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Building for education & student accommodation supplement

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FROM THE EDITOR



Levers for investment in the education sector are not what they used to be. Recognising the sorry state of a lot of England's education estate, and its resultant damaging effect on pupils' chances, the Government launched the Building Schools for the Future (BSF) programme, whose first wave of schemes emerged in 2005.

However as with the similarly PFI-funded hospital building boom of the late 1990s and early 2000s, there was a great deal of controversy around whether the wham-bam approach to delivering schools quick was both able to and did indeed generally deliver the required quality for good learning environments.

Some of the demolition decisions seemed more brutal to many than the allegedly brutal buildings they were removing, such as Pimlico School in London. And their replacements were not universally hailed as a success to say the least, such Pimlico's replacement, which was criticised by the Government's design watchdog CABE. And although Scotland did not fall under BSF, there was a 'damning' report in 2016 on 17 PFI schools built in Edinburgh which were claimed to have serious safety-critical design flaws.

Perhaps the issues resulting from PFI and the standardisation attempts made in BSF were what led Michael Gove to can the programme in 2010 and replace it with a combination of the Priority Schools Building Programme, or maybe it was the start of austerity. Essentially PSBP is a repair and renewal programme for the most dilapidated schools, and the separate Academies and Free Schools programmes. The new scheme offered hope to around 150 projects were left in limbo following the ending of BSF, including promises of getting off the ground in far less time than BSF equivalents. In total 277 projects are planned to complete before 2021.

While the PSBP covers a wide range of repair and rebuilding projects in England, Wales took the bull by the horns and introduced Schools Challenge Cymru, whose funding ended in 2016 but in three years targeted 40 schools for improvement. One of these was a new school, Bro Dinewfr, in picturesque Camarthenshire (which we feature on page 26 of this special supplement). However despite its attractive, eco-friendly design, the fact that it was created to replace two schools (one of which was 12 miles away), illustrates the funding challenges and the resultant local opposition the architects had to counter.

And kids of course face their own set of challenges. Now confronting formal SATS tests at age 11, on top of the perennial pressures to cope with in school, the minimum our kids deserve is that scrutiny and care is paid to the quality of the environments that underpin their learning. Beyond mere clichés of 'investing in the future', it's simply a basic requirement of a civilised society to provide education in a way that is harmonious and supportive. Buildings are a fundamental part of this, from daylight to acoustics but also build quality and aesthetics, and this supplement celebrates several good examples.

James Parker
Editor



ON THE COVER... VERDE STUDENT ACCOMMODATION NEWCASTLE

Verde is an unashamedly attention-grabbing, show-stopper of a building. Clad in reflective, chromatic green ceramic tiles, the front of the striking structure resembles the prow of large ship.
For more information, go to page 20.
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RESEARCH

“Shabby” schools are failing students and teachers, says specialist supplier

The head of one of the UK’s leading education sector suppliers has claimed that a growing number of “shabby schools” across the UK are not only failing pupils but are contributing to the lack of new entrants to the teaching profession.

New research by British Thornton, the UK’s largest education furniture manufacturer, has shown that cuts to funding in the sector have led to significant reductions in investment in learning environments, to the detriment of both students and teachers.

The research, which surveyed 198 schools across the UK on their spending intention during the current academic year, has revealed that overall spending on educational furniture will reduce by £3.3m in 2016/17 in a market that is usually worth £200m annually.

The data also reveals that fewer schools than last year are likely to be in a position to utilise funds from their developed capital formula (DFC) allocation for the purpose of

furniture procurement. Continued pressure on funding has seen many schools prioritise spending on what British Thornton calls the “Ofsted essentials” of desks, chairs and storage while spending in categories such as play space, soft furnishing and general refurbishment are largely being ignored.

Ofsted has been a major driver behind school spending decisions in recent years, according to British Thornton. “To maintain inspection results against ever-shrinking budgets, many are concentrating on areas that deliver direct pupil attainment improvements,” said the firm. “This means simply ensuring there are enough tables and chairs for pupils to use – rather than considering any improvements to the wider learning environment.”

According to RIBA, only 5 per cent of 60,000 buildings in 18,000 schools in England are in top condition, performing as intended and operating efficiently.

Gerard Toplass, chief executive officer of British Thornton, said: “The education



Gerard Toplass

marketplace has seen significant political interference over the last few years that has had a massive impact on both the structure and funding models for schools. Budgets are being slashed and overall market uncertainty is having a hugely detrimental impact on the standards of education being delivered to students.”

He continued: “We must remember that the pupils themselves need to be the number one priority for the sake of this country’s future. Schools need to be able to focus on delivering a first class education and therefore improving standards, results and ultimately career and life prospects for pupils.”

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REFURB

Victorian building transformed into modern teaching space



A Victorian building and teaching space at Bishop Grosseteste University (BGU) in Lincoln has been transformed into a modern, flexible learning facility thanks to a £350,000 refurbishment.

The project to improve the Centre for the Enhancement of Learning & Teaching (CELT Building) at the site was designed by local architects LK2, delivered by construction partner Robert Woodhead and procured through the empa ii Minor Works Framework formed by local authorities in the East Midlands. The scheme was project managed by Scape Group.

The original building featured a collection of mid-Victorian neo-gothic vaulted spaces, recently used as art classrooms. It required a sensitive design due to its historical significance and structural issues. Featuring large openings between the vaulted rooms and tall ceilings highlighted with up-lighting to soften the white walls and ceilings, the design has used copper to reference the original red-brick Victorian building.

The building has a large entrance lobby with reception, seating and two meeting rooms, plus a Student Support Space which includes IT resources and seating areas for private conversations.

A vaulted area, featuring two 70 metre Danish oil treated glulam timber beams houses a “giant” studio desk which has been designed to encourage all departments of the CELT Building to share and discuss ideas. One of two offices features two newly uncovered and refurbished original brick gothic arches.

Steve Deville, BGU director of resources said: “The project encountered serious challenges associated with working in an old building, but the quality of the finish which has resulted in extremely positive comments from those already engaging with the centre have made it all worthwhile.”

LK2 will feature in Ask the architect in the July issue of ADF

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BIRMINGHAM

Milestone reached for £41m City University science building

A £41m university building in Birmingham has taken a major step forward as the finishing touches have been made to the development.

Contractor BAM and local stakeholders were joined by staff and students from Birmingham City University at the institution's new Health Sciences and Education building to mark the traditional topping out ceremony and celebrate a key milestone in the delivery of the facility.

The 10,500 m² extension on Westbourne Road in Edgbaston forms part of the university's City South campus. Set to open in 2018, it will also enable relocation of the university's School of Education, consolidating the Faculty of Health, Education and Life Sciences onto one site.

Designed by architects Sheppard Robson,

the building will help reinforce Birmingham City University's claimed status as "the region's largest provider of qualified health and social care professionals to the NHS and producer of more teachers than any other institute in the West Midlands."

The space will offer teacher training and specialist facilities for health sciences including provision for research, a new lecture theatre, a multi-purpose hall, speech therapy, physiotherapy and ultrasound suites, art and technology classrooms and IT hubs.

