous as possible. Yet the Building Regulations framework on refurbs is opaque, only explicitly applying to additions to those existing buildings, and not to restored original parts. The much–reported upgrades to Parts L and F largely apply to new construction, for example, apart from aspects like U-values of new glazing introduced to existing buildings.

The Building Safety Act covers so much ground, in attempting to reduce the likelihood of another Grenfell, including an overhaul of aspects of the Building Regulations. However, another massive tranche of work is needed to tackle energy efficiency regulation of refurbishing our existing stock, given that most of it will still be around in 2050 – 'year zero' for carbon emissions.

James Parker, Editor



ON THE COVER

In a new district of Shenzhen in south east China, Rocco Design Architects has completed a performing arts centre which takes inspiration from the location's coastal geography.

Cover image © Zang Chao Studio For the full report on this project, go to page 32



EDUCATION

Herzog & de Meuron unveils flexible new campus for Royal College of Art

Designed by architects Herzog & de Meuron, the £135m, 15,500 m² campus at The Royal College of Art in Battersea is designed to offer a flexible solution which will adapt to the venerable institution's "constantly changing" programmes of teaching and research.

The site occupies the urban block to the south of the existing RCA Battersea buildings situated within the 'Battersea Creative Quarter.' A ground floor base of workshops and manufacturing facilities supports a four-storey studio building along Howie Street, which will be the main route for the combined RCA Battersea Campus. Completing the scheme is an eight-storey research building along Parkgate Road.

The textured brickwork and large, north facing clerestory lights of the workshop and studio building present a "unique yet contextual profile to Battersea Bridge Road," said the architects. The metal fins of the research building moderate solar gain and glare, and naturally ventilate the workspaces within as well as offering a "distinct skyline identity for the campus."

The design incorporates a doubleheight "hangar" – a flexible zone for the production and display of large-scale work that is also spacious enough to host RCA assemblies and events, as well as a further series of flexible spaces that can be adapted to a range of different programmes by the client. In addition to natural light and air supplying the indoor studios, concrete floor plates extend to form cantilevering external galleries, providing shade and natural ventilation.

To support its role as an "efficient and flexible container" that can adapt to different modes of working, materials used on the campus are simple and robust. The interiors are formed from a combination of concrete flat slabs supported on an 8 metre grid of concrete filled steel tubes.

The ground floor facade is formed from stock brick in a "textured" Flemish bond, in some areas perforated with open patterned brickwork to provide ventilation to the workshop and sculpture studio behind operable glass panels. On the upper studio storeys, the ground floor brick pattern is inverted, exposing the cut ends of the header bricks and marks of manufacture, providing a "distinctive texture," added the architects.

The building has achieved BREEAM Excellent, with the exposed concrete superstructure having a "high cement replacement content," and its mass provides "additional thermal assistance to the passive interior." There is a solar array on the roof of the studio building, set within a combination of 'blue' and 'brown' roofs to assist with sustainable drainage and promote biodiversity.

COMMERCIAL

JRA completes Clerkenwell workspace



John Robertson Architects (JRA) has completed Bloom Clerkenwell, calling it one of London's most "dynamic and prominent workspace developments in recent years," the project occupying a site adjacent to Farringdon station.

The HB Reavis development comprises 14,500 m² of Grade A workspace across seven levels, plus 600 m² of adaptable retail areas and 1,400 m² of landscaped roof terraces.

Festus Moffat, director, John Robertson Architects, said: "Bloom Clerkenwell is located in one of London's most vibrant areas and has been designed to be a highly flexible workplace environment which can



respond to the needs of larger and smaller businesses equally."

The site was acquired by HB Reavis in July 2018 together with permission for an original scheme which JRA sought to adapt and achieve consent for with the London Borough of Islington.

JRA's approach has focused on delivering a "highly sustainable design" with "occupier wellbeing and sustainability concerns" as its focus.

Sitting above the newly expanded and reconfigured station hub, Bloom's relationship with Britain's rail network is "central to the building's design," said the architects. Key features include the



palette of materials used in the building's facades including faience, terracotta and anodised aluminium giving it a "clear, contemporary, and complementary identity in relation to many of its neighbours and responding to Clerkenwell's diverse and eclectic architectural history," said JRA.

Bloom has achieved BREEAM 'Outstanding, a WiredScore 'Platinum' and an Energy Performance Certificate rating of 'A'; while targeting net-zero carbon in operation via energy from Citigen, an integrated photovoltaics module array installed on the roof, and responsible waste management systems.

STUDENT ACCOMMODATION DMA wins planning for Kensington accommodation

Dexter Moren Associates (DMA) has achieved planning permission for the refurbishment and extension of the 19th century More House in Kensington, London, to provide modern student accommodation.

Situated at 51-55 Cromwell Road, close to the art and museum centre of London, More House is named after St Thomas More and has welcomed students between 1952 and 2020. The 38,000 ft² building was vacant when bought by SAV Group, who specialise in "refurbishing and repositioning complicated sites into income-generating residential properties."

Sustainability formed a major part of DMA's design, with "every effort made to retain as much of the existing structure as possible in order to limit the embodied carbon emissions of the project," said the practice. Located in the Queens Gate Conservation Area, the design team collaborated closely with heritage consultant Montagu Evans to make sure the proposal "remained in line with the character of the conservation area," while reconfiguring the internal layout to provide as much accommodation as possible within the constraints of the existing building envelope.

The design team gave "careful consideration to the material selection to ensure a calm, neighbourly design proposal that sits in its context seamlessly." DMA's "subtle interventions" include a new mansard roof whose natural slate tile finish "reintegrates with the original design of the building and maintains the rhythm of the roofscape."



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CULTURAL

Proctor and Matthews' Cambridgeshire Heritage Centre approved



Proctor and Matthews Architects' Heritage Centre at the heart of the major Northstowe development has been granted planning by Cambridgeshire County Council. The 106.5 m² contemporary exhibition space will showcase artefacts discovered during the major archaeological excavation in the area.

The building will "consolidate" these with existing local heritage collections, said PMA, to create a new "flagship heritage centre" for the region. Designed for school visits, on-site archaeological activities, and major heritage presentations, the centre will be "influenced by local architecture and heritage, as well as the history of Northstowe and the surrounding area," said the architects. It will also "embody the core design values of Northstowe; a new town quarter built with innovative prefabrication techniques and passive environmental sustainability measures."

The design references neighbouring Northstowe House (designed by PMA as



the office for Homes England, which is overseeing the development of Northstowe, as well as "Cambridgeshire black barns"). The outer elevations will be clad in black corrugated metal, while the courtyard elevations will be lined in timber. An external loggia feature a "contemporary timber trussed facade, loosely referencing both the cross-section of the Short Stirling aircraft wing – an aircraft once stationed at RAF Oakington, and airfield hangars." It will also provide an area for school visits, while offering solar protection and climate control properties.

The Heritage Centre will feature a connected landscaped courtyard, and lofty internal spaces, housing an adaptable internal display area running the length of the building, to create a "flexible and changing" exhibition space. The building will adopt adaptive reuse strategies with the structure constructed from shipping containers using a modular construction technique, meaning it can potentially be relocated to a new location at a later date. Construction was due to begin in June and complete in Autumn 2022.





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FIT OUT

Scott Brownrigg completes Thomson Reuters' 'Newsroom of the future'



The Interiors team at Scott Brownrigg have created a 'newsroom of the future' for global news provider Thomson Reuters, which is the last of four fit-out projects by the firm at 5 Canada Square, London that it has delivered over the last seven years.

Based on the findings from a series of workshops and "engagement sessions," said the practice, the internal layout "enhances the work setting by carefully colocating various news teams to improve



communication and increase the speed of news flow."

The new state-of-the-art newsroom is predominately-open plan, with workstations orientated towards a master control room at the centre of the space. This provides the team visibility of a news story as it breaks and allows for "quick and effective sharing of information with their audiences." The editorial team can observe the entire operation from a central meeting room, bordered by spaces for



"brainstorming" sessions. The layout also supports multimedia collaboration with a variety of meeting rooms and settings that double up as 'on-floor' studio spaces, providing a more informal backdrop for interviews when required. Two broadcast studios have been designed to the "highest standards" of anti-vibration, lighting control and acoustic separation, said Scott Brownrigg, with access to a dedicated green room and makeup facilities.

APPOINTMENTS

Cardiff-based Rio supports growth with three appointments

Rio Architects has recently made several appointments following hitting "new project milestones" and business growth.

Mahdi Boughanmi joins as an architectural technologist. With a B.Arch and M.Sc from IUAV University of Venice, he brings with him expertise from his previous experience as a 3D Pointcloud surveyor, BIM technician and research assistant at University of Cardiff, where he "helped deliver the outcomes of two publications."

Also an architectural technologist, Ross O'Leary has been recruited fresh from Cardiff Metropolitan University after achieving a first class degree and receiving the CIAT Wales Outstanding Graduate Student in Architectural Technology Award.

Recently graduated from the University of the West of England, Charlotte Edwards joins as a part II architectural assistant. She has experience with complex and historic building projects and is working on the conceptual stages of several residential projects with the Rio design team.

Over the past few months, Rio Architects has achieved planning permission for developments including the



Central Quay in Cardiff, Bryncelynnog Comprehensive School and the Abergavenny 3-19 School.





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RESEARCH

Manual processes part of profits threat

Covid, Brexit and "continued reliance on manual processes" are the greatest factors affecting profitability for businesses serving the architectural sector in 2022, according to research.

The survey of suppliers by OGL Group (ranging from laser measurement to ladders to power tools) revealed that both the Covid pandemic and Brexit "have hit supply chains hard," This, exacerbated by stock management pressures, meant architectural, engineering and business wholesale firms reported "insecurity around Brexit affecting profitability" (58%), but this was now being overshadowed by Covid as the top factor at 67%.

The pandemic has led to shortages with some architecture, engineering and building sector businesses stockpiling products and parts to ensure delivery. Manual processes were "still plaguing businesses, leaving them behind the curve with regards to digital transformation," said OGL Group. Its survey found 75% citing manual processes as "a problem that can lead to potential loss of revenue, and inability to correctly assess performance and sales." OGL commented: "Entering another potentially uncertain economic period with continuing supply-chain issues – the Ukraine-Russia war, cost of living and fuel price rises – wholesalers' efforts to increase profitability are critical." The survey found that 92% of respondents agreed that automating business processes "helped their companies stay competitive," up from 70% of engineering companies pre-pandemic.

The research found with a wide spread of technologies used, there are a "disparate nature of systems that are not necessarily talking to each other to provide a full view." Over 95% of respondents from wholesale businesses were using one or more software systems.

The pandemic has "accelerated digital transformation," and 83% of respondents agreed that hosting applications and data in the cloud have improved, or would improve, efficiencies and productivity. Concerns about cloud security remain, though have reduced marginally from 55% in 2019 to 50% in 2022.

ERP (integrated software) systems were seen as a "key technology," with 92%



agreeing that they give greater visibility and control of stock. The main barriers to such solutions were cost, for 58%, followed by 50% with data security and 33% finding a reputable provider.

The survey found that the "architectural industry" was worth £6.5bn, and the UK construction sector contributed more than £110bn per annum and nearly 7% of GDP. Respondents cited "top technology priorities' for the next 12-24 months as "business performance reporting" 50%, linking ERP with eCommerce at 33%, website creation/update 33% and order management software 33%.

GRENFELL

Grenfell Inquiry hears "lack of competence" evidence

The Fire Brigades Union has described a new report to the Grenfell Tower public inquiry as "massively significant" evidence of "multiple failings" at BRE, five years after the tragedy.

The report by Professor Luke Bisby, a professor at Edinburgh University and an expert witness to the inquiry, describes alleged failures at the Building Research Establishment (BRE), and the "development of England's building regulatory environment." The BRE was responsible for testing many of the cladding, insulation and other building materials used in the refurbishment of Grenfell Tower.

The report details previous cladding fires "which can be viewed as missed opportunities to prevent Grenfell, and BRE failures around them," said the Fire Brigades Union. It also "builds up a picture of BRE only doing work within contracts, and only specific things – close to client and government demands – within those contracts."

Bisby concluded: "What emerges... is a picture of increasing freedom for industry." He also highlighted a "profound lack of competence of actors" (making reference to the BRE), and "powerful commercial and ideological objectives to increase flexibility for industry."

The union attributed many of the flaws to the "creeping, increasing influence of the private sector in the BRE in the years running up to the completion of full privatisation."

Mark Rowe, Fire Brigades Union national officer, said: "Professor Bisby's

report details multiple failings on the BRE's part in the run-up to Grenfell." He added: "We are clear that BRE was not, and is not, fit for purpose, because it is privately-owned. It is vital that it is taken back into public ownership and run for the public good, not profit."

He said that pre-Grenfell, the BRE was "too willing to please clients and too reluctant to challenge them or the information they provided." He also claimed that the BRE's private status meant "it did not share information as it should have done, and there were basic failures of competence in vital areas."

The Fire Brigades Union represents firefighters and control staff, including many of those who were involved in the response to Grenfell.



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VIEW POINT



Architect and researcher at Hawkins\Brown, Michael Riebel describes a study that found how, compared with other commercial uses, creative workspace can be a vital 'good neighbour' that adds quantifiable value to residential schemes

Like most large cities with high property prices, London has seen a rapid loss of affordable workspace for artists and makers. These spaces, however, are an essential component of London's DNA – it's an intrinsic part of its urban culture that makes it an attractive place to live, forming a vital part of the city's unique ecosystem. Without them, London would not be as successful among competing urban centres across the globe.

The Creative Land Trust (CLT) is a charity trying to tackle this problem. The CLT commissioned Hawkins\Brown, dataloft and Ramidus to quantify the value added by creative workspace to new residential developments, translating the widely acknowledged 'soft value' of creative neighbourhoods into a 'hard value' that investors and developers can accept for use in evaluating development opportunities, encouraging them to re-examine the risk-return trade-off of creative workspace provision.

The study aimed to answer two questions – firstly, is there a positive correlation between property prices and the presence of artist/creative workplaces? Secondly, could creative artist/creative workplace be a commercially viable use compared with residential units, and would it be an alternative to other non-residential uses such as light industrial or retail in developments?

The research team collected house price data in locations across London and the south east that are recognised as clusters of creative workspaces. These were analysed over different time frames to identify the level of outperformance in house price data relative to the wider market. It focused on case studies of creative clusters in London (Hackney Wick, Woolwich Dockyard and Tottenham) and the Thames Estuary (Margate, Southend, Basildon, Thurrock and Medway) and standalone schemes where creative workspace had been included in a residential development in London (Galleria in Peckham, Bow Arts in Royal Albert Docks, ASC Arthouse in Croydon and Second Floor Studios in Wembley).

As house prices are the outcome of various factors, the research was backed up with in-depth qualitative data, which included expert interviews and a short questionnaire survey to canvas views on the relationship between creative workspace and the value of residential property. Interviews were also carried out among residential developers, estate agents, creative workspace operators and local authorities.

The resulting data suggested there is a financial value to benefits that creative industries bring to residential areas, expressed in house price data. Over a 10year time frame, this amounted to a 4.4% per annum price outperformance against the wider London residential market – a total of 44% over the period.

The per annum outperformance ranged from a high of 10% per annum (London City Island) through to 2% per annum (Hackney Wick/Fish Island). The difference in residential values is comparable to the local economic effect associated with large-scale urban regeneration, green or blue spaces, popular schools, or certain grocery stores being adjacent to homes. In the Thames Estuary research clusters and case studies used, the outperformance was 3.3% per annum, 16.6 % over five years. As this area is a more emergent

Artist workspaces can and should be a component of a commercially successful residential development

market compared to London, the price development was measured over five years. This outperformance is not smooth or consistent over time or place, and there are many factors at play; nevertheless, for these clusters, there was an association between creative workspace and outperformance (in residential price terms).

Of course, within large-scale regeneration, there are other positive contributions from a range of amenities and well-recognised brands; creative workspace is only one ingredient. However, with a growing number of examples, it is clear that developers are increasingly willing to value its inclusion. Developers corroborated the view that each site had to be evaluated in its own right but that, in certain circumstances, the inclusion of creative workspace had benefits, even more so where there was a need to protect employment space.

Creative spaces bring visible benefits, bringing life and vitality to an area. Active curation, expert management, and community engagement can greatly enhance these benefits. Creative workspace is considered 'a good neighbour' for residents, compared to other commercial uses. The long-term commitment from workspace operators is attractive to investors as it impacts yield.



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In the study it appeared that clusters of artist workspaces like Hackney Wick or Margate were particularly successful in contributing to a positive price development. However, the report also highlights the long-term success of artist workspaces within a scheme, such as Galeria in Peckham or Matchmakers Wharf in Hackney/Homerton.

Other case studies, such as Bow Arts in the Royal Albert Wharf, demonstrated how providing artist workspace can kickstart a residential development in a slightly remote location at the east end of the Royal Docks by activating the ground floor, thus avoiding the typical hoarded-up retail units that often dominate new build schemes. Although this scheme did not outperform the local market, it can be seen as a success because it largely matched the property values of the western end of the Docks with closer proximity to central London.

The second component of the research sought to understand the commercial viability of artist workspace within a residential scheme. The research team conducted a risk analysis based on a

Data suggested there is a financial value to benefits that creative industries bring to residential areas, expressed in house price data

hypothetical residential project in three different locations (central London, outer London and Thames Estuary). The analysis demonstrated that creative workspace as a ground floor use in a residential development does not introduce any additional risk and can increase investment value where there is a good covenant and secure long-term income (or a long leasehold sale). Where policy intervenes, the equation, even at the outset, often tips in favour of creative workspace. For instance, where the developer is required to preserve or provide employment space, the range of alternative uses is restricted, and the case for creative workspace is greatly strengthened.

