DESIGN FOR EDUCATION & STUDENT ACCOMMODATION

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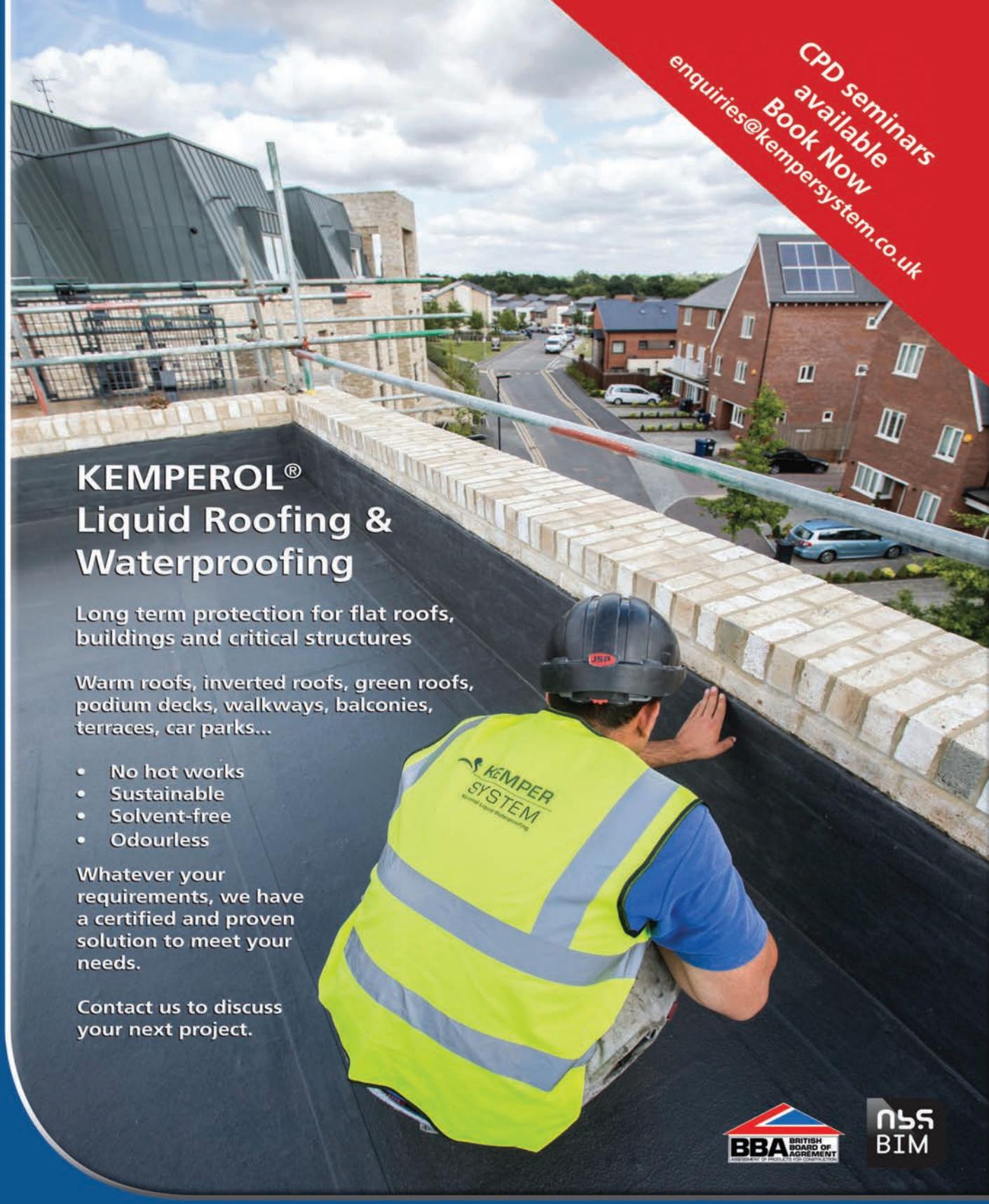

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Design for Education & Student Accommodation Supplement

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FROM THE EDITOR

As our contributor in this special supplement, Rob Charlton of Space Architects, makes clear on pages 11 and 12, the education sector has been through feast and famine over recent decades, when it comes to incentives and programmes to drive the creation of improved buildings for learning.

With the culling of one of Tony Blair's better ideas – Building Schools for the Future – by Michael Gove in the austerity years, the sector was left in something of a wilderness when it came to how new buildings would be procured. As Charlton points out, BSF led to a wave of building, from the humble to the extraordinary (Zaha Hadid's £4,500 per m^2 Evelyn Grace Academy).

Instead of a continuation of bold new builds, the Government pursued a make-do and mend approach, with the Priority Schools Building Programme refocusing on dilapidated schools which needed urgent repairs or replacement of facilities. In its second phase, the PSBP had its £2bn of funding fully redirected towards refurbishments and partial rebuilds.

Since 2017, the Department for Education has been pursuing a new Construction Framework, due to only last four years for design and build contractors accepted onto the list, and providing schools with the option of single, or batched schemes. The latter option doesn't allow school heads to directly appoint constructors from the framework however, instead requiring a competitive tender approach.

Covid hasn't deterred the Government, and it confirmed the second round of this £7bn framework in January.

There is a separate programme focusing on offsite, but the central framework, as Rob Charlton confirms, hopes to "learn lessons" from past procurement, but also "build on it." The other thing it aims to do is encourage further standardisation of design, with the justification being a new emphasis on "long-term value," plus a pledge to deliver zero carbon buildings.

While a standardised approach to zero carbon will be highly beneficial, whether or not a one-size-fits-all approach to most school spaces is the right way to go is highly doubtful in terms of efficiency. Although budgets will never be in the Zaha Hadid territory for most schools, our features in this supplement show that a bespoke focus on client needs is what brings true value. If the DfE wants 'long term value,' schools need spaces that will perform in a flexible way for each client, for the long term.

James Parker
Editor

ON THE COVER...
A new addition to The Skinners' School in Tunbridge Wells provides a combination of contemporary design and harmony with the historic buildings surrounding it. The library and classrooms extension is Bell Phillips Architects' first in the education sector
Cover image © Kilian O'Sullivan
For the full report on this project, go to page 14

STUDENT ACCOMMODATION

BIM workflow helps deliver student residences in Scotland

Images © Peter Barbour Photography

HLM Architects was tasked with designing new high-quality accommodation for 400 students at the University of St Andrews, Scotland.

The brief was to create communities where students could meet, learn and socialise, while also supporting academic and personal growth.

Both Whitehorn Hall and Powell Hall were designed and constructed within a very challenging timescale of under two years to get them ready for the new academic year.

The designs for the student residences included many "repetitive elements," said the architects. Across the two buildings there are three types of bedroom and six different types of communal space such as shared kitchens and living areas.

Both the buildings were designed using architectural design software, Archicad. The time-savings achieved by this software were significant, as Adam McAvoy, architect at HLM explains: "Using Archicad, we were able to create a fully detailed design for each type of room just once. We then hot-linked it into the model. If anything was updated in one of the rooms it would automatically update across all the others, saving us a huge amount of time."

HLM uses Graphisoft's Teamwork which allows multiple architects to collaborate on a project together. The team had eight architects in the Glasgow studio working on the project, all accessing the model via a local BIM server.

Although BIM wasn't mandated on this project, HLM uses a BIM workflow as a matter of course across all projects.

McAvoy says: "In this case BIM was a real enabler on the project. It improves efficiency in all processes with everything kept in a single model. For example, when the contractor needed to make changes due to budget constraints, we were able to very quickly implement those changes."

Following a fast-track 12-month build, both residences were ready for students to move in less than two years after HLM had drawn up the initial concept designs.

TIMBER

Timber refectory for Roehampton school completes

A new timber refectory building for Ibstock Place School in Roehampton has completed, designed by Maccreanor Lavington architects following a competition.

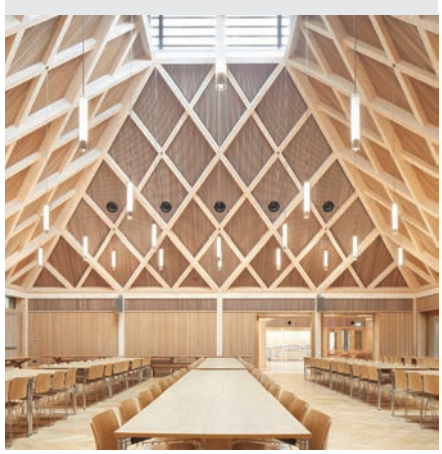
The new building for the independent co-educational school sits at the centre of the campus and will provide "abundant natural light and garden views," said the architects.

The large floor space increases capacity will support a "diverse multi-use programme." The building also houses a full 'commercial' kitchen and hospitality annexe.

Soft stock brick and plain clay tiles reflect the adjoining landscape and buildings," and will support a timeless longevity," said the architects.

The timber roof structure "provides both a sense of intimacy and grandeur," said Maccreanor Lavington. Comprising three glazed lanterns, it is fundamental to the design's natural ventilation strategy.

The glulam lattice structure of the vaulted ceilings frame inset panels of oak, softening the acoustics in the space. The form of the building is designed to "moderate the internal environment without air conditioning." A cloister protects pupils queuing for lunch and provides shading from the afternoon sun.



STEM

£7m STEM facility completes in Bristol

Work on a £7m specialist STEM (Science, Technology, Engineering and Maths) and creative further education centre at a college in Bristol has been completed.

Designed by architects Hewitt Studios, the three-storey Brunel Centre building at South Gloucestershire and Stroud College (SGS) "puts sustainability and wellbeing at the heart," said the firm, with a number of key features prominent in its design.

Pick Everard provided cost management services throughout the project, working closely alongside project manager Provelio, and the main contractor, which was Willmott Dixon.

During the pre-contract phase the decision was made to switch from a traditional steel frame for the building to a CLT one instead, resulting in a significant positive impact on the building's carbon footprint – "the switch itself meant we have prevented 445 tonnes of carbon from entering the atmosphere," said Barry Reeves, associate quantity surveyor at Pick Everard.

The building is naturally ventilated throughout, uses air source heat pumps, and there is a photovoltaic system integrated into the facade's brise soleil. The building also features a 'live' monitoring panel in the foyer enabling students to see exactly how much energy, water and other services the building is using.