Speaking at the topping out ceremony, Professor Graham Upton, vice-chancellor of Birmingham City University said: "Today marks an exciting new chapter in the university's long and proud history. Not only will this new building allow us to

strengthen our existing education teaching and research programmes, we will also be offering a wide range of new health, nutrition and biomedical science courses."

He continued: "The new building also strengthens our student experience and university community by allowing us to house our health and education offerings on one site for the first time. In doing so, we are creating a significant hub for our public service contracts and professional development provision in Edgbaston, offering more consistent support services and facilities for both students and staff."

The building forms part of the university's £260m investment into new state-of-the-art facilities, which will be strengthened with the opening of the new £57m Birmingham Conservatoire later this year.



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Gerflor still huge hit at Huddersfield University

In 1992 Huddersfield Polytechnic changed its name to The University of Huddersfield and in January 2014 the University opened Student Central. This was a £22.5m development which brought together the University's support services, access to the library, computing facilities, sport and leisure, together with a range of eating and social spaces all under one roof.

Like most red brick universities, the sports and leisure facilities feature very heavily in student life. These sports areas take a hammering and needed to be both resilient and functional. With this problem, very much in mind the university had to ensure that they dealt with a quality flooring manufacturer to deliver the sports flooring they would need. The brief had to offer a suitable solution for an 'under rig' flooring area which was positioned directly underneath the sports centres 'Technogym Omnia' system. Chosen for its comfort and safety performance properties Taraflex® Sport M Evolution from international flooring and interiors specialist Gerflor would be the specified product.

Taraflex® vinyl sports flooring from international flooring and interiors specialist Gerflor has been used in many international and local sporting events and is available in 17 colours and two wood-effect designs. The Sport M Evolution product offers a P1 category shock absorbency 25 per cent to 35 per cent and meets the EN 14904 Standard for indoor sports surfaces. Taraflex® is recognised for providing durability, safety and comfort without impairing performance. The range offers greater than 45 per cent force reduction, making it unrivalled in the market-place in terms of offering comfort for users. Taraflex® meets the EN Standard of 22196 for anti-bacterial activity (E. coli - S. aureus - MRSA) (3) returning >99 per cent levels of growth inhibition. The product is also treated with Protocolsol®, which renders polish redundant and is triple action meaning no polish is ever required, it contributes to easy maintenance and is anti-friction burn and slide/grip. Taraflex® has a double density foam backing and with another bonus, it's environmentally friendly. Gerflor offers several installation solutions for Taraflex® including the Eco-Fit System which allows fast, free floating installation.



In 2014 at the time of the completed flooring installation Laurie Nettleton, Sport and Leisure Centre Manager said, "Gerflor installed a bespoke flooring solution at our Sports Centre providing protection underneath the functional rig. The floor was fitted in less than 5 hours and the team were efficient, friendly and professional". Gerflor were also able to utilise their bespoke water cutting, HD printing and line marking service for this project.

Laurie Nettleton also added, "Team Hud sports staff are also impressed and find the markings helpful when delivering functional training classes. I personally love the solution, so much so that we are planning to expand the flooring into other areas within our new Fitness Suite".

As the passage of time moved on the durability and performance of the Gerflor sports flooring would be a crucial element in the ongoing delivery to the users. Recently Laurie Nettleton commented, "The Taraflex floor is proving to be very durable and still looks as good as new. The floor is non-slip which is essential, it is aesthetically pleasing and works well under the Omnia frame". She concluded by simply saying, "Feedback from students and staff at the University about the flooring has been very positive, which would suggest we got this purchase just right".

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COMMENT

Bringing SKA back to school

Joe Croft, head of environmental and sustainability at Overbury, examines a challenging environmental assessment method for higher education fit-outs

There is a real desire for environmental sustainability within the higher education sector. To address that, the SKA for higher education (SKA HE) scheme was established last year in order to reflect the specific needs of educational facilities, especially as many institutions are housed within grand, historic buildings and present a whole new set of challenges. Unlike previous SKA schemes or other ratings systems, SKA HE has been specially tailored by the industry to take into account the specialist nature of higher education and its spaces, such as lecture theatres, research laboratories, and teaching spaces.

Having extensive sustainability experience, Overbury was invited to sit on a development committee for SKA HE and help shape a new ratings system. The SKA HE committee engaged with a number of higher education institutions to create the new standard; each area of the higher education sector has been considered and benchmarks have been set.

Beyond standard

As a result, 131 good practice measures (GPMs) were developed and each only assesses against the criteria that relate to particular project. In comparison to BREEAM, where the total number of credits forms the final sustainability score, the SKA tool is more 'scopeable', making it appropriate for projects of all types, sizes and complexities.

SKA HE also challenges good practice within the sector, rather than simply satisfying current industry standards. As part of the research process for a GPM, it was important re-evaluate what represents 'standard' and 'best' practice. This meant defining a middle ground where architects would be encouraged to go 'beyond standard' without necessarily adopting best practice in order to achieve the GPM.

The new measures include good lab design, air quality impact assessment, furniture storage logistics and a 'social value' plan; a social, economic and environmental plan that can be put in place prior to start on site. This can act as a tool for helping projects to make quantifiable steps across at least four key criteria, which can include materials, work hours and training.

Silver rating

In practice, the SKA HE assessment proved challenging but achievable through careful planning and collaboration with the project teams. Overbury recently completed a £2.1m, 20,000 ft² project for the London School of Economics (LSE) on Portugal Street in central London. The key objective of the project was to create a 'one-stop shop' for student services known as LSE Life, which created a mix of social, quiet and collaborative areas. On completion, the LSE Life project achieved both a SKA for Offices Gold



Joe Croft of fit-out specialist Overbury

rating, and the newer and more challenging SKA for HE Silver rating.

Working with Architecture PLB, the project team embraced the concept of demonstrating social value actions through operating under the Considerate Constructors Scheme and drew up a Social Economic & Environmental Plan for the project. Specific actions that helped the team to achieve these measures included sourcing local materials and labour and having apprentices and graduates working on site. The multi-use space was designed and built with well-being in mind, including efficient lighting and ventilation levels. Material selection ensured that furniture, construction materials and finishes were chosen for their environmental credentials, and all timber was FSC-certified.

Having worked with RICS to develop the SKA HE rating, we had the ability to see first-hand the differences when meeting requirements and assessing the project on both schemes – an invaluable learning experience for the entire project team. The ratings demonstrate that the new SKA HE scheme has pushed criteria to reflect advancements in good practice across the industry while also addressing higher education-specific requirements. Full engagement by the design team resulted in a successful, sustainable fit-out which achieved a SKA HE Silver rating and paved the way for future SKA HE projects.