The research team concluded that a professionally managed creative workspace is often more viable and financially attractive than other commercial uses, such as retail or light industry, because it offers secure long-term income which is appealing in economically uncertain times. Professionally managed artist workspace has become a very wellorganised, well-structured business model which effectively delivers high-quality environments and workplaces.

This was probably the clearest outcome of the study: artist workspaces can and should be a component of a commercially successful residential development. The times when artist accommodation was associated with chaotic studio spaces and seen as a social and economic liability are long gone.

Michael Riebel is a researcher at Hawkins\Brown

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PRACTICE PROFILE



Michael Kendrick Architects

Michael Kendrick explains how he navigated Covid to found a practice with what would be an award-winning approach to designing high-quality, sustainable homes

Market Kendrick has a background working in relatively large design firms such as Glenn Howells Architects and Ian Simpson Architects, spending his early career primarily in Manchester and Birmingham. When he decided to go solo, he was working as a project architect on high-profile projects at Glenn Howells, including the National Memorial Arboretum, which won the West Midlands RIBA award, and the English National Ballet HQ in Tower Hamlets.

By around 2017 this upwardly mobile architect had increased his smaller-scale private design work, and won a design competition with a colleague at the practice, and the private work "took over," says Michael. Asked why he decided to form his own practice, Kendrick says that "I just wanted to get back to something a bit smaller, and explore different ways of working – new techniques and construction processes – and working more closely with clients and end users."

So on founding his practice in Learnington Spa in 2018 (following a stint in London with Paul Miller as Miller Kendrick), he continued and consolidated a growing reputation for one-off private residential commissions, letting Kendrick nourish a desire for a more hands-on relationship with his customers. He says that with his strong interest in this particular sector, he's not looking to voyage far beyond it in the short-term at least, instead to "become a specialist in that field and explore ideas, techniques and processes of sustainability."

Kendrick speaks candidly about the onus on architects in the face of our demanding zero carbon targets. Architects "have a big responsibility to design buildings which are environmentally and socially responsible, and we need to lead on that." He asserts that in the small-scale residential market there is a particular opportunity to "influence the client in a way they may not be aware of" to achieve higher levels of sustainability, "guiding them through the principles of low carbon design."

He says he doesn't believe he can yet call himself a sustainability expert, but is prioritising investing time in further developing his eco knowledge, within an overall rigorous design approach. The timber-framed house he designed in Leamington Spa which recently won a 2022 RIBA regional award (Mill Lodge House) features elements such as a heat pump, high insulation levels and MVHR, and a rain garden. Kendrick says that the win has given the practice "a big boost" as well as "exposure to a wider market."



MILL LODGE HOUSE, LEAMINGTON SPA

This sustainable home designed to fit the long-term needs of the owners' parents picked up a 2022 regional RIBA award. Photos @ Tom Bird

This was the practice's first completed project, and was the result of "very good, hands-on clients," says Michael, without being free of planning, site and timeframe challenges. Covid was more of a disruption from the client's point of view than his, as it was completed the week of the first lockdown, but they had to wait around nine months to move in.

Flexible growth

Michael says that the growth plan was "always to get a couple of jobs on the board, then look to employ staff." However when Covid hit, those plans were put on hold. He has three children with his partner, a GP who had to continue working through the pandemic. Michael took on the home schooling duties, which he



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admits "made it difficult to commit to taking on staff!" Kendrick adds that he couldn't commit to taking on too much work during that period, and needed to be "a bit more selective" than you might normally be launching a practice.

This did however mean Michael Kendrick Architects were able to select the more interesting projects, not merely as many as they could tackle – "a small portfolio of very good projects." Now through that limbo period, he says he's looking to take on "one or two" staff this year, enabling him to "push on with the workload" without spreading himself too thinly.

Michael works effectively as a sole practitioner, but contracts out packages of technical work on a job-by-job basis to professionals such as CGI artists, architectural technologists, and specification writers. All of the face-to-face client work and design per se is undertaken by him currently. He says that in the ongoing inflationary climate, clients aren't keen on him outsourcing QS work, to try and get costs nailed down, preferring to prepare tenders then see what the market will offer. He says that currently, it's "difficult to manage expectations" for clients, and contractors are "struggling to price jobs with any certainty."

As the practice's staff grows, he foresees buying a studio space, but remaining in Learnington Spa. Michael says it's a useful place to be not only because of its affluent residential customer base – despite the "very conservative" planning authority, at least when it comes to the conservation area. An additional bonus is its central location, giving the firm the opportunity to tackle projects "anywhere in the UK."

Challenges

The big challenge of moving from a large firm to being a start-up, says Michael, has been "going from managing design and delivery, to doing everything that's encompassed in running a business." The paperwork, book-keeping, contracts management and CDM requirements all need to be done, whereas "in a big practice you have a practice manager and a CDM adviser." And, he adds, "you don't have a cost consultant – the client expects you to be a one stop shop."

However, of course the flipside is the ability to choose the projects that you want to pursue, which was necessitated in his case by the Covid 'waiting game.' Being the only point of contact however means that face-to-face work with clients, despite him enjoying it, takes up a lot of Kendrick's time. Drawing work needs to be "packaged up" where possible and delegated to outside providers.

The future

In terms of upcoming projects for the architect, an "interesting" glass and timber holiday let lodge is currently underway in Fairlight near Hastings in rural East Sussex, in established woodland near an AONB. It is being featured on (George Clarke's) *Amazing Spaces*, which will provide some invaluable publicity for the nascent practice. Michael says the project has a range of ecological issues, such as a protected species of bats. To stop them being harmed he specified electrochromic glazing which turns opaque when artificial lighting activates the sensors. In addition, the house is raised off the ground using screw piles to allow animals to exist underneath.

With his background being in larger projects, including commercial and education projects, Michael is keen to explore larger schemes in the future, and he is in discussions with a developer (albeit of relatively small plots) currently. While he initially wants to establish a "solid grounding" in his familiar territory of one-off residential projects, he "doesn't want to be pigeonholed as solely a residential architect in the long-term."

Conclusion

One of Kendrick's big goals for his practice is to deliver a Passivhaus scheme. He has been meaning to embark on the journey of learning the ropes "for a couple of years," however Covid appeared during that time, putting things back, with the ability to book face-to-face training places very limited.

The extended wait-and-see period of the pandemic has been a "massive learning curve," he says, including realising that launching a practice is about "building slowly. Happily, he says the enquiries are now "flowing in." Michael now has a potential solid pipeline of "simple, well-crafted buildings," working with clients with a similar sustainability ethos, thereby fulfilling his design aims. Having had something of a hobbled early gestation following a successful start, Hendrick says he's now "keen to push forward."

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THE HILLS, ECUADOR MVRDV

MVRDV's first scheme in South America is a mixed-use project in Ecuador offering residential, retail and amenities. Located along the waterfront, the development will comprise six mixed-use towers ranging from 99 metres to 117 metres, rising in height as they ascend from the riverfront. In addition to providing modern residences, the scheme will feature a yoga studio, spa, and an ice-skating rink. The exterior of the complex complements the existing contemporary architecture found within Santa Ana Port. Defined by its curved exterior and integrated greenery, the base of the residential towers "merges to form a terraced green valley" containing further amenities for residents and visitors, from sports fields to a large urban amphitheatre. The staggered terraces and vegetation planted throughout helps to regulate the temperature of the public spaces, reducing the amount of energy needed to cool the buildings.

The Hills is thought to be the first real estate project in Ecuador to be supplied with PV energy. Generating an environmental benefit for the city and for the residents of the project, the scheme "will use 100% of energy from this route to power the communal areas and residences." Rainwater will be stored for irrigation use, and LED lighting and heat pumps will reduce the overall CO_{2} footprint.





INSTITUT LÉONARD DE VINCI, PARIS Lan

The ambition for this higher education building was to bring together "very heterogeneous and sometimes contradictory fragments of Paris," said the project architects LAN. The building "extends the overall development of the Croissant," which was undertaken in 2015 by Paris La Défense.

Designed as part of the first phase of the district's urban renewal, the faculty building is curved to follow the D914 main road and has "immediate proximity" to several public transport stations. The architects added: "This highly saturated context led us to think about an object that could, through precise architectural elements, resonate with all these scales."

The design was conceived "not to express its vocation and programme, but through its language and the repetition of windows, build a dialogue with the city." Thanks to its large openings in the facade, it also "forges its own identity," said LAN. The large, double-height windows of the agoras are "signs intended to be read from afar." Their transparency "opens up the school's common spaces to the outside world and lets passers-by see the school's life," they added. Oriented towards La Défense, these openings give a direct view of the nearby park.



NEW CITY CULTURE AND ART CENTRE, CHINA ZHA

Zaha Hadid Associates has been announced as winner of the competition to design the New City Culture and Art Centre, located within the Jinghe Bay "academician" science and technology innovation district of Xi'an. The centre's design "intertwines with the city's existing urban masterplan" to connect the new multimedia library to the north of Jinghe Avenue with the new performing arts theatre, multi-function halls, studios and exhibition galleries to the south, via elevated courtyards, gardens and paths that span the avenue's eight lanes of traffic below. Solar radiation analysis and "responsive site planning" optimise the centre's use of natural ventilation and daylight in the mild, temperate climate of Jinghe New City, said the architects. Incorporating photovoltaic panels for onsite power generation together with rainwater collection, the centre's construction will prioritise locallyproduced materials with a high recycled content, towards the project's aim of 3-star certification in China's Green Building programme.

OCT HEADQUARTERS BUILDING, CHINA ROCCO DESIGN ARCHITECTS

Architects RDA have released their design for the second headquarters building for OCT, one of China's largest real estate and tourism companies. The project is located in Kunming, the capital of Yunnan Province. The architects said that sustainability and "ecological integrations" are core design principles which have been demonstrated, with a vertical garden neighbourhood that "interweaves different uses into a lushly planted hub of activity for the district." Two towers flank a central void that brings natural ventilation through the entire complex. Floating public spaces cantilevered off the towers offer amenities for residents, guests and office workers, including a "soaring" triple-height, fully glazed exhibition hall, plus a social club, conference centres, and hanging outdoor gardens. The towers give the complex its distinctive H-shaped silhouette.

DOCK A, ZURICH AIRPORT, SWITZERLAND BIG/HOK/10:8 ARCHITECTS

The winning proposal for the largest 'dock' at Zurich airport is to be composed predominantly of solid, locally-sourced timber. The new Dock A and adjacent buildings were designed by BIG, HOK, 10:8 architects, engineer Buro Happold, timber experts Pirmin Jung and aviation consultant NACO. Expected to open in a decade, Dock A will include Schengen and Non-Schengen gates, airside retail, lounges, offices, a new air traffic control tower, and an extension of the immigration hall. The 'Raumfachwerk' proposal "was the most convincing from a sustainable, operational, and economic point of view, but also from an urban planning and architectural point of view" said Andreas Schmid, chairman of the board of directors of airport managers Flughafen Zürich AG. The long sculptural body of the roof is entirely clad in "solar shingles," providing power for the building.





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BUILDING

ORIGAMI STUDIO ISLE OF MULL

Taking in the island scenery

Architect Jane Burnside took on an unusually wide range of project roles to create her tranquil, contemporary home and workplace on the Isle of Mull, inspired by origami. Nik Hunter reports

Introducing a contemporary building into a traditional landscape such as on the Isle of Mull takes enormous amounts of respect, skill and forward planning. Fortunately, award-winning architect Jane Burnside has the experience required.

Running her own practice, Jane has nearly 30 years' experience under her belt, and has designed many contemporary homes. However, when she decided to not only design but also project manage, and act as foreman and interior designer for her own self build, she realised she needed an entirely new skill set.

Jane splits her time between her practice HQ in Ballymena in her native Northern Ireland, and her new home on Mull in which she shares with her architect husband, David Page. As well as being a co-founder of Page\Park Architects in Glasgow, he's also an artist.

A keen sailor from childhood, Jane's sailing trips up the west coast of Scotland instilled a love of the island. In 2014,





An important feature was a large masonry gable facing onto the street, followed by two glass gables stepping back from it when the couple came across a two-storey, stone house for sale in the conservation area of Tobermory, they jumped at the chance to do their first project on Mull.

The property had already seen some renovation, as Jane recalls: "It had been split into two flats in the fifties, but the previous owners had managed to purchase both and restored it back to one property." The previous owner was a haulier and had built an enormous, two-storey steel shed in the back yard which presented Jane with further potential for redevelopment.

For five years, The Art House (as they named the old stone building), was the couple's much-loved home, but in 2019 they turned it into a holiday let and moved into their new home after managing to realise the shed site's full potential.

Aware that councils are usually keen to prioritise development on brownfield sites, Jane had always hoped that eventually she and David would be able to develop the old, two-storey steel haulage shed at the back. "We had a good idea that we'd be allowed something, we just didn't know what, because we were in the conservation area – that was a real challenge."

Having written a book about how to design contemporary houses in both

landscape and conservation settings in 2013, 'Contemporary Design Secrets,' Jane followed her own advice when applying for planning permission to build the Origami Studio – a bold, contemporary, two storey home.

Persuading planners

She says that her book came in handy to help assuage the concerns of planning officers: "When you apply for permission in a conservation area, it's not only the size and scale of the proposal, but also, what's the design concept that will make it blend into the historic fabric." Jane used her book as a reference: "I could point to the houses I had built, and demonstrate the level of detail I apply." She continues: "It's one thing drawing a sketch for a planning application; it's another demonstrating to the planners that you can deliver it. My book helped give the planners confidence."

In terms of detail, she not only means materials that are locally sourced, but items like the mortared verges and heavy aluminium gutters would all be in keeping with existing properties in the area. "It's these little details that tie a building into its historic setting even when the overall design is contemporary in nature."



An important feature in her concept design was a large masonry gable facing onto the street, followed by two largely glazed gables stepping back from it. This solid form mirrors the historic Art House alongside it, and cleverly conceals from view its two glazed counterparts. Concentrating the glazing here allowed Jane to create the solidity where it mattered, and also tied into the vernacular.

"Tobermory has many buildings with big stone gables and tall chimneys. The Art House has them, and we wanted to reflect that in Origami Studio." Another obvious solution to help the building blend in was to retain the walls of the old shed as a boundary wall. "We cut the walls into a stepped shape that broke down the mass of the existing walls." This eliminated the issue of any overlooking, and afforded the neighbours their privacy. "The view from the street is very respectful; it's only when you go past the solid gable that you see the glazed walls."

Interiors

Internally, Jane's aim was to create a layout that delivered what she and David required now, plus what they might also want 10 years in the future. Her solution was to put two guest bedrooms, her work studio and David's art studio on the ground floor. Making David's studio a 'communal' space that feeds into Jane's studio and the two other bedrooms, offers the flexibility to turn her studio into an additional bedroom when required. "I like working with open plan design, as you can cut down on circulation space," she says. "There are no corridors here, and no wasted space."

Upstairs, Jane's aim was to create a space akin to a large apartment which incorporates the main bedroom, an open plan living/dining/kitchen space and an outdoor balcony which all take in the view over the bay. "It's simple – the roofscape defines the three spaces underneath so there's a natural breaking up of the open plan into its different uses."

At first glance the property presents an abundance of space and light, but this belies the fact that for Jane it was the most restrictive site she's ever worked on. "Building between The Art House and the boundary walls of the old shed meant that every millimetre counted, and that was a challenge because I knew exactly what I wanted to fit in."



"It's these little details that tie a building into its historic setting even when the overall design is contemporary in nature"

For Jane this meant that even at the sketch design stage, she was phoning scaffolding companies to check the sizes of scaffolding planks and stanchions to ensure they would fit onto the site. "As an architect this isn't something you would normally do, but I needed the hard facts so I knew exactly what I had to work with."

Following plans being submitted, permission was granted within six weeks. Jane then began the construction drawings for Building Control and additionally began her project manager role, sourcing materials, preparing quantities and obtaining costings.

Mass appeal

To offset the amount of glazing and associated overheating in the building, Jane opted for heavyweight construction with double-skin blockwork walls instead of a timber frame. The glazed gables all face east towards the bay, and as a result, "we don't have too much glazing facing south," she says. In the dining area there are rooflights, but no wall apertures facing south; in the living space there's a large south-facing glass wall, but a solid roof holding solar PVs.

With a heavy thermal mass in the concrete floors and walls, the high peaks and troughs of internal overheating and cooling are eliminated, instead the mass absorbs the excess heat during the day and releases it at night. She explains her ethos: "Timber frame buildings are classified as 'lively,' because they are very responsive to heat, and temperatures will spike; I find that very uncomfortable." Jane continues: "I like the permanency of traditional masonry construction, which is particularly suited to wet climates in Scotland and Northern Ireland."

Jane's choice was an 80 mm steel frame hidden within the double-skin blockwork walls, and designed on a CNC machine. Jane says: "It's like a Meccano set; digital perfection. A very slim steel frame sets out the whole building." Jane was able to erect this frame off the existing concrete slab of the steel shed. This meant no new foundations were required, just a few adjustments in the steel frame to ensure that each leg of the steel was slightly longer to account for the slope on the slab.



In actual building time, the project took six months but in 'real time,' 10 months. Working with a small team of tradesmen, Jane took on a further role – site foreman. The build was carried out in three twomonth stints. "The team would leave the island for two months and then back for another two and so on."