The project team adopted a "fabric first approach" meaning the scheme is highly insulated and sealed. This, combined with natural ventilation and lighting, solar panels and the CLT frame, "delivers a highly sustainable building," said the architects.

The project also saw the replacement of 400 m^2 of car park and tarmac replaced with wildflower meadows to encourage biodiversity on the site.

Now complete, the 1,722 m^2 building sits across three storeys and will provide teaching and learning spaces for hundreds of students for STEM and creative subjects.

COMMENT

Innovative school design isn't the enemy of fire safety

Keith MacGillivray of the British Automatic Fire Sprinkler Association looks at the debate around whether automatic fire sprinklers are in conflict with innovative school design

What could be more beneficial to the design of a school than the inclusion of automatic fire sprinklers at the design stage? (This is already required in Wales, since 2014 and Scotland, since 2010.)

Why is this beneficial to the design I hear you say? Firstly, and most importantly, the sprinklers would ensure that any fire was extinguished or controlled in the early stages, and allow the escape of those in the building and secondly, prevent the fire from becoming a major loss as so many school fires in England do.

The sprinklers would allow all the pupils, teachers and staff to make their escape safely and would reduce the risk to firefighters who are called to the fire.

Secondly the sprinklers would protect your design and allow it to remain for many years to come so that teachers, pupils and the public are able to enjoy the inspiring learning and community spaces.

Finally, sprinklers allow architects design freedoms that would not normally be available under the current building standards.

These include greater heights in larger meeting and circulation areas, longer corridors without being broken up by doors, a greater mix of building occupancies such as community spaces and in the case referred to by the BDP architect quoted later in this piece, a police station and library.

Other recent school developments in Scotland have seen similar inclusive projects, such as Breadalbane Academy in Aberfeldy, which includes a school, gym, swimming pool, library, sports hall and other shared community facilities.

Recent research by Zurich Insurance analysed the fire risks posed by 26,866 primary and secondary schools in England. It found the average school posed a fire risk 1.7 times greater than non-residential buildings (with a fire risk score of 0.58 and 0.33 respectively according to Zurich's model).

When compared to 2.9 million non-household properties, schools were also three times more likely to fall into the "high" fire risk category (58 per cent vs 20 per cent), as defined by the study.

The predominant causes of fires in schools are arson, smoking, electrical and cooking, yet the majority of these fires could be controlled or extinguished by a sprinkler system.

Sprinklers allow architects design freedoms that would not normally be available under the current building standards – including greater heights in larger meeting and circulation areas

It is not just the damage to the building that is critical, it is the disruption to studies, the loss of teaching and study materials, the difficulty in finding alternative suitable accommodation, and the loss of community facilities which are frequently included in school buildings.

The designs of new schools in Scotland are testament to this; not only fire protected by sprinklers but also sustainable, as Lindsey Mitchell, architect and a director at BDP's Glasgow Studio explains, referring to a recent project in Fife.

"In Waid Academy in Anstruther, BDP designed and delivered a community school project that included a high school, police station, library and a community hub. We applied a sustainable approach to design on the project, and a recent report tracking energy use since it opened demonstrates the building is working within the SFT LEIP targets – which were not considered at that time. In a time where there is a heightened need to take learning out of the classroom, the use of sustainable, educational buildings and landscape is vital for varied, creative teaching methods. A sustainable campus provides a positive legacy for local authorities and demonstrates their commitment to providing a sustainable community environment."

As well as allowing design freedom for greater open plan spaces in Waid Academy, the inclusion of automatic fire sprinklers make the school more sustainable in the long term. The decision to fit sprinklers into all new built schools in Scotland in 2010 was made against a background of increasing fire losses of school buildings across the country and an ambitious plan by the Government to build a sustainable school building portfolio.

Architects are key to this building programme, with flexible multi use designs which are both inspirational and practical and do ensure that the structures meet the SFT LEIP standards together

As well as allowing design freedom for greater open plan spaces in Waid Academy, the inclusion of automatic fire sprinklers make the school more sustainable in the long term

with being sustainable against fires and fire losses. It is not just the loss of the structure that makes it unsustainable following a fire, it is the amount of gases that are released into the atmosphere during a fire, together with the contaminated runoff from the water used by the fire and rescue services and the cost of keeping fire appliances running and detaining Firefighters on site while damping down after a major fire, the rebuild cost and energy is only part of the equation.

In conclusion, we support fitting sprinklers in all new build schools in England and Northern Ireland, and are advocating sprinklers to be mandatory in the Review of BB100 (Design Guide for Fire Safety in Schools).

Keith MacGillivray is the chief executive of the British Automatic Fire Sprinkler Association

COMMENT

Learning to live with change

Rob Charlton of Space Architects discusses his practice's ethos of delivering buildings that improve people's lives in the context of education, and the changes the sector has undergone recently

Having been in practice for almost 30 years, I have spent a lot of my time designing school buildings, and as such have seen an enormous amount of change. However, most of the change is not necessarily in design, more to do with procurement, and depending on the Government's approach.

When I started out in the 1990s, there was very little investment in schools. Most buildings were in a poor state of repair, and hadn't been maintained for decades. Much of the school estate comprised either Victorian buildings or lightweight 1970s CLASP structures, built in response to the baby boom.

With the election of Labour in 1997, things began to change. Tony Blair's mantra was "Education, Education, Education." Blair committed to massive capital investment in the public sector, including the health and school estates. Initially, the Government did not have an infrastructure to deliver an extensive work programme, and relied upon local education authorities to procure the work and develop new schools in a bespoke manner.

My first school at the time was Blyth Community College (BCC) for Northumberland County Council in 2000. BCC was a 1,200-student high school with a budget of £15.5m. It was a great project and a real team effort between the school, constructor and design team. This was in the days when partnering was very much in fashion.

The then Chancellor, Gordon Brown, could see the benefits of Private Finance Initiative (PFI), which would allow the Government to do more with less. In effect, it was mortgaging the construction of schools.

PFI was interesting as it also took into account the building's operational cost for the first time. However, often the construction budgets were tight, which affected the design. At the time, the specification was generally bespoke to each contract, meaning there was lots of variation.

The Labour Government then launched the £55bn Building Schools for the Future (BSF) programme in 2005, a centrally

Oakfields Community College, Middlesborough (L&R)


Blyth Community College, Northumberland

procured capital programme that would deliver hundreds of schools.

The first decade of the new millennium was an excellent time for architects. Budgets were generally over £2,000 per m², and in many cases the headteachers had free rein to design their 'perfect school.' These buildings were very headteacher-specific, making every one unique.

Space Architects have worked on many projects across the UK, including Knowsley, Hull and Lincoln, and this year marks the practice's 100th design for the education sector.

Under BSF there were many different approaches to design, with large amounts of informal space. Since returning to these buildings, most schools did not understand how to use the open-plan spaces effectively, and have enclosed them.

The most infamous BSF school was the Evelyn Grace Academy in London, by Zaha Hadid. As an architect, this is a fantastic building. However, as a taxpayer at £4,500 per m², it felt a little over the top.

In 2010 the BSF works came crashing down with the change in government, and the appointment of Michael Gove as Education Secretary. He stopped the BSF programme overnight and launched a review by Sebastian James to look at how we should design buildings in the future.

From our perspective as a business, it was a challenging time. Space Architects worked on 15 schools with more in the pipeline, and overnight, they were cancelled.

When the Sebastian James review was published, it suggested the standardisation of schools and the simplification of design. Circulation area was minimised, specifications changed and, critically, budgets reduced. In comparison to some of the BSF budgets, it was halved.

The Government then launched the Priority School Building Programme (PSBP) which looked to deliver a standard design across England by providing a detailed specification and budget. The PSBP has been very effective, and has delivered a consistent quality product at an affordable cost. Because the specification is so well defined, the schools are similar, no matter who the contractor and design team is.

As the PSBP chapter comes to an end, the Department for Education (DfE) has started implementing a new framework. It takes on board the learning from the past and builds upon it. The specification aligns with the previous framework's space standards; however, there is a focus on long-term value and not cost alone. There is an encouragement for further standardisation. Schools are to be net-zero carbon in operation, requiring investment in fabric, heating, cooling and energy generation.

When reflecting on the past 30 years, it is encouraging to see things have progressed, much of it for the better. We can always spend money and design fantastic buildings; however, we have a responsibility to provide taxpayers value, as well as to give every learner the best opportunity in life. Space Architects' ethos – for every building we design – is to help improve people's lives and make a difference to where they live, work, learn and play. For schools that is no different.

Rob Charlton is the CEO of Space Architects, part of Space Group

BUILDING PROJECTS

THE MITCHELL BUILDING AT THE SKINNERS' SCHOOL TUNBRIDGE WELLS

A vertical learning trajectory

Roseanne Field speaks to Bell Phillips Architects about their first education project – a new building for a fast-growing Kent grammar school which needed to provide a considered aesthetic result to harmonise with the historic buildings surrounding it

The Skinners' School, a popular boys grammar school in Tunbridge Wells, Kent, was established in 1887 and expanded over the years as pupil numbers grew to become a campus of separate buildings; however it continued to need new facilities. In 2013 Tim Bell, director at Bell Phillips Architects, and a formal pupil, received an 'old boys' newsletter asking if anyone was able to contribute money to help fund a new sports hall.

As Bell explains to *ADF*, he wasn't able to help financially, but instead offered his time to help with the design of subsequent buildings. "They had an architect and design team, but the next thing they needed to think about was a new humanities building," he explains. "We spent about six months working pro bono to help them understand what this new building was, what was going to go in it, where it should go on the campus."

With the completion of the new sports hall, the old brick gymnasium had become redundant, making the location for the new building fairly easy to pinpoint. However, there were still discussions about what the building would house. "We went through a process of looking at that, and it became clear that it was a sixth form centre, English department and library," Bell says.

Despite having got this far, including going through planning, the school lacked the required funding, so the project was put on hold for a few years until the pressure on school places got so great that Kent County Council decided to allocate money to Skinners as well as other schools for expansion. This, plus an undisclosed donation from another ex pupil and a fundraising effort, meant they were finally in a position to begin work.

Planning consent had expired in the years since the initial plans were put together and the budget had shrunk slightly to £3.25m, meaning new plans were drawn up. "But from that point it moved quite quickly," says Bell.