Joe Croft is head of environmental and sustainability at Overbury (and Morgan Lovell)



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**BUILDING
PROJECTS**

**MIDDLESEX UNIVERSITY
HENDON, LONDON**

New forms of learning

Middlesex University needed a flexible and sustainable campus to suit a diverse range of subjects and new teaching methods. Mark Smulian reports on the results



A mathematics teacher would tell pupils that 17 into one “won’t go,” but that trick is what Middlesex University has accomplished as it has steadily shed the confusing patchwork of sites it used to occupy across north London and consolidated its activities at Hendon.

This is not by the standards of traditional university campuses a large space, and it has taken some ingenuity to fit all the requisite buildings onto it – and an investment of some £200m since this programme began in 2000 – with BPR Architects having worked with Middlesex right the way through.

The 3,300 m² Ritterman Building is the latest piece in the Hendon jigsaw.

Most people enter the campus through the main entrance, named the Rickett Quadrangle, and part of the Ritterman’s purpose is to provide a hub and focus for the far end of the campus, which previously lacked this.

Named after university chancellor Dame Janet Ritterman, the £18m building was designed with two specific educational ideas in mind.

There is a common perception that scientists and technologists know little of creativity, while their creative arts counterparts are dubious about using technology:

**ABOVE**

The building and (cantilever) under construction

put them together and they could learn from each other and find unexpected ways to collaborate.

The other idea was that people learn through practice and as advised by tutors rather than from listening only. So while subjects like fine art and dance require large spaces, in the Ritterman building, the computing, science and robotics laboratories are open-plan, designed so teachers can walk between students and advise them on their work.

Adapting the site

There was really only one space where the Ritterman could go, which was originally occupied by a steep grassy bank giving onto a largely disused extremity of the campus.

Levelled, the site now houses a striking building, predominately in glass and shades of green tiles, inhabited by science, technology, interior architecture, fine art and dance students, along with innovations such as a machine that makes ceramic objects based on the frequency with which Tweets about the University are detected on the internet, and a robot called Baxter that can interact with humans.

Outside, the Ritterman is a large open

First floor beams have been structurally over-sized to allow potential future creation of double-height spaces

space adjacent to its cafe, which can be used to erect art installations on plinths or simply as an open air social space outside the adjacent students' union building when weather permits.

As building work began, a retaining sheet pile wall was installed to the eastern end of the building to accommodate the bank of earth and the base had to be sealed with a gas-proof membrane due to the presence of the naturally occurring gas radon.

The bank was demolished then backfilled after which a ground-bearing concrete slab with pile foundations was installed. Above that came a concrete frame building which was poured in-situ. Inside, the stairs are precast concrete units.

The concrete structure is based on a grid layout of columns and beams, so the interior can be divided as needed into



rooms or open plan spaces.

First floor beams have been structurally over-sized to allow potential future creation of double height spaces.

Externally, the Rittermann is clad in a curtain walling system which contained the glazed green brick slips as part of the panels. The large areas of green tiles were sheets of brick slips which were attached to the blockwork wall construction at a lower level.

Viewing the Rittermann from most angles shows small cantilevered sections overhanging to break up the line of the building and held up by columns. These are also made from in-situ concrete with the overhanging sections supported by beams.

The first cantilevered section is supported by the three columns and a protruding beam that extends past the end of the floor, while the floor above has a beam in the central section that adjoins the central columns.

There is a basement, ground floor and three upper floors, ending in a flat roof. Smaller roof spaces on the cantilevered sections provide green roofs, part of a sustainability system which is among the Rittermann's main features. Its flat roof is

split over two levels and collects rainwater, which feeds both the living walls installed on some sections of the building and the internal toilets. There are also photovoltaic cells on the roof to generate energy.

Space redefined

Inside, fine art occupies the lower ground floor level, designed with large spaces and high ceilings to provide students artistic freedom as they create their works.

Transport logistics have been addressed through the creation of a large doorway onto an adjacent road which allows for easy delivery of materials.

Similarly, double-height rehearsal room with adjunct changing rooms is designed for dance students on the upper ground floor. Interior architecture students, which occupy the second floor, can also benefit from double-height studio spaces on the building's north side, which provides the best light for drawing. Moreover, art and interior architecture studios have folding walls to enable them to be adapted to different class sizes.

Science and technology can be found on all floors including facilities such as a fabrication laboratory and the mechatronics and

ABOVE LEFT & ABOVE RIGHT

Rainwater is collected and feeds both the living walls installed

BOTTOM RIGHT

The lower ground floor level spaces are large with high ceilings to provide students artistic freedom



GRID LAYOUT

The concrete structure is based on a grid layout of columns and beams, so the interior can be divided as needed into rooms or open plan spaces

Art and interior architecture studios have folding walls to enable them to be adapted to different class sizes

robotics equipment distributed around flexible spaces. Technical tutor Nick Welden says: “The space is designed so that instead of sitting in a lecture, the staff walk around as they teach – based on the idea that you will remember something better if you do it rather than just hear it.” Welden adds, “I enjoy the building because it makes you do something different. There is a lot of light and we must have one of the best views in London – you can see the Wembley Arch.”

More than just a building

There is something else unusual about the Ritterman too, the concept of the building itself being designed as a teaching resource.

As defined by BPR’s user guide for staff and students, “As well as the physical systems and spaces in the building which we hope will support new innovation, there are opportunities for the building itself to be used as a resource for experimentation and data gathering.”

These could perhaps include analysis of sunlight falling on the photovoltaic panels to assess local weather conditions, or the efficiency of sustainable systems and monitoring of water levels in the living walls to assess weather conditions and create responsive or programmable irrigation systems.

BPR designed the Ritterman to BIM Level 2 and the 3D computer-aided design model created has been left for the University’s use in managing and maintaining the building, and for a design tool for interior architecture students and a resource for a new Masters course in BIM.

Focus on sustainability

Students interested in sustainability can also learn much from the building, which

has secured a BREEAM Excellent rating. Its water management system collects and distributes rainwater by channelling it into cisterns behind the toilets. Excess water is diverted down to the living roofs, which host more than 3,500 plants, to be soaked up by soils that feed wild flowers and grasses and support biodiversity.

Surplus water is stored in a large tank behind the living walls and irrigates them as necessary. Any remaining water, for example after heavy rainfall, goes to an underground tank to be released slowly to the public drainage system, acting as part of a flood defence for homes on land below the campus.

All south-facing windows have brise soleil louvres to shade them and reduce the need to lower blinds, while low-power LEDs are controlled by sensor systems detecting if people are present in a room. Light levels are also monitored so that illumination grows brighter the further a light is from a window, or as light fades later in the day.

“World class”

Middlesex’s vice chancellor, Professor Tim Blackman, has hailed the Ritterman building as helping the University to continue to “provide our students with a world-class learning environment equipped with the latest facilities and technology,” cementing its reputation among employers “for graduates taught in industry-standard settings with the skills they need.”

