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Design for Healthcare & Education Supplement

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FROM THE EDITOR



This supplement focuses on celebrating design in healthcare and education, but also schemes which combine the two. These are often projects which truly harness the benefits of thoughtful space planning but also materiality, for clinicians, patients, students, teaching professionals and researchers.

Healthcare has long been very closely related to education, expressed most explicitly in the case of major teaching hospitals, where researchers can work alongside clinical teams to develop new approaches to our evolving healthcare needs.

There is a key example of the intersection between leading-edge research and healthcare in the rounded triangular form of the DISC, AstraZeneca's new research headquarters designed by Herzog and de Meuron, and our project report in this supplement.

The building sits at the centre of the Cambridge Biomedical Campus, and is a celebrating of glazing but also sawtooth facades to bring light deep into the communal laboratory spaces. With the Royal Papworth and Addenbrooke's Hospitals very close by, there is every chance that the cross-disciplinary cross-fertilisation between healthcare and research will be enhanced hugely by this new building with materiality at its core.

Cleverly, Herzog and de Meuron have ameliorated the vast mass of this structure with both curved facades responding to the site, and a trick of appearing to suspend them above the ground on a set of glazed boxes.

We take a look at how other materials – zinc, composite cladding and modern flooring materials, make key contributions to education facilities. In our feature on zinc, Jonathan Lowy describes how the material is providing a sleek finishing touch to many new education campuses and healthcare facilities, with strong functional, durability and recyclability credentials.

Zinc is now even recognised by UNESCO, with Paris' zinc roofers' long-established technological knowhow being officially registered as 'Intangible Cultural Heritage of Humanity' in 2024. This may sound slightly ephemeral, but it raises the profile of the material and the craftsmanship behind its installation far beyond its spiritual home of France.

I recently had Jonathan as a guest on our Building Insights podcast, where he also gave an intriguing explanation of the crucial need to achieve 'performance specification' – which sets out exactly what is required of a product, so that suppliers can deliver. Check it out at insights.netmagmedia.co.uk

James Parker, Editor

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ON THE COVER...

The Discovery Centre in Cambridge marks a new era for AstraZeneca, a remarkable research facility and headquarters by Herzog & de Meuron. Roseane Field reports. Cover image © Hufton+Crow. For the full report on this project, go to page 8



DEMENTIA CARE

An ‘exemplar’ dementia scheme

Watson Batty Architects has started work on a care home for Exemplar Health Care with a goal to achieve the highest accreditation in design for dementia – assessment by the University of Stirling’s Dementia Services Development Centre.

Construction has commenced to deliver Springfield Vale, a 33-bed complex care home in Barnsley. The scheme comprises three units of accommodation each providing 10 bedrooms with communal areas, an activities hub, a therapy room, a hair & beauty salon and communal accessible gardens.

The state-of-the-art development is to provide nursing care for adults living with complex needs arising from brain injuries, dementia, mental health conditions, neuro-disabilities and physical disabilities.

Understanding the importance that specialist design for ageing and dementia has in assisting independently living, Exemplar Health Care selected Springfield Vale to be assessed by DSDC at Stirling.

The DCSC is an international centre of knowledge and expertise dedicated to improving the lives of people living with dementia. It draws on research and best practice from around the world by providing comprehensive up to date resources on all aspects of dementia, helping to translate these into “policy-informing practice,” says Watson Batty. It houses a design and technology suite showcasing inspiring technology and equipment, a virtual care home that allows for visualisation of new ideas, and a conference centre which hosts regular

international masterclasses bringing dementia care experts together.

With construction underway, Springfield Vale is in the detailed design stage of the accreditation process. The building will be audited by Stirling University DSDC in early 2026 when operational following completion in December 2025.

Watson Batty has already delivered 10 new homes for Exemplar Health Care with a further four developments currently on site. With a highly specialised team in creating environments for specialist care, Watson Batty is assisting Exemplar Health Care to ensure that its care homes are future focused and sustainable for those whose needs are considered too complex for mainstream care providers.

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**BUILDING
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THE DISCOVERY CENTRE CAMBRIDGE

Discovery mission

The Discovery Centre in Cambridge marks a new era for AstraZeneca, a remarkable research facility and headquarters by Herzog & de Meuron that combines boundary-pushing design and sustainability with collaboration. Roseanne Field reports.

In the heart of the Cambridge Biomedical Campus (CBC), on what was once an empty piece of land, now sits AstraZeneca's impressive The DIScovery Centre, known as the DISC, alluding to its triangular-disc form. It is designed to be the research centre for this global organisation.

The British-Swedish based pharmaceutical giant gained an even higher UK profile during the pandemic after it developed a Covid vaccine with the University of Oxford. The company was looking to establish a strategic research and development (R&D) centre in the UK alongside its existing centres in Gothenburg, Sweden and Maryland in the US.

With the company investing \$7bn a year in R&D – and a large portion of this taking place in the UK – it was a logical step to invest in a centre that would include the latest in technology and design. However, the result, designed by architecture firm Herzog & de Meuron and built by Mace, would also become AstraZeneca's corporate headquarters. As well as its existing research centres in Sweden and the US, the company has an R&D presence in over 40 countries globally, and development facilities in China and Japan.

A catalyst for collaboration

Locating DISC in the Cambridge

Biomedical Campus made sense from several angles. The CBC forms part of a wider development known as the Cambridge Southern Fringe Area, and is intended to become a leading hub for biomedical research and development, home to companies and institutions from the healthcare, education, science and research sectors. AstraZeneca previously operated an R&D facility in Alderley Park in Macclesfield, a semi-rural site that typified the former preferred location of pharmaceutical companies, before a shift occurred to R&D sites being located closer to life science 'hubs.'

The client deliberately placed the building at the centre of the CBC, to maximise the organisation's ability to foster collaboration across the campus. AstraZeneca hopes its location will make it a "key point of idea exchange," and allow it to build on existing collaborations within the Cambridge Life Science community, including the University of Cambridge's School of Clinical Medicine, the Medical Research Council Laboratory of Molecular Biology, and Cancer Research UK. The DISC's neighbours also include two leading hospitals – the Royal Papworth Hospital and Addenbrooke's Hospital – and numerous research institutions and biotech firms. In total more than 400 companies



ROUNDED TRIANGLE

The building is triangular with rounded edges, responding to the constraints of its site, and appears to 'hover' above it

are located within the life sciences cluster, employing around 20,000 people. It's the most productive life sciences community in Europe, contributing nearly £3bn annually to the UK economy.