The project was the practice's first foray into the education sector, which Bell admits presented an additional challenge. "We had to read all the design guidance and get our heads round it," he says. "It was a way to get our first education project via a school and client that we already knew, the relationship and trust we had was very helpful in convincing them we were the right people for the job."

A good education environment

The building has three storeys, with the main entrance facing onto the schoolyard. Upon entering via a 'cloister' area, pupils find the main staircase on the left and the sixth form centre on the right, which includes intimate study spaces as well as more informal study

"We wanted to take the key Arts and Crafts features and try to translate that into something more contemporary, but also not steal the limelight from the existing buildings"

Ethan Ly, Bell Phillips Architects

spaces and a breakout area. The first floor houses the English department's classrooms, and the library and a conference room occupy the second floor. This layout was carefully chosen, as Ethan Ly, architect at the practice, explains. "It's a hierarchy of concentration, as you go up it gets quieter," he says. "With the library being a special place we put it at the top of the building to celebrate the form."

Although the school were keen to ensure the building would function precisely to their requirements – "they had this vision of really functional spaces at its core," says Ly – they were also open to letting the practice put forward ideas on the brief. In fact, Bell adds: "a lot of it came from us," continuing, "they wanted high quality classrooms, a great library – something that was uplifting and motivating."

Part of the required quality in the classrooms was making them dual aspect. A single-loaded corridor runs through the building with classrooms separated from it by a series of glazed openings, allowing the good daylight that's crucial to a good learning environment in from both sides. They also wanted to ensure good air quality, so installed an MVHR (mechanical ventilation with heat recovery) system – "ideally it would be entirely natural cross ventilation, but we couldn't quite achieve that," says Bell.

Getting acoustics right was a particular challenge in the library, which has a steep pitched roof. "We worked very closely with acoustics engineers to design the ceiling to perform in the way that it needs to for such a unique space," Ly explains. Bell adds that the school has commented how successful the acoustics are in the learning spaces: "They're very quiet; great places to concentrate."

Materials played an important part in the project, both for reasons of heritage and practicality. The library is finished with a timber ceiling which refers to the buttressed hall in the Main School. Ly explains: "we wanted to emulate the Arts and Crafts feel but give a more contemporary twist to it". Timber also features throughout the lower floors as well as the library. "It leads you through the centre of the building to the top," Ly says. "It creates some warmth in the special areas. of the building." Vertical planks of eucalyptus have been installed up the stairwell and in the library, adding a subtle echo of the verticality of the neighbouring 19th century buildings.

Elsewhere, the designers kept things fairly 'clean' and stripped back, largely for building efficiency reasons. "The overheating strategy heavily relied on an exposed concrete slab to absorb the thermal mass during the day," explains Ly. "Part of that strategy was to keep that slab visible, and then we had to design an acoustic ceiling, so a lot of these spaces are simple in that way, functionally."

Sensitive exteriors

It was a particular demand of the school that the new building would complement the existing gothic buildings – the Main School and Byng Hall – sitting on either side. "Their

brief was that it needed to be a dignified building that very much responds to the context," explains Bell. "They are very beautiful late 19th century buildings on the street frontage and ours sat bang in the middle, so it was really important that it was something architecturally worthy, and the client was absolutely in that mindset as well." The new building's visibility from the street made sensitivity even more pertinent.

In addition to verticality, the other main external approach used by the architects was exploiting the possibilities of brick, to tie into the earlier buildings. "We wanted to take the key Arts and Crafts and gothic features and try to translate that into something more contemporary, but also not steal the limelight from the existing buildings," Ly explains. To form the gable ends, as well as the window jambs, brick columns were rotated 45 degrees to create triangular piers. This was the result of "a lot of testing of what we could do to pay homage to these buildings," says Ly.

The Traditional Brick & Stone bricks manufactured by Engel Baksteen were laid using traditional bricklaying techniques, with the resulting aesthetic being preferred by the architects. They consulted with the bricklaying subcontractors early on to "make sure everyone was on the same page." The practice also included 'soldier' courses of brickwork above and below the windows, emulating the stone lintels that feature elsewhere.

Although not street facing, the practice knew the school facing gable was equally key, and therefore wanted to similarly echo the gothic style of the buildings next door. "It's an important internal elevation for the school," says Ly.

While the practice were careful to pay homage to the surrounding buildings, earlier additions had not been so considered. "Over the years they collected these buildings which don't necessarily relate architecturally to the existing buildings, in part due to the fact they're quite receded into the campus," Ly says. They therefore also felt a responsibility to unify the campus with the design of the new building. "The old playground is very much at the heart of the site, and around the other side of that sit these various ad hoc buildings," Bell explains. "It was really trying to create a fourth side to that collection of buildings that enclose the playground and create some sense to it so it adheres them together as a group."

Although the building was replacing the old gymnasium, the architects moved its footprint to improve how it sits in the

campus. "It was in a very awkward position, it was quite close to the school boundary and you couldn't circulate around it," Ly explains. "What we aimed to do was pull away from that boundary with our building but also give enough breathing room for the existing buildings as well." As well as generally improving circulation, it proved especially useful in allowing the school to implement one way systems in order to fulfil its Covid safety strategy.

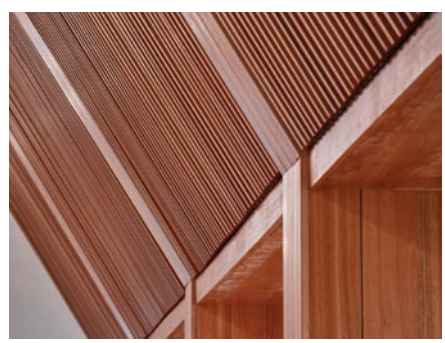
Despite being designed to echo the 19th century buildings, the new building also incorporates an array of sustainable features, including roof mounted PV panels, the HVAC system which exceeds Part L requirements, the glazing (reducing the need for artificial light), and the concrete to contribute thermal mass.

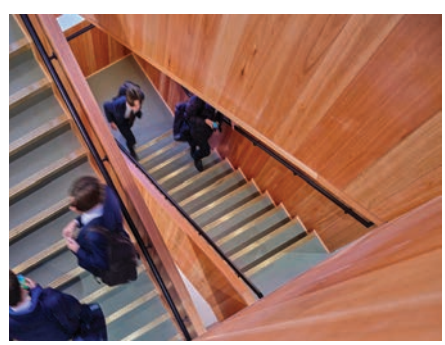
Construction

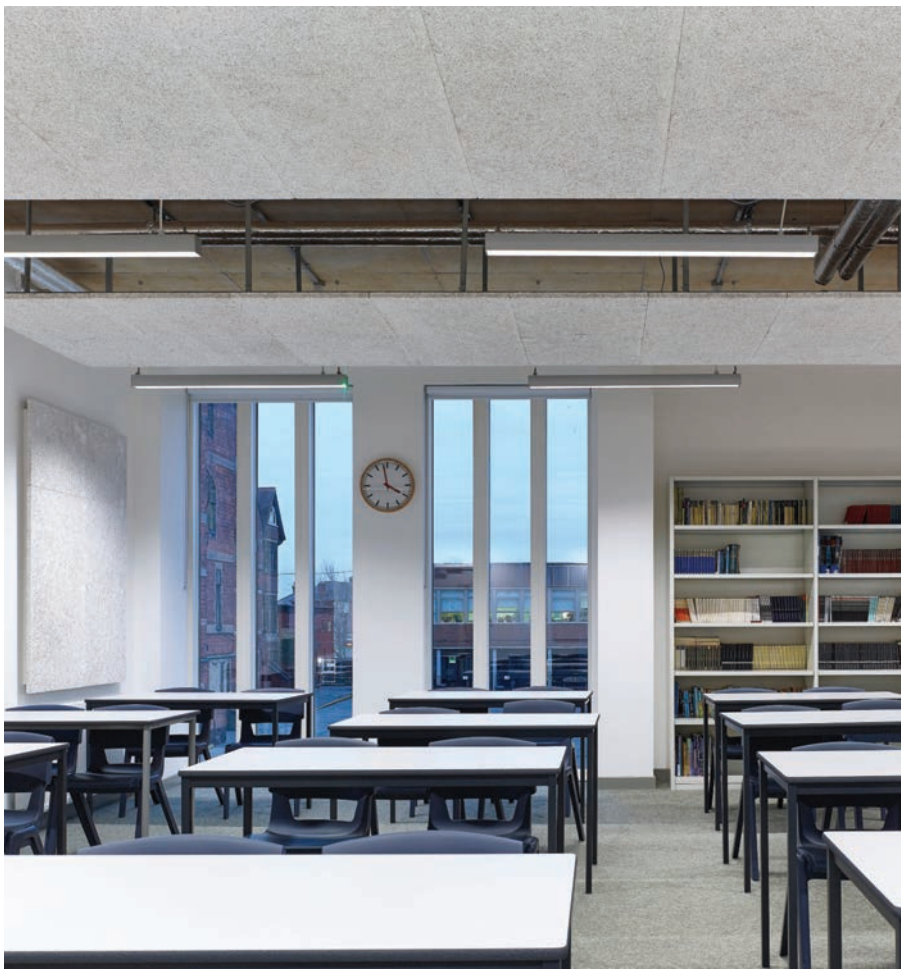
Constructing a building within a busy school campus was another challenge the practice had to overcome. "The location is safety-critical because it's the main access route for fire tenders and emergency vehicles into the playgrounds behind," Bell explains. They therefore had to keep that access open throughout construction. "We had to manage how we would design a building for the long term but equally think about how it could be built in the short term with students around."