The Ritterman Building provides space, flexibility for the new teaching methods being used, and sustainability. If really radical changes are needed in future, maybe Baxter the Robot could help work them out. ■

PROJECT DETAILS

Client: Middlesex University

Architect: BPR

Main contractor: Interserve

Planning consultant:

Tibbalds Planning

Quantity surveyor: Sweet Group

Vertical gardens: Treebox

In-house project manager: RLB

Decoration: Skyline Painting

Curtain walling and windows:

Schueco

Insulation: Kingspan

Planning authority:

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CHROMATIC

The two buildings in the Verde scheme are clad in chromatic, hand-fired gloss-finish ceramic tiles in an iridescent green shade



VERDE STUDENT ACCOMMODATION
NEWCASTLE

Newcastle shows its green credentials

In a city that is regenerating itself, new structures need to project confidence, something the unmissable Verde does with ease, writes Ray Philpott

Verde is an unashamedly attention-grabbing, showstopper of a building. Clad in reflective, chromatic green ceramic tiles, the front of this striking new structure resembles the prow of large ship, projecting out of the fresh, contemporary urban landscape that has completely reshaped the area's industrial past.

Built to meet the city's growing demand for student residences away from the suburbs, it is undeniably a statement building, a million miles away in design ethos from the utilitarian accommodation so often seen in the higher education sector.

Verde sits between the rising, V-shaped junction of two major streets, and is the fourth and final phase of the £250m Downing Plaza. Designed by architects SimpsonHaugh the scheme has a series of attractive, modern buildings providing 120,000 ft² of teaching space for Newcastle University Business School, more than 1,800 student bedrooms and extensive retail provision.

Together with Science Central, a new 23-acre mixed-use development being constructed to the west, Downing Plaza forms a gateway to Newcastle city centre. Given that architectural environment, SimpsonHaugh and its long-standing client, student accommodation specialist Downing, realised Verde needed to be a visually impressive, high-quality building from the outset.

The 540-bedroom building has two distinct elements; a nine-storey 'V'-shaped structure where Wellington Street and Pitt

Street meet, and a broadly 'L'-shaped, 10-storey building positioned to create a secure, gated triangular courtyard area bordered by the public footpath that forms the third 'side' of the site.

There is a seven metre fall across the site, which has been exploited by setting the 'L'-shaped building lower than the other helping to break up the roofline and improve views from both Barrack Road to the south east and views down Pitt Street.

Entrances to both buildings are from the courtyard. One sits within a triple-height walk through area effectively cut out of the lower part of the 'L' building, the second located in the wide crux of the 'V' building.

Rich and vibrant

Verde replaces two demolished blocks of 1960s flats immediately north of the former Scottish and Newcastle brewery site Downing Plaza is built on, although little original infrastructure remains.

SimpsonHaugh Partner Matthew Ayers says: "While the ship-like aspect acknowledges Newcastle's maritime connections we didn't want to create a historical pastiche.

"There's a distinctive new-build aesthetic to the area. You have to look at Verde with Downing Plaza in mind, particularly The View, the tallest building with vivid blue colours and the exterior of the building opposite with its bold orange, strong golds and bronzes.

"We needed to balance this with something rich and vibrant. A strong green



The shape of the building naturally dictates that the core is placed in the crux of the 'V', with a ground floor reception and circulation area and clusters of four rooms with shared facilities coming off at each level

both complements those buildings, yet is outstanding in its own right and enhances the dramatic impact of the prow. Introduce a strong colour and a building becomes memorable even if people don't know how the building is used or why the colour was selected."

The gloss-glazed, hand-fired, clay tiles made specifically for the project by French company Terreal undeniably demand attention with their colour and finish. Most are uniformly sized, flat and smooth, some have been profiled to lean out from the side to 'roughen-up' the facade and create interest, fading away to smoothness towards the 'prow.'

Similarly, strip windows on the facades not only create a linear, ship-like effect but subtly move in and out of different planes, adding further movement and texture.

Ayres explains: "We spent a lot of time modelling the facade to see how it would look and behave and, onsite the excellent facade sub-contractor, Dane Architectural, understood exactly the effect we were trying to achieve, and paid great care and attention to the detail.

"We love that serious lustre and the way light and shadow plays across it. On good, sunny days you get fantastic reflections in the facade and the building seems to almost dissolve into the sky."

Given that decorative tiling is vulnerable to damage at street level, the base has been clad in hard-wearing, blue, smooth and wire-cut engineering bricks, in a chequered bond.

Reflective

The courtyard and inward-facing facades of the building transition the building away from the green and linear theme to a silver-grey, vertical one, with aluminium cladding and glazing used to capture and throw light around.

"As you move inwards, the chequered



repeating pattern of vertical rectangles stands in stark contrast to the hard, glossy and colourful exterior addressing the public highways, presenting a finish that's more reflective in perception, materiality and spirit and is, to some extent, unexpected.

"People will be spending time in the courtyard, so it's about playing with that scale and materials to give a different feel," explains Ayers.

The metal facade panels have a protective coat of varnish, preserving the natural grain and materiality of aluminium, but using slightly different shades of coating to create subtle tonal differences. These panels wrap under the soffits and down to the ground, while the double-height glazing panels are actually two windows linked together to emphasise verticality.

A variety of spaces are created within the multi-purpose courtyard, enabling students to sit outside, interact or work if they want to. The landscaping needs to be robust and exude quality, so there's a mixture of natural stone pavers, plus granites and slate finishes with planting to soften the edges. It runs through the triple height 'cut out' in the L-shaped building, which is supported by concrete columns.

Ayers says: "The courtyard is a fairly dramatic, unconventionally-shaped space where people can enjoy varying senses of light and shadow during the day and, when it's lit up at night, some very interesting reflections."

Structure

In structural terms, the building consists of a reinforced concrete frame sitting on piled foundations with some steelwork to shape the forward sloping area on the top floors of the V-shaped building and a metal standing-seam roof.

Ceramics are mounted on a metal structural frame system with combined board insulations and membrane running down the slab edge and returned on the soffit of the next slab up.

The majority of facade installation was carried out using mast climbers, but from the architects' perspective, the trickiest part of the construction was creating the top element of the prow. Here, the building narrows to just 30-40 mm at very top, requiring a pre-formed element, including a sub-frame and tiles, to be lifted in by crane.

Internally, the emphasis on quality continues. Verde's 368 cluster beds and 175 superior studios all feature pod-style

MODELLING

The architects SimpsonHaugh spent "a lot of time" modelling the facade to see how it would look as well as behave

All images © Daniel Hopkinson

FAST FACTS

- **Planning approved:** July 2014
- **Work on site begins:** December 2014
- **Completed:** Aug 2016 (first academic year was Sept 2016)
- **Total rooms and studios:** 540
- **Site footprint:** 3,830 m²
- **Number of storeys:** nine and 10
- **Scheme value:** £46m



Verde sends out a strong, positive message about the city's long-term aspirations

SimpsonHaugh partner Matthew Ayers

Ventilation and heating

With student accommodation, Ayers explains how the biggest challenge is keeping the interior warm, while losing excess heat. "With lots of small, cellular, extremely well-insulated rooms heat gets trapped inside, so we control this using a combination of solar control coatings on the glass, blinds and mechanical extraction with opening windows if required."

While most plant is at ground level, the roof plant and communal areas include air conditioning utilising heat recovery units. However, it was not economically viable to install photovoltaic cells.