For Jane it was the ideal solution, as it gave her time to plan the work, order materials and to keep her architect's business going. "It also worked with drying out time. I'm an architect – I don't usually worry about ordering materials or have to deal with shortages and delays – that's usually someone else's problem but in this instance, it was mine!"

Fortunately, there was only one real hold up. "We needed a specific weight of Spanish slate, and a particular setting out for the nail holes, as we're in an area with high winds. They had to be specially ordered and took forever to come."

The building also had to stand up to occasionally horizontal rain (when combined with 60 mph winds). After some research, Jane came across Illbruck tape which she likens to a strip of wetsuit material glued onto the window frame and masonry walls. "We've been here two years, and no leaks."

Other problems that were posed by building on an island included things that Jane completely took for granted on the mainland, and she had to resort to manual labour. "Bringing a crane on to the island for a day to lift precast slabs would have been prohibitively expensive, and there was no concrete pump on the island either for the screed." The solution was concrete T-beams and blocks for the first floor which had to be lifted by hand, and the screeds were mixed on site, lifted in buckets on a homemade pulley system and levelled by hand. This was a vital part of the construction, as the heavyweight floors were important "not only for thermal mass and sound proofing between floors, but their weight loaded onto the steel frame made the whole structure stronger."

When the dirty work was finally complete, Jane's transformation into an interior designer began. In the kitchen she chose a concrete effect for the doors to the



"I don't usually worry about ordering materials or shortages and delays – that's someone else's problem!"

PROJECT FACTFILE

Architect: Jane Burnside Architects Steel Frame: Smyth Steel Windows: Bann Architectural Slating Contractor: McCallum Roofing Oban Blown Insulation: Energy Store Haulage: John MacDonald, Dortech Direct Kitchen and Bathrooms: Ballycastle Homecare Sliding Doors: Elite Doors Electrician: Westech Plumber: Coast Plumbing Stair Handrail: Rope & Splice Flooring: Havwoods UK island which she contrasted with black composite work surfaces. The concrete finish also complements the backdrop to the wood burning stove, a feature Jane designed with her builders. She took leftover flooring back to Northern Ireland and had it sandblasted to expose the grain; it was then made into shuttering and backfilled with concrete.

Adjacent to the open plan living/ kitchen/dining space is the couple's master bedroom, which isn't as large as you might expect; quite deliberately. "When we were sailing, I was used to sleeping in very compact little timber clad cabins with everything stowed away. I wanted to recreate my memory of that." The timber flooring continues up the wall to create a headboard and a small window has been created in the solid gable overlooking the church. A small wood burner adds extra comfort in the winter.

The bedroom is accessed by a large sliding door, an idea that first surfaced in their previous house. The door leaves are made from two pieces of MDF sandwiched together and fitted with a sliding mechanism which Jane sourced from Hafele Sliding Gear. Another nod to life on the waves is the rope handrail on the staircase, which Jane had designed by Rope & Splice.

Throughout this project, Jane has had her eye on every single detail, but how does she feel now about the experience of moving from architect to project manager to site foreman? "It was a big undertaking. You have the total responsibility for absolutely everything in the chain, from ordering the materials to getting things built correctly." She adds: "I now appreciate when a contractor says to me there's been a delay on something, it can be down to various things; poor ordering, poor chasing, the weather, a transportation failure, or the order's wrong when it arrives. You see everything more in the round, and you also realise how much you don't know."

In the words of one of her builders, there 'may be a lot of building' in Jane's home, but she and David have turned a brownfield space in a conservation area into a place that they love, and one which genuinely complements its surroundings. Feedback from the community has been positive, and Jane also hopes that it's paved the way for more self-builders to experiment, and "ask for more from their architects and builders.

She says it's an instructive process for any architect: "Building your own house is an apprenticeship in all aspects of building, and I would recommend every architect to do it at some point, and the earlier in their career the better." She's now completed four such homes, but admits that Origami Studio has been the hardest, because of the extra roles she took on. She concludes: "I imagine it's a bit like skydiving – thrilling at the time, but I'll not be doing it again!"

Multi-functional space created for London Mission



Chinmaya Mission exists to provide individuals with the wisdom and practical means for personal growth and development, enabling them to become positive contributors to society. At Chinmaya Kirti, their home in London, a major renovation project was designed as a vision for future generations, rather than just an improved building. Working with architects, KJC, and contractor, Home Republic, **Style** was specified to be part of that vision, installing moveable walls to enable one large space in the classroom/bookshop area to be easily converted into six multifunctional rooms based on daily requirements. A combination of multiple Dorma Hüppe Variflex Glass and Variflex solid semi-automatic moveable walls were agreed as the best solution, with the glass moveable walls providing a 52dB acoustic barrier and the solid wall 55dB. With a standard anodised aluminium frame finish to the glass walls, and a melamine finish to the solid walls, the final installation provided a light and calm feel to the room design. "This is a great example of how using a combination of glass and solid moveable walls can transform how space is used" said Michael Porter, sales director for Style South.

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Cathedral visitor centre easily accessed via TORMAX entrance



Creating a welcoming entrance to the new Lincoln Cathedral visitor centre, **TORMAX** has installed a set of twoleaf automatic swing doors, powered by invisible iMotion 1401 underfloor operators. Set into a striking dark grey facade developed by AccentHansen, the automatic entrance is understated yet contemporary, providing the perfect complement to the Cathedral cloisters on one side and the Deanery on the other. Designed in-house at the TORMAX HQ in Switzerland, the iMotion 1401 door operators are concealed in steel casings set within the floorspace, delivering automation without the need for external operators. Invisible automation such as this is only possible thanks to the innovative iMotion motor which features none of the parts that usually wear out, such as gears and brushes, ensuring minimal maintenance and enhanced efficiency in the long term. Demonstrating a commitment to detail, TORMAX was able to deliver an automatic entrance that provides clear access for all users, whilst avoiding the addition of aesthetically incongruous, modern door operators. "Our iMotion 1401 door drives have been installed successfully in period properties worldwide," comments Simon Roberts, MD for TORMAX.

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Gilberts protects environmental retrofit

In the drive towards reducing carbon emissions, Cambridgeshire County Council is leading by example. It is actively working towards becoming net zero, as a result of diverse measures including a $\pounds 16m$ Environmental Fund to convert all Council buildings to fossil-free heating by 2025. One of the latest buildings to benefit from the Renewable Energy Retrofit scheme is Scott House in Huntingdon, where an air heat source pump has been installed to service the three-storey Council office block. To ensure the pump works at optimum efficiency without disturbing the office occupants or passers-by, leading independent air movement specialist **Gilberts** has designed and supplied a protective acoustic screen around the installation. Measuring 8.5 m x 5.7 m x 3.5 m, the screening effectively creates a box around the pump. The ALS30 single bank screen louvres provide fresh air to prevent over-heating, delivering 34% actual (50% visual) free ventilation area through the screen to the pump behind.

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Vent-Axia welcomes new report



Vent-Axia has welcomed a report on infection resilient environments, by the National Engineering Policy Centre, which calls for a major upgrade of buildings to create healthier indoor environments. The report 'Infection Resilient Environments: Time for a Major Upgrade' reveals that infection control measures could save up to £23 billion a

year if there is another pandemic. Vent-Axia's Lo-Carbon T-Series fans can provide background or purge ventilation and are easily fitted to an existing window or through a wall, again these can be controlled by a range of sensors to manage the rooms ventilation requirements.

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BAO'AN CULTURAL DISTRICT PERFORMING ARTS CENTRE SHENZHEN, CHINA

Natural harmony

In a new district of Shenzhen, a project to create a performing arts centre saw Rocco Design Architects use the coastal landscape as inspiration for a striking form in harmony with its context. Roseanne Field reports



The Bao'an Cultural District sits at the heart of the newly-developed coastal area of Bao'an, a district within Shenzhen province in south east China. The 110,000 m² complex was designed carefully to support three separate functions: a library, completed in 2013; the 'Youth Palace' (an arts and culture centre), completed in 2018; and finally the performing arts centre itself, opened in 2021.

Hong Kong-based Rocco Design Architects (RDA) worked on the site masterplan within which the three buildings were aligned along a central axis running from the city to the Zhujang River estuary – respectively the library, Youth Palace, and performing arts centre, the latter nearest the coastline. "The performing arts centre sits at a strategic location in Bao'an, serving as an anchoring piece of the cultural axis," says Rocco Yim, principal at RDA. "It serves as a vital part of the cultural spine holding the urban fabric and community together," he told *ADF*.

RDA won an international competition back in 2007 to design the masterplan for the whole complex. Their overall vision was for it to "mediate between the coastal landscape and the more densely developed commercial areas further inland."

SUPER FLY

The performance venue's fly tower (left of pic) has been used as a focal point for the large scheme Photography © Zhang Chao Studio



The form "subtly manifests the fluidity and erosion of rock through the curvilinear facade"



The buildings' design began as a simple rectangle, with each then morphing into its own unique shape, with a series of public plazas and walkways connecting the three buildings. The aim was that each of the buildings would have its own identity, while retaining similarities that tie the complex together as a whole.

The library's facade tilts up and outwards, where the Youth Palace is split and curved around a central courtyard that opens out. The performing arts centre has a wave-like facade, referencing both the estuary it sits alongside, and the two theatres it houses, and also giving the impression of "fluttering like stage curtains," say the architects. The centre is the complex's flagship building, serving as "the intersection of the cultural axis and the landscape park, connecting with the natural landscape," Yim explains, as specified in the brief provided by the client developer, OCT (Overseas Chinese Towns Holding Company).

A sense of cohesion

Achieving cohesiveness across the three buildings was of key importance, and proved to be one of the project's biggest challenges. While the practice has plenty of experience with large-scale cultural and institutional projects, Yim says the "unique challenge" here "lay in expressing the uniqueness of each individual cultural institution via a holistic and coherent architectural language."

Geological aspects of the waterside location, and Chinese landscape more generally, provided literal cues for the architects and helped to unite the overall scheme. "The core of the design is a metaphorical translation of the erosion process of rock in a stream," Yim says. Each building features different architectural features embodying this, while sharing the same base rectangular form. "The architecture was conceived as a coherent ensemble of pieces in the overall masterplan, tying back to the rich coastal history and metaphorical play between water and rock."

The monolithic nature of the buildings' rectangular base provides a contrast with the overall more 'natural' design feel of these elements, as Yim explains: "The juxtaposition of different formal languages echoes with the complexity and organic character of the natural environment."

Part of the reason for the monolithic design was to give the complex the prominence the client wished to achieve for the project. "The architecture itself needs to project a monumentality befitting its cultural status," Yim says. "But when people get closer, they will discover different parts, including the entrance courtyard, terraces and link bridges that are designed to be human-scaled and friendly."



The library's rectangular form is bisected by a central courtyard, which also has a functional benefit. Yim explains: "The central slit becomes a demarcation for the east and west wings, each accommodating different functions."

The Youth Palace and cultural centre are divided by a larger central courtyard, with each half of the building curving around it. "It simulates a continuous tear through the centre and divides into two masses aligned along the north-south axis," says Yim. "It's designed to be formally and visually integrated, although they are separate functions."

The performing arts centre has a more "streamlined" design approach, says Kim. It features a wave-like shape at its base, before rising up at the southern end, facing the coast. Appropriately, with it being the overall scheme's flagship, the building form "terminates as a cliff extending upwards to summarise the whole design concept," says Yim. He adds that the form "evolves from the architectural language of the other two buildings, subtly manifesting the fluidity and erosion of rock through the curvilinear facade," while also perhaps providing a correlation with musical performance. "It serves as the visual and programmatic climax of the ensemble, physically and metaphorically soaring to meet the adjacent Qianhai Bay."

Local inspiration

Connection with the local landscape formed the core of the brief. "The project envisioned the coalition of Chinese landscape and the local urban character," explains Yim. Chinese landscaped gardens, with their use of water and rock, and their "miniature expression of natural landscape" were an inspiration for the architects.

The site is slender, sandwiched between a commercial area to the west and a natural lagoon to the east. These two contrasting locations proved an inspiration for the designers, who made the complex a "transition between urbanity and nature," Yim says. They wanted the buildings to sit harmoniously with not only each other, but also the modern city high-rises on one side and the protected green belt on the other. As a result, "The design strives for simplicity in architectural form and unpretentiousness in scale."

The lagoon is a focal point of the cultural district as a whole. "It visually opens the city towards the waterfront," says Yim. The buildings are aligned down the length of the site, connected via a landscaped deck. This importantly "enhances the connection between the buildings, the relationship between the site and adjacent landscape, and ensures continuity of the development."

The performing arts centre has a more "streamlined" design approach, says Kim. It features a wave-like shape at its base, before rising up at the southern end, facing the coast





Designing a complex inspired by its surroundings was key to how the scheme enhances the Bao'an district as a whole. "The integration between architecture and landscape becomes a statement of how the Bao'an Cultural District development responds to its greater ecological environment," Yim explains. "The design of the performing arts centre serves to enliven the external environment of the whole district."

Facades & fly tower

The buildings were all designed with openings in facades, "unwrapped skins," to further enhance the connection between them and their surroundings. "They maintain an organic and sleek design, while engaging the external landscape with the interior environment." This also helps softens the "harshness" of the cityscape adjacent to the complex and helps unite the commercial, cultural and ecological elements across the project.

The performing arts centre has a double facade system. The outer part is formed of white aluminium perforated panels, towards the "monolithic, unified look." Again, this was designed in part to represent the way water erodes rock. "All panels are laid on rows of varying width running diagonally to add an extra layer of fluidity and also respond to the programme, by controlling the natural light being drawn into the space." The inner facade material varies, compromising a mixture of window wall system, louvres and solid walls. As well as drawing inspiration from the rock erosion process, the perforated facade concept was also inspired by traditional Chinese building screens and shadow walls, and pays homage to ancient Chinese crafts, such as wood and ivory carving. It produces "dramatic visual effects recalling light shimmering on the bay", says the practice.

It was a fundamendal client requirement that the performing arts centre would be suitable for hosting prestigious, internationally-renowned performing companies. It was therefore essential to include a fly tower – a substantial, tall space rising above the performance stage that houses a system of pulleys and rigs, allowing crew to quickly and discreetly move elements such as scenery, equipment, lights etc, on and off stage.

It has been used to create a striking visual focal point, tilting away from the main part of the building at 15 degrees. Sky bridges connect it to the main building, which offer views out over the bay. "It gives a unique character to the mass of the centre, differentiating it from the other buildings in the complex," explains Yim. From the base of the tower, a wave-like volume slopes down and opens out to accommodate a restaurant, further connecting the centre to the external plaza.

Internal programme

The architects wanted the "dynamic architectural language" of the exterior, and the "analogy of rock erosion and


manifestation in Chinese traditions" in the other two buildings' design to continue within the internal programme of the centre. Various points and features throughout the building emulate this language – in particular Yim highlights the triple-height lobby area. "The juxtaposition of the auditorium and multi-purpose theatre wrapped by a screen made of wooden fins and golden brown metal mesh forms an imagery of two anchoring rocks in a stream," he says.

The lobby was designed to be tripleheight in order to continue the flow between the exterior spaces and interior, creating a "stronger visual connection," says Yim. "Having abundant headroom, it allows a larger feature screen celebrating the fluidity of the architectural language that runs across the whole scheme."

The lobby area also features a large curving staircase, and natural light filtering through the perforated facade which "creates a lively play of shadow across the space." Alongside the 1,500-seat main performance hall is an additional 600-seat theatre and rehearsal spaces. This was designed with flexibility in mind to accommodate experimental products – the seating is retractable and along with the stage can be rearranged to accommodate catwalks, a four-sided stage, and interactive experiences, as well as conventional set ups.

The main auditorium, on the other hand, was designed strictly for conventional performances. "It followed a very stringent acoustic requirements for hosting international standard performing companies – the design was centred at facilitating the acoustic performance of the space," says Yim. Although less flexible than the additional theatre space, the stage does comprise six double-layered lifts that can be raised and lowered within a 10 metre range. The orchestra pit can also be raised to the height of the stage, extending the performance space.

One of the biggest technical challenges for the project designers was creating an auditorium with appropriate acoustics while still manifesting the design concept of the architects. Yim explains: "We had to design a random pattern on a surface of specified geometry designed by the acoustic consultant customised to the seating layout and stage." To continue the complex's theme into the auditorium, they created a random water droplet pattern on GRC panels, which proved to be a cost-effective solution. "It not only functionally engineers the acoustic requirement, but also vividly echoes the overall design concept," Yim says.

The performing arts centre was opened in September 2021, with a performance by the China National Opera House. While the smaller theatre will facilitate more unusual and experimental performances, the main auditorium will play host to a range of international productions including opera, ballet, and classical music. Achieving cohesiveness across the three buildings was of key importance, and proved to be one of the project's biggest challenges



Magply gains coveted BBA Certification



Magply magnesium oxysulfate (MOS) boards have recently undergone a stringent testing programme by the British Board of Agrément (BBA), which helps clients validate their processes and mitigate risk offering greater confidence for specifiers of the products tested. After a painstaking two year process, Magply's faith in the multipurpose panel was justified by the BBA's issue of a much-coveted Agrément certificate no. 22/6050. Stages involved the BBA carrying out a full audit of Magply's existing testing regime – along with undergoing a number of the authority's own rigorous trials. These included a six-month evaluation of the board for leeching, which thanks to the material's inherent stability resulted in a zero score. The certification – now published – comes in two parts: the first covering the board as a sheathing solution, the other when Magply is used in rainscreen cladding with a render finish. These in turn cover considerations such as Magply's compliance with Building Regulations, independently verified technical specification, regular surveillance of the production process and verifying installation guidance. Behaviour in relation to fire, moisture resistance and durability were also assessed.