Such collaboration, including the work of AstraZeneca itself, has been identified by the Government as key to improving the UK's overall investment in R&D which it has targeted to be 2.4% of GDP by 2027. The Department for Science, Innovation and Technology (DSIT) also recently announced an overall budget of £13.9bn for 2025/26, with every pound of public investment projected to leverage £2 of private investment.

To encourage collaboration further, the ground floor level of the DISC has been designed to be as open plan as possible, allowing users and visitors to get together in a variety of spaces, including purpose-designed collaboration spaces. There are also further areas on the upper floors, providing diverse spaces for informal meetings and exchange.

Bumps in the road

While the DISC has been lauded since its opening, the road to completion was anything but smooth. AstraZeneca first revealed its plans to open a new facility in 2013, when they appointed Herzog & de Meuron to design the scheme. A series of design development stages then took place, before outline planning permission was finally granted in February 2015.

When first announced, it was planned that the centre would take three years to complete, opening in 2016. The company sold its Alderley Park site, with a plan to remain onsite as a tenant until able to relocate all staff to the building in 2016.

However, despite construction beginning soon after planning approval, the project was hit by a series of delays and spiralling costs, with the final total cost hitting £1bn – more than three times the initial budget of £330m. The anticipated spend was gradually increased as the project progressed, first to £500m and then £750m, before it ultimately hit the £1bn mark.



These extreme increases in the spend were blamed on a combination of the complexity of the build, inflation – including impacts which are related to Brexit – and further investment in new technologies and equipment for the centre. As well as resulting in cost increases, this also meant the projected completion date was pushed on several times, with the centre finally having its grand opening five years later than originally anticipated in November 2021.

At the building's opening, AstraZeneca CEO Pascal Soriot commented on the company's ambition to achieve a new building that would "drive the next wave of scientific innovation." He explained that it hoped to set a new standard for both sustainability and global collaboration in the R&D field, and "break new boundaries" in relation to disease biology and life-changing medicines.

Designed for discovery

Herzog & de Meuron was appointed to

the project at the early stages, with the design initially completed in 2014 before going through just under a year of design development. From the start, the key focus and aim was for the building's architecture to support AstraZeneca's desire for collaboration, as well as incorporating the latest technology from both construction and research and biological perspectives.

The DISC itself is triangular in plan with rounded edges, following the dimensions of the site, with an open courtyard at the centre. This courtyard, along with the building's low-rise structure, were deliberate choices to echo the typical historical colleges of central Cambridge.

The courtyard also formed a key part of the design from a collaboration point of view, providing a large, central meeting point that is easily accessible. The building itself can be accessed from all three sides externally, another deliberate choice by Herzog & de Meuron to make the building as porous as possible and encourage collaboration.

The DISC is largely formed of a glass envelope – enhancing its porosity to make the building and the work taking place inside it as visible as possible



The bulk of the building is the 'triangular disc' which appears to hover above its base. It's in fact supported by six rectangular glass boxes, grouped into three pairs

FACTFILE: PLANNING

Architects: Herzog & de Meuron
Executive & Landscape Architect: BDP
Electrical, HVAC, Plumbing & Structural Engineering: BDP
Cost Consultant: Turner & Townsend

The DISC is largely formed of a glass envelope – again enhancing its porosity and making the building and the work taking place inside it as visible as possible. A sawtooth roof runs from east to west, allowing natural light to flow through the building. The sawtooth pattern is echoed in the building's facade with a vertical zig-zag geometry. These patterns, along with the hovering effect, add to the building's distinctiveness and make it a recognisable feature of the wider CBC.

The bulk of the building is the 'triangular disc,' which appears to hover above its base. It's in fact supported by six rectangular glass boxes, grouped into three pairs. This creates the open courtyard space in the centre, with the triangular glass disc on top also containing a triangular 'hole' in the centre where the courtyard sits.

Forming an essential part of R&D, laboratories constitute the DISC's main functional spaces. They're housed within the glazed rectangular boxes which not only support the structure but also

extend vertically through every floor of the building. The layout and design of these laboratories allows different groups to work side by side, once again enhancing the building's collaborative focus. To build on this further, glazing was used extensively throughout the interior, allowing transparency across each floor of the building. This also further enhances the visibility of the work taking place inside the building to both employees and visitors.

The workspaces utilise open plan layouts as much as possible, arranged and designed in ways to offer employees a choice of workplace settings ranging from private study spaces and quiet areas and booths, to larger more informal collaboration spaces.

The building has an 'inner ring' of main circulation space on the upper floors around the courtyard. There are also various spaces located around this, adding to the workspace options for employees and meeting spaces for visitors.

The internal layout of the building has been carefully considered, with each of the





four floors serving its own specific purpose. The underground level is home to some of the necessary practical elements, such as a loading area, plant zone and scientific support facilities.

The ground floor houses the building's key amenities, including conference centre, auditorium, cafe and restaurant. These have easy access from the main entrance, as well as being equally accessible from all other parts of the building. The entrance is as open as possible, and home to various science displays, showcasing the work of the building's scientists. For example, a beating 'mini-heart' is displayed in one of the laboratories, used to test the impact of new medicines on the human heart.

The remaining two floors, both located within the 'hovering disc' portion of the building, house the rest of the laboratories and working spaces. In total the building is home to 16 laboratories and 4,000 employees including 2,200 scientists – putting it alongside the Francis Crick Institute in London as the biggest facility

of its kind in Britain. The first floor of the 'disc' element is connected through the ring area, and the second floor is flooded with natural light not only from the glass facade but also through skylights in the sawtooth roof. The building is also home to an amenities hub for employees which includes a gym, cafe and creche.

Materials matter

Although the DISC houses many distinct work environments, it was important to the project team to achieve design unity, and that overall, the building appears as "one characteristic structure." This is partly achieved through careful choice of materials throughout the building, creating a cohesive look both externally and internally.

Glazing is the dominate facade material, used to form the rectangular boxes that support the overall 'disc,' as well as forming the facade of the DISC itself. All the main partitions throughout the building are also formed of full height glass, to provide both transparency and seamless transitions

FACTFILE: CONSULTING

Acoustic, lighting & sustainability consultant: BDP

Building physics & facade consultant:

Emmer Pfenninger Partner AG

Laboratory planning: Abell Nepp Architects

Fire protection & logistics consultant: ARUP

Signage consultant: NEW ID

Traffic consultant: WSP

Gastronomy consultant: Tricon Foodservice Consultants



between the various workspaces.

Other materials internally have been chosen to best suit and reflect the different functions of each area, such as the different flooring materials chosen for specific spaces. The entrances feature natural stone and the main stairs up through the building and the DISC's inner ring are rough-sawn solid oak. The offices and 'write-up' rooms, where better acoustics are required, are finished in carpet, while the laboratories feature a more practical white resin finish.

The other key material used throughout the building is exposed concrete. Not only does this offer glimpses into the construction method and structural function of the building, it was also a deliberate choice to complement the glass and wood.

Sustainable science

As well as designing a building that would encourage collaboration both internally and externally, it was important to the project team and client that The DISC

be highly sustainable. It has achieved a BREEAM certification of Excellent thanks to elements of both the design and construction.

AstraZeneca has an aspirational programme it calls Ambition Zero Carbon which includes a series of targets to reduce its own carbon footprint globally, including zero carbon emissions from its operations by the end of this year, and its entire value chain to be carbon negative by 2030. It's also working on the creation of medicines that have a lesser impact on the environment, such as a respiratory inhaler containing a near-zero Global Warming Potential propellant.

Aligning with this, the building was designed to what AstraZeneca calls "the highest environmental standards," with a goal of increasing its energy efficiency and "working in harmony with the natural environment as much as possible" through heating, cooling and lighting.

The building has what is thought to be the UK's largest 'renewable heat certified'

MATERIAL BENEFITS

The heavily-glazed envelope is offset by warm timber internally, and the shared laboratory spaces benefit from good natural light



Despite the lengthy delays and overspend, The DISC has had high praise since its opening

ground source heating and cooling system. It's heated and cooled via a ground source heat pump, with four hybrid cooling towers and 174 boreholes used to both provide and store natural geothermal energy. The heat pump saves enough energy to provide power to 2,500 homes. When the building requires more energy for heating or cooling than can be provided by the ground, there are boilers and chillers installed that use 100% biomethane and renewable electricity.

The centre also has high levels of insulation, low-energy ventilation and utilises harvested rainwater to flush the toilets. The sawtooth roof design reduces the reliance on artificial lighting by allowing ample natural daylight in, while also minimising solar gain. Construction waste was kept to a minimum and the material choices were also driven by their sustainability credentials.

The DISC also makes use of modern technology, including smart building technology, LED lighting and daylight-linked controls for the blinds and curtains. It's also home to the most advanced robotics, AI-driven technology and high-throughput screening.

Worth the wait

Despite the lengthy delays and overspend, the DISC has had high praise since its opening. The building is currently running at a lower energy consumption than predicted by the design, and through close monitoring and controlling of the heat pump's activity the company hopes to reduce its energy usage even further.

Project contractor Mace reports that it has previously found on buildings of this scale that it takes around 12 months before science activities are 'activated' post-completion, but at the DISC it took only six days.

Throughout construction the team worked closely with the scientists and end users who would be working in the building, showing them round at various stages of the project, introducing to the building and its spaces and making changes where necessary to ensure it was as ready as possible to go fully online at completion. Collaboration, the key aim for this building from the start, has proven essential not only for the AstraZeneca's R&D work past and future, but also for the success of the project itself. ■

FACTFILE: CONTRACTORS

General contractor: Mace Group

External special glazing: Permasteelisa; Scheldebouw

Internal doors: TRIA; AEL

Internal special glazing: Zueblin

Concrete works: Byrne Bros

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Ripple Retreat, for young cancer patients and their families in Scotland

Zinc: the natural choice

Jonathan Lowy of VMZinc tracks how zinc has played a key role in iconic buildings from Paris' monuments to modern campuses and healthcare facilities – and how this durable and highly recyclable material is now culturally recognised by UNESCO.

Zinc is used on a very wide range of buildings. If you watched the 2024 Paris Olympics, you may have admired how many Parisian monuments were used as backdrops for many of the sporting venues. This automatically means that zinc roofs and ornaments were featured as part of these backdrops, whether it be the quays by the Seine river and grand boulevards of Paris, or the many zinc ornaments in the city, for example on the Grand Palais. Many of the reasons for choosing zinc on these buildings in the 19th century are still relevant today, such as availability of the metal, the technical advantages of the roofing systems, and the attractive aesthetic of the material.

Education and healthcare infrastructure

generally requires buildings to be extremely durable while not requiring excessive maintenance. The BRE gives a service life for zinc roofs and walls of 100 years, and in the vast majority of cases no more maintenance is required other than clearing out gutters and the occasional inspection.

Looking back to 2010 when the Computer Science Building at the University of York was completed, BDP architects combined glazing, timber and pre-weathered zinc in three finishes using a rainscreen panel system. At about the same time Austin Smith Lord architects were restoring and extending Liverpool Central Library, a Grade II listed building that opened in 1879. After 132 years the original zinc roof on the Picton reading room was

in need of replacement. A combination of tapered batten cap and standing seam panels in pre-weathered zinc were used to cover the elegant dome, and now the reading room should be protected from all of the elements – well into the 22nd century.

The project in York is quite contemporary whilst the Liverpool library is more traditional, but Niall McLaughlin's 2022 Stirling Prize-winning project in Cambridge combines both. The New Library at Magdalene College replaces the old library, but is next to the Grade I listed 17th century Pepys Library, hence the need for a building that honours the site. The interior of the building creates various sized spaces allowing different forms of study. The exterior uses a combination of elegant brickwork and a gabled pre-weathered zinc standing seam warm roof system. The result of this fabulous project is a building that is designed to serve the university for the next 400 years.

Moving forward and into healthcare, Ripple Retreat is a purpose built sanctuary for children affected by cancer and their families. This tranquil space is connected to the surrounding nature; the roof reflects the ripples of the nearby Loch. The blue pre-weathered zinc standing seam panels not only beautifully follow the geometry of the roof but they also reflect the ever changing light. The building is also a model of sustainability, using a heat pump and natural ventilation.

Last but not least (and back to a very contemporary building), is the Space Park Leicester by Shephard Epstein Hunter architects. The project is built on a former contaminated brownfield site but also alongside the Grade II listed Abbey Pumping Station, and creates a community of industry, academia and students driving world-leading research. The facade combines dark grey pre-weathered and lighter engraved zinc using various sizes and shapes of flat lock panels.

These projects not only demonstrate the incredible variety of finishes and systems that are available when using zinc roofs, facades and indeed rainwater systems but also the wide range of building typologies that can use zinc as a building envelope. In addition to the aesthetics, durability and recyclability is the certification that is available whether it be BBA system certificates for warm roof construction, or Brooft4 fire tests. Another aspect of zinc roofing that is critical is the installer



Liverpool Central Library

network. Across the UK and Ireland almost 200 contractors regularly install zinc roofs and facades and are able to offer material warranties of up to 50 years.

Finally, at the end of 2024 zinc roofers and ornamentalists received cultural recognition from UNESCO. On 4 December 2024, in Asunción, Paraguay, the Intergovernmental Committee for the Safeguarding of Intangible Cultural Heritage of UNESCO added the 'Know-how of Parisian zinc roofers and ornamentalists' to the indicative List of the Intangible Cultural Heritage of Humanity. This craftsmanship, which originated in the 19th century, is passed down from generation to generation through roofing training centres in Paris, across France and other countries including the UK.

The material also aligns with projects that are looking to the future, contributing to the fight against climate change through the installation of insulation and the implementation of efficient air circulation systems. It is hoped that the UNESCO recognition will raise awareness of the professions of zinc roofers and ornamentalists, as well as inspire a new generation of craftspeople to embrace the material within the industry.

Jonathan Lowy is operational marketing manager at VMZinc

Education and Healthcare infrastructure generally requires buildings to be extremely durable while not requiring excessive maintenance



Space Park Leicester

Looking to the future

Vivalda discusses how a creative cladding system transformed a Northern Irish primary school, using engraved volcanic rock panels to create a striking facade that celebrates diversity, local history, and hope.



Creative cladding has been instrumental in the aesthetic of a unique school project, that reflects its history, while pointing to a vibrant future. Using Rockpanel volcanic rock cladding, Mill Strand Integrated Primary School in Portrush, Northern Ireland, has created a stunning effect to create a unique and highly personal statement of optimism and inclusion.

Designed for their impact resistance, non-flammable properties and cleanability, this facade product is often specifiers' first choice for schools, colleges and other public sector projects. In the case of Mill Strand, the material's non-linear structure made it ideal as a blank canvas on which to convey the rich history of the school, as well as its role as a beacon of hope and inspiration for pupils, teachers and parents alike. First opened in 1987, the school enjoys a mix of

pupils from different religions, cultures and backgrounds. For the new building (which opened in late 2024), it was important to create a shared vision for all involved – and this unusual facade now acts as a keynote element of the new development.

Faced with the design and construction of a new school, the leadership team was keen to create a legacy for the old school, while embracing the idea of a fresh chapter. As part of that process, Belfast-based 'graphic recorder and visual facilitator' Stéphanie Heckman, who has worked with UNESCO, Friends of the Earth and the British Red Cross, was asked to create several feature facades for the building.

Recently retired head of Mill Strand, Philip Reid, said: "Every school is unique, and more than a building, it is a community. In leaving the old school behind, it was important that the ethos, values and history of the school were preserved and articulated. This rich tapestry needed to be transformed into concise and impactful facades, and literally 'set in stone,' using images captured through the life of the school, local landmarks and key quotations, including Mill Strand's four core values."

The vision to create

Stéphanie Heckman commented: "I'd never worked on something of this scale before, or on something with such lasting impact and which clearly meant so much to the client. The murals tell the story of the school's founding, the special connection teachers and pupils felt with Mill Strand, the beach where the school was originally sited and named after, and the core values that drive the staff – in short, the heart and soul of the school."

Born out of the Good Friday Agreement, Integrated Schools in Northern Ireland support an ethos of diversity, respect and understanding across cultures and religions and between those of different socio-economic backgrounds and abilities.

Teamwork – turning the vision into reality

Founded in 1965, Belfast-based Isherwood + Ellis were architects for the project, with Lowry Building and Civil Engineering of County Tyrone, appointed main contractor. Quantity surveyor Adam Lowry said: “I spoke to Rockpanel’s Ann Bone, who was very informative about the material and fixing methods available, and we talked through options, depending on the application. We engaged Vivalda, who provided complete drawing mark-ups and board rationalisation to minimise wastage. They also supplied panel samples of the CNC laser engraved mural design for client approval.”

Vivalda are able to shape, drill, cut and finish panels to almost any specification using leading edge technology, and hand-held tooling. Vivalda Ireland director, Darren Bowden: “This was certainly one of the most challenging, and rewarding projects we have been involved with for many years. The job required the skills of the whole Vivalda Group, including technicians in Ireland, Birmingham and Hull, to fabricate the complex facades.”

One of the biggest challenges lay in streamlining Stéphanie Heckman’s designs into artwork that could be replicated onto the façades. Having consulted with her, the architect and Vivalda recommended engraving the illustrations onto the board, using 3 mm straight cutters to achieve as much detail as possible.

Bowden said: “The actual fabrication stage of this project deserves a mention, given the fact that there were approximately 30 panels involved (some flat, some curved) – each requiring around eight hours to etch. The work demonstrated the importance of technical skill and teamwork.”

GC Joinery installed the facades at the school. Managing director Gordon Cairns explained: “We found the process of installation very satisfying. Detailed drawings were supplied, along with a labelling system which simplified the process. The high quality pre-bored panels fitted accurately into place, with one or two minor adjustments being easily carried out on site with simple tools. I know that everyone is very pleased and proud of the finished work.”

A special project

Rockpanel specification manager Ann Bone commented: “What a special project to be



part of, and one where many of the features that make Rockpanel unique, were able to shine. The lightweight boards are non-combustible, highly resilient to weather, and can be routed, perforated and curved to realise even the most ambitious creative concepts and specifications. Four RAL-matched colours were used at Mill Strand. Working as a team, Stéphanie, the architect, main contractor, installer, and ourselves were able to create something the school and the wider community can be proud of, as part of their story.”

Stéphanie Heckman said: “The murals are the face of the new school, the first thing anyone sees when they come to visit, to work or to learn, each day. They trusted me with the design from start to finish, and together we crafted a visual narrative that will last decades.”

Vivalda’s Darren Bowden concludes: “This project really shows how creativity and teamwork can create stunning results. More architects and developers are approaching us to help them realise often complex facade designs – and this is a trend that we see growing as they realise the true potential of rainscreen facades.”

Faced with the design and construction of a new school, the leadership team was keen to create a legacy of the old school, while embracing the idea of a fresh chapter



Smart data for safer buildings

Naveed Mohammed of Inspectas Compliance looks at the critical need to make sure safety information flows from to property owners in projects, and says it's nothing new.

Having a competent, transparent and communicative project team has never been more necessary. Clients are looking ever more closely at how they appoint architects, to ensure they have an experienced and knowledgeable team on their project.

A key priority is having exceptional information flow through the design and construction team to the end user. Since the Grenfell tragedy, this has led to the evolution of the term “Golden Thread of Information” which although primarily relates to “higher-risk and high-rise residential buildings,” legislates best practice for all areas of architectural design

through to operational management of a building, its information and the training which is given to end users throughout its life.

The Fire Safety Act, Fire Safety (England) Regulations, Building Safety Act for “Higher Risk” buildings have recently been amended to:

- bring in key elements such as flat entrances and external wall construction;
- give new requirements to protect residents and responding fire fighters;
- define the “Accountable Person” for fire safety requirements in high risk residential buildings;

- increase the requirement to record fire risk assessment;
- increase the requirement to record fire safety arrangement;
- enhance requirements for coordination and cooperation;
- ensure residents have access to fire safety information.

Regardless of the “Golden Thread,” haven’t the majority of these requirements been the case since the advent of the CDM Regulations?

The CDM regulations 1994 came into effect in March of 1995, and are still in force with the latest revision CDM 2015. While names and roles have changed or become obsolete, those who’ve worked in our industry for decades can see that the core principles haven’t really changed.

The DNA of the regulations has always been to ensure the need for architects and designers to ensure that occupiers, property managers, facility managers and maintenance contractors can effectively manage and maintain the buildings, whether newly constructed or refurbished, and the regulations established the need for a Health & Safety file which should evolve and document the building throughout its life.

All informed professionals, contractors and clients know this, so aren’t the recent legislative changes merely reinforcing what the CDM regulations state should be done?

When considering the recent requirements of the “Golden Thread” it’s clear to see that the core requirements are unchanged, and “communication” is key to end users. This is the same for all construction projects, and potentially even more important in educational establishments where challenges include:

- ageing building stock;
- evolving educational needs requiring adaptation and change;
- limited funds;
- severe timing restriction on projects (holiday and funding periods);
- historically poor record keeping (pre-1994);

Over time, there has been a significant increase in the information end users of a building receive during and at the end of a project. Technology, PDFs, Building Information Management (BIM), and a myriad of facilities management IT solutions have given us this information “on tap”. Yet because of this digital



progress, many end users still find it difficult to make sense of the information, keep it up-to-date when changes happen, prioritise legislative requirements and pass the right information onto end users.

So how can we improve the information flow so the “Golden Thread” and CDM regulations are adhered to?

1. An up-to-date record of how the estate is run

De-clutter historic documents and records into an archive. Some records are required for proof of maintenance etc but it’s essential that an estates team knows what’s important to the current operation of a building. Architects, or the Principal Designer, can help with this process from the outset of a project.

Having a competent, transparent and communicative project team has never been more necessary

2. Accurate floor plans

Remodelling is constant in educational establishments, and keeping up-to-date with changes is essential. Floor layouts critically impact the accuracy of building management information such as fire strategies, fire compartmentation surveys, fire door surveys, asbestos management, asset management, building services management, evacuation strategies, time tabling etc.

All of these are necessary for buildings to maintain compliance and projects should not be commenced until the client has accurate floor plans.

3. Principal Designer competency

Architects should work with the Principal Designer to ensure the right information is available to the design team at the outset of a project to allow this information to evolve for effective operational management.

A Principal Designer must be “competent” under the CDM regulations but also have a good knowledge of operational management of buildings. Consider the people’s experience on the project, not necessarily the company.

4. Health & Safety file awareness

Ensure clients understand their obligations to maintain the Health & Safety file under the CDM Regulations. This should remain with the building for its lifespan and be passed on if sold. Sometimes a Health & Safety File isn’t “available” or has even been thrown away! The quality and content of the information should also be relevant. All too often we find unnecessary information in files which only muddies the waters, wastes time and causes higher risks.

5. Appropriate training

People in charge of such H&S information should clearly understand what should be in the file. Only when fully conversant with the H&S file contents and how the building functions on a day-to-day basis, will they get the full benefits of its purpose. Ensure end users and managers receive the appropriate training whether done in house or by bringing in a specialist involved in the project and document this training.

Naveed Mohammed is health and safety divisional lead at Inspectas Compliance



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Safety on the dance floor

Steve Green of Harlequin Floors explores the critical role dance floors play in dancers' safety and performance, highlighting the research behind creating optimal environments for longevity that support users.



Seattle Community Centre © Sam Arellano

Professional dancers can spend hours working in a dance studio, it is their place of work and should offer a safe environment that is fit for purpose. The floor is a dancer's most important work tool; not only as a canvas for their creativity, but also as protection against slips, falls and longer-term stress injuries.

Experienced dancers can judge a good floor instinctively as to whether or not it feels right. And if it feels right they can

effectively forget about the floor and concentrate on putting all their focus and concentration into the artistic performance. That confidence comes from reassurance they are not going to slip and fall, that lifts can be performed safely and on landing from jumps, the response of the floor consistently returns the right amount of energy absorption. Quantifying this subjective rating of a floor into a series of repeatable tests is no simple task.



There is a common misconception that a well-designed sports floor will suit the needs of dancers

Anyone specifying floors for dance should remember that dancers may not be the commissioning clients, but they are the end users. Major dance companies understand this, which is why it is not uncommon to ask their dancers to 'test' floors before the final choice is made.

There is a common misconception that a well-designed sports floor will suit the needs of dancers.

There are some critical factors that distinguish the requirements of dance from those of sports played on a sports floor. Many sports require a firm floor which allows balls to bounce predictably. By contrast, dancers need more absorption from the floor to protect them on landing from jumps. A good dance floor instils confidence in dancers to give full expression to their creativity, safe in the knowledge the dance floor will offer a consistent response.

Unlike sportsmen who wear increasingly high-tech air-cushioned shoes to give grip and protect against impact injuries, the modest ballet shoe has barely changed in design since the mid-18th century. Made from soft leather, canvas or satin, the ballet shoe is very flexible, has a thin sole, and offers little protection for the wearer.

But not all dance floors are the same, there are recognised international standards

for general types of floor, but not yet for dance floors. Although it is customary to specify compliance with a published and recognised standard, using general flooring or sports floor standards will not ensure the right floor is installed. Only a floor developed specifically for dance will do. There may be a temptation to specify floors for aesthetic or budget reasons, or to specify sports floors in the mistaken belief they will be suitable for dance but there have been some high-profile examples where floors have had to be replaced by a dance company after the building is complete, and dancers have their first experience of dancing on the floors.

Correlating the subjective evaluation of floors as judged by dancers with measurement criteria has prompted a number of avenues for research, particularly in the field of biomechanics.

One leading researcher is Dr Boni Rietveld, a retired orthopaedic surgeon at the Centre for Medicine, Dance and Music in The Hague, Netherlands and past president of the International Association for Dance Medicine and Science. Rietveld observed: "There is a distinction to make between injuries caused by the floor and those caused accidentally. As far as the former are concerned, it is evident that there is a cause and effect relationship between dancers' injuries and the floor on which they perform."

"Generally, dancers should refuse to perform on unsuitable floors and demand the right to have a touring floor that has the same absorbent characteristics as the floor installed in their rehearsal studio. In this way, we would certainly be able to prolong the career of dancers, who, at the moment, stop at 35 years of age, because their bodies no longer work properly, or because of injury."

"In my opinion, a dance floor should be neither too supple nor too soft. A hard floor has the effect of causing serious return shock waves and can bring about injuries or premature wear in the cartilage. A soft floor causes the muscles, and therefore the tendons, to work harder. Additionally, a floor that is too soft can be dangerous for dancers because of the effect of surprise."

Another researcher is dance scientist and biomechanics expert Dr Luke Hopper with his pioneering research investigating the effects of dance floors on dancer performance and injury.

Luke explained: "Dance floors are an



Kingston University © Ed-Reeves

integral part of the dance environment, yet little information is available for the dance community that concerns how dance floors may affect dancer performance and injury. For the dedicated dancer striving to improve, injury can sadly be an all too common occurrence.

By gaining knowledge around the relationship between dance floors and dancer performance and injury, the dance environment can be optimised in order to give dancers the best opportunities in their training.

It is common to hear dancers describe a floor with words like 'sprung', 'hard' or 'stiff.' But what aspects of the floors are the dancers referring to when they make these statements? And do these elements of the floors really affect performance? These are vital research questions for dance research in the interests of dancer health."

Luke Hopper's research reported that: "injury occurrence is all too common in dance. Dancers will always push their bodies to the limit to get the most out of their training. It is therefore very important that safe dance environments are created by reducing any unnecessary injury risks."

This research found that dancers can be required to perform on substandard floors which were shown to affect ankle joint stress during dance movements. Dancers also demonstrated the distinct ability to sense changes in dance floor properties.

Dance institutions are now able to use this information and work with dancers in creating dance environments with the aims of helping dancers to dance better, stronger and for longer. The flooring manufacturer has a key role to play in ensuring dancers have a safe environment in which to rehearse and perform.

Steve Green is group marketing director at Harlequin Floors

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Grade II listed London school achieves carbon reduction through heat pump installation

The listed Victorian Gothic Revival 'Riverside School' is situated along the Thames, has successfully implemented a comprehensive decarbonisation project, featuring the Mitsubishi Electric 2*40kW CAHV and a 40kW QAHV heat pump units connected to K-con thermal and potable water vessels. This school has recently been fully refurbished and extended; and underscores the feasibility of integrating sustainable heating solutions within historic buildings.

HOB Mechanical Services the mechanical services contract, necessitated the design and installation of a pre-specified Mitsubishi Electric heat pump system. The project presented two primary challenges: space constraints within the designated plant room and to mitigate noise in a densely populated residential area.

Innovative Engineering Solutions:

In collaboration with Kooltech, HOB Mechanical Services engineered a bespoke



solution to address these challenges. Kooltech's expertise facilitated the integration of their K-con product range, specifically tailored thermal storage vessels. Two custom-fabricated, stainless steel clad

vessels were externally situated freeing up valuable internal plant room space that houses the installation of two 255L stainless domestic hot water cylinders connected to the QAHV heat pump units.

To mitigate noise pollution, acoustic enclosures were incorporated into the design, achieving an additional 8dBA reduction from the CAHV air source heat pump units utilised for space heating. This, coupled with the CAHV units' integrated noise reduction capabilities, ensured minimal disruption to the surrounding community.

The project culminated in the successful installation of a high-efficiency heating and hot water decarbonisation system, adhering to stringent noise reduction parameters. This project shows how the implementation of sustainable heating solutions in heritage buildings, working together with engineers and suppliers achieves great results.

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Securing Health for the community at Leamington Spa



An over-demand for health services within the Lillington community in Leamington Spa prompted the development of a new two-storey health centre, which integrates primary care services alongside a range of community health teams. A requirement to meet Secured By Design security standards led to the specification of Integr8 window and door shutters from Charter Global. The Integr8 shutter is independently tested under the Loss Prevention Standard LPS 1175 to security rating SR2 and is recognised by Secured by Design as a police-preferred specification. Integr8 is a lintel shutter system, meaning that the unique design is engineered to integrate within the fabric of the structure and the built-in roller shutters sit within the load-bearing lintel of a window or door. This makes it an ideal solution for new-build projects in many industry sectors, as the hood box is completely hidden and in keeping with the aesthetics of modern building design. When the shutters are raised, a passer-by would be none the wiser that any shutters are present, however, when dropped, the shutters give a sleek and secure finish.

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The Royal Ballet & Opera: Over 30 years of Flooring Excellence with Harlequin

The Royal Ballet & Opera and Harlequin have a long-standing relationship lasting over 30 years, working collaboratively across a variety of productions and performance spaces. Throughout this partnership, Harlequin has supplied sprung and vinyl performance floors, supporting the safety, precision and artistic excellence of both ballet and opera performances.

At the heart of the Royal Ballet & Opera is the main auditorium stage, a solid theatre stage predominantly used during opera productions. However, when The Royal Ballet needs to rehearse or perform on the main stage, the stage crew begins the transformation using a bespoke ballet wagon. This wagon is fitted with Harlequin Liberty sprung floor panels, designed to deliver support and responsiveness to ballet dancers.

The ballet wagon allows for an easy transition between a rigid theatre stage for opera and a sprung floor for ballet. Stuart Robertson, Assistant Technical Director at Royal Ballet & Opera, said: "When the ballet dancers come onto the stage they know that the flooring is always the same sprung floor. I think this is very important for us in order to provide that confidence across the technical teams and the dance companies."