Although no official BREEAM rating's been awarded as yet, the team's been careful to specify materials that are natural, recyclable and A-plus rated in the BRE Green Guide where possible.

Positive message

The building opened in September 2016 at the start of the current academic year and, judging by the number of rooms let, appears to be a popular choice. For Ayers, SimpsonHaugh's strong, 10-year relationship with Downing is an important element of the building's success.

"As a private developer Downing knows the market well. They commission their own buildings built by their in-house construction company, so speedy progress and flexibility is the order of the day once a project gets the go-ahead.

"They recognise today's students expect quality and sophistication and they tend to hold on to their own buildings, so they want something that's going to last. That, plus their firm support and strong faith in what we do gives us the opportunity to design high-quality, adventurous buildings."

He concludes: "Until recently, Newcastle hadn't seen much development since the 1960s. Now, there's a massive post-industrial regeneration under way and as a part of that, Verde sends out a strong, positive message about the city's long-term aspirations." ■

PROJECT DETAILS

Client: Downing

Architect: SimpsonHaugh

Main contractor: George Downing Construction

Civil engineer: Alan Johnston Partnership

Ceramic tile (installer): Dane Architectural

Ceramic tile (manufacturer): Terreal

Landscaping: Landscape Projects

Interior architecture/design: KKA interiors

Structural engineer: Alan Johnston Partnership

bathrooms, around which the sophisticated rooms are built onsite by specialist KKA interiors. While living space within the building is finished in calm tones, bolder hues are found in the spacious, light-filled common areas.

The shape of the 'V' building naturally dictates that the core is placed at the crux of the 'V', with a ground floor reception and circulation area and clusters of four rooms with shared facilities coming off at each level, and some studios installed at the narrow ends. On the ground floor the prow is fitted out as a communal area with a gym, cinema viewing area, games rooms, and general social space.

In the other building the core sits in the elbow of the 'L', with combined studio units and kitchens radiating out each floor, and additional six-room clusters with shared facilities on the outer ends of the 'L'.



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Passively persuasive

Jess Unwin discovers how architects ASL overcome local opposition to create a new combined secondary school with a passive energy design in Wales



Taken alone, the challenge of re-imagining a new secondary school's design to address issues with scale and budget on a sensitive greenfield site would be a tough enough assignment.

But architects Austin-Smith:Lord (ASL) and the wider project team also had to contend with local opposition to the merging of two existing schools so that Ysgol Bro Dinefwr could go ahead.

The £30m school, near Llandeilo in Carmarthenshire, is now complete, providing education for 1,200 pupils. Included on site are sports and vocational catering facilities plus a special education needs unit for autistic pupils.

However, during the design stage, elements of the community in this part of Wales made their opposition to the project very clear. The chosen site was particularly

unpopular in the market town of Llandovery, 12 miles away, which was the location of one of the schools to be closed in the merger.

Vocal opposition

Andrew Lewis, lead architect for ASL on this project, says: "There was a lot of vocal opposition to the closure of that school. That made development of the new school quite difficult." He adds: "We've a track record designing a broad range of schools and we always like to consult with future users and stakeholders, such as the senior management team, the governors, the pupils. So when there's a lack of trust, but also active opposition, that makes it tricky to engage people in the architecture."

Things improved once construction finally got under way. "Once it was devel-



**ABOVE**

As a result of the design and the glazing visitors are “wowed” by a light and welcoming ground-floor reception and a double-height first-floor learning area



oped enough for people to walk around, they could really get an idea of the quality they were going to get.”

Adapting the design

Lewis says: “This is a beautiful greenfield site right next to a river that is overlooked by National Trust land and close to the western edge of the Brecon Beacons National Park. There were aspects of the original scheme that were three storeys high and the way it was arranged made it appear bigger on the site that it needed to be.”

To help the school fit into the landscape and get planning permission, the design would need the backing of the Design Commission for Wales, so ASL got to work making adjustments.

The collegiate-style arrangement of four pavilions – containing classrooms, learning resource centre, assembly hall and kitchens – around a central courtyard was retained. However, the structures were reduced to two-storey height and the sports hall and autistic unit were set a little distance away from the pavilions to further reduce the overall scale of the school.

And to help it blend in against a background of woodland and hills, light colours and white render were replaced

Once it was developed enough for people to walk around, they could really get an idea of the quality they were going to get

Andrew Lewis, lead architect

with earthy tones – mid-brown brick and dark grey aluminium standing seam roofs.

Let there be light

One of the other factors that informed the school’s design was the Eisteddfod, the Welsh language festival of literature, music and performance. Lewis explains: “The school’s senior management team and board of governors were very keen to have a large school hall that could accommodate as many people as possible for Eisteddfod-related theatrical productions or musical performances and a proper stage with proper lighting.”

He continues: “We were also instructed to ensure the approach to the school had ‘wow factor’ without being too ‘loud’ visually when seen from the road.” The



answer to these conflicting goals is a main entrance facade that makes extensive contemporary use of glass.

The transparency of the glazing means visitors are indeed wowed by a light and welcoming ground-floor reception and the double-height first-floor learning resource “It’s confident and bold, yet inviting, and immediately says this is a place of learning,” says Lewis.

Another change ASL made to the concept designs was in circulation. “The original scheme had a lot of the classrooms spilling out onto external decks, but we brought the circulation back in inside,” explained Lewis. “Rather than having a standard central corridor, we have this double-height space which runs through the centre of every pavilion. That brings in light from high up and illuminates the ground floor level of the circulation space, making the space more pleasant to walk through.”

Hybrid ventilation

The light Lewis refers to permeates through windows that are part of the distinctive roof design of the pavilions. Rather than a classic apex-pitch roof, the pavilions boast an angled step shape and the glazing is positioned in the vertical aspect of the step.

Closed and opened by electrical motors, the windows are also an intrinsic feature of the natural and passive ventilation strategy for the school. Lewis explains: “Within classrooms, teachers and pupils simply open windows to allow fresh air in. Hot air is drawn out of the classroom through grills in the corridor walls, up through the double-height corridor space and out through the glazing in the roof.”

He adds: “It’s a very simple but proven approach without having to force air through air handling units. The all-the-bells-and-whistles systems have often been shown to be too complicated for users. Simple and intuitive is more effective.”

The passive ventilation system is just one way in which Ysgol Bro Dinefwr is designed to achieve BREEAM Excellent and be awarded an Energy Performance Certificate A rating – standards that any new school in Wales must now attain.