01621 776252 www.magply.co.uk

Jackon UK strengthens its business development resource



JACKON UK is pleased to announce the appointment of Richard Douglas as the company's second Business Development Manager within its Building Systems Division. Working alongside Glenn Kiely, JACKON UK's first BDM in the Building Systems Division, Richard will be responsible for developing JACKON's relations with contractors, developers and architects. He has broad experience of the construction industry stretching back 20 years, and spent 13 years working for a company specialising in damp-proofing remedial work. During this time Richard obtained a CSSW qualification (Certified Surveyor in Structural Waterproofing) and also developed an appreciation of ICF (Insulating Concrete Formwork). At JACKON UK his responsibilities include developing market opportunities for THERMOMUR® ICF expanded polystyrene (EPS), which is used for constructing insulated floor slabs. "I look forward to meeting customers old and new in the coming months, either on-site or at one of the trade shows in which JACKON will be participating" he says.

01204 221 089 www.jackon.co.uk

TTA honours award winners



TTA has held a highly successful annual Awards night, at which the winners in 17 categories were honoured. The Awards proved to be a great opportunity for the whole industry to get together once again – to network, to celebrate and of course to pay tribute to this year's winners. The evening was hosted by Dominic Holland, who carried off the role efficiently and with considerable sardonic wit. The record number of 15 Gold sponsors received major exposure during the evening. They were: Amber Underfloor Heating, Banks & Lloyd, Genesis Global Systems, JACKOBOARD[®], Mapei, N&C, Palace Chemicals, PCS, Shackerley (Holdings) Group Ltd., STS, Topps Tiles, UltraTile, Verona, Warmup and Weber.

TTA also unveiled a new logo at the Awards – part of a complete rebranding exercise, which will refresh and rejuvenate TTA's brand, bringing it into the digital age. Meanwhile The Tiling Show, held earlier in the day and sponsored by Lithofin UK, was very busy, with 35 exhibitors and an impressive number of visitors.

www.ttaawards.com www.tiles.org.uk

RAK Ceramics to unveil new Design Hub



RAK Ceramics announced the opening of its first global Design Hub in London. Located at 100 St John Street, in the heart of London's design quarter for designers, architects and developers, the RAK Ceramics Design Hub is one of the largest in the area, with 7,276 ft² over two floors. The space allows

visitors to explore limitless design possibilities for their projects and showcases a wide range of RAK Ceramics bathroom ranges, kitchen taps, and brassware. The location also offers meeting facilities and a dedicated area showing the brand's extensive range of tiles.

01730 237 850 www.rakceramics.com

Saniflo strengthens the sales team



Saniflo is delighted to announce the appointment of two new members of the commercial sales team. Matt Watson joined as national sales manager in March 2022 with a remit to develop sales of commercial pumps and lifting stations. He joined the company after 12 years at Honeywell. Joining him

in the commercial team is Trevor Davies, technical sales engineer who started his new role in January. Prior to joining Saniflo Trevor worked in the pump hire market where he had a dual sales and technical role, dealing with construction, utility and industrial companies.

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Sustainability strengths

Nobody doubts the strength of steel as a construction material, but its qualities in the field of sustainability may be less immediately obvious, says Russell Ager from Crittall Windows

T's steel's strength that makes the key contribution to steel's credentials as a sustainable, environmentally sound and cost-effective choice. Quite simply, it can be recycled or re-used without deterioration of its fundamental properties. This translates into high value over the product's long life.

Steel components have been recovered for many years and the process for recycling is therefore highly developed. Current rates of recovery from demolition sites in Great Britain are 99% for structural steel and 94% for all types of steel construction. These percentages leave other types of building material in their wake.

Currently some 86% of the steel gathered as scrap is returned to the furnace while 13% is dismantled for direct re-use. This leaves just 1% that is lost to rust or landfill.

On a worldwide basis some 40% of all steel produced is based on the use of recycled scrap, that's 500 million tonnes per year or the equivalent of 180 Eiffel Towers per day. For the UK market, that could be translated into 25 Forth Rail Bridges!

Of course, sustainability is more than just re-use and recycling – other important considerations include the environmental cost of manufacture. Produced using iron, the most abundant element on the planet, steel manufacturing's impact is calculated by the World Steel Association using what is called the 'system expansion' method of life cycle assessment. This sees steel as part of a global system of supply and demand and takes account of co-products used in the manufacturing processes that save energy or reduce emissions. One example is waste gases being re-used to generate electricity for the process.

The full life calculation, which also takes account of steel's high strength-to-weight ratio (meaning less achieves more) means that overall CO_2 emissions associated with a steel building – from component manufacture through its life in use – will be lower than for other materials.

Beyond mathematics, the nature of steel and its construction also augments its sustainability tally. All of its fabrication,



testing and certification takes place in a controlled and monitored factory environment. This approach means adherence to consistently high standards and quality, leading to safer and more predictable outcomes onsite. Construction processes can therefore be more efficient, not to mention more cost-effective.

A key element in the use of steel as a building material is galvanising providing protection against corrosion. In this process the steel is coated with zinc to prevent it from rusting. The cleaned steel is dipped into molten zinc at around 450°C and a series of zinc-iron alloy layers are built up by a metallurgical reaction between the iron and zinc, creating a strong bond between steel and the coating.

The galvanising process is energy efficient taken as part of a whole life cycle which is the only meaningful way of calculating the impact on such a long-lasting material. Steel components have been recovered for many years, and the process for recycling is therefore highly developed



It prolongs the life of an already long-life product, and it does not affect recyclability or re-use. Galvanised steel can be thrown into the scrap furnace and steel can easily be re-galvanised. One particular building element that emphasises the sustainability plusses of steel material is the window frame. Manufactured under controlled conditions to reap the benefits already enumerated for steel as a material, Crittall Windows operates within the constraints of ISO 14001:2004; the international environmental management standard that sets targets for solids, liquids, gaseous emissions and waste generation.

But the finished product itself, which is galvanised for enhanced longevity, offers other benefits because of the nature of the material. Because of their inherent strength, steel windows have much thinner frames than is possible with other window materials. This lets in more daylight thus reducing the use of artificial lighting in the buildings in which they are installed. Taken over the elevations of a large commercial building this could lead to impressive savings in both energy usage and cost.

Supreme strength and matchless elegance are unusual partners, but they sit side by side in the world's most recyclable building material. And who said sustainability and good looks could not go hand in hand?

Russell Ager is managing director of Crittall Windows





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The challenge of natural ventilation in urban areas

John McComb from Reynaers Aluminium examines the challenges of naturally ventilating properties in high density urban areas, and how a collaboration on a new window design could offer a viable solution

The population of cities globally is continuing to grow, with the UN predicting that almost 70% of us will be living in urban areas by 2050. This means that more and more people are living and working in high density areas, making our homes in large residential blocks, or commuting to high rise offices.

Clearly, city living offers many big advantages. But there are also challenges, not least in how we keep our expanding city populations comfortable in their homes and workplaces while minimising the environmental impact.

One issue that encapsulates this is overheating, where the temperature of a building regularly exceeds what would be classed as comfortable. There are multiple interrelated reasons for this increasing trend. On a simple level, larger buildings mean more heat is being generated through work equipment or keeping homes and leisure spaces warm. Some of this heat passes into other parts of the building, with the temperature rising the higher up you go.

In tandem is an unintended consequence of our drive to reduce greenhouse gas emissions (GHG). In the UK, for example, around 40% of total GHG emissions are understood to come from the built environment. This has led to the design of buildings being more airtight, preventing heat loss and therefore reducing energy, such as gas, needed for heating.

However, this also means that as buildings overheat, they now lack the natural ventilation that historically would have helped to keep them cool. Occupants are left with two options – either use an air conditioning system, or open a window. While air conditioning systems are effective, they of course require energy to run – meaning that an increasing reliance on them will negate many of the positive effects achieved through better thermal efficiency.



Where windows are able to open, this clearly does not require energy usage, but does open a different dimension in building comfort – noise. In busy cities that 'never sleep', noise from traffic and other sources can be present around the clock, with window systems designed to mitigate this – provided they are closed.

In short, occupants struggling with overheating are caught between a rock and a hard place – either increase their carbon footprint and energy bills or face a noisy night's sleep or day's work.

What's more, with the appearance of Covid there has been greater focus on the importance of natural ventilation in helping to keep shared spaces healthy with Occupants struggling with overheating are caught between a rock and a hard place – either increase their carbon footprint and energy bills or face a noisy night's sleep or day's work



a regular flow of fresh air. This has meant more occupants are now experiencing the distractions and disruptions of a noisy workplace in order to maintain a good level of ventilation.

Collaboration

We felt there must be a better way around the problem of achieving the thermal efficiencies we need in order to reduce GHG emissions, while allowing occupants to manage natural ventilation for both comfort and health. This led to a collaboration between Reynaers and Arup that involved experts from a range of related fields such as building envelopes, materials, sustainability, building physics, acoustics, and building services coming together to discuss the challenges.

A result of our collaboration was a window range which has been designed to provide superior air flow and cooling in comparison with conventional window systems, while attenuating sound to minimise noise. In addition, the range has been developed to eliminate the need for mechanical ventilation systems.

John McComb is technical services director at Reynaers Aluminium



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Andy Howland, sales & marketing director of GEZE UK, said: "The TS 5000 ECline is one of our most flexible closers and can be installed anywhere where the convenience of passing through a door easily is required and perfect for ensuring access for all. Add in that it is suitable for smoke and fire protection doors and you have a great all-rounder!"



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Jack Aluminium achieves certifications



Jack Aluminium has secured certification for ISO 9001 and ISO 14001, illustrating its commitment to providing customers with exceptional quality and meeting environmental standards. The scope of certification was for the design, assembly, test, inspection and supply of aluminium systems for

the manufacture of windows and doors. ISO 9001 is the international benchmark defining the requirements for a Quality Management System and how it manages processes and systems to meet the needs of customers and other stakeholders. ISO 14001 assesses the status of a company's environmental management system against defined parameters.

www.jackaluminium.co.uk

Holdsworth Windows joins the SWA



Shipston-on-Stour-based Holdsworth Windows has joined the **Steel Window Association (SWA)**. Holdsworth Windows offers customers the complete solution when it comes to steel windows and doors – site survey, design, manufacture, repairs, refurbishment, installation, and double

glazing. As well as beautiful domestic and commercial projects, Holdsworth Windows prides itself on being able to work on any job – in their own words "no job is too large or small!" Conservation is also an integral part of the business, from removal right the way through to fitting the newly repaired or refurbished windows and doors.

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Hunter Douglas marks five years of HeartFelt®



Hunter Douglas Architectural has celebrated the fifth anniversary of the launch of its award-winning, innovative HeartFelt® ceiling and wall system. The world's first felt ceiling system has revolutionised how designers and architects apply their designs - and not only is it budget friendly, it is made from

100% recyclable material, including the carrier system. One of the latest projects is the installation of 100 m² of its stunning HeartFelt® Origami ceiling panels in the new headquarters for Equity Release Supermarket, in Bridgewater Place, Birchwood Park, Warrington, Cheshire.

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The Curaflex Nova range from DOYMA



The Curaflex Nova range from DOYMA is available exclusively from Service Sealing Solutions Ltd. The Curaflex Nova Uno M/T has been designed to seal pipes and cables that have been already installed, the hinged design makes it easy to install and the replaceable insert means that you can even add services at a later date. The Curaflex Nova Multi with

it's modular sealing inserts means that you can install the gasket with the blind plug to seal the penetration completely, then when the service is to be installed the modules can be removed to seal the pipe/cable.

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London Waterproofing Solutions Ltd



London Waterproofing Solutions Ltd specialise in the design and installation of below ground waterproofing systems to BS8102:2022. It is a full member of the PCA and its expertise covers small basement and cellars, to large new build and multi-level basements. The company's surveyors

are CSSW qualified and its lead technicians hold NVQ Level II diplomas in structural waterproofing. As a contractor the company can ensure the design and installation is carried out correctly, with all works guaranteed. London Waterproofing Solutions hold £2 million of PI insurance, along with products liability insurance, covering all aspects of its works.

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M-AR delivers lean green transport hub



Offsite contractor M-AR has created an environmentally-friendly terminus building for the first fully solar-powered park and ride facility in the UK. A key aspect of this project was the need to minimise its overall environmental impact in terms of construction, lifespan and ongoing operations. BAM Nuttall and M-AR worked together to create

an efficient offsite hybrid build solution to meet the exacting brief. The completed project comprises eight modules which were manufactured offsite before being installed and finished on site. Together the modules create a fully-heated, safe and secure terminus hub building.

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The strength of the brand however is in the detail. Industry famous wedi accessories, such as the wedi 610 adhesive sealant, are famous for their versatility, functionality and practicality. Take the wedi Subliner range as an example – as a perfect complement to wedi building boards – it is renowned for quick and reliable waterproofing and/or decoupling of walls and floors.

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contains everything that is needed to seal a 7.5 m² surface: wedi Subliner Dry sealing membrane along with sealing tapes, sealing gaiters and a 2-component joint sealant. This specially tailored set is a perfect complement to wedi Fundo shower elements, creating a secure and functional shower enclosure, and – beside the 10 year product quality guarantee wedi offers for each and every product in their standard product range – such installations would also be awarded not only with a CE mark but also, a full wedi system warranty.





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Fit for the job, or forget

Steve D'Arcy of Visqueen examines how revised guidance around waterproofing make it vital to appoint a 'fit for the job' specialist as part of the design team – a crucial factor for avoiding pitfalls down the line

Since BS 8102 was first published in 1990 it has been raising standards in the design of waterproofing below ground structures and ensuring they provide an environment that is suitable for the intended use. When revised in 2009, the document became recognised as the industry standard, and the latest revision in March this year sets to clarify key areas – one being the selection criteria for a waterproofing specialist on projects.

Giving a clear indication of those responsible for the overall waterproofing design, BS 8102:2022 makes it clear from the onset that a waterproofing specialist should be appointed as early as possible, especially when it is imparted as a contractual process. Alternatively, a waterproofing specialist may develop an outline design, which is later adopted as part of a client's requirements and developed by a suitably experienced and qualified waterproofing specialist as a Contractor's Designed Portion.

What makes a waterproofing specialist?

In section 4.2 of the standard, it states that a waterproofing specialist should be appointed as part of the design team so that an integrated waterproofing solution is created. Many waterproofing manufacturers, contractors, etc. deem their employees to be suitably qualified for this role when achieving a qualification such as Certified Surveyor of Structural Waterproofing (CSSW).

However, BS 8102:2022 states that the waterproofing specialist should be suitably qualified and experienced, commensurate with the type and size of the proposed project. This is where many manufacturers, contractors and specialist installers do not fulfil the requirements. For example, an employee who is new to the waterproofing industry and has recently passed their CSSW would not be recognised in the standard as a specialist. Among other things, they lack necessary 'live' site experience and an understanding of



construction forms and sequencing.

Similarly, where a contractor has spent 20 years in the refurbishment sector, predominantly focusing on basement conversions, they lack the experience needed to design and install a large-scale new build carpark basement requiring potentially various grades of waterproofing.

In addition, a waterproofing specialist should be capable of devising solutions that accommodate the various project constraints and needs with an understanding of construction forms and sequencing.

Finally, they should be able to provide the design team with information and guidance that assists with and influences the design, installation and future maintenance of the waterproofed structure.

As such, BS 8102:2022 has become more prescriptive regarding appointing a waterproofing specialist. For some, it has not gone far enough – many would like to see an example time frame of industry experience or a demonstration in their experience with example projects in a portfolio. The document could be more BS 8102:2022 states that the waterproofing specialist should be suitably qualified and experienced, commensurate with the type and size of the proposed project



When looking to appoint a waterproofing specialist, it is vital to enquire not only about the individual's qualification, but also their experience with similar types of projects exact, but we must remember the standard is actually guidance and not mandatory. In addition, it is not always true that two years' experience is less valid than five, or a portfolio of twenty projects is more valuable than a portfolio of five projects. Quality generally prevails over quantity.

So when seeking guidance from a manufacturer or a specialist contractor, or looking to appoint a waterproofing specialist, it is vital to enquire not only about the individual's qualification but also their experience with similar types of projects.

BS 8102:2022 clarifies the need for waterproofing to be continuous, but more importantly to link to the DPC system 150 mm above ground level. No longer should designers purely design to the full height of the retained ground. Many waterproofing designs of old where failure occurred had not fully considered this aspect. It then resulted in water ingress attributed to substructure waterproofing defects, which were in fact due to a lack of robust superstructure waterproofing/damp proofing continuity.

Once more, this type of design flaw is a direct result of a lack of experience when designing structural waterproofing in conjunction with the DPC and cavity tray



systems. Ensuring this link is robust, the waterproofing specialist must also have the correct damp proofing experience.

BS 8102:2022 reinforces this point by stating that "the practicality of terminations above ground level should be assessed at an early stage within the design to ensure full integrity of the waterproofing system, compatibility with superstructure construction and continuity with the damp and/or ground gas protection system."

As can be seen from the above a comprehensive understanding of ground gas protection systems is also a critical consideration for the waterproofing specialist. This is an extensive specialist field of knowledge itself, and requires a thorough understanding of the various materials and ventilation systems available.

In summary, the waterproofing specialist should not only meet the criteria within the standard as set above, but also have a working knowledge of damp proofing and gas protection design and detailing. These additional skills create the specialist knowledge that is capable of safeguarding continuity throughout the design of the waterproofing system.