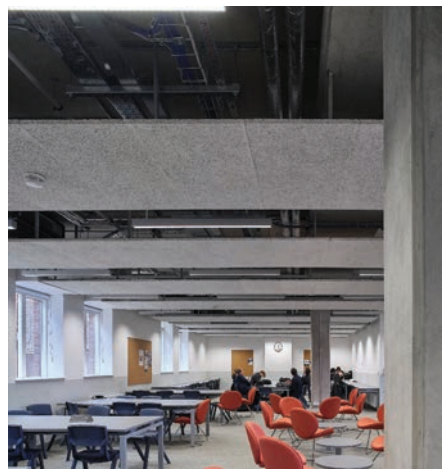
Where possible the team planned for the more disruptive work to take place during

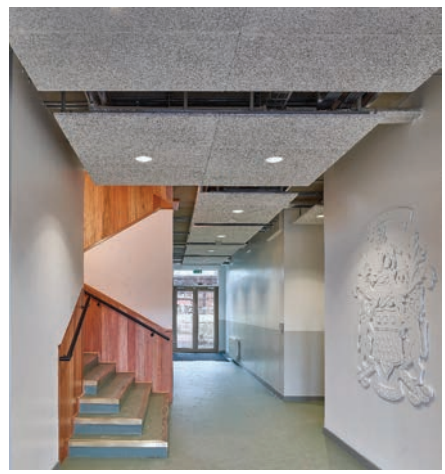
In addition to verticality, the other main external approach used by the architects was exploiting the possibilities of brick











PROJECT FACTFILE

Architect: Bell Phillips Architects
Client: The Skinners' School
M&E/fire consultant: Hilson Moran
Structural engineer: Built Engineers
Building contractor: BBS Construction
Quantity surveyor: Gleeds
Transport consultant: RGP
Rights to light assessor: Waldrams
Geotechnical surveyor: Ground Engineering
Glazing: Velfac
Structural fabrication: IG Lintels
Bricks: Traditional Brick & Stone
Timber: North Quay Trading
FF&E: Serota/Oasis Design
Gross floor area: 1,187 m^2
Cost: £3.25m

school holidays. "There had to be a lot of collaboration between us, the contractors and the school in terms of when the majority of the more intensive works could be done, and how that could be framed around keeping the children safe," Ly says. Work began onsite in April 2019 and ended up clashing with exams only a few weeks into the programme, so the practice worked with the school on relocating exam halls away from the site.

The practice had the additional hurdle of completing the project while working under Covid restrictions. "We were lucky our contractor was very aware, and planned ahead as much as they could," Ly explains. The main obstacle came in being unable to order materials, which along with other "compounded issues" added around eight months to the programme. The completion date was eventually reworked to October 2020. This allowed the school to start moving in during the October 2020 half term, while the contractor finished the landscaping (completing in January).

Ly says that in order to facilitate this phased completion, the architects had to work closely with the client and contractor to devise a strategy which would allow construction to continue, while simultaneously allowing free movement around the building, in the context of Covid. He comments: "Collaboration during these final few months was absolutely key."

Despite lockdowns and school closures, the teachers – who the practice also consulted heavily with in order to provide what they required in the classrooms – and students were "keen on jumping in and starting to use the building," says Ly. They have been in classes as much as restrictions have allowed, since the building's completion.

"It's been very well received, they seem to be enjoying it," says the architect. However, the practice also notes that the new addition has been warmly received by locals, as well as the client. "I think the school are very proud of it," adds Bell. "It's been a really good learning process, and we're keen to do more education jobs." He concludes: "We enjoy a challenge, so it's exactly what we wanted." ■

Throwing away the toilet taboo

Good architects know only too well the importance of promoting post-occupancy health and wellbeing, particularly in education settings. Purdie Proudman of Geberit explains how it's now high time that specifiers view school bathrooms as much more than just purely functional spaces

What is the real impact of dilapidated and ageing school toilets on pupil wellbeing? Geberit carried out a YouGov poll which found that an alarming number of children are experiencing anxiety about using school toilets – something that could be affecting their wellbeing and learning, according to a leading expert.

Hygiene worries have always been a natural concern when it comes to school washrooms. Little wonder, when you consider how this space is one of the most in demand and high-traffic areas of any school. In April 2020, daily survey app 'Teacher Tapp' asked 6,000 teachers about hygiene precautions in their school.

A staggering 37 per cent of respondents reported that they did not have soap available for pupils, nor did they have hot water – with the latter a result of outdated plumbing systems.

Fast forward 12 months, and the world is quite different. Investments have since been made across the sector, with the National Association of Headteachers (NAHT) estimating that an average of £8,075 had been spent per school in implementing hygiene and safety measures in the first few weeks of the academic year last September.

But what's the view from pupils – how do they view their school washrooms? That's what we wanted to find out when

The significance of the washroom space in schools is undoubtedly felt by many pupils

"The wellbeing of students should be at the heart of every school"

Gemma Corby, special educational needs expert

we conducted a YouGov poll of 1,000 parents. And it seems that the space is having much more of an effect on pupils then we may think.

Bathroom anxiety

Our poll of parents across the UK, undertaken in March 2021, revealed that almost half (46 per cent) reported that their children have experienced some form of anxiety about using toilet facilities in school. Meanwhile a third of parents also had concerns about standards of hygiene at their child's school.

The most common sources of anxiety among children were general standards of hygiene in the bathroom space (19 per cent), followed by lack of privacy (16 per cent). Parents also reported children's concerns regarding touchpoints and surfaces in school bathrooms, such as taps, handles and flushes (14 per cent) as well as a general anxiety about using toilets outside the home (14 per cent).

The significance of the washroom space in schools is undoubtedly felt by many pupils – and one would also argue that there has never been a more important time to offer pupils a space that they feel is safe, hygienic, private and comfortable.

School buildings

Meanwhile, our own snap survey of 100 schools found that school bathrooms were not at the top of the list of planning refurbishments for the majority of schools, with external school grounds (41 per cent) the most popular project and only 16 per cent of schools surveyed intending to refurbish toilets within the next 12 months. This comes after the announcement last summer of the Government's £1bn school rebuilding programme, as well as £560m for refurbishing existing school buildings.

Schools, naturally, have so much to consider when it comes to building projects, but it does seem that the impact of the bathroom space on pupils may be underestimated and that the humble school bathroom may be getting overlooked.

Wellbeing link

Special educational needs expert, Gemma Corby explained: "The wellbeing of students should be at the heart of every school. If forced to 'hold on,' pupils may end up with medical complications which will impact attendance. It also has a psychological impact – if a student is bursting to use the toilet, then concentrating on lessons is going to be near impossible.

And if this isn't bad enough, the problem is often compounded by pupils not drinking when at school, which isn't good for their health or ability to learn. Hygienic toilet facilities are paramount, now more than ever. The fewer contact points there are, the better. This technology is available and often seen in shops and offices, so why not schools?"

Indeed, innovations like touchless products can help minimise those many touchpoints in the busy, high-footfall spaces – taps and flushes for instance. Towards the end of 2019 the industry was already seeing the growth of touchless products, thanks to their obvious hygienic benefits. Unsurprisingly, this is expected to continue and we can predict strong growth in these products, which can help maximise hygiene in the school washroom by making the experience as touchless as possible.

It's not just this touchless technology that can help put hygiene at front-of-mind. Some toilet ranges incorporate a rimless design which crucially eliminates tricky corners and hard-to-reach areas around the pan. Likewise, flush technology means that the flushing system clears away residue effectively so regular maintenance and cleaning is made simpler.

But it's not solely about product innovations. Good design, too, can do much to help change our view of the space. Wall-hung ceramic furniture, for instance, allows pipework and cisterns to be neatly concealed behind the wall, lifting the toilet from the footprint of the floor so, once again, making cleaning and maintenance easier. Just as importantly, however, this option opens up the space and creates a clutter-free, more streamlined design which really helps to reinforce the perception of a clean space.

Significance of the space

It's time we change the perception of just how crucial the school bathroom is within the setting. School toilets can have a huge role to play in how pupils view their school. So, let's return to the expert Gemma Corby, who summarises the importance when she states: "Relationships are reciprocal, so if a school is giving the message that they do not care about the wellbeing of their students, it makes sense that students will not care about school – which is not the outcome anyone wants."

Purdie Proudman is channel marketing manager at Geberit

School spec: covered!

Vicky Evans of Twinfix discusses how bespoke canopies and covered areas can create a style to suit each education site and location, giving specifiers the ability to offer schools something unique, but familiar

Canopies and covered areas are an attractive and cost-effective addition to any school. Properly designed and installed, they can be eye-catching structures which provide additional learning space, eating space and play areas. They can be fitted almost anywhere, and can help to extend classrooms, providing fit for purpose entrance covers, as well as weatherproof covered walkways.

Bringing the inside outside

Canopies and covered areas are especially useful for providing outside eating and play areas, particularly in light of the unpredictable British weather. As the country looks to ease its way out of the Covid-19 lockdown, more covered outside space has been and will be needed as we move forward.

The mental and physical benefits of increasing the amount of daylight in our environment have been well documented. Indeed, numerous studies have shown that not only do we feel better as a result of more daylight, but we also concentrate better, sleep better, perform better, recover faster, and are happier.

Daylight affects us unlike anything else; our desire for it is deeply rooted in our souls, making it something we desperately need. Studies show that adding daylight into design results in a demonstrable increase in academic performance, and improvements in the behaviour of students. Having a bright, open, versatile space which can be covered if needed, makes it not only exciting and fun to learn in this space, but makes a real feature of the outside.

Covering off the design

Each school is different with specific needs which require bespoke solutions to fit with the existing structures, the students, the

Canopies and covered areas are a cost effective, low maintenance alternative to an extension, while still providing much needed outside space

curriculum, and desired uses. Having well designed, flexible spaces ensure that as requirements and demands change, the limitations are school heads' imagination and not the environment they're in.

Canopies and covered areas are a cost effective, low maintenance alternative to an extension, while still providing much needed outside space. Canopies can be used in conjunction with roller shutters or vertical glazing to provide multipurpose spaces, offering additional space with the benefits of being inside, outside.

Attractively designed, sympathetic to existing architecture and blending with surroundings, they offer significant benefits as learning spaces or covered multi-purpose areas. Made from hard wearing, long life products such as aluminium and polycarbonate, which resist the damage of exposure to the British weather and are sustainable and environmentally friendly, due to their ability to be recycled, canopies and covered areas provide a true long-term investment. There is no substitute for having a flexible outdoor space that can provide somewhere safe and secure when required, but which can quickly and easily be opened up to allow the outside inside.

Learning by example

One recent example saw Twinfix, a manufacturer of canopies and covered spaces, design, manufacture and install a free-standing monopitch canopy with an aluminium frame to complement a new classroom. The roof comprises an innovative panel system which meets relevant safety tests, making it a safe choice for the school environment.