Sustainability gains

Environmental sustainability has been a key driver in the design of the school. Lewis says: “Passive measures like the right orientation of the building, the right specification and amount of glazing, overhangs and louvre panels to offer solar protection, good

ABOVE

In classrooms, teachers and pupils are able to open windows to let fresh air in as part of the designers’ passive ventilation strategy



All images © Phil Boorman

PROJECT DETAILS

Main contractor: Bouygues UK
Architecture, Landscape & Interior Design: Austin-Smith:Lord
Cost Consultant: Faithful & Gould
Civil & Structural Engineers: CB3 Consult
MEP Engineers: SABA Consult
Planning Consultant: Asbri
Acoustic Consultant: Hunter Acoustics
BREEAM Assessor: Melin Energy
Fire Engineer: Trenton Fire
Catering Designer and Subcontractor: Shine
MEP Subcontractor: Whitehead
Specialist Sports Pitches: South Wales Sports Ground
Roofing: Central Cladding
Windows, doors and curtain walling: Denval
Fixed furniture: T S Booker

insulation and thermal values for external materials may be less 'sexy' but will make major sustainability gains."

Moreover, an extensive array of photovoltaic panels have been positioned on south-facing roofs pitches to help supply not only lighting but the high electricity demand for IT devices that any school now has.

Sports for all

The school's sports hall is not only separated from the central pavilions to reduce the scale of the development – its separation underlines the potential for community use out of hours when the school is locked up. Lewis says: "Badminton, basketball and football facilities are provided to Sport England standard but come the end of the school day, these facilities aren't used as much. Of course, making them available to the community also provides an income for the school. The 3G football pitches like those provided here often prove popular, although they are not floodlit because of the sensitivity of the location."

Besides the kitchen, which any school of this size would have to provide food for its students, Ysgol Bro Dinefwr also offers vocational catering facilities, which it will share with other partnering Carmarthenshire schools. This entails a commercial kitchen layout which can offer learning opportunities to those considering

Rather than a classic apex-pitch roof, the pavilions boast an angled step shape

a career in catering, and even provide an area that can be set up as a "simulated" restaurant.

Autism-friendly

Also set back from the pavilions is the autistic special education needs unit. Here, aspects of the design differs from other parts of the school. The double-height corridor approach has been abandoned because of safety considerations. In addition, construction is more robust; for example, walls are blockwork instead of the impact-resistant plaster board used in the rest of the school.

Autistic pupils can be noise intolerant so the range of special therapy spaces makes use of acoustic measures like finishes selected to provide more absorption of sound. Classrooms have direct contact with the external landscape area because going outside can sometimes be part of a strategy to diffuse stressful situations. Finally, the outside play area features a soft, rubberised play surface.

Roman artefacts

Lewis admits Ysgol Bro Dinefwr had plenty of challenges. "Number one challenge was knowing not everyone was fully on board with the project. Number two was the budget: what had been initially presented to the school was just not affordable."

In the first few months of construction there was the added complication of what a geophysical survey (ground radar) discovered about the archaeological significance of the site. A Roman road believed to pass through the south-east corner of the site was confirmed. The survey also showed a number of circular shadows, believed to be Bronze-age ring ditches, in the proposed playing field area and under the northern part of the building footprint. This assumption was confirmed through excavation.

A phased relocation of students was completed last year and the new school is now fully occupied. Lewis concludes: "I've been back since completion and it's really nice to see the students learning and having fun in play spaces – it's good to see that it's working." ■

Let the sun shine

Renson Fabrications discusses the options for outdoor sun protection systems that allow the light in while maintaining a comfortable indoor climate

The trend is clear. We want to allow as much natural light in as possible. That is why we use so much glass.

The intensity of natural light changes considerably depending on the season, time of day and cloud cover while the desired comfort level in classrooms remains the same, including the prevention of overheating in the summer. No wonder managing that natural light becomes more important each day.

Thanks to winter sunlight, energy consumption can be reduced. However in summertime the sun can cause a lot of problems. An intensive insulation of buildings keeps the warmth inside, which results in overheating. The sun also interferes with visual comfort by reflecting off TV screens or computer monitors. And uncontrolled incoming sunlight can also lead to discolouration of furniture, floors and curtains.

Those problems can be prevented easily by using efficient sun protection. This creates optimal thermal comfort and makes a positive contribution to the energy consumption of the entire building. Studies show that well conceived sun protection can reduce the annual energy consumption levels for a building by 10 per cent.

It should also not be forgotten that sun protection has an important aesthetic role to play. Making good choices will not only ensure that your project is energy efficient, but will also make an important contribution to its aesthetic value.

Three ways to keep out the sun

Indoor sun protection is a good and relatively inexpensive way to keep the sun's rays out. However, it is not an optimal thermal solution, because the heat will eventually get in the building.

Reflective glass also provides protection from excessive solar heat. The disadvantage is that the light is also limited during the winter period, so less warmth gets in then.

Outdoor sun protection, structural or screens, is the most efficient way to protect from the sun. It prevents the sun's rays from hitting the glass directly. The entering of

natural light and heat can be controlled depending on the situation.

An extensive choice in outdoor sun protection systems

There are many different types of outdoor sun protection solutions, split into two categories: structural sun protection and external blinds.

As horizontal brise soleil blades are mounted above windows, they do not interfere with the view from the inside. They also provide good shading when the sun is high in summer. During winter, when the sun is much lower, they allow the warmth of the sun to come in.

Vertically-mounted shutters – both fixed or moveable, in front of the windows – are frequently used in non-residential projects as well, due to the sun protection as well as the aesthetic aspect.

When there is a risk of overheating, the windows can be covered partially or completely by moveable sliding panels as well.

Folding shutters are a type of dynamic sun protection which can be converted from sun protection in front of the window into a horizontal open position above the window.

As for external blinds, there has been a transition to windproof solutions. These systems are usually equipped with side guide zip technology. This ensures a tight and windproof screen in every position.

Different types of screens each have their own characteristics: fibreglass fabric insulates well and keeps UV-rays out, is 100 per cent stable and easy to maintain. Polyester fibre cloths are also highly valued for their resistance to wear and tear. And of course, there are also fabrics that are completely translucent, semi-translucent and obscuring.

The efficiency of a screen is related to its colour. Light-coloured screens allow more light and UV-rays to enter the building, while darker fabrics filter out over 90 per cent of the UV-rays. Screens with logos or artwork printed on them are also possible.



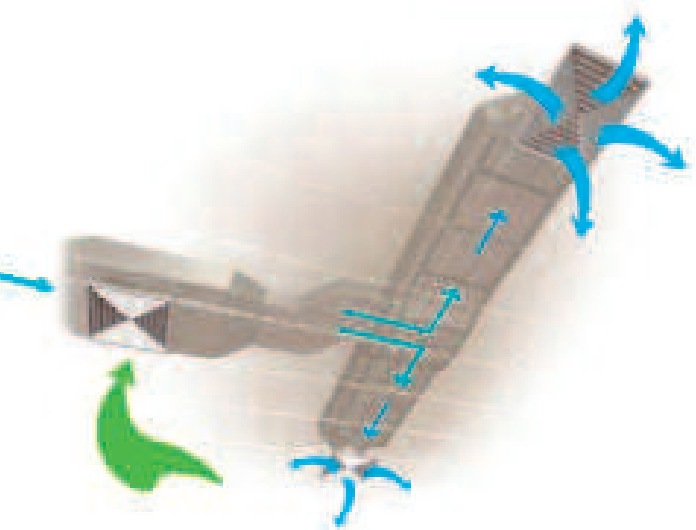
Outdoor sun protection, structural or screens, is the most efficient way to protect from the sun



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Putting VOCs in detention

Matthew Sexton of British Gypsum looks at the effects air quality can have on a child's academic performance and development – and recommends solutions to improve air quality

It is widely known that outdoor air pollution can have an impact on an individual's health, however it is important that people understand the effects indoor air pollution can have on children's health, wellbeing and development, especially within schools where pupils will come into contact with volatile organic compounds (VOCs) such as formaldehyde.