Steve D'Arcy is technical development manager at Visqueen

Triton Systems can advise on all aspects of the relevant suitability of waterproof concrete

ithin the British Standard BS 8102 (2022) Protection of below ground structures against water ingress it can be quite confusing as there are many acceptable options on what can be specified to provide a waterproofing solution when designing a new build project involving a below ground element. Usually a basement, the focus is often on the type of membrane system to be used, leading on to the type of membrane (whether liquid applied or a sheet membrane type etc) however what is often



overlooked is the fact that the structure itself can be used to create a standard watertight concrete structure without the need for other membrane products. A bold statement maybe, but it can certainly be achieved using a superior quality concrete from a superior quality ready mix concrete supplier, a few small adjustments to the standard concrete mix design and with the addition of an active waterproof concrete admixture added at the concrete plant such at Triton TT Admix.

If concrete is modified and with the addition of an active crystalline waterproof admixture and it can be placed, compacted, and cured properly it will create a very solid and robust initial line of water defense that is permanently and actively protected by life long self-healing and this is acceptable under the latest British Standard BS812 (2022). Waterproof concrete alone however may not be sufficient to create a finished habitable space however, for environments listed as Grade 1a, 1b or Grade 2 within BS8102



(2022) usually designed for utility areas or perhaps car parking space, it can provide a simple, quick to install (you just pour the concrete as normal) and cost-effective option.

Triton Systems can advise on all aspects of the relevant suitability of waterproof concrete compliant with BS8102 within a project (on its own or in conjunction with other membrane options) so just get in touch with them at sales@tritonsystems.co.uk, call for a chat or explore the website.

01322 318830 www.tritonsystems.co.uk



Newton Waterproofing saves double basement failure in Notting Hill

ewton Waterproofing and their Specialist Contractor Stonehouse have delivered an exceptional waterproofing design and installation for a large, two-level basement in Notting Hill, resulting in a stunning watertight and guaranteed new living space beneath the home. The UK's leading suppliers of guaranteed waterproofing systems were approached by the desperate client who had had a second basement level excavated beneath their existing basement as well as the front and rear gardens.

Unfortunately, bad waterproofing design and workmanship meant the basement had flooded immediately upon completion – the builder ceased trading and, following a legal case, the architect and structural engineer were found culpable.

Newton Waterproofing managing director Warren Muschialli comments: "The experts at Stonehouse identified a litany of issues, from the weak, permeable structure to the



lack of continuous waterproofing between levels, the inadequate pumping system, the blocked cavity drain system, and the nonexistent external deck waterproofing and drainage, amongst others."

Once structural reinforcement had taken place, Stonehouse proceeded by reinforcing dry pack joints with HydroSeal 313-WP and HydroSeal 103 2K, sealing voids and structural weaknesses with Newton Injection Resins, and preparing all internal surfaces before spraying HydroSeal 103 2K.



They then adhered insulation beneath soffits, providing an integral vapour barrier, installed a full Newton CDM System with a dedicated Titan-Pro sump chamber, dual NP750 pumps and Victron battery backup protection. Finally, both decks were waterproofed with Newton's liquid primers and membranes, overlaid and protected by a NewSeal 408 DeckDrain membrane.

01732 360 095 info@newtonwaterproofing.co.uk

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Ubbink products are available through a nationwide network of independent distributors. 01604 433000 www.ubbink.co.uk

Months from Part L and still much to do



Changes to Part L of the Building Regulations – which sets the standards for the energy performance and carbon emissions of new and existing buildings – come into force in just a few months' time. And, according to an exclusive survey of housebuilders, architects, and specifiers conducted by Marley, almost two thirds of respondents are 'unaware' of the changes outlined in Part L. The survey found that for those that expressed knowledge of the new Part L regulations, 'cost pressures,' a lack of skills to implement the changes', and low levels of 'client understanding around sustainability' were viewed to be the biggest challenges. Questioned about confidence levels associated with the changes and their resulting responsibilities, 79% admitted they 'did not feel confident' or were 'unsure' about their understanding of the new responsibilities ahead of the impending revisions. Just over one in ten (14%) agreed that they felt 'confident'. Stuart Nicholson, roof systems director for Marley, comments: "It appears that awareness and subsequent confidence around the impact of this important milestone among housebuilders, architects, and specifiers is currently low."

01283 722588 www.marley.co.uk/blog/a-sustainable-supply-chain-on-the-road-to-net-zero



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Crittall windows - I'll drink to that!

Cornish brewery has moved into renovated premises that give visitors a whole new experience of watching the creation of their favourite beers with Crittall Windows playing a crucial role in the new concept.

Verdant Brewery took over a rundown warehouse on a Penryn industrial estate and, in addition to installing the brewing vats, created 400 m^2 for staff offices and a space for public use, dubbed the Taproom.





The new interior was created around a steel-framed installation with Crittall Corporate W20 windows providing a light and contemporary area where visitors can have a beer and something to eat while enjoying views through to the working brewery, a paramount consideration of the client.

In addition, The Taproom provides a mezzanine balcony overlooking an area that can also be used for entertainment from a DJ

or with live music. The design was produced by locally-based architects Zelah Studio.

Architect, James Collins said: "We used the W20 system as it allowed great flexibility and a quality industrial look that the client wanted. Large expanses of the glazing allowed us to create views of the brewery from all spaces."

01376 530800 www.crittall-windows.co.uk



In the frame with glass balustrade systems



Safety and ease of installation go hand in hand with **CRL's** MEGAgrip, a heavy-duty balustrade system suitable for commercial situations. MEGAgrip is a fully adjustable 3kN commercial balustrade system, designed as a highlydurable public safety barrier for large commercial constructs, such as sports stadiums, transport hubs and similar venues where there is a risk of overcrowding. One of the simplest balustrade systems to fit and adjust thanks to its patented screw-clamp technology to secure the glass in place, MEGAgrip is a dry-glazed system, with no specialist tools are required, so the glass can easily be removed and replaced if required. Internal glass clamps make alignment of the glass within the channel simple and as they are compatible with a wide range of glass thicknesses, MEGAgrip is one of the most adaptable balustrade systems on the market. Lightweight and strong, the balustrade system can easily be upgraded with a simple conversion kit, to become a bomb-resistant or bulletproof balustrade system. MEGAgrip is accredited and approved by multiple organisations to verify that it meets national and international building regulations for use as edge protection, where up to 3kN force loading is required.

01706 863600 www.crlaurence.co.uk

Mapei protects against the elements at luxurious coastal complex



A **Mapei** waterproofing system has been used to protect the exterior of The Banks – a luxurious coastal apartment in Ballyholme, near Bangor, Northern Ireland. The Banks is a new concept in luxury living, providing an exclusive rental complex for the over 55's. The project, which includes 30 beach front homes, was completed by main contractor, O Prey Developments Ltd. Overlooking Ballyholme Bay on the North Down coast, The Banks offers a full turnkey specification and stella facilities, being close to golf and yacht clubs. Externally, the beach front apartments feature slate cladding and rendered finishes, in bright white and putty shades. Throughout the installation phase, Mapei carried out regular site visits and provided technical advice on the best systems to provide coastal protection. Mapei Idrosilex liquid water-repellent was added to the sand cement render to create a watertight finish once cured. Mapei Silancolor Base Coat – a water-repellent, coloured siloxane undercoat – was then applied to the rendered surfaces, followed by Silancolor Paint Plus – a breathable, water-repellent siloxane paint, that contains Mapei's BioBlock technology making it extremely resistant to the growth of algae, mould and fungi.

info@mapei.co.uk www.mapei.co.uk

Protective shell for new energy centre



A new energy centre in the heart of west London has been given a dramatic and eye-catching appearance thanks to the use of a portfolio of facade products provided by **Sto**. The company's StoVentec R rainscreen system, with StoVentec A render carrier boards and bespoke 3-dimensional StoDeco profiles have been used to focus attention on the new Olympia London's Energy Centre,

which forms part of a major urban regeneration project in the capital. Sto account manager, Jo Ebel said: "We worked closely with the other parties involved to create bespoke profiles which matched their specific requirements, and were used to give real character to the building."

0141 892 8000 www.sto.co.uk

Tata Steel Colorcoat meets new standards



With the EN 10169 standards changing, placing a renewed emphasis on the importance of UV and corrosion resistance, **Tata Steel** is pleased to announce that its Colorcoat Prisma[®] and Colorcoat HPS200 Ultra[®] pre-finished steel products continue to meet some of the highest classifications possible. The standards for EN 10169 dictate the performance requirements for pre-finished steel, including its UV and

corrosion resistance, with the new 2022 standards representing the biggest move to performance of the product category for many years.

www.tatasteeleurope.com www.colorcoat-online.com

illbruck – the sustainable solution



illbruck is signposting specifiers to the value of using its sustainable solutions for a 'fabric first' approach, to achieve long-term energy efficiency from the outset for their projects. The fabric first approach offers compelling sustainability,

environmental and economic benefits by prioritising the design and energy performance of the building's fabric. illbruck's lock tight sealing and bonding solutions form the perfect fit for this method of building design, offering exceptional compliance, sustainability, and energy efficiencies for windows, facades, interiors and exteriors.

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Cast iron aesthetics and longevity on show



Brett Martin's Cascade Cast Iron Style Rainwater System has provided exemplary period detail and long-term performance as part of a stunning new housing development within an exclusive country estate in County Durham. Commenting on the specification,

Adam Lee at POD Architects said: "This exceptional development is in a unique setting and required an approach to materials that would draw on the estate's existing buildings whilst ensuring an architectural legacy. It is the highest quality cast iron replica rainwater product on the market and we are incredibly pleased with both its performance and aesthetics."

mail@brettmartin.com www.brettmartin.com



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Architect chooses Yeoman Rainguard for home renovation

Spatial Design Architect, Sharron Dobrev, when renovating the exterior of her late Victorian home, chose Yeoman Rainguard rainwater systems for both functionality and design capabilities to achieve a desired finish.

Having started by completely gutting and refurbishing the home's interior, attention was turned to the fading grandeur of the property, which was originally built c.1910.

The addition of an attractive bright white rendering brought vivacity back to the house where Yeoman Rainguard's gutters, pipes and soil pipe products were chosen.

Colour matched in harmony with the white wall finishes, Yeoman Rainguard XL aluminium 125 x 100 mm MOG gutters and 75 mm dia. downpipes were installed by the Yeoman Rainguard team to the majority of the house.

A high functioning system, the XL is light weight with a powder coating, offering a traditional looking product with modern



benefits, such as robustness, long lifecycle, very low maintenance and recyclability.

GRP guttering was bespoke manufactured in the MOG profile to accommodate a radius required over a bay. This, being compatible to the XL range, was able to feed into the XL Aluminium run of guttering at either side. Cast iron TX Soil Pipes in the same white colour to maintain aesthetics were also installed.

Experience, skills and a comprehensive range of products, enabled Yeoman Rainguard



to accommodate all the specific requirements for this older property renovation project.

Ms Dobrev commented: "I would certainly use the product again and have already recommended them and the team to others."

With over 40 years in the industry Yeoman Rainguard are specialists in providing the right rainwater systems for renovation projects on historical, listed and heritage buildings.

0113 279 5854 www.rainguard.co.uk

Marley Alutec's Traditional and Evolve systems replace cast iron gutters on Victorian home



A combination of products from Marley Alutec have been used on a Victorian residential property near Glasgow. The company's Evolve Half Round and Traditional Moulded Ogee aluminium rainwater systems were selected as a durable and low maintenance like-for-like replacement for traditional cast iron. Built in 1875, the traditional Scottish grey sandstone property is located in the village of Torrance, north of Glasgow. The homeowner, Sheila Johnston was looking to replace the high-maintenance cast iron guttering, which had begun to leak and cause damage to the building. To match the two styles of cast iron guttering on the property, Marley Alutec's Traditional Moulded Ogee and Evolve Half Round gutters were selected as well as the 63 mm Evolve downpipe, all in Anthracite Grey (RAL 7016). The 125 mm Traditional Moulded Ogee system was used at the front of the property while the 100 mm version was fitted on the two dormer window areas. The Evolve Half Round was installed at the rear of the house. Marley Alutec also manufactured bespoke Moulded Ogee components to match the angles of the existing guttering. To find out more about Marley Alutec's range of aluminium rainwater gutter and roofline systems, visit the website.

01234 359438 www.marleyalutec.co.uk

Slotting into BREEAM excellence



103 Colmore Row in the heart of Birmingham's business district is the city's tallest office building, and "one of the cleanest and greenest", achieving BREEAM Excellent. Built by BAM Construct UK, the $21,000+m^2$ building uses 100% renewable energy for its electricity, with air conditioning & heating throughout the 26-storey tower being provided via a four pipe fancoil system. Leading independent air movement specialist Gilberts worked closely with BAM and global engineering and consulting firm Arup to refine the specification of the grilles and diffusers in line with the requirement to achieve ventilation of 12l/person and a constant $22^{\circ}C(\pm 2^{\circ})$ throughout the Grade A offices. To attain the desired air distribution patterns, the air is circulated predominantly through Gilberts' GSL linear slot diffusers. The GSLs ventilate almost 90% of the 30 levels including lower ground and basement. Fitted into bulkheads around the perimeter of each office floor, the slot diffusers provide supply and extract of air and ensure a consistent and constant view through the floor to ceiling glazing. The GSLs were also installed into plank ceiling tiles to deliver air across the 743-1115 m² floor plates on each level.

01253 766911 info@gilbertsblackpool.co.uk

Timeless elegance with Garador's Georgian doors



Add timeless elegance to your property with **Garador's** Georgian style garage doors. These stand out garage doors have been beautifully designed with deep, crisp panel pressings to add exceptional quality and style to the overall look. The more formal, traditional design will instantly enhance both modern and traditional properties in a variety of surroundings from suburban cul-de-sacs to period country homes.

Each of Garador's Georgian styles have been precision engineered with rivet free panelling to ensure the smooth, clean outlines of this special door. Available in a range of smart durable colour finishes, these doors stand head and shoulders above other panelled garage doors currently on the market. They are available in an array of standard and made-to-measure sizes for both single and double doors and for some Georgian style models, like the Beaumont, the door design can be personalised with the option of windows to allow natural light to flow into the garage. Find out more about Garador's Georgian garage door designs at the website or ask your local Garador distributor.

01935 443 700 www.garador.co.uk

AET at Bridge House, Southwark



An extensive refurbishment of Grade II listed building Bridge House will create light, and airy contemporary CAT-A office space which will incorporate **AET's** innovative and highly adaptive underfloor air conditioning (UfAC) system across all five floors. AET's CAM-V (floor supply, high level return) system was selected by consulting engineers and long standing supporters Milieu Consult as the most appropriate air conditioning solution, as it offered the highest level of flexibility and adaptability as well as enabling the generous floor to ceiling heights to maximised at the same time. An underfloor air conditioning system efficiently and effectively makes use of the void beneath a raised access floor to create the air ventilation path, eliminating the need for unsightly ceiling-based services. A total of 13 CAM-V33 Conditioned Air Modules (CAM's) were installed across five floors which are served by high-efficiency, roof mounted heat pump units. Conditioned air is delivered into the space by AET's market leading fan assisted FantileTM units which fit seamlessly within the raised floor void. A mixture of AET's standard TU4 and slim line TU350 FantileTM units were installed throughout the building with the latter on the Ground and Fourth floors.

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Titon's MVHR provides a breath of fresh air for Lexington residential apartments

Titon's powerful but compact HRV1.6 Q Plus MVHR unit has recently been installed in Moda Living's Lexington Tower.

Situated on the Liverpool waterfront, the new residential tower has over 325 apartments ranging from studios to one, two and three bedrooms with penthouse accommodation on the upper levels. With premium features such as garden spaces, fitness studio and amenity areas.



Briggs and Forester delivered the building services equipment over a 22 month period, which consisted of design, supply, installation, commissioning and included installing over 300 of Titon's HRV1.6 Q Plus.

The Lexington Tower is part of a 5.5 billion regeneration plan by Liverpool Waters Regeneration Plan.

Commenting on the partnership with Titon and Briggs and Forester, Andy Cowell, Area Sales Manager stated "The Lexington Tower is a prestigious building that is part of a massive investment in the area. It was a pleasure working with Briggs and Forester, Titon were able to meet the design criteria and offer full technical support".

The ultra-compact HRV 1.6 Q Plus is a high-performance MVHR unit measuring just 600mm wide, enabling it to fit into tight spaces for easy installation and access. It has extremely low specific fan power (SFP) of 0.49 W/l/s and a heat exchanger offering efficiencies up to 89%, which enhances SAP



performance via Appendix Q. Furthermore, despite its compact size, the lightweight HRV 1.6 Q Plus can achieve excellent flow rates of up to 100 l/s (359 m³/h) as independently tested by the BRE.

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National Ventilation at the Golden Hinde



National Ventilation has designed and supplied a ventilation system for the Golden Hinde, a full-size reconstruction of the English galleon captained by Sir Francis Drake on his circumnavigation of the globe. The ship is undergoing a major refit utilising traditional materials and methods, modern ventilation was installed to control humidity levels and provide a

safe, healthy environment for the visiting public. Due to space restrictions it was necessary to specify two Monsoon HRU/EC0150EC mechanical ventilation with heat recovery (MVHR) units. National Ventilation commissioned and balanced the system, making it safe for the public.