Using polycarbonate glazing materials for the specification provided protection against UV to those beneath the canopy. It is also incredibly tough and is designed not to crack or craze with use.

Vicky Evans is director at Twinfix

Colour safe

Ian Gisbourne of Dulux Trade discusses how colour can be employed to help keep students safer in all education settings, in a post-Covid world

All academic institutions, from primary schools to colleges, face the same fundamental issue – how to increase the space between people when premises remain the same size

This past year has been like no other in the education sector. Many students spent long months learning remotely, as classrooms, playgrounds and lecture halls fell silent. But, as schools, colleges and universities have opened their doors once more to welcome back curious minds, a lot has changed.

The demands of social distancing and virus suppression mean these places – once so familiar to students, teachers and parents – are now home to a raft of new rules, regulations and procedures, all expressly designed to keep everyone safe.

But how do we ensure that in this process we don't lose the essential characteristics of our education establishments? How can we avoid transforming these environments of nurture, play, exploration and delight into areas of inflexibility, fear and rigidity?

All academic institutions, from primary schools to colleges, face the same fundamental issue – how to increase the space between people when premises remain the same size.

This is where expert use of colour and a focus on occupant-centred design can help.

In primary schools, it's well-known how a strong colour on one wall, with muted colours elsewhere, can help focus children's attention. We can take that principle and apply that elsewhere – by using colour to demarcate spaces – such as areas to sit, areas to play and areas to keep one-metre plus apart.

For younger children especially, social distancing can be a challenge – and never more so than in a playground. But, by using exterior paint to create a star on the ground for example, with children standing on its points – they can have conversations with each other in an entirely safe manner. The same effect can be achieved with animals and flowers – creating a warm, engaging environment and avoiding anything that looks too much like a warning.

The transition back to a very different way of being at school can present challenges for these younger learners, as well as those that have complex learning or behavioural needs.

So as the guidance changes, being able to quickly adapt spaces through colours and symbols is not only a clever use of design – especially as these ideas can be installed without the need for specialist equipment – but also offers a low-cost way to help students feel more connected and reassured when in unfamiliar spaces, adding a sense of belonging.

Where classroom walls once groaned under the weight of pupils' colourful creations, for the time being at least that will no longer be the case. Instead, paint can be used to create attractive wall art including murals.

Across all school years, children will be arranged in bubbles in a bid to cut down on unnecessary contact with others. Again colour can have a really important influence on the success of schemes like this. For example, if each bubble was referred to by a colour, then the blue bubble might only use classrooms, toilets and science labs with blue doors. The green bubble would stick to green areas and so on.

Larger spaces in schools such as libraries could be colour-coded too. Instead of one large library – it could be divided into four smaller pocket libraries for the use of each bubble.

With 1,500 pupils in some secondary schools, transitional areas where pupils come into contact with each other, such as corridors, can be cause for concern, but this is where colour can be used to indicate the direction of travel.

Repurposing of outdoor spaces will also be a key feature going forward. Rather than being used solely for break time and sports, they will increasingly take on a learning function as more lessons take place away from the classroom. In come specific areas with specific functions that are clearly demarcated. There will be spaces for play and social interactions, alongside quiet spaces for work and contemplation. Exterior paints can easily be used to repurpose these spaces, alongside gazebos and planting.

And more than ever before across the education system, maintenance and decorating budgets are likely to be stretched to the absolute maximum. Paint is one of the most economical ways to repurpose any space when like in most sectors, a little will have to go a long way.

Education providers will also want to ensure whatever redecorating projects they do undertake leave their facilities looking newer for longer – delivering value for money and preventing the need for frequent redecoration. We would therefore expect an increase in the use of durable products, which are designed to give a longer-lasting finish that is easy to clean and resistant to scuffs, stains and other marks, while at the same time providing a colourful backdrop for learning.

Ian Gisbourne is national sector manager – education and property management at Dulux Trade

Ensure you make the right moves on the dance floor

The approach needed when creating a floor for a specialised use is often more 'bespoke' than it may seem. Steve Green of Harlequin Floors explains how dance floors differ from standard sports floors, and how correct design is critical for safety

Architects and flooring manufacturers both have an important role to play in ensuring the right floor is specified to give dancers a safe environment

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

Experienced dancers can judge a dance floor instinctively and if it feels right, they can effectively forget about the floor and concentrate on their artistic performance. A good floor instils confidence in dancers, a confidence that comes from a reassurance they are not going to slip and fall, that lifts can be performed safely, and that the floor will consistently return the right amount of energy absorption when landing following jumps.

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

Correlating this subjective evaluation of floors by dancers with objective measurement criteria has prompted several research studies, particularly in the field of biomechanics.

One example was led by dance scientist and biomechanics expert Dr Luke Hopper, who has undertaken pioneering research investigating the effects of dance floors on dancer performance and injury. Dr Hopper explained that dance floors are an integral part of the dance environment, yet little information is available for the dance community on 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.

Research has reported 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 floors' 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.

Another eminent researcher in this field is Dr Boni Retitled, orthopaedic surgeon and Past President of the International Association for Dance Medicine and Science (IADMS). Dr Rietveld observed that 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. 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.

One of the challenges for architects in specifying the correct floor for dance is that there is, at present, no published standard for dance floors. The closest, and most often used, approximation is European Standard EN14904, the standard for indoor surfaces for multi-use sports, but this fails to recognise the differing requirements of sports and of dance.

Some styles of dancing, such as ballet, require 'traction' from the floor to prevent slips during performance. But too much traction for a basketball player blocks movement, potentially resulting in twisted ankles or knees. On the other hand, the basketball player will need the 90 per cent ball bounce specified in EN14904, something irrelevant to the dancer.

As part of the testing regime for sports floors, an apparatus referred to as the 'Berlin Athlete' is used to measure force reduction, commonly referred to as shock absorption. However, the profile of this 'representative athlete' (based on a national level sprinter weighing approximately 70 kg which simulates the forces exerted on a sports floor) is probably not equally representative of young dancers.

The minimum floor deformation allowed in EN14904 is 2.3 mm, but tests on dance floors popular with dancers indicate higher levels up to around 4.5 mm are preferred, suggesting that in broad terms, dance floors are softer than sports floors. A related issue is that common methods of sports floor construction often result in floor deformation which makes the surface too inconsistent for dance.

And, 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.

So, the common assumption that a well-designed sports floor will suit the needs of dancers is simply not the case.

All sprung floors are not the same. Architects and flooring manufacturers both have an important role to play in ensuring that the right floor is specified to give dancers a safe environment in which to rehearse and perform.

There are of course many different styles of dance, some performed in hard shoes such as tap and Irish dancing, others in soft shoes such as ballet and some are performed barefoot as in much contemporary dance. A ballroom dancer will appreciate the slide and speed of a traditionally finished wooden surface, but a barefoot contemporary dancer will fear splinters from such a floor, and the tap dancer may be concerned about the damage their shoes may cause.

The best manufacturers will have a range of floors developed to meet the specific needs of particular styles of dance in conjunction with dancers themselves. When specifying a dance floor, the architect should look for an experienced manufacturer who works closely with the dance community to develop floors that performers want to dance on.

And this assurance of quality is not only applicable to elite dancers. It is equally important to provide amateur dancers in performing arts colleges, universities and schools with the same quality flooring. Aspiring dancers need protection too if they are to avoid their dance careers short.

Steve Green is group director of marketing at Harlequin Floors

The common assumption that a well-designed sports floor will suit the needs of dancers is simply not the case

Energy Centre at the University of Northampton Waterside Campus

Louvres make the grade

In the education sector, getting ventilation right and ensuring a healthy and comfortable environment has never been more important. Andy Moul of Construction Specialties looks at key factors which need to be taken into consideration when specifying external louvres as part of a building's ventilation solution

External louvre systems have an important part to play in ventilation strategies, and their particular performance characteristics need to be taken into consideration alongside aesthetic requirements

Ventilation design is a balancing act between delivering a high quality of air and thermal comfort, while maintaining energy efficiency standards and noise control. Ease of maintenance and long term operational costs of running the system add to the complexity.

Published in 2018, a revised Building Bulletin 101 (BB101) – 'Guidelines on ventilation, thermal comfort and indoor air quality in schools' – places an emphasis on ventilation strategies in educational facilities. Although not a legal requirement in itself, BB101 is referenced in Approved Documents Part F ('means of ventilation') and L2A ('conservation of fuel and power') of the Building Regulations and sets out detailed guidelines for ventilation rates in different building areas, delivering improved air quality and achieving adaptive thermal comfort. Since the document also stipulates a requirement for a controllable and draught-free air supply, it means that windows, which have traditionally been used to provide fresh air to a room, should no longer be seen as a sole method of ventilation.

BB101 looks in detail at different ventilation strategies, from natural, through hybrid or mixed mode, to mechanical

ventilation and sets out performance standards for all of them.

As a means of providing airflow into a building, external louvre systems have an important part to play in ventilation strategies, and their performance characteristics need to be taken into consideration alongside aesthetic requirements.

Louvre specification

There are three main types of louvre systems available, offering different performance characteristics. Designed to be simple and economical, screening louvres utilise a flat blade profile to provide airflow into a building and some rain defence. These are typically used at the top of buildings to hide unsightly HVAC systems, or perhaps in car parks to allow for ventilation of exhaust fumes.

Ventilation louvres are chosen when airflow is a key consideration. They may provide adequate rain defence in light rain, but their performance generally falls short in wind-driven rain conditions.

When potential rain penetration is an issue, specifiers should consider rain defence louvres with integral water collection and drainage. These systems are designed to stop wind-driven rain entering a building, while allowing efficient passage of air. This is achieved through either a complex single-blade profile extrusion to give a slim louvre depth or a deeper, multi-bank system.

Louvre performance

Traditionally, louvres were specified based on a simplistic, physical 'free area', which simply relates to the gaps between the blades in the louvre design that facilitate airflow, but this does not quantify airflow efficiency. Therefore, specifiers should be placing more importance on the 'design pressure drop' and aerodynamic airflow efficiency. This is a true indicator of a louvre's performance, which ensures mechanical equipment has the required airflow to optimise function.

When it comes to the selection of a rain defence louvre system, third-party test data should be examined to ensure a project's functional requirements will be met. The BS EN 13030:2001 standard is used for evaluating a louvre's effectiveness against rain penetration as well as its airflow characteristics, and enables specifiers to directly compare the performance of the different weather louvre systems available.