Aside from sleeping and perhaps playing, there is no other activity that occupies a child's time as much as attending school, and there is no single enclosure in which they spend more time than they do in the classroom. With this in mind, it is vital that school environments are designed with great care; with thermal comfort, lighting, acoustics and most importantly, air quality all thoroughly considered.

When it comes to air quality it's taken for granted that the air we breathe is clean and pollutant-free. However this isn't always the case. Impurities found in both our living and working spaces can cause health problems and reduce performance – especially in educational buildings, where it can have a negative effect on pupils and staff alike.

In 2005 the Government undertook a study into indoor air quality (IAQ) in eight primary schools across England. The study found that formaldehyde levels inside the school were up 42 times greater than those outside of the school. It also found that 21 per cent of classrooms exceeded 300 µg m guideline levels of Total Volatile Organic Compounds (TVOCs) – some rooms even had double the recommended concentration, with implications for health.

Formaldehyde has been shown to cause headaches, lethargy, reduced concentration and breathing problems. You can't see or smell formaldehyde, so without thorough testing, there is no way of knowing the intensity levels a pupil in a school or university is being exposed to on a daily basis, or if it's hindering students and teachers from performing well, specifically on tasks requiring attention and memory.

Therefore good IAQ is important to provide a safe, healthy, productive and comfortable environment for students, teachers and other school staff – particularly as Building Regulations push for more airtight constructions, which could result in a worse situation.

For specifiers, improving the indoor environment is a major consideration among clients and building occupants, most notably those concerned with sustainability and health and wellbeing. Good clean air can reduce health problems as well as enhance healthy living in both work and living spaces. It is therefore important that products that emit low VOCs are chosen as part of the building fabric and finishes, however it is difficult to control every potential formaldehyde source that comes into a building on an on-going basis.

However, thanks to the advancements in technology, specifiers will now be able to minimise formaldehyde levels to boost air quality throughout the life of the building, by choosing products that incorporate ACTIVair.

ACTIVair is a new technology that has been tested by the accredited Eurofins laboratory. The test shows that ACTIVair neutralises up to 70 per cent of the formaldehyde in the indoor air. Incorporated during the manufacturing process, it remains active for the average life span of a building, at least 50 years – making it a long term air quality solution. ACTIVair also contributes towards two BREEAM points under indoor air quality as part of a management and handover test plan, and doesn't impact on performance regarding fire, acoustics and durability.

To ensure that you are creating an educational environment that can contribute to the health and performance of students and staff, it is recommended that you liaise with a reputable manufacturer for expert advice including on the latest product developments.

Matthew Sexton is commercial sector market manager at British Gypsum

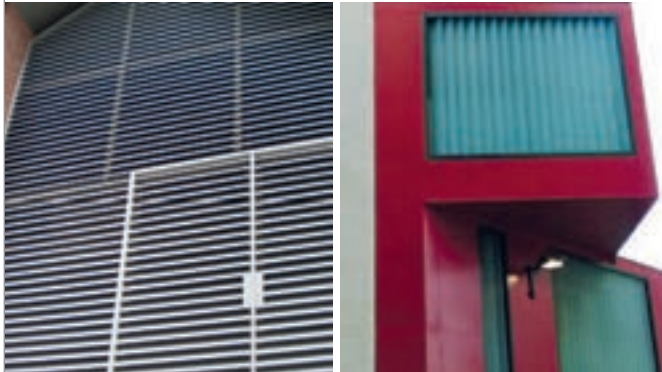


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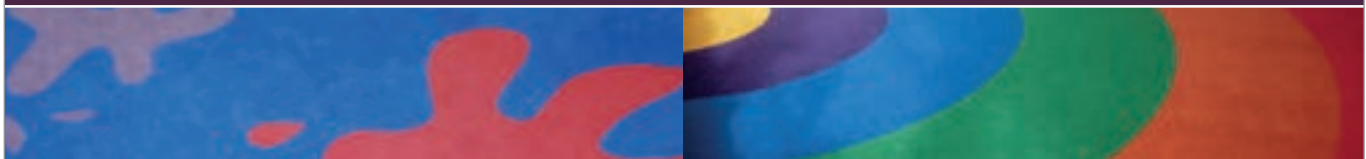
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Providing a solid base for learning

Safe, stylish, durable flooring can have a major effect on an interior's aesthetics and atmosphere. Simon Clark of Sika Flooring considers the benefits of resin flooring in education establishments

Higher education has become a fiercely competitive market as universities strive to attract the best students. It means establishments are looking to 'up their game' in all aspects of the educational offering, including the quality of fixtures and fittings.

With UK student tuition fees totalling a daunting £9,250 per year, it's no wonder some are starting to question what they are actually getting for their money. The main focus will undoubtedly be on the level of teaching received, but facilities are coming under increasing scrutiny. It's proven that students' learning capacity is enhanced within an environment that is comfortable and well-designed.

Correct floor specification is vital to a happy learning environment. Get it wrong, and there's a risk of falls and injury, which is costly to the affected student's education and potentially damaging to the establishment's reputation. Flooring could also incur high maintenance costs if fitted poorly, while difficult-to-clean surfaces are a magnet for germs and microscopic mites.

A firm alternative

A flooring system which provides a hard-wearing, cost-effective alternative to carpet, vinyl and timber, while helping educational establishments uphold the highest health and safety standards, is available when resin is specified.

Taking into account the needs of the most demanding educational environment, a flooring manufacturer's specification should provide a solution that looks at operational requirements, construction joints, floor-to-wall connections, surface design and installation details.

Resin flooring products are easily-applied, hard-wearing systems that come in an expansive range of colours and meet a wealth of aesthetic requirements, a particu-

larly useful characteristic bearing in mind a learning environment's appearance can have a positive and negative effect on student mood and behaviour.

Resin systems are perfect for applications where exceptional hygiene standards are vital. Their seamless surfaces can be easily cleaned and maintained, and are a proven solution for food preparation areas – another important aspect of school and university life. After all, who wants to be queuing on a dirty, sticky floor?

Resin systems can also be regenerated with minimal downtime and loss of revenue. Extending the service life of an existing flooring system through the resurfacing of a topcoat compatible with the original floor provides a brand new surface and the option of changing the colour. Regenerating a thicker floor is possible with diamond grinding pads which remove any existing surface damage and restore a floor to the same glossy surface of a new system.

Healthy green

Resin flooring products also have strong environmental credentials. Many products are now able to offer a lower Global Warming Potential (carbon footprint) and low or even zero Volatile Organic Compounds (VOC) options to deliver health benefits for educational buildings.