01823 690 290 www.nationalventilation.co.uk

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With energy bills at an all time high, anything the developer or householder can do to make their houses more energy efficient not only helps the environment, but also cuts that expensive energy usage. The whole premise of heat recovery units is that they recover the heat and energy that would otherwise have been lost. The selection available from **VORTICE** offers

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Tackling the climate crisis with a more sustainable building envelope

Umendra Singh from Soprema UK discusses how the right insulation can prevent overheating in new and existing homes, preventing the need for energy guzzling cooling in the summer months

The blink-and-you'll-miss it nature of British summers has always been a punchline for any discussions about keeping homes cool during the warmer months. As Part L Building Regulations have become stricter to prevent thermal loss, save energy and reduce carbon emissions, considerations of cooling seem to have been absent from the drive for sustainability.

The reality is, however, that cooling systems often take more energy than heating, and average UK temperatures are creeping up. There is an urgent need for specifiers to consider the impacts of climate change on both new and existing properties and to find solutions that will prevent both heat loss in the winter and heat gain in the summer.

Why has cooling become a problem for UK homes?

Heat waves have always come and gone, and the jet stream protects the UK from most weather extremes, so why has cooling become such an issue? In fact, it's not just climate change that is affecting the potential for homes to overheat. However, climate change is a key reason to do something about it and avoid the need for energy-hungry cooling systems.

There are lifestyle factors that impact on the amount of heat in our homes. With an increasing reliance on electrical appliances and devices, and steam generated by showers, we are generating more heat in our homes all year round. And with conventional approaches to insulation, this can become trapped within the building.



The building envelope of contemporary properties is also an integral part of the problem. With south-facing double-glazed windows and lightweight wall build-ups that do not prevent heat gain, heat penetrates the building envelope and becomes trapped inside. Good ventilation can help to reduce this issue, but it cannot tackle high levels of sustained heat gain.

Building design is also a factor. The trend towards maximising the footprint of the plot by building living accommodation into the roof space means that there is no buffer of unoccupied space. The low mass structure of the roof means there is a low decrement delay in the roof space, resulting in rapid overheating during warmer weather, particularly in cities where the impact of heat gain is exacerbated by the urban heat island effect.



Finding suitable solutions for ambient comfort

While newer homes built to higher standards of thermal performance and air tightness often overheat during warmer weather, older stone and solid brick wall structures do not. This may make them inefficient in the winter, but it demonstrates that the key to cooler homes in the summer is a wall and roof buildup with higher thermal mass.

Today's lightweight building structures have lower environmental impact and there is no suggestion that we should return to more traditional brick and stone structures. However, there is a need to consider the density of the insulation being used.

Isolair, from Soprema's Pavatex range, is a high density woodfibre insulation suitable for use on lightweight structures. It delivers a circular approach to sustainability by providing an effective defence from both heat loss and heat gain, using a material that is renewable and delivers carbon lock-up.



Used to encapsulate the building envelope like a blanket, with tongue and groove connections between panels, Isolair is fixed to the external surfaces of the walls and roof, in thicknesses between 60 mm and 200 mm, depending on the design, orientation and location of the property, giving a high thermal mass to the structure. During periods of warm weather, Isolair provides a decrement delay of 8-9 hours, ensuring the peak outdoor temperatures only reach the interior accommodation during the cooler night-time hours.

Isolair's natural fibres act like a sponge for the heat, absorbing it and releasing it gradually, rather than allowing it to pass quickly to the inside of the building, as low-density insulation systems do. However, the material is lightweight, making it suitable for lightweight structures, and it delivers excellent thermal performance to meet the required U-values, along with good acoustic properties.

Comfort and an evolving climate

We can no longer rely on lack lustre summers and thick brick walls to keep homes cool in the summer; the issue of overheating needs to be addressed across new build and refurbishment projects. In a climate where hot summer days are usually tempered by cooler evenings, extended decrement delay must be a key criterion for insulation specification, and Isolair delivers on this goal.

0330 058 0668 www.soprema.co.uk/en

An eye for detail

Jon Ducker from Kingspan Insulation explains the nuts and bolts of the Part L update – and why designers now need to pay even closer attention to the details

'n June, England introduced its first update to the energy efficiency L requirements in the Building Regulations for eight years. These changes - contained in Part L of the Building Regulations mean that new buildings will need to be more energy efficient and have lower carbon emissions. Updates are also due to be introduced for domestic properties in Wales on 23 November with further changes expected for non-domestic properties in Wales, and all properties in Scotland, over the coming months. In each case, these should include a much greater focus on designing details for insulation measures to prevent heat loss from thermal bridging. To explore what this will mean for architects and specifiers, let's take a look at the requirements for new homes in England.

Key changes

Part L 2021 is supported by Approved Documents which provide technical advice on how to achieve compliance with the Building Regulations. The requirements for domestic properties are contained within Approved Document L Volume 1 (ADL1 2021). The changes, which came into force on 15 June, are designed to act as a stepping-stone to the Future Homes Standard due in 2025 where all new homes should utilise low-carbon heating technologies such as heat pumps and be 'net-zero ready.'

ADL1 2021 has four key performance metrics for new homes:

- Carbon emissions 31% lower than previously required
- 'Primary energy' which limits the total energy used by a dwelling, and considers the energy used to produce and transport fuel to it
- Fabric Energy Efficiency Standard (FEES) – only related to the thermal performance, thermal bridging and airtightness of the property
- 'Worst-case U-values' which sets hard limits on insulation performance.

To calculate the targets for the first three of these metrics, SAP assessors carry



out modelling on a proposed dwelling, comparing it with targets set by a notional dwelling of the same dimensions using a set 'notional' specification (shown below). Critically, while previously the FEES target was relaxed by 15%, this is not the case in ADL1 2021. This makes it much harder to relax any of the U-values from the notional dwelling specification, without significantly upgrading other aspects of the building envelope such as increasing airtightness and adding mechanical ventilation.

These more exacting U-values mean the thermal conductivity (lambda value) of the insulation material takes on greater importance. The lower the thermal conductivity, the more effective the product is at preventing heat loss. Rigid insulation materials such as phenolic boards can achieve thermal conductivities as low as 0.018 W/mK, making it possible to reduce the depth of constructions

Element Type	Area Weighted Limiting U-Values	Notional Dwelling Specification
All roof types (W/m ² K)	0.16	0.11
Walls (W/m ² K)	0.26	0.18
Floors (W/m ² K)	0.18	0.13
Party wall (W/m²K)	0.2	0
Windows (W/m ² K)	1.6	1.2
Doors (W/m ² K)	1.6	1
Air permeability	N/A	5.00 m³/m²/Hr@50Pa.
Ventilation	N/A	Natural with extract fans
Heating appliance	N/A	89.5% gas boiler* *new systems must meet 92%
Heat emitters	N/A	Design flow temperature = 55°C
WWHR	N/A	Yes
Photovoltaics	N/A	40% of ground floor area / 6.5

U-VALUES

Worst case area weighted U-values and notional dwelling specification for new dwellings (ADL1 2021)

This means a slimmer thickness can often be used to achieve the desired U-value. Rigid insulation materials such as phenolic boards can achieve thermal conductivities as low as 0.018 W/mK, making it possible to reduce the depth of constructions, and so realise more internal space, without compromising on thermal performance.

Thermal bridges

In addition to setting tougher FEES targets, ADL1 2021 also makes key changes to how heat losses from thermal bridges are considered. Thermal bridges are areas where materials which are more conductive to heat than the insulation layer form a path between the inside of the property and the outside. These commonly occur in areas such as around windows and doors and at junctions between building elements. These paths can form a fast-track for heat to escape and have been shown to account for as much as 30% of total losses.

To improve practice in this area, the Accredited Construction Details (ACDs) have been removed as it was felt they had become outdated. The default heat loss values given where no detail is supplied (either for the junction or globally for the building) have also been tightened. This makes it much more difficult to reach compliance with the FEES target without either having bespoke details calculated, or making use of details from manufacturers or industry libraries.

By paying close attention to details, architects can strengthen specifications and close the performance gap

Compliance reports

In addition to encouraging the adoption of bespoke details, the revised regulations also include new BREL Compliance Reports with similar BRWL to be introduced in Wales. Project teams need to provide both a design stage and 'as-built' report.

The BREL design stage report requires key aspects of the property SAP model to be documented and signed off by an energy assessor. This includes the details and psi-values for key junctions within the building such as sills, jambs and eaves. The as-built report should detail any changes from the original specification or details and be supported with photographs of the insulation measures taken by the installers before junctions are covered, to prove that the materials fitted match the specification and have been installed correctly. The finished report will be submitted to Building Control, and deviations could lead to a building being found to be non-compliant, resulting in costly remedial work.

This is a key change for architects, as it can help to strengthen initial specifications. Factors such as the insulation product's thermal conductivity and emissivity are incorporated into the Psi-value calculation where bespoke details are used. As a result, the value is non-transferable to a different material. This means that if a different material is going to be installed, the detail would need to be reworked and the SAP model recalculated, making it a much more involved process.

Closing the gap

At a time when heating costs are rapidly rising for everyone, the updates to the Building Regulations are an opportunity to ensure new homes deliver excellent energy performance. By paying close attention to details, architects can strengthen specifications and close the performance gap, providing the best results for occupiers and the environment.

Jon Ducker is head of regulatory affairs at Kingspan Insulation GB





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When you're creating better buildings and healthy homes, innovation really is everything. With new Building Regulations Part L & F now in place, it's time to future proof and get ahead of the game.

Spray Foam Insulation reduces high energy consumption

Installing better insulation and preventing air leakage are two of the most important steps that homeowners can take to reduce energy bills and improve comfort levels. With fuel costs going through the roof, what are the practical steps homeowners can take to bear down on energy consumption?

Here we take a look at how the owners of an attractive, traditionally built home in Stockbridge, Hampshire tackled the issue of escalating running costs.

Originally built in the late 1980's the house had been extended in the year 2000 to provide first floor bedrooms over the existing attached garage. The modern, very comfortable looking property has oil fired central heating but fuel consumption was felt to be high.

In 2020 the owners engaged Abingdon based energy efficiency consultants, Sustainable Lifestyles Ltd to undertake a thermal imaging survey to assess the property and suggest options for improvement.

Their survey highlighted a poor standard of insulation and air tightness and recommended a programme of remedial action to improve the thermal performance of the house.

Poor performance of UK housing stock

On a wider perspective, the property is typical of many of homes in the UK. The Government estimates that roughly 12 million of the 29 million homes in the country fall below C grade on the Energy Performance Certification (EPC) scale which is graded from A-G. The closer to A, the more efficient the home meaning it should have lower energy consumption and a smaller



Originally built in the late 1980's, the property has oil fired central heating and suffered high heating costs

carbon footprint. Grade G is at the other end of the scale with C being just above average.

With around 20% of UK carbon emissions generated through domestic heating, hot water and cooking, the scale of the problem is clearly enormous.

A "Fabric First" approach to improving the efficiency of walls and lofts is being proposed in the UK and the Government acknowledges the importance of this methodology in its Heat and Building Strategy, published in October 2021. So far, £3.9bn has been earmarked to support low emission homes and, according to Jan Rosenow of the clean energy think tank Regulatory Assistance Project, investing in insulation is "critical" if Britain is to cut energy consumption and meet climate goals.

Better insulation and improved air tightness

According to Paul Buckingham, of Sustainable Lifestyles, going hand in hand with better standards of insulation is the need to reduce air leakage – draughts to you and me. "Up to 40% of a buildings heat loss can be attributed to air leakage," said Paul. "So it's vital that reducing air leakage is included in any programme of measures to improve a building's thermal performance," he added.

At the Stockbridge property, Sustainable Lifestyles recommended a programme of improvements to the insulation including the replacement of the existing cavity wall insulation from areas where it had sagged and become ineffective. They engaged a specialist insulation contractor, Prize Spraying from nearby Swanwick, Southampton to inject closed cell cavity wall insulation and apply open cell spray foam insulation to the roof and first floor voids.

Prize Spraying Ltd is part of Huntsman Building Solutions' qualified network of authorised contractors. HBS manufactures a range of high-performance spray applied insulation and coating systems for many building applications including roofs, floors and walls.



Roof tiles and membrane were stripped back to allow access for spraying of insulation



Existing timber cladding was removed to allow disposal of the original failed insulation



Huntsman H2Foam Lite is applied using a pressurised gun system [Library]

Their insulation products were developed in Canada to cope with their severe winter conditions and according to Jason Prizeman of Prize Spraying, are now widely used across the UK in both commercial and residential buildings.

HBS H2Foam Lite, open-cell insulation

Prize Spraying recommended the HBS H2Foam Lite spray foam insulation which is a flexible "open cell" material with an elastic, yielding texture. Foam Lite not only provides outstanding levels of thermal insulation, but also allows the building to breath naturally, resisting internal condensation and at the same time eliminating draughts.

H2Foam Lite is installed using a pressurised gun system. Foams are applied as a two-component mixture that come together forming a foam that expands 100-fold within seconds, closing off all gaps, service holes and hard to get to spaces that conventional insulation materials fail to reach.

Unlike the urethane foams of 20 years ago, modern spray foams such as H2Foam Lite uses water as the blowing agent. This means that the reaction between the two components produces a small amount of CO₂ which causes the foam to expand. Cells of the foam burst and the CO₂ is replaced by air. From an environmental perspective, H2 Foam Lite has a Global Warming Potential (GWP) of 1 and an Ozone Depletion Potential of 0 (Zero).

According to Huntsman Building Solutions, H2 Foam Lite E is currently the only spray foam insulation system to carry the prestigious BBA (British Board of Agrement) Certification.

Access to complex roof structure

Because of the complex nature of the firstfloor roof and dormer structure, contractors were brought in to remove roof tiles and strip back membrane to allow access for spraying. H2Foam Lite was sprayed to a thickness of 100 mm between joists and the membrane repaired and tiles replaced. Similarly, cladding to the front and rear dormers was removed to allow spraying, with cladding later replaced.

For the main front and rear gables, existing timber cladding was removed to allow disposal of the original fibre-glass insulation that had sagged and failed. These areas were sprayed externally and new cladding reinstated.

The pitched roof area above the first-floor bedrooms had good hatch-access and Prize Spraying used an extended application lance to spray insulation foam here and also to gain



This pitched roof area had good hatch-access and for spraying

access into the adjacent eaves voids, behind the bedroom walls.

External brick and block cavity walls of the original building were injected with a 60mm thick layer of HBS closed-cell spray foam insulation to complete the remedial works. The year 2000 extension already contained cavity insulation bats so were not given any additional treatment.

75% improvement in thermal performance

On completion of the works a further thermal imaging survey was undertaken and photographs show clear improvement in heat retention and significant reduction in air leakage. Sustainable Lifestyles estimate a 75% improvement in thermal performance. Internal/external, overnight temperature monitoring data collected by the homeowner over an extended period supports these conclusions. On a particularly cold winter night, external temperature fell to -5.0°C but internal temperature fell by only 2.1°C despite the central heating being switched off.

Data to support reduction in annual fuel oil consumption is still being collected but the thermal imaging photography and anecdotal evidence from the homeowners is compelling.

For more information about HBS H2Foam Lite products please visit the website.

01485 500 668

www.huntsmanbuildingsolutions.com/ en-GB/products/open-cell-insulation



Thermal imaging shows improvements to the ground floor bedroom area, before and after



Improvements to the main bathroom area are clearly visible in thermal imaging

Major innovative new solution from the ever progressive Schöck





ver six decades Schöck has built a formidable international reputation for innovative and progressive product design. The company is best known for its market leading range of Isokorb structural thermal breaks, but its pioneering reinforcement technology and impact sound insulation solutions are also a significant part of the product portfolio. Innovation though is not always about original product development. The Schöck philosophy of rethinking existing product capabilities can lead to derivative technology and the new Sconnex product range is a perfect example. It offers outstanding insulation performance, combined with an exceptional load-bearing capacity.

Closing the last major thermal bridge

Type W, for insulating the thermal bridge at the base, or the top of the reinforced concrete



wall; type P for insulating the column head and eliminating the need for flank insulation; and type M, a capillary barrier that insulates at the base, or the top, of a masonry wall. With these ingenious high quality solutions, the company has transferred its Isokorb expertise in balcony technology to walls and columns. But what necessary development steps and which building physics obstacles had to be overcome for the concept to become an approved component?

Building physics and expert analysis

The main focus of the 2050 building policy guidelines is to reduce energy losses and a critical area is the thermal performance of the building envelope, through a fabric first approach. Sconnex contributes significantly to meeting such a challenging and vital sustainable concept. About 40% of all thermal bridges in a building are caused by walls and columns, resulting in around 10% of heating energy losses. So the objective was to be the first company to develop a component for wall and column connections that both minimises thermal bridges and makes external insulation unnecessary. However, bringing a major new product to market requires extensive due diligence. First, building physics analysis confirmed the solution as being realistic in its practical implementation. Then, extensive expert opinions were prepared for the German Institute for Construction Technology (DIBt), where all mandatory legal requirements, including 90 minute fire resistance, were met. Because of the variance from practiced construction methods, Schöck also involved scientists from the University of Darmstadt. With groundbreaking innovations, Schöck often teams with specialists from universities and high-profile engineering firms in the development of calculation models. In one dissertation, an empirical design proposal was created for the application of the connection element in construction practice, based on extensive experimental studies on its loadbearing behaviour. Schöck test results were also incorporated and the design proposal ratified by expert opinion.

Total assurance for architects and planners

By introducing Sconnex, Schöck has met the needs of the construction industry in maximising the reduction of thermal bridges involving walls and columns. Architects and planners can be assured that the Sconnex product family sets new standards for energyefficient construction in the 21st century; and those who have already incorporated the products into their projects are enthusiastic about the new design freedom, the planning safety and the economically achievable results for the client.