All performance considerations such as required airflow, the maximum acceptable pressure drop, and the degree and depth of acceptable water penetration should therefore be balanced with the building's envelope design – hence the need for a 'form and function' approach.

Other specification factors

A site's location and the position of louvres on a building is another important consideration in louvre selection, as exposure to prevailing weather conditions – in particular wind direction – will affect the amount of potential wind-driven rain penetration. In addition, BB101 recommends that ventilation intakes are positioned away from the direct impact of air pollutant sources, such as parking areas, loading bays or busy roads, while exhaust locations should be chosen or designed to minimise re-entry of exhaust air into the building.

Aesthetics

Louvres are available in a wide range of designs, finishes and colours to suit any application. A louvre system that uses hidden mullions, for example, gives continuous, architectural lines because the support system is behind the blades, making the mullions almost invisible. Louvres with visible mullions, on the other hand, can be used as a design feature to line up with joints between exterior wall panels or with windows. These systems are typically supplied in a prefabricated modular form and are available in designs offering horizontal or vertical blade configurations.

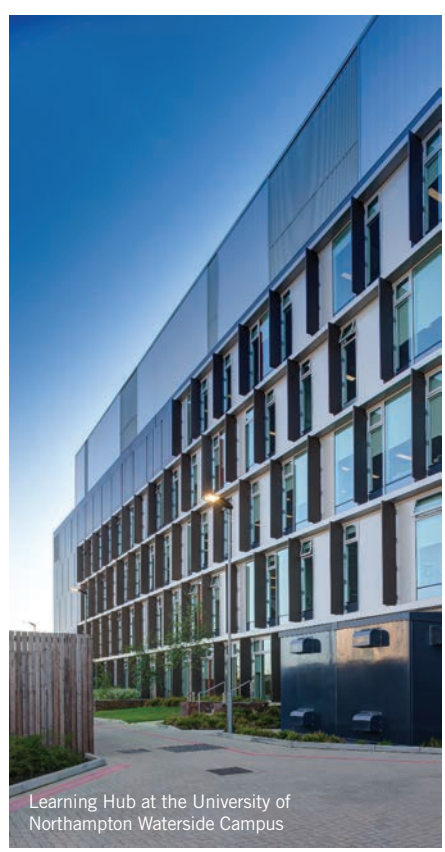
Other design options include models utilising varying blade depths for added interest, or hidden behind decorative features such as perforated panels – which can also act as bird screens. Specification should always be supported with performance test data, as such features can potentially increase a louvre's resistance to airflow.

Desired looks

Architectural louvre systems provide creative freedom to specifiers without sacrificing airflow performance. An excellent way to address air quality and ventilation challenges in schools and colleges, louvres can improve a building's energy efficiency, lowering power consumption and thus reducing carbon emissions. They can also have a positive, creative impact on a building's exterior design.

Andy Moul is technical manager at Construction Specialties

Energy Centre at the University of Northampton Waterside Campus


Learning Hub at the University of Northampton Waterside Campus

Pendock casings for education – Smart solutions

By Gavin Byram, Technical Projects Manager at Pendock

Health and safety have been constant features during the past 12 months, with the education sector, students and parents being affected significantly, as everyone dealt with the uncertainty, disruption and enforced changes due to the pandemic and the impact of lockdown.

With schools returning in early March this year, educational life has already started to return to some level of normality, although there is still some way to go. One thing that has become even more visible during the past three to four months, however, is the renewed and broader focus on health and safety, beyond the obvious issues of dealing with the effects of Covid.

Some of this has been stimulated by the recognition that regular maintenance and refurbishment projects has taken a back seat during the lockdown, which are now becoming essential, if not urgent, considerations for many schools, as well as nurseries and colleges.

Additionally, we have seen strong indications that educational facilities are keen to upgrade existing washrooms, radiator guards and interior casings, for reasons of practicality, durability and decoration, as well as improving hygiene and safety.

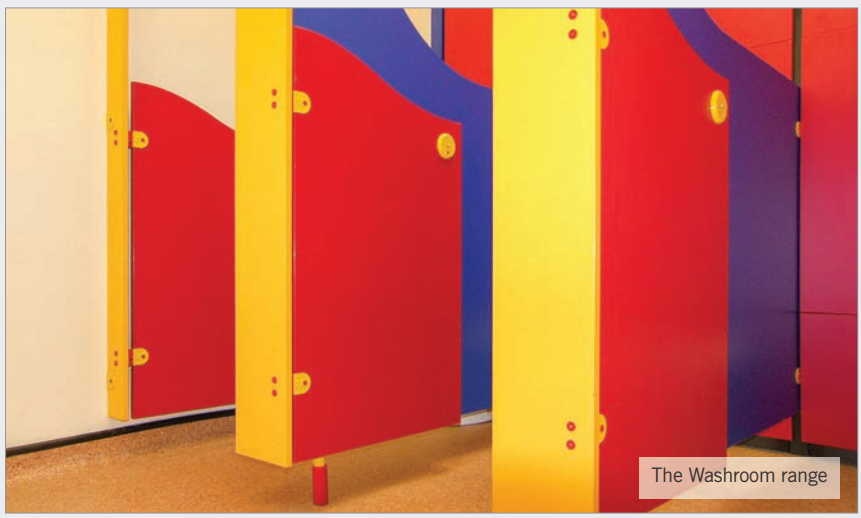
In 2020, Pendock took the opportunity to restructure its entire product range by combining similar products into six individual groups, each with its own clear brand to make specification easier and more logical.

Of these, there are four that are most regularly specified for education refurbishment projects: The 'Washroom' range, as its name indicates, provides a comprehensive range of cubicle and washroom systems, whilst 'SafeHeat' includes our anti-bacterial low surface temperature (LST) radiator guards.

Alongside these, the 'Radius' brand combines our six decorative column casings products into a single range while 'Profiles' includes all pipe boxing and services casings.

Clean, safe & hygienic

Washrooms are a common upgrade or refurbishment area for schools and although durability is a key consideration, design and aesthetics also feature highly.



The Washroom range

Our 'Washroom' range includes an array of cubicle and washroom systems that suits different visual and performance requirements, as well as budgets.

Matching vanity units, back panels and accessories are also available for each system, which allows easy integration with the washroom design, while vanity unit tops can be manufactured in one piece, providing added strength and durability. DDA and Approved Document M compliant solutions are also included.

High-pressure laminate (HPL) or compact laminate (CL) materials are generally preferred when specifying educational cubicles and washrooms, as they are very strong and the surface finishes have a high resistance to scuffs and damage.

The HPL and CL products from the Classic Plus, Robust and Education ranges also provide a wide range of finish options, which can help make washrooms a less intimidating environment than they have been in years gone by.

For nurseries and pre-school it's relatively common practice for bright colours and specially shaped doors to be specified and we have also prepared some systems with unique finishes for individual schools.

Although melamine-faced chipboard (MFC) units are included in our range, they are not generally suited to pupil-facing school environments, as they are less resilient and likely to need replacing at shorter intervals than HPL or CL cubicles.

On guard

Safety and hygiene are also important facets behind the growing use of our SafeHeat LST radiator guards in schools.

Although originally developed for use in hospitals, care homes and other healthcare applications, their ability to reduce burn risk and their antibacterial coating has increased their popularity in education over the past few years.

The principle is a simple one. Where exposed radiators of almost any size or type are present, often operating with a

The SafeHeat range

water temperature of around 80°C, covering them with a guard creates an 'insulation space' around the radiator while still allowing convection, which helps reduce the risk of accidental burn injury. A further option is available within our range that ensures the LST guard's temperature does not exceed 43°C.

Also, for more than a decade, every model in our SafeHeat range has been coated with an antibacterial finish, as standard, which is effective against a range of bacteria and is an important feature post-Covid.

Although the Prima LST guards are popular in education projects, the Ultima LST guards are the most regularly specified for reasons of functionality and cost-effectiveness. They also feature radiused corners for additional safety.

As a general rule, the built-in lockable easy-access panels featured on the Prima Plus and Ultima Plus models are not typically specified, as they would be on healthcare projects, which helps minimise cost. Instead, the panels can be simply unscrewed from walls for routine maintenance and cleaning.

When compared to the cost of replacing existing radiators with dedicated LST units, SafeHeat radiator guards can represent a significant cost-saving on refurbishment projects, enabling more cost-effective budget use without compromising on safety.

Decorative and durable

Beyond the specific applications, functionality and requirements of washrooms and LST products in education, our Radius column casings range and Profiles services casings are usually specified for their decorative qualities and durability.

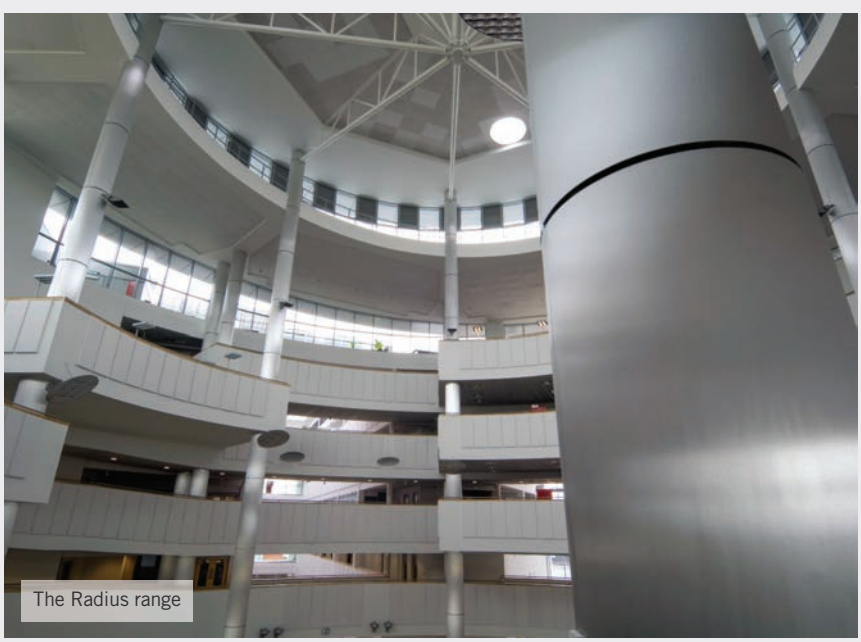
Designed to conceal interior and exterior structural steelwork, as well as concrete columns, Radius includes six individual column casing types. A wide range of sizes, shapes, materials and finishes are included, which makes it possible to find appropriate casing solutions for all internal and external columns.