The design and functionality of our schools, colleges and universities is vital to students' wellbeing and success. Every aspect of an establishment's infrastructure should conform to the highest standards in order to create a safe, clean and comfortable environment in which students can thrive. Resin flooring gives education providers a solid and sustainable foundation to build upon.

Simon Clark is product manager at Sika Flooring



BRIGHT

Resin flooring is available in an expansive range of colours



STUDENTS

Correct floor specification is vital to a happy learning environment

Quiet please!

Rob Crampton of Hush Acoustics looks at the crucial importance of getting acoustics right in educational buildings



The most effective way to reduce reverberation, airborne and impact noise levels within educational buildings is to ensure high quality products are used

While modern educational buildings have benefited from various architectural and technological enhancements, good acoustics remain a key factor in enhancing the learning environment.

Indeed, many studies have proved that poor classroom acoustics can hinder learning and teaching. The culprits can be traced to three main noise sources – reverberation noise, airborne sound sources and impact sound sources. While reverberation is a common problem, it can have a significant impact on the classroom environment. This includes instances of background noise and group work-related noise that can crescendo to uncomfortable levels if classrooms aren't soundproofed.

Similarly, airborne sound that travels through separating walls and floors and impact sound such as noise from footsteps on the staircase can also be disruptive to the learning process.

Special needs

While creating learning spaces with good acoustic performance may seem achievable and relatively standard, extra care should be taken when designing spaces for pupils with autism spectrum disorder (ASD). Pupils with special educational needs are generally even more reliant on good quality acoustic facilities to bolster their health and wellbeing. Consequently, required reverberation times should be lower, sound insulation between adjacent spaces higher and indoor ambient noise levels lower compared to mainstream classrooms.

In New Zealand, there has been considerable debate around the effects that noise has on those with sensory processing disorders (SPD), which is particularly prevalent in those experiencing ASD. Pupils with sensory processing issues can be oversensitive to noise and other forms of sensory input. For example, the noise in a busy classroom can trigger meltdowns in ASD. A wide range of noise types were identified in the study that caused distress.

One of the categories of noise believed to

have the most adverse effect on ASD pupils is noise in excessively reverberant rooms. The study found that reverberated noise can be a major stressor, particularly in confined spaces such as classrooms. In fact, many existing classrooms across Britain have little or no acoustic treatment.

Since ASD children, especially those with classic autism, have serious speech and communication impairments, noise can only exacerbate these issues. This is why a common strategy is to move autistic children to quieter areas in order for them to escape the noise.

Meeting requirements

The UK Building Regulations and the guidance in Building Bulletin 93 stipulate that these noises are controlled and that every room or space within an educational building is designed to achieve a certain statutory level of acoustic performance.

The most effective way to reduce reverberation, airborne and impact noise levels within educational buildings is to ensure high quality products are used. They should comply with the following:

- UK Building Regulations Approved Document E (England & Wales);
- Section 5 of the Scottish Building Standards (Scotland);
- Approved Part G (Northern Ireland).

These regulations set out important criteria for sound insulation performance for all types of educational buildings. Moreover, in order to help architects, contractors and acousticians to satisfy the requirements, the Government introduced the guidelines "Building Bulletin 93: Acoustic Design of Schools – Performance Standards (BB93)" to ensure all new school buildings are designed and built to achieve a certain level of acoustic performance.

Seeking soundproofing advice from acousticians early in the design process is crucial for achieving good acoustics in educational buildings.

Rob Crampton is managing director of Hush Acoustics

Glazing that makes the grade

Andrew Copper of Senior Architectural Systems sheds new light on the process of window specification for the student accommodation sector and explains why aluminium systems can work so well

The days of dark, damp and depressing student 'digs' have fortunately come to an end and now, students have the reassuring choice of university-run halls of residence and purpose built accommodation schemes.

As student rooms are generally seen as temporary abodes they often follow a different design code to other residential schemes but increasingly, the sector is recognising the importance of daylighting. The slim sightlines offered by aluminium windows help maximise the flow of light into bedrooms that are often used as both living and study areas, with many schemes also now incorporating aluminium frame doors and curtain walling to open up entrances and communal areas.

With the ability to create the full range of standard RAL colours or specific colours for a more bespoke solution, powder coated aluminium frames can make a real design statement. Dual colour options to create a different look for the exterior and interior surface of the frames are also very effective.

Durability, security and safety

Hard wearing and robust, aluminium systems can significantly help to reduce cyclical maintenance costs and with many products offering guarantees of 30+ years, can also make a positive contribution to managing the overall life cycle costs.

The intrinsic strength of aluminium frame windows and doors also offers increased security and the best quality products are fully compliant with the Secured by Design code.

Another key concern of this sector is safety. As the design of many accommodation schemes feature multiple storeys, the use of window restrictors can provide protection from falls but still allow windows to be opened for ventilation. This aspect can also be addressed through the installation of external mesh panels, used in conjunction with opening windows. These panels can have bespoke, aesthetically

pleasing characteristics, bringing another dimension to the architectural design.

Energy-efficiency

Aluminium systems can also bring additional cost savings in terms of thermal performance. With many new student accommodation schemes aspiring to achieve BREEAM targets, the specification of low U-value glazing systems can bring significant benefits. In a sector where affordability is a key concern, the use of thermally efficient windows and doors can also help to reduce heating running costs.

Thermally-efficient windows can also significantly reduce the risk of condensation build up which is a common problem in this sector.

Early engagement and timely delivery

Many student accommodation schemes are built on brownfield sites, with the better locations often snapped up for mainstream residential developments, and as such, many schemes face logistical issues.

As many projects work to tight construction programmes, choosing a supplier that can meet deadlines and has an approved supply chain of installers is essential. Identifying products that lend themselves to offsite construction techniques can be also extremely beneficial.

Affordability will always be a sticking point in the student accommodation market and much like the students themselves, those working in this sector find themselves faced with a myriad of challenges such as adhering to tight budgets, deadlines and expectations of outstanding performance. It may be a learning curve for some but the solutions to these problems can often be found through supplier collaboration as it provides the perfect forum for manufacturers to contribute specialist knowledge.

Andrew Copper is national specification manager with Senior Architectural Systems



Shedding light on efficiency

Maria Holton of Luceco looks at why energy efficient lighting should be considered as part of the overall design process in educational establishments to meet the needs of flexible learning spaces



The importance of lighting in education environments should be self-evident. It is widely recognised that good lighting positively influences learning, delivering better results and impacts rate of learning.

Rising energy prices and the pressure to reduce CO₂ are high on the school agenda. As schools confront current austerity and budget limitations, it is important to understand that inefficient lighting can account for 50 to 70 per cent of the electricity bill. Making the right luminaire choices can reduce existing operating costs by as much as 80 per cent. LED lighting can deliver huge savings; not only does it deliver good lighting, it also costs less to run, lasts much longer and requires no maintenance.

However, in order for a new school to achieve its full