For further information on the new Sconnex product range contact Schöck, or visit the website to download the brochure.

01865 290 890 www.schoeck.com

Blue Sky thinking transforms disused barn



Blue Sky Barn is a fascinating conversion of a disused barn into a four-bedroom family home. Situated on a farm in Norfolk, architects 31/44 have used form and materials to preserve the memory of the original agricultural structure in order to create a stunning new residential and leisure environment with enhanced levels of comfort and refinement. The interior design fulfils the wish of the owners to preserve the original raw and cavernous character while avoiding overtly domestic finishes. With such a large spacious interior, including a 15 m long swimming pool, the architects needed to find a solution for reverberating sound and acoustic dampening. As a result, **Troldtekt's** wood wool panelling has been used throughout the living and pool areas to combat and soften elevated noise levels. Troldtekt is a perfect choice for this kind of application. Consequently, Troldtekt Fine panels were specified for their sustainable characteristics coupled with superior acoustics to provide a comfortable interior environment. Troldtekt's natural and inherently sustainable panels are available in a variety of different surfaces and colours and contribute positively to a building's BREEAM, DGNB and LEED ratings.

01978 664255 Troldtekt.co.uk

Mapei overcomes archaeological challenges at new Westin London City



Mapei & Middlesex Flooring recently completed a surface project at The Westin London City, the brand's first Westin Hotels & Resorts in the UK and part of Marriott Bonvoy's portfolio. Designed by Architects Dexter Moren Associates, The Westin London City is a 5-star hotel offering guests a sanctuary to escape from city life. The hotel features 222 luxurious guest rooms and a range of brand signature facilities. Mapei and Middlesex Flooring worked together to complete the resilient and carpet installation throughout all corridors and walkways. During the project, Mapei assisted with regular site visits and moisture testing. The Mapei specification included a full Resilient System: ECO PRIM T Plus – a solvent-free low odour all-purpose primer used to improve the adhesion of smooth compounds; Ultraplan Renovation Screed 3240 – a fibre reinforced self levelling compound – followed by installation of Ultrabond Eco Fix solvent-free, pressure sensitive, multi-purpose adhesive and Ultrabond Eco TX3 – a wet grab adhesive with early build-up of strength, designed for textile and linoleum floor coverings. Middlesex Flooring were appointed the flooring contractor to install Ege Carpet on Duralay Durafit 650 underlay.

info@mapei.co.uk www.mapei.com/gb/en

Make walls a feature in cork



WALLTrend is the new and accessible cork wall panel collection from **Granorte** that brings a special touch. With the beautiful natural texture of cork, WALLTrend comes in 16 designs ready to transform interiors. From the classic look of Grain to the vibrant Twist, rustic Country and organic Primus, the collection is full of unique looks that will lift interiors out of the ordinary and bring the magic touch of cork to walls. No matter what the design, every WALLTrend panel also brings cork's unique qualities. Tactile and warm to the touch, the panels also absorb sound to make rooms quieter and more comfortable. Added to a natural construction that's easy to look after, recyclable, PVC-free and which retains air quality; WALLTrend not only looks and performs beautifully but also rises to the demand for more sustainable finishes in the home. Each WALLTrend panel is constructed from an agglomerated cork backing to which a decorative cork veneer is added and then finished with Granorte's unique PARAWAX matt finish for easy maintenance. The finished panel is exceptionally lightweight and can be glued directly onto walls using a suitable adhesive. The panels are ready for residential and commercial use, meeting all relevant standards.

01785 711131 www.granorte.pt

A partnership made for the home haven



Draks is well known as the expert in creating beautiful, clever storage for the home. Loved equally by savvy homeowners and prestigious developers, the creations can be seen in wardrobes, dressing rooms, walkin wardrobes, room dividers, sliding doors and cabinetry. When the beauty of Draks' creations meets with the talent of the Laings team, the results are gorgeous, efficient,

functional spaces in every room of the house. The Laings showroom in Aberdeen displays the ingenuity of the Draks/Laings collaboration.

www.draks.co.uk

LVT range delivers grand design



Products from F. Ball and Co. Ltd.'s System LVT range, including the company's fast-track, fibre-reinforced transitional adhesive, Styccobond F58 PLUS, have been used to install luxury vinyl tiles in a modern self-build property in Cambridgeshire. F. Ball's Stopgap F77 waterproof surface

membrane was used to create a barrier to prevent excess subfloor moisture attacking adhesives and floorcoverings, potentially causing floor failure. The contractors used Styccobond F58 PLUS and Styccobond F49 Hybrid PS temperature tolerant, moisture resistant, pressure sensitive adhesive to install wood-effect LVTs over the 372 m² area.

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

SIMONSWERK launches ANSELMI range of concealed hinges

SimonSWERK UK is pleased to announce the ANSELMI range of concealed hinge systems for residential doors. The ANSELMI range offers highquality products for lightweight interior residential doors up to 60 kg. The hinge systems are three-dimensionally adjustable and guarantee a long-lasting, maintenancefree operation of the door and are available in 6 aesthetically pleasing finishes.



The ANSELMI AN 150 3D and AN 170 3D offer specifiers the opportunity to use narrow frames of just 25 mm depth due to the reduced frame part of the hinge, this offers the potential of concealed hinges in the most delicate of joinery details.

For those manufacturers searching for production economies of scale and easy installation of their products on-site, the ANSELMI hinges with a reduced hinge frame fixing are a perfect choice.

AN 107 3D C60- Self-closing hinge

The ANSELMI range also includes the AN 107 3C C60 self-closing hinge which allows the closing of a door independently up to 60 kg. The hinge with the integrated closing function is installed in the centre between the upper and lower hinge and has a special rotation system that makes it usable in combination with AN 160 3D.

0121 5222848 www.simonswerk.co.uk



Metallic accents to enhance ancient building blocks



Metallic Clay is the latest random lay carpet plank in the Rudiments carpet tile collection from IVC Commercial. With an organic design that adds elemental highlights to echo our desire to enhance organic structures and create new meaning, Metallic Clay is a transitionary carpet plank which can be used to mix and match in any Rudiments flooring scheme. The new style expands the design versatility of Rudiments and is available in nine spirited and shining colourways using a metallic thread to add energy to the textural and tonal pattern. From hewn stone floors and hand-shaped clay tiles to coarsely cut wood blocks and artistic textiles woven from organic threads, Rudiments celebrates the flooring materials that have been closely linked to culture for centuries. Basalt, Jute and Teak are at the heart of the Rudiments collection, presenting designs grounded in flooring materials to which we are intrinsically connected. Available in 12 tone-on-tone colourways, they are the foundation for layouts, with all three designs working across large areas, delivering a different level of pattern depending on the requirement of the project.

01332 851 500 www.ivc-commercial.com

modulyss takes shape at Clerkenwell Design Week



modulyss used Clerkenwell Design Week for the unveiling of its new Clerkenwell Road space with a programme of talks and workshops on sustainability and design. In a striking interior designed to immerse the architecture and design community into the carpet tile manufacturer's sustainable, design-led collections, visitors experienced the visionary sustainability leader and founder of Surfers Against Sewage, Chris Hines and explored materials and colours with Laura Perryman, author of The Colour Bible. Alongside, modulyss also touched on diversity in the future workplace and the circular economy. Visitors across the three-days explored a fantastic array of innovative and sustainable materials curated by Laura Perryman, set against a backdrop of some of the Belgian carpet tile brand's most distinctive designs. There was also opportunity to discover how by taking a leading approach to the environment – it's a long-time partner of Healthy Seas®, has the CO2RE offset programme and holds 28 Cradle to Cradle Certified Gold® products – modulyss is at the fore of sustainable carpet tiles for today's office spaces.

0800 096 2702 www.modulyss.com
VitrA launches Root bathroom furniture

Three distinct styles (Flat, Groove and Classic), seventeen choices of colour, and three vanity basins make Root, a new highly versatile bathroom range from VitrA, a winning choice for all bathrooms.

The new Root collection offers a wide range of product sizes and styles in mix and match colour and wood unit combinations with complementing handle styles, along with Root brassware and the choice of three washbasins to suit.

Root brassware and furniture combine to create one of the market's most flexible and customisable bathroom collections. The complete range comprises three key furniture designs: flat, groove and classic. Flat – a simple style for those with a minimalist taste; Groove – a contemporary option with a panelled style; and Classic – a modern take on shaker design. The furniture joins the recently launched brassware collections Root Round and Root Square, available in five colours (chrome, brushed nickel, copper, matt black and gold) across the array of basin, bath, and shower mixers.

"We believe that Root will be an enormous success in the UK market. Created to respond to consumer needs specifically, Root enables consumers to customise any bathroom space easily," says VitrA's marketing manager for the UK and Europe, Margaret Talbot. "The vast colour and size options provide consumers with the choice and flexibility they need."

A handy A5 brochure is available online and in print to support the Root launch.



VitrA Root Groove, shown in matt Light Grey 60cm £575.00 with Integra washbasin £236.



VitrA Root Flat, shown in Natural Oak, four drawers 120cm £836.00 with Integra washbasin £451.

Root choices

The Root furniture units are available in seventeen assorted colours with three types of finish – gloss, matt, or wood. Colours include white, anthracite, Sahara beige, pearl grey, dark blue, fjord green, etc. The wood options include walnut and natural oak finishes. Handle options include matt black, chrome and matt white, with two distinct styles to suit the different furniture designs.

Straight-forward design, soft lines and smooth surfaces keep cabinet surfaces dirtfree and easy to clean. The Root furniture units are paired with VitrA's popular Zentrum, Integra and new Integra Classic washbasins to cover every design requirement.

Design it yourself!

To help consumers and designers in their bathroom design journey, VitrA has developed the Root Configurator. This online tool allows users to experiment with the various styles, colour finishes and sizes to find the perfect bathroom design. In addition to the washbasin units, the tool also includes the taps and additional storage units available to enable users to design their whole bathroom space. The Root Configurator can be accessed at rootconfigurator.vitra.co.uk/uk

01235 750990 www.vitra.co.uk



VitrA Root Classic, shown in matt Fjord Green, 80cm $\pounds 627.00$ with Zentrum washbasin $\pounds 284.$ All taps are sold separately.

A tile inspired by heritage at Royal Exchange Kingston



Wall and floor tiles from Parkside feature at Royal Exchange, Kingston, a luxury residential development by St George, part of Berkeley Group. **Parkside** Acrux and Hexil mosaic tiles are being used throughout the bathrooms and en suites of homes at Royal Exchange, Kingston. This prestigious development sees a mix of high-specification homes with residents enjoying a 24-hour concierge, gym, screening room and meeting room. Inspired by the architecture of the Grade II listed Old Post Office and Telephone Exchange buildings within the development, the design team at St George selected Hexil mosaics and developed a bespoke tile to create a link to the heritage of the site in new buildings. The stylish cross motif with a handmade feel is now part of the Parkside collection as Acrux, made with 39% recycled content. The design team paired the bespoke Acrux wall tile with Hexil, a mosaic available in two finishes, including 36+ PTV, which allowed it to be used as a floor tile throughout Royal Exchange. A total of 12,000 m² of tiles will be installed by specialist contractor Stone & Ceramic Ltd, with the entire project expected to be complete by March 2023.

0116 276 2532 www.parkside.co.uk

It's in our nature



Under the theme 'It's in Our Nature', UNILIN Panels explored the connection between nature and design in a packed programme of events for this year's Clerkenwell Design Week, welcoming the architecture and design community to The Gallery Clerkenwell. With live talks from some of the industry's brightest names hosted by the inimitable Grant Gibson of Material Matters, Kokedama making workshops, a day of Belgian themed street food and a closing party with free flowing hospitality and live DJ, UNILIN Panels certainly left its mark on this year's Clerkenwell Design Week. Revealing its new 2022-2026 decorative range and telling the story of its sustainable manufacturing processes including the use of 100% recovered wood in its decorative surfaces, the Belgian panel powerhouse welcomed almost a thousand visitors over the three days. Spending time with architects and designers from practices of all shapes and sizes, it has now strengthened its status as the brand to watch. UNILIN Panels also used Clerkenwell Design Week as the launchpad for its Decorative Compact MDF, a readily available and budget-friendly alternative to compact HPL that excels in scratch and wear resistance.

info.panels@unilin.com www.unilinpanels.com



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Lifting the lid on water control

Carole Armstrong from Delabie provides some practical options for water controls in commercial washrooms, and looks at the specification challenges

For building users, a visit to the washroom comprises three simple steps: use toilet, wash, hands, dry hands. As a specifier, the decision-making process to make these three steps work is more complex. The specification choices must take into account comfort, practical requirements, environmental concerns, hygiene, safety, budget, to name a few.

When you've got to go

The defining factor of commercial washrooms is frequency of use. Urinals are a popular choice for highfootfall venues facing periods of intensive use, for example during school breaks or half-time at football matches. However, they require regular flushing to prevent bad odours due to urine crystallising in the pipework which involves significant water consumption. And, of course, not everyone can use a urinal.

Conventional WCs are also not ideal for intensive use. A cistern-flush WC has a minimum refill time (up to 60 seconds), so there is a delay between potential uses. Originally designed for domestic use, they are prone to leaks which seep undetected into the pan (consuming up to 400 litres per day according to Thames Water). The cistern also contains standing water at room temperature – ideal conditions for bacteria such as Legionella to develop, which are then released in aerosol format when flushed.

A practical solution is direct flush technology – available for both urinals and WCs. The flush mechanism connects directly to the water supply, harnessing system pressure to flush the bowl or pan, making cisterns redundant. The flush is instantly available, so there is no refill delay. Hygiene is improved since there is no standing water, and the pipework is rinsed with every flush, preventing bacterial development and urine crystallisation. Typically made from hard wearing materials, direct flush mechanisms will also withstand intensive use.

Sensor-controlled direct flush mechanisms for urinals and WCs provide additional



user and system hygiene. The valves are activated by user presence, flushing automatically when the user leaves. Intelligent flush technology adapts the flush according to the duration of use, ensuring optimised rinsing. Some electronic models also have an automatic duty flush which takes place every 24 hours; ideal when facilities are closed for extended periods, such as offices at weekends, sports grounds between matches, or during school holidays. Recessed options also provide an aesthetic, yet vandal-resistant solution, with the mechanism concealed from the user, but easily accessed via a control plate for servicing.

Now wash your hands

Users, as consumers, are more demanding in terms of aesthetics, comfort and hygiene in the post-pandemic era. Washrooms in restaurants, bars and hotels are fast becoming a major part of the user experience. If facilities fall below the consumer's expectations, the consumer will take their business elsewhere, and are likely to share their experiences online. Sensor-controlled direct flush mechanisms for urinals and WCs provide additional user and system hygiene



Self-closing or electronic washbasin taps optimise hygiene because there is no manual contact after rinsing Specifiers have to second guess the user should they specify a mixer so users can blend the mixed water themselves? Will users actually exercise this choice? Should they specify a thermostatic mixing valve (TMV) and tap to pre-mix the water to a safe temperature? Remember hot water must be produced and distributed at 50°C (55°C in healthcare) to prevent the risk of Legionella. The answer lies in the type of premises. In hotels, users expect the same level of comfort as at home, but in bars and clubs, they may be less concerned about choice. Either way, the chosen solution mixer or TMV plus tap - should feature anti-scalding technology.

Typically, there are three levels of anti-scalding technology according to the risk of infection versus scalding. Level one is a pre-set maximum temperature limiter which effectively limits the temperature at the point of use for low-risk environments. Level two is a mechanical 'failsafe,' available on mixers with a pressure-balancing mechanism. This ensures a stable mixed water temperature despite pressure variations in the system, and reduces the hot water to a trickle if the cold water supply fails. Level three anti-scalding technology applies to high-risk environments where users are vulnerable to infection and scalding. Available on thermostatically controlled mixers, the mixer shuts off completely if the cold or hot water supply fails - ideal for healthcare facilities.

Last, but not least, there's hygiene! Covid-19 has fundamentally changed hand washing habits. Self-closing or electronic washbasin taps optimise hygiene because there is no manual contact after rinsing. They also optimise water consumption, without sacrificing user comfort, through fractional delivery. The valve closes automatically on time flow models or after removing hands from the detection zone on sensor-controlled models. Add a flow rate limiter, and water consumption is fully controlled: the user can wet their hands, apply soap and rinse without water running continuously. And, not forgetting that electronic mixers and taps feature the antibacterial duty flush to prevent stagnation.

Styling it out

Accessories such as soap dispensers, toilet brush sets, waste bins, hand dryers, and coat hooks should also be a design choice, rather than left to chance or service contracts. Often function takes precedence over form, but once the washroom's colour palette and overall look have been established, accessories should receive the same attention to detail as the water controls.

There is now a greater range of finishes and materials, to suit any decorative style. Accessories can coordinate with sanitary ware and water controls without compromising on functionality. Specifiers can now opt for soap dispensers with the same style, finish and features as the mixers/taps. Push-button or sensorcontrolled electronic dispensers allow a measured amount of soap and will limit the maximum number of doses to prevent excessive use. They are easy to use with non-drip, durable mechanisms. Standard parts and remote tank options mean that servicing is significantly reduced.

Paper towel dispensers and waste bins must also be able to withstand intensive use. Public washrooms need accessories that are durable and reliable - to undergo regular cleaning. Non-porous, smooth surfaces with minimal joints and seams are ideal. Models with a stylish, yet simple, one-piece design have a clear hygiene advantage over complex designs. There are fewer niches for dirt and germs to adhere to, so they are easy to clean and require less detergent: a more sustainable solution. Consumer expectations of washrooms in public places have never been so high. To ensure their experience exceeds their expectations, specifiers need to consider their comfort and safety while delivering a pleasing aesthetic in an ecological and economical way. The solutions are widely available - if you know where to look.