The Royal Ballet & Opera also rehearse in their studios, each equipped with Harlequin sprung flooring and Harlequin Cascade performance vinyl. Emma Wilson, Director of Technical, Production & Costume, said: "A sprung floor means that we've got the safety of our dancers and the quality of their



performance at the forefront of our minds." Among the five studios, the Clore Studio stands out as a versatile space, often used for rehearsals as well as performances by visiting companies. With its seating tiers, it offers an intimate setting that supports both creative exploration and public engagement.

As well as the theatre auditorium that is home to various opera and ballet productions throughout each season, there is the Linbury Theatre inside the opera house. Last year Harlequin worked with the Royal Ballet & Opera on a production of *Dark With Excessive Bright* in the Linbury Theatre.

The *Dark With Excessive Bright* production consisted of three custom designed stages, all with a Harlequin Liberty sprung floor, in a teardrop-like shape. The Royal Ballet & Opera chose a Harlequin Cascade vinyl performance floor for the three stages and a Harlequin Reversible Pro performance vinyl floor underneath and in between each stage.

For more information or guidance on specifying the right flooring for your performance space, contact us.

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Harlequin works with architects and specifiers worldwide

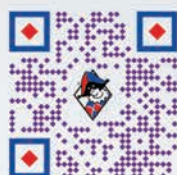


Glorya Kaufman

Harlequin provides a turnkey solution for all performance spaces, from initial design to expert installation, offering advice and guidance every step of the way. With an extensive range of sprung floors, vinyl floors, dance mirrors, ballet barres and dance studio equipment, Harlequin can provide everything a good performance space requires.

For more information contact our technical team:

architects@harlequinfloors.com +44 (0) 1892 514 888



Can lighting really transform campuses to boost safety, cut energy use, and enhance design?

University campuses today are under increasing pressure to improve safety, meet sustainability targets, and create environments that enhance wellbeing and place. Across the UK, Urbis Schröder is helping institutions achieve these goals through innovative and intelligent lighting solutions.

Smarter lighting for safer, greener campuses

At Nottingham Trent University, safety and sustainability go hand-in-hand. To enhance visibility and peace of mind across its campuses, the University turned to Urbis Schröder's SHUFFLE smart pole — a sleek, multi-functional solution combining high-quality lighting, intercoms, CCTV, and beacons into a single, customisable column.

Each SHUFFLE is tailored to its location and features:

- Precision optics for targeted light distribution
- Warm white LEDs (2,700K) to protect the surrounding woodland ecosystem
- A 360° camera and two-way audio-visual intercom for enhanced security
- Custom branding in university colours for visual identity

All units are managed through Schröder EXEDRA, an open lighting control platform



Nottingham Trent University

that provides real-time performance monitoring, minimises maintenance, and future-proofs the system.

In 2022, NTU was ranked the 2nd most sustainable university in the world in the UI Green Metric University Rankings – a testament to its commitment to environmentally responsible infrastructure.

By combining safety with intelligent lighting design and operational efficiency, NTU has enhanced both the functionality and feel of its campus — all while staying true to its sustainability ethos.

Linking innovation to preservation

While NTU prioritised safety and visibility across high-traffic urban campuses, Keele University faced a different challenge: enhancing safety on campus without disturbing its dark-sky environment, which supports active astronomical research and public observation.

Preserving dark skies while improving campus safety

Keele University in Staffordshire is home to an astronomical observatory that has been active since 1962. Any lighting upgrade would need to protect the observatory's dark skies while improving safety – particularly on Woodmeadow Walk, a previously unlit route between campus buildings that posed a concern for pedestrians.

As part of a wider energy-reduction programme in 2017, the University partnered with long-standing contractor Altitude Services, who brought in Urbis Schröder to deliver a sensitive, low-impact solution.

To light the path, Urbis Schröder proposed PHAROS bollards – low-level, energy-efficient luminaires with precisely engineered optics that deliver focused ground illumination without any upward light spill. Installed every 10 metres, they provide a continuous safe passage while reducing installation and long-term maintenance costs.

The luminaires are also connected to Schröder EXEDRA, giving the observatory team full control of light levels. A simple switch within the observatory dims the bollards to just 20% output during observation periods, preserving sky quality while maintaining a safe route for pedestrians. To further enhance campus lighting, AMPERA and PILZEO



Keele University

luminaires were installed across car parks, roads, and footpaths. Both solutions offer a long service life, reduced maintenance, and significant energy savings compared to the previous high-pressure sodium lamps used — delivering improved safety and strong return on investment.

Through these upgrades, Keele University has strengthened safety and sustainability without compromising its core research activities. The result is a well-lit, environmentally respectful campus that supports both people and purpose.

Lighting the way forward

Urbis Schröder continues to lead the way in connected, sustainable lighting — setting the benchmark for what modern institutions and campus environments can achieve. With their new range of aesthetic solar lighting solutions, the company remains ahead of the competition in both design and innovation. Leading the way others follow.

Contact Urbis Schröder to find out how the company can support your next project, or visit the website to explore other success stories.

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Passivent's ventilation solutions are top of the class

Passivent has supplied a combination of Hybrid Plus2 Aircool ventilators and Hybrid Plus Airstract roof ventilation terminals for a new London primary school to help create a healthier, more comfortable learning environment for children and staff to thrive in.

Greatfields Primary School in Barking and Dagenham is a three-form entry school which will eventually serve 630 pupils. This £11.8m project was overseen by main contractor Auburn Group who worked alongside Net Zero Buildings, their offsite construction partner. As the structure was built offsite, this minimised disruption in the local area during the construction phase and helped meet overall sustainability targets for the project.

Working with Cedar Mechanical and Electrical, Passivent supplied 58 Hybrid Plus2 Aircool wall ventilators, each mounted behind an external weather louvre, to ventilate the classrooms with fresh air from outside. The team also supplied several of its Hybrid Plus Airstract roof terminals for ventilation of the school's main hall. Passivent provided temperature and CO₂ sensors in each space along with a 35-zone iC8000 controller to regulate the internal environment and the whole system was linked back to the Building Management System (BMS).

Passivent's Hybrid Plus2 Aircool and Hybrid Plus Airstract units both operate on three modes of use for ventilation provision or extraction depending on the needs of the building and outside conditions. By drawing on both natural and mechanical ventilation techniques, the system is designed to be more energy efficient and therefore cost effective.



The Hybrid Plus2 Aircool units are perfect for classrooms and can be mounted in a wall or window, and they are also available as a ducted version for installation in a ceiling void. The roof-mounted Hybrid Plus Airstract terminals come with a 15 Year No Leak Guarantee and are particularly suited for large open spaces such as school halls and sports halls.

Marcus Bloomberg, Electrical Operation Manager at Cedar Mechanical and Electrical

commented: "We were extremely impressed with the results of incorporating Passivent's natural ventilation solutions into this project. Not only does the system deliver excellent airflow and create a comfortable environment, but the unique design of the units also stands out. The softer, curved shape adds a touch of elegance and blends beautifully with the overall aesthetic, providing a refreshing alternative to the typical rectangular units."

Marcus went on to praise the service provided by Passivent throughout the project, having supplied and commissioned the system on time. Commenting he added: "Ray, Passivent's commissioning engineer, was instrumental in the project's success. His expertise, professionalism, and dedication were exceptional throughout. He went above and beyond to ensure the system was installed and functioning perfectly, and his proactive support was invaluable. He is truly a credit to the company. We are thrilled with the outcome and highly recommend Passivent for their innovative products and outstanding team."

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Doors for demanding locations – The evidence is all in Black and White

Interior timber doors required to fulfil the myriads of requirements presented by demanding locations, can often fall short of expectations. However, when it comes to those supplied by Swindon based Vicaima, a lifetime of performance, consistent quality and innovative design solutions, ensures trust and confidence are never misplaced.

For sectors spanning specialist living to medical, education and beyond, Vicaima's ability to blend the right doors for demanding locations with design aspirations is perhaps epitomized by two examples from its extensive product portfolio: Lacdor® Satin White, a long-standing symbol of sustainable and practical white doors has been a firm favorite with specifiers for many years. Prized for its ultra-smooth and durable factory applied lacquered paint finish, Lacdor® incorporates solvent free and low energy technologies to safeguard sustainable product supply today and in the future. Available in a choice of Satin White RAL 9003 and Satin Pure White RAL 9010, these doors are supplied with a matching edge banding as standard. What's more, both glazed and decoratively grooved variations are possible to cater for specific design scope. In addition, acting as a counterbalance within the monochrome look, sits the new Dekordor® HD Magnet Black. Part of the ever-growing laminates offering from Vicaima, comprising an array of trend-driven solid colour options and wood effects, with a robust surface finish



presenting high resistance and durability for challenging spaces.

Whichever end of the spectrum is selected, these design options are available to meet stringent regulatory and performance requirements. Whether the need is for Sound Reduction, where acoustic parameters encompass up to 45dB; Security considerations, incorporating both Secure

by Design or PAS 24 certification to ensure a safe environment or indeed Fire Performance with EN 1634 / BS476 tested and third-party accredited fire doors and door sets in FD30, FD60 and FD90 facilitate complete peace of mind, whatever the project.

Another important factor for demanding locations is size. Dimensional flexibility can often present frustrating limitations when striving to meet project objectives, leaving specifiers feeling underwhelmed by the constraints imposed by many door manufacturers and distributors. Conversely, Vicaima can fulfil the full spectrum of metric and imperial sizes, together with over-height or enhanced mobility widths as position requires.

For more information about Vicaima doors for demanding locations, take a journey of discovery with the new Interactive Interior Door Selector for 2025. A constantly evolving resource, filled with the latest design inspiration, technical assistance and budgetary guidance. Helping the market stay in touch, with the very best interior doors and door sets from Vicaima, for all types of applications.

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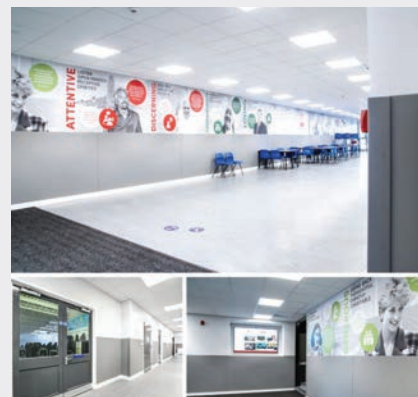
Scuffs, dents, and impact damage are unavoidable in education settings – but costly repairs don't have to be. Yeoman Shield solutions extend the life of buildings, reducing the need for frequent maintenance and repainting. This translates to lower costs and ensures budgets are spent where they matter most – on education.

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From primary schools to universities, Yeoman Shield helps institutions maintain smart, resilient interiors. Our expert installation team ensures a seamless fit, maximising performance from day one.

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Passivhaus-certified primary school featuring Wraptite® nominated for multiple awards

Nearly 600 pupils, including some 80 nursery-age children, are benefitting from learning at Scotland's first primary school certified to the Passivhaus standard. In recognition of this achievement, Riverside Primary in Perth and Kinross has been nominated for multiple awards.

The project won the 'Innovation in Delivering a Sustainable Learning Place' category at the Learning Places Scotland Awards 2023, and achieved a Silver Award in the Scottish Design Awards 2024. It was also a finalist in both the Public Sector category of the 2024 RICS awards, and the Project Under £20m category of the CN Awards 2024.

A key component in the building fabric specification was the A. Proctor Group's Wraptite® airtightness membrane. Installed to the external side of the structural frame, the fully self-adhered membrane contributed to an overall airtightness test result of 0.53 air changes per hour (ach) at 50 Pascals. The Passivhaus standard requires 0.6 ach or lower.



Meeting the Passivhaus standard was key to unlocking funding from the Scottish Futures Trust Learning Estates Investment Programme. By achieving the target, the school can be expected to use 50% less energy than a similar school that doesn't meet the standard. Postoccupancy monitoring is taking place to measure in-use performance against expectation.

Using Wraptite moves the airtightness barrier to the exterior face of the wall,

avoiding complex detailing around services and other typical penetrations at the internal face. As it is also vapour permeable, Wraptite helps to achieve high standards of airtightness without increasing condensation risk in the structure.

A benefit of choosing Wraptite was that it supported a local supplier. The membrane was supplied by A. Proctor Group from nearby Blairgowrie, contributing to the local economy. "Archetype originally specified a loose-applied, taped membrane solution," explained Kevin Dickson, "but as a local contractor, we prioritise using a local supply chain to deliver benefits in the areas where we work, so chose A.Proctor Group and its Wraptite product. As a fully-adhered solution, it removed the need for tape, making it less labour intensive, quicker to install and more economical."

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www.proctorgroup.com/products/wraptite



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