While regularly installed on refurbishment and upgrading projects, Radius is also used on new-build projects to improve the aesthetics of exterior and interior structural supports, in foyers, main halls, and gym areas where steel columns are positioned around the perimeter requiring semi-circular casings.

However, it's important that the right products are chosen for their application. External column casings should be manufactured from stainless steel, aluminium or GRP for reasons of toughness, durability, and weather-resistance.

As GRP casings are produced from moulds, it allows both bespoke shapes to be specified, while metal casings have the same level of versatility, as they can be formed and manufactured to meet a wide range of shapes and sizes.

Pre-formed plywood casings finished in high pressure laminates, also provide a highly durable and versatile solution, with an exceptionally wide range of finish options. While they are highly durable and resistant to scuffing, the plywood core makes them suitable only for interior applications.



The Radius range

The Profiles range

Raising the 'Profile'

In common with the Radius' plywood column casings, our Profiles brand of service casings is manufactured from the same material and is pre-formed and pre-finished.

This manufacturing approach allows a wide range of choice in terms of sizes, while removing the need for on-site fabrication of boxing to conceal pipework, such as those used on heating systems and below washbasins or to conceal electrical or communication cable routing.

We've found that site-made boxing solutions typically vary from room to room or between locations, as the fabrication is reliant on the individual skills of more than one person, which leads to inconsistency.

Our pre-formed boxing, however, is a finished product that is specified rather than created at the point of installation. They just need to be cut to length and fitted with screws and battens. Also, they are much easier to remove and replace for routine inspection or maintenance.

Across all our products, we provide support to educational specifiers in a number of ways. One of the most regularly used and easy to access, is our library of downloadable specification clauses and DWG and PDF format drawings.

We currently have more than 200 drawings, which is growing as more products are launched and all are available on our website.

01952 580 590
www.pendock.co.uk

The world performs on Harlequin floors

Harlequin is the world leader in advanced technology floors for the performing arts. Established in the UK over 40 years ago, Harlequin remains the industry choice for the world's most prestigious dance and performing arts companies, theatres, venues and schools, production companies and global events.

Harlequin's experience and reputation are founded on the manufacture and supply of a range of high quality portable and permanent sprung and vinyl floors chosen by the world's leading venues - from the Royal Opera House to the Bolshoi Theatre, the Paris Opera Ballet to the Royal New Zealand Ballet.

With a growing interest in the provision of spaces suitable for dance, for professional performance and rehearsal, for private dance schools and throughout the education sector, there is increasing focus towards specifying dance floors that meet both performance aspirations and conform to increasingly stringent health and safety requirements.

Harlequin has led the way in developing and evolving the modern dance floor and has been involved with extensive research into reducing dancer injury. We place innovation at the heart of everything we do which is why Harlequin has become a brand that dancers and performers depend on. A recent example of this is our new Harlequin Cascade dance floor with BioCote Antimicrobial Protection, which has helped to ensure that dancers can perform safely through the recent pandemic.

Bob Dagger, founder and chairman of the Harlequin Group says: "When I launched my company over 40 years ago, I aimed at designing floors for theatre and dance using new, advanced materials. I am pleased to note that today, nearly all of the world's most prestigious dance companies, along with many of the world's largest venues, recognise the advantages of Harlequin floors."

Harlequin work collaboratively with principal contractors and architects in the government, commercial and education sectors to design and specify the optimum performance environment, from the new headquarters of the English National Ballet in London finished at the end of 2019, to the Thomas Dixon Centre in Brisbane, Australia, the new home of the Queensland Ballet which will be completed in 2021.

We offer a turn-key one-stop solution for all performance spaces, from initial design and build through to completion, offering advice and guidance every step of the way. All enquiries are handled on a one-to-one basis by our expert technical team and with over four decades of experience of working across a wide range of projects and venues across the world, Harlequin's in-house project management and installation teams can be relied upon to deliver on time and on budget.

Harlequin operates globally from offices in Europe, the Americas and Asia Pacific delivering the same high-quality products and personal service anywhere in the world.

For more information and advice visit Harlequin's website or contact the UK technical team.

01892 514 888 www.harlequinfloors.com

HARLEQUIN FLOORS

Altro Walkway adds to aesthetics on campus

Thousands of square metres of **Altro** Walkway 20 safety flooring have been used to create flowing, natural spaces at a flagship new building at Aarhus University in Denmark. The design looked to minimise the number of different materials, creating a bright and while organic, natural forms from the area into the building. More than 9,000 square metres of Altro Walkway 20 safety flooring in the colour Cloud have been used in corridors and laboratories. The flooring complements the white walls, oak interiors and large glass sections while reducing the slip-risk to one in a million throughout the life of the product.

01462 489 516 www.altro.co.uk/High-Design

Luxury vinyl sets the Mood

Luxury Vinyl Tiles and the Studio Moods modular vinyl flooring concept from **IVC Commercial** have given a luxury look befitting the boutique status of Prestige Student Living's Reading student accommodation at 79 Silver Street. Jigsaw Interior Architecture has made the intent of the interior clear with the super-luxury look of Studio Moods Wicker 288. For the gym, IVC Commercial's Moduleo 55 Hoover Stone, an authentic worn concrete look, adds a stylish yet practical floor. Throughout the building's studio apartments, Moduleo 40 LVT in the light grey of Midland Oak 22110 adds a calming yet modern feel.

01332 851 500 www.ivc-commercial.com

New stainless steel contemporary bench

Benchmark was contacted by Clarks Contractors to design and manufacture a number of curved stainless steel benches for the new Cumnock Bus Station. Benchmark's standard curved CL010 seat design seemed to fit in with the Architects overall concept and after some discussion a few modifications to the design were made to give a more contemporary look. Within a couple of hours of the initial enquiry 3D renders had been produced and submitted. The new seat comprises of 316 stainless steel tubes that can be curved to any radius either as free standing units or as in this case wall mounted.

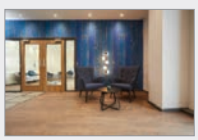
01243 545 926 www.benchmark-ltd.co.uk

Protecting students from kitchen fires

After being approached by various student accommodation providers for a solution, **Hoyles Electronics** developed a range of products to help reduce incidents in student residences. Now installed in Universities up and down the country, HobWatcher ensures hobs will only operate for a pre-set time if left unattended. DorWatcher prevents the spread of cooking smoke and in the worst case ensures kitchen fires are contained by ensuring kitchen fire doors are kept closed. Chair of USHA commented: "The risk of fire in student kitchens has been reduced to almost nil."

sales@hoyles.com www.hoyles.com

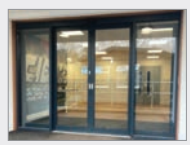
A Tudor twist for student accommodation



Capturing the traditional charm of the Tudor period, design studio, Upcircle, designed Chester's newest student accommodation by taking inspiration from the city's history and architecture. With the help of **Forbo Flooring Systems'** comprehensive portfolio, including its recently refreshed Allura Luxury Vinyl Tile (LVT) collection, a warm, striking and sophisticated interior was created. The new Allura collection offers endless design possibilities in several constructions, including fully adhered, loose lay and adhesive free, ensuring there is always a suitable choice for every application.

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

Opening new doors at Finborough School



record's STA 20 sliding doors were recently chosen by Finborough School to upgrade existing swing doors and create a modern, stylish automated entrance to the new Science and Art block. The STA 20 doors not only provide hassle-free access for those carrying bags, art and photography equipment, they are also reliable and robust to cope with the steady flow of students and pupils daily. Exceptionally quiet in operation, STA 20 doors are perfect for classroom environments and can be been fitted with an integrated access control system, to prevent unauthorised entry in restricted areas.

01698 376411 www.recorduk.co.uk

Sto helps create striking appearance

The centre-piece of a redevelopment scheme at the Roscoe building in the Greenbank Student Village at the University of Liverpool has been given a striking appearance thanks to a facade solution supplied by **Sto**. It was completed with the installation of 5,500 m^2 of StoVentec R ventilated rainscreen cladding, and finished with the unique Sto Lotusan external render. The StoVentec system has a fire classification of A2-s1, d0 and was able to meet all the required performance standards, while also permitting the creation of the visually striking, smooth exterior surfaces which harmonize with the surroundings.

0141 892 8000 www.sto.co.uk

Deco radiators heat unique school

Stelrad radiators heat literally thousands of schools up and down the country and now heat a unique school in Oxfordshire. Existing radiators at the Europa School UK are being replaced by modern, efficient Stelrad radiators – Heavy Duty Deco radiators are being used throughout the senior school while Stelrad Compact radiators are being installed in offices, administration areas and in the kitchens. Finally, Stelrad's sector leading LST radiators – the low surface temperature range – have been selected for the infant and junior schools.

0844 543 6200 www.stelrad.com

Picture perforation used for a facade depicting a forest

L'École Internationale Edward Steichen
High School, Clervaux, Luxembourg
Architects: Jonas Architectes Associés

L'École Internationale Edward Steichen is a high school in Clervaux, Luxembourg, with room for 650 students. Jonas Architectes Associés won the assignment for construction and devised not only a plan for the buildings, but also an idea for decorative facades and sun protection. RMIG ImagePerf made it possible to realise their vision.

As the school is more or less surrounded by woodland on all sides, a striking photo of a spring forest from a nature park in the Ardennes was chosen as the template for the facade image. Using perforation in various hole sizes, the beautiful image of the forest was transferred on to metal sheets.

For more information, please email info.uk@rmig.com.

01925 839610 www.city-emotion.com

TECHNICAL CHARACTERISTICS

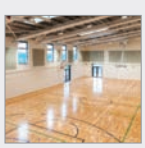
Raw material: Aluminium EN 5005
Pattern: RMIG ImagePerf
Thickness: 3.0 mm
Surface treatment: Anodising
Finishing operation: Bending

IVC Commercial Solutions fulfil the flexibility needs of Birmingham workplace

Carpet Tiles, Luxury Vinyl Tiles and Heterogeneous Vinyl floors from **IVC Commercial** have been used throughout the interior of a leading Birmingham workplace provider. In a refurbishment scheme over three phases some 2,500 m² of Birmingham office space, Carpet Tiles, Luxury Vinyl Tiles and Heterogeneous Vinyl solutions from IVC Commercial feature within a scheme designed to bring fluidity across the layout. Designed by Overbury, the flooring scheme features river-like organic shapes cut into angular geographical lines. This demanded floors that flowed well together and that had the flexibility to sit with adjacent products across complimentary palettes. The Overbury design team turned to IVC Commercial, choosing Art Style and Art Exposure carpet tiles, IVC 55 luxury vinyl tiles, and Nomad and Isafe 70 heterogeneous vinyl. IVC Commercial's installation solutions were also used within the project with Flexpro self-adhesive underlay and Invisiweld seamless technology. Katy Boulter of Overbury, comments: "IVC Commercial's portfolio gave us the flexibility to create the patterns and palette we wanted to achieve for the layout within a reasonable cost."

01332 851 500 www.ivc-commercial.com

Total insulation performance for college



Priority Roofing installed over 7,500 m² of ROCKWOOL HARDROCK® Multi-Fix Dual Density for the new school development at Clarin College, Athenry. In supplying the non-combustible insulation solution, ROCKWOOL enabled the roofing contractor to deliver against a complex specification requiring thermal and acoustic performance without compromising on fire safety. With ROCKWOOL HARDROCK® Multi-Fix Dual Density, Clarin College's new flat roof achieved a U-value of 0.15 W/m²K, and met or exceeded the 35 db IANL requirement across both the general building and the gymnasium.

01656 862 621 www.rockwool.com/uk/clarin-college

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www.subscribepage.com/adf

Towering Gothic Arches at Harris Manchester College, fitted with secondary glazing

Harris Manchester College is one of the main Colleges at Oxford University. The Victorian buildings contain decorative wooden panelling, gothic revival architectural detailing and large stained-glass windows. With a new construction site opposite the main building, Selectaglaze treated four rooms that were affected by noise and dust ingress in the Grade II Listed building: two meeting rooms, a student common room, and the Tate Library.

In the two meeting rooms: Series 20 slimline vertical sliding units were installed; colour matched in a wood grain finish to complement the wood panelling and reveals. They were glazed with 6.8mm acoustic glass and placed to optimise the cavity, ensuring high levels of acoustic reduction, as well as offering access for cleaning and maintenance.

The primary windows in the Tate Library are tall gothic arched windows, with three stained glass windows forming a main bay.

They all had single glazed openings which could not prevent draughts efficiently or keep the noise out. To complement the interior decor and leaded casings, the timber sub frames and secondary glazing profiles were colour coated in 9005 Jet Black Matt.

The tall gothic arches measured around 4.5m tall and had a mezzanine cutting them part way, which made the design and installation tricky. The portion of the window below the mezzanine was a Series 10 horizontal sliding unit. Stacked above, in an area not requiring access, were two series 42 fixed lights. Above these up to the spring point, was another Series 10, followed by three Series 42 curved fixed lights including reverse curving to follow the lines and details of the tracery at the head. Installed with 6.8 laminate glass and a generous cavity; the space inhibits disruption, is warmer and provides UV shielding to the books and manuscripts in the Library.

The student Common Room needed a resolution to prevent noise entering from the neighbouring construction site, and also to stop noise escaping from it and troubling locals. Series 20 slimline vertical sliders were installed in white to match the interior design.

01727 837271
www.selectaglaze.co.uk

Lotus School is a first in more ways than one...

The opening of the Lotus School in Blackpool is a first in more ways than one. It is the first purpose-built social environmental mental health school in the area. It is also the first in the area to be fitted with the first COVID-compliant hybrid ventilation. The main teaching classrooms and sports hall are all aired using **Gilberts (Blackpool) Ltd's** innovative MFS hybrid ventilation units, installed by Read & Errington. In total, 24 MFS 128 units have been fitted through the two-storey facade into the classrooms, with a further three MFS-V roof-mounted units to the sports/main hall. In addition to being the first stand-alone hybrid ventilation system designed, developed and manufactured in Britain (co-incidentally just up the road from Lotus School), Gilberts' MFS is also the first of its type to be COVID-compliant as standard. Since its launch, MFS has become the product of choice for ventilation in schools, combining natural ventilation with a heat exchanger to minimise energy wastage by extracting, via a low energy fan and mixing damper, the warmth from the 'used' internal air being exhausted and transferring it to the cooler fresh incoming air.

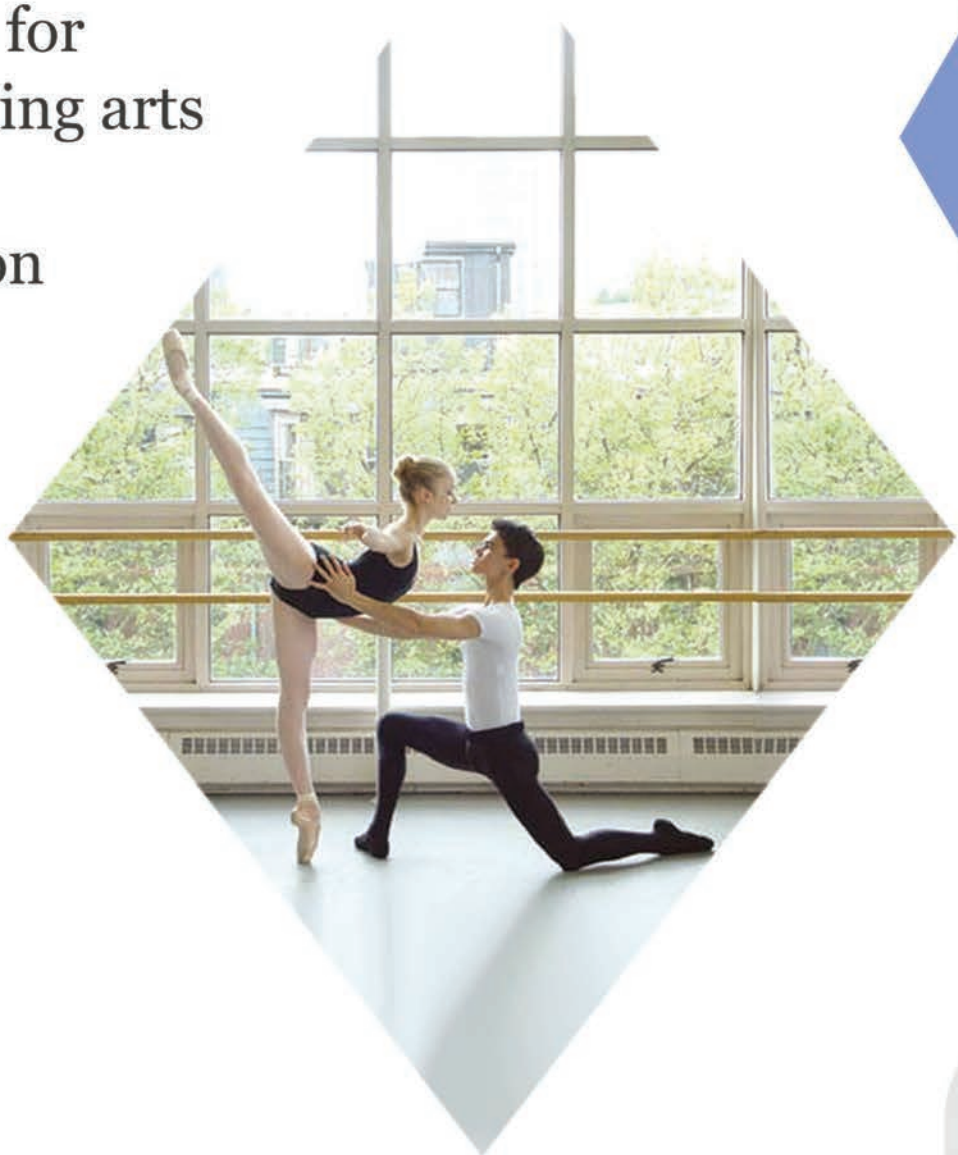
01253 766911 www.gilbertsblackpool.com/natural-ventilation-solutions/mistrale-mfs-fusion

Make surfaces safer with Parkside's antibacterial tiles

Parkside has launched four new wall and floor tile collections with built-in antibacterial protection. Years of research have resulted in wall and floor tile collections with antibacterial protection. Inspired by nature, the collection's built-in technology uses tin oxide and titanium oxide to create a finish that is antibacterial and anti-viral. Now available in Beat, Sylkin, Larkham and Tyne, the technology is proven to eliminate 99.7 per cent of common bacteria. Unlike similar products, where the antibacterial properties fade with time, Parkside's protection is permanent and lasts for the lifetime of the tile. In fact, the technology is enhanced by solar and artificial light, yet still performs under dark conditions. Making businesses and public spaces safer and more hygienic around the clock, the tiles also require less use of cleaning chemicals or detergents, while bad odours are also eliminated. Available in a range of looks, including authentic Tyne brick in red and white, and delivering 36+ PTV and the collection answers the need for floors, walls and surfaces that are durable and easy to keep safe in hospitality, leisure and other commercial projects.

0116 276 2532 www.parkside.co.uk

Professional flooring for performing arts & dance education



Dance

The world performs on Harlequin floors

Harlequin is the global leader in the manufacture, supply and installation of performing arts floors and studio equipment. Established as the industry choice for architects, building contractors and the world's most prestigious dance and performing arts companies and schools, we continue to carry out site visits in person or remotely and are working with our partners and clients to ensure we can carry out installations following government health and safety guidelines.

For information about specifying the correct floor for dance and performing arts download our RIBA approved CPD online at www.harlequinfloors.com or via the RIBA CPD page.

If you are interested in booking a CPD please contact cpd@harlequinfloors.com

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

HARLEQUIN
www.harlequinfloors.com

LONDON ♦ LUXEMBOURG ♦ BERLIN ♦ FORT WORTH ♦ MADRID ♦ PARIS ♦ PHILADELPHIA ♦ SYDNEY ♦ HONG KONG ♦ TOKYO ♦ BRNO ♦ LOS ANGELES