Carole Armstrong is marketing manager at Delabie

Vicaima design bowls them over at The Heyford Hotel

A new and stylish Boutique Hotel at the heart of the Oxfordshire countryside has specified Vicaima trend setting door designs to compliment the mood of its relaxing and entertaining interiors.

With its select and elegantly appointed rooms, The Heyford Hotel provides a refreshing visitor experience in the picturesque and rural Oxfordshire location of Upper Heyford, yet less than 30 minutes' drive from the City of Oxford. Situated at the heart of the famous former military airbase and with a nod to its past American connections, the hotel includes its own bespoke bowling alley and themed bar for those wishing to enjoy tastes from across the pond.

Developers Dorchester Living have collaborated with Vicaima over many years, in their transformation of the former RAF and USAF Upper Heyford airfield. Therefore, it was only natural that they should chose Vicaima for this jewel in their crown. With a reputation for close attention to design detail and ability to reflect the desired blend of contemporary decor, yet sympathetic to the project's historic heritage, Vicaima were able to realise the harmonious interiors.

Working in conjunction with partners ABL Doors on this phase, Vicaima products included third party accredited and rigorously tested and certified FD30 Fire doors, which Vicaima supplied as popular Portaro[®] Door Kits. These completely matching door and frame assemblies; designed for easy and rapid installation, were factory finished in Crown Cut Ash veneer with a Marina Grey



Certified Vicaima fire doors in room entrances

semi-translucent tone. This attractive face finish also included a final addition, with the inclusion of two vertical and parallel black inlays, positioned close to the doors closing edge. Supplemental to doors and frames, Marina Grey toned skirting boards were also supplied by Vicaima, thereby completing the overall theme.

Portaro[®] door kits and Marina Grey finish from the Naturdor[®] stained range are just two examples from an extensive selection of imaginative ideas from the comprehensive Vicaima Design Collections. With performance and decorative solutions for a multitude of hotel and leisure projects, Vicaima offer everything from standard and 'off-the-shelf' to completely bespoke designs via their Infinity Brand.

For more information visit the website or email Vicaima to request samples/literature.





Entrance Gallery at The Heyford Hotel



Certified Vicaima fire doors in corridors



Multiboard meets BS 5385 guidance on tiling substrates



Thanks to the continuing efforts of The Tiling Association (TTA), standards of training and workmanship across the industry have improved dramatically, while many specialist contractors and other building trades have made the switch to using high performance tilebacker boards, such as **Marmox** Multiboard, since BS 5385 Part 1 directed plywood was not a suitable substrate. The deterioration in quality of plywood – especially the cheaper imported types – has resulted in the commoditised wood product no longer being regarded as a "stable and rigid background" for tiling operations. In fact it is likely to delaminate and even rot if its moisture content changes. Multiboard, by contrast, is fully waterproof as well as offering a high thermal insulation value, with the polymer modified concrete covering to the XPS core offering an ideal surface for plastering or direct tiling. Available in a range of thicknesses, Multiboards are both light to handle and easy to cut, while still being able to sustain substantial loadings if required, including as part of a floor build-up or supporting up to 100 kg/m² across a wall. They can be fixed using the special plugs available while, Marmox 360 adhesive will seal the joints in situations like wetrooms and pool areas.

01634 835290 www.marmox.co.uk

A tile collection that knows no limits



Chart is the tile collection exclusively available from **Parkside** Architectural Tiles that knows no limits. With 19 colours, multiple formats, a selection of finishes and mosaic pieces, Chart is the tile collection for designers looking to explore the creative potential of tiled surfaces. Now available from Parkside, the collection can even be used outdoors, seamlessly connecting environments. A porcelain bodied tile in a palette ranging from natural tones to bright, high-impact colours, Chart can be used in all kinds of places – everywhere from schools to offices, retail and hospitality spaces – bringing a smart and practical surface that can endure heavy and sustained commercial use. With natural, polished and Silktech (PTV 36+) finishes, the collection can also be used on floors and walls, bringing a highly coordinated look that can be smart and sophisticated or bold and colourful. Highlights of the collection include three mosaics including Mosaico Tears and Mosaico Mix patterns that can be used to add design features, as well as four different square and rectangle options available as standard from stock. Special sizes of 20 x 120 mm, 15 x 60 mm can also be made to request.

0116 276 2532 www.parkside.co.uk

FIREFLY[™] Apollo Lite creating half hour fire barriers in new research building



A specialist contractor undertaking all of the fireproofing within a new medical research building in Surrey has been making use of two well proven, flexible fire barrier products from the **TBA's** FIREFLY[™] range, to provide 30 minutes protection within the majority of the ceiling voids throughout the four-storey structure. Dartford based CLM Fireproofing was founded 30 years ago by Clive Miles and has established a reputation as a leader in the fields of both passive fire protection and fire-stopping, working in a variety of sectors on projects right across the UK. A regular user of the FIREFLY[™] range, in this instance CLM is employing Apollo Lite and the Collaroll product in tandem to protect the ceiling voids. The spaces which typically house pipework, power cables and air conditioning units above the suspended ceiling grid, are provided with 30 minutes integrity and insulation through the installation of the flexible Apollo Lite barrier. The Apollo Lite 30/30 has been developed for use in vertical separation or compartmentation situations, offering both 30 minutes integrity and insulation, thereby exceeding the minimum requirements of the Building Regulations.

01706 758817 www.tbafirefly.com

Promat launches new fire-rated walk-on glass flooring system



Fire resistant glazing specialist **Promat UK** has developed SYSTEMGLAS[®] Stratum, a new load bearing walk on floor system designed to give architects greater creative scope when designing with integrated passive fire protection. SYSTEMGLAS[®] Stratum combines a structural glass floor with either EI30 or EI60 glass to provide insulation and integrity fire protection between floors of either 30 or 60 minutes. The system features a high strength double glazed SYSTEMGLAS[®] unit, which typically features a 37 mm toughened, laminated top layer and a 16 mm bottom layer, mounted within a steel frame, complete with spacer bars and all the required insulating materials such as silicones and seals. In addition to being available in non-slip glazing, patterned and obscure glass options can be specified to open up new possibilities for glass floors. These types of glass are popular for basement conversions where natural light can be introduced without compromising privacy in spaces that would otherwise depend completely on artificial light 24/7. SYSTEMGLAS[®] Stratum has been independently tested to perform as promised with the added assurance of the Promat SYSTEMGLAS[®] 360 Degree Wheel of Assurance.

0800 588 4444 www.promat.com/en-gb

Advanced welcomes fire safety guidance for new high-rise residential buildings

Fire protection solutions manufacturer, Advanced, has welcomed the amended Approved Document B of the Building Regulations as a "positive step in the right direction to improve fire safety in new high-rise residential buildings".

Published on 1 June 2022, Part B (Fire Safety) offers new improvements to fire safety guidance to ensure tall buildings are made safer in England, as part of a wider package of reforms. A 'significant' addition to the document is the mandatory requirement for new residential developments over 18m to incorporate an evacuation alert system, offering new clarity for those involved in the design or construction of residential developments.

An evacuation alert system is vital to help fire and rescue services inform residents of a change in evacuation strategy during an incident. This gives fire and rescue services an additional tool to use on the ground, alongside existing methods of evacuation, improving safety for residents. To comply with the amended Part B, an evacuation alert system should be provided in accordance with BS 8629 Code of Practice for the design, installation, commissioning, and maintenance of evacuation alert systems for use by fire and rescue services in England.

Amended Part B is designed to meet recommendations from Phase One of the Grenfell Tower Inquiry. Currently the Part B requirement for an evacuation alert system only covers new build high-rise residential buildings. However, since the Grenfell Tower Inquiry also recommends evacuation alert systems for high-rise residential buildings "already in existence"1, further regulation may follow.

Ken Bullock, business development manager for Evacuation Alert Systems at Advanced, said: "We welcome the amended Part B of the Building Regulations and the clarity it gives when it comes to fire safety. An evacuation alert system gives fire and rescue services a valuable tool which allows them to evacuate residents at risk in a safer, managed way. At Advanced our EvacGo Evacuation Alert System is designed as an easy way to meet BS 8629:19 and so can it offer peace of mind to those responsible for a building that by choosing this system they are complying with Building Regulations."



"We appreciate that new regulation can be confusing, so not only have we carefully designed the EvacGo to take away the hard work for building owners, end-users and importantly frontline fire and rescue services, we also offer a CPD presentation on evacuation planning and BS 8629 Code of Practice. The CPD is suitable for consultants, fire risk assessors and anyone else who needs a better understanding of the requirements of the British Standards Institution code of practice BS 8629."

The amended Part B forms a portion of a wider update to tighten Building Regulations and provide clearer fire safety rules for the design and construction of residential developments. The Building Safety Act names HSE as the new Building Safety Regulator in England and as such will enforce compliance of the Building Regulations. The Building Safety Act will place formal responsibilities on those involved in the design, construction of any buildings to ensure compliance with building regulations, and will give the regulator greater powers to prosecute for noncompliance. It will be the duty of the people responsible for a building to put in place and maintain a golden thread of information, with their responsibility continuing for the life of the building.

Other key changes within Part B include

the requirement for all new residential buildings over 11m to include a Secure Information Box that will give fire and rescue services access to important details about a building in the event of a fire. In addition, the government has introduced tougher standards for external wall materials on new medium-rise blocks of flats.

As a world leader in the development and manufacture of intelligent fire systems, Advanced is committed to creating a safer future. A reputation for performance, quality and ease of use see Advanced products specified in locations around the world, from single-panel installations to large, multi-site networks. The Advanced product portfolio includes complete fire detection systems, multiprotocol fire panels, extinguishing control, fire paging, false alarm management and reduction solutions as well as emergency lighting.

Advanced is owned by FTSE 100 company Halma PLC – a global group of life-saving technology companies with a clear purpose to grow a safer, cleaner, healthier future for everyone, every day.

For further information on the EvacGo Evacuation Alert System, please email EvacGo@advancedco.com

0345 894 7000 uk.advancedco.com

How roofing industry leaders can help address specifiers' insistence on more extensive fire testing

As architects, clients, building control and other specifiers are rightly insisting on fire test certificates that directly reflect the exact roofing system being installed, Dean Grady, senior product engineer at Sika, discusses the role of EXAP testing and how industry leaders can help.

ithout question, today's roofing industry is experiencing a greater focus on the fire performance of roofing systems than ever before. While events of recent years have heavily influenced this – and, in part, clients, building owners and insurers have their own criteria to be satisfied – changes in regulations have played a major role.

These regulations, while extensive, are reasonably clear, stating that, in general, roof systems must be classified to BS EN $13501-5 B_{ROOF}(t4)$; the exception being that 'attachments' on buildings over a certain height (18m in England and Wales and 11m in Scotland), meaning the insulation must also

be non-combustible. Furthermore, there must not be any 'views' offered by manufacturers as to the performance of their products in lieu of testing.

As those within the industry have been leaning on manufacturers to demonstrate performance, rather than make their own judgement or interpretation, historically, manufacturers have tended to offer a range of fire tests considered representative of performance.

Historically, in the absence of directly representative test data, there has been a tendency to supplement limited test data that is perceived to be representative and supplement this with opinion and experience. However, at Sika we fully support the redundancy of this approach and move towards a purely evidence-based demonstration of fire performance only, which has been independently verified by an appropriate accredited third party. We have seen for a while now that architects, clients, building control and other specifiers are increasingly insisting on fire test certificates that cover the exact system being installed, becoming more commonplace - and moreover it's something the regulations ask for too.

While it is clear the market is becoming acutely aware of fire safety and that specifiers are looking to industry leaders for help, the problem for manufacturers is how to test such a large range of possible system permutations, taking into account numerous substrate types, air and vapour control layers (AVCLs), insulation types and thicknesses and waterproofing membrane types and thicknesses - the variations are almost endless, as no two projects are ever exactly the same. Thankfully, the industry is in consultation through its trade bodies and associations to find a fair way forward and establish a simplified and unified approach. However, with issues such as this involving collective agreement between the industry and regulatory bodies often taking a substantial amount of time, Sika has opted to act ahead of this.



Sika had completed Extended Application Assessments, testing to CEN/TS 1187:2012 Test method 4 for the entire Sika Sarnafil range of PVC single ply membranes



Dean Grady, senior product engineer at Sika



Architects, clients, building control and other specifiers are increasingly insisting on fire test certificates

Uncovering the role of EXAP

Based on our own experience of what was being requested by way of fire test evidence, while also consulting with accredited fire test houses such as Warringtonfire, Sika embarked on a project that has seen a substantial amount of time, finance and resource invested in a solution that covers ranges of system permutations.

With tests and test data extrapolations only able to be done by accredited fire test houses, it became clear that there was already an established and recognised solution to cover the myriad of roofing systems that Sika offers. Fire tests on individual roofs/roof coverings are now carried out in accordance with CEN/TS 1187, the results from this testing are then classified in accordance with EN13501-5.

CEN/TS 16459 External fire exposure of roofs and roof coverings - Extended applications of test results from CEN/TS 1187 provides bodies like Warringtonfire with methodology or 'rules' for optimising the number of tests required to cover the maximum field of application. This methodology is what's commonly termed an 'EXAP' - Extended Application, while CEN/TS 16459 provides the means to classify

a range of permutations to EN13501-5.

Far from an easy way out of testing, the process is demanding because it still involves physical testing to CEN/TS 1187 and of course this must still be passed. However, it does allow for tests to be done in increments and to then cover the range in between. Sika already had a large body of test data available, which has been a huge advantage in what has been a mammoth undertaking spanning more than two years.

Sika Sarnafil single ply and beyond

In October 2021, we were delighted to announce that Sika had completed Extended Application Assessments, testing to CEN/ TS 1187:2012 Test method 4 for the entire Sika Sarnafil range of PVC single ply membranes. Subsequently, the most common Sika Sarnafil roof systems are now all classified under BS EN 13501-5 as B_{ROOF}(t4). This covers every membrane type, AVCL, thickness of PIR insulation 50 mm and beyond, up to a 70° pitch and on any structural substrate.

With Sika Sarnafil roof systems classified as BROOF(t4), we're able to demonstrate and facilitate regulatory compliance for fire safety and satisfy current market demand.

Having this comprehensive $B_{ROOF}(t4)$ classification - which indicates the highest external fire performance for roofs - means that specifiers and other stakeholders can use Sika Sarnafil on their roofing projects with a very high degree of confidence, assured that they're complying with fire regulations. Working with an accredited, independent fire test house (the only people who are permitted to undertake any degree of desktop/extrapolation studies now) also clearly removes the ability for anyone else to interpret or extrapolate the fire test data that may have been practised in the past.

Not only is it a clear way forward in terms of mitigating roof fire risk, but it is also a great step towards helping support those with the heavy responsibility of ensuring people's safety by increasing the confidence and reassurance specifiers are looking for.

Continuing to strengthen Sika's position as an expert and leader in testing and compliance, we now have plans to extend the initiative across the entire Sika roofing range, starting first with liquid-applied membranes and Sikabit bituminous membranes.

01707 394444 enquiries@uk.sika.com www.sika.co.uk/roofing



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www.greenbuildingcalculator.uk

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Nittan system installed at development



Nittan Europe has had its Evolution analogue addressable fire detection system installed throughout Ashburton Triangle, situated on the Emirates Stadium site in North London. Nittan's advanced, premium Evolution analogue addressable fire detection system was specified for this iconic

development due to its exceptional reliability together with a very high degree of protection against unwanted false alarms. Furthermore, its flexible protocol allows for substantial amounts of information to be transmitted at high speed supporting high-performing cause and effect programming which was a key factor in the decision-making process.

01483 769 555 www.nittan.co.uk

Leeds City Council use the Resiblock route



Resiblock, and the Resiblock '22' product, have been utilised by Leeds City Council to seal paving associated with the East Leeds Orbital Route (ELOR). The ELOR is a key part of the East Leeds Extension which aims to create a major strategic growth area for the city. Phase three of

this project saw the main construction of 7 km of highways built as well as pedestrian infrastructure. Resiblock have worked in conjunction with Leeds City Council on multiple projects in the past 18 months. Therefore, the City Council knew they could place their trust in Resiblock's paver sealing technology to provide long term paver stabilisation.

www.resiblock.com

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INDUSTRY VIEWFINDERS

netMAG research has partnered with audience research firm Edge Insight to survey our readerships on key topics which matter to them. From offsite construction, to Passivhaus, to remote monitoring of social housing, our survey findings are captured in sponsored white papers and circulated among our audiences to develop specific market knowledge.

THE FUTURE OF TALL BUILDINGS

Designers of tall buildings sit at a crossroads - will such structures continue to be a major focus for investment in the difficult context that developers now face? What is the realistic case for widespread urban tall building development post-Covid, in a world struggling to tackle climate change?



netMAG research



SUSTAINABILITY & WELLNESS IN COMMERCIAL BUILDINGS

The pandemic has left a question mark over the future of urban commercial environments. As a result, designing spaces which promote employee wellness as well as sustainability is now in the spotlight, to help clients bring staff back to workplaces and other commercial settings.

EXPLORING CURRENT THINKING ON PASSIVHAUS

Passivhaus is largely accepted by architects as an effective means of drastically reducing emissions in a range of building types, and therefore as an important weapon in the battle to reach the Government's net zero target by 2050. But what about the wider supply chain, and clients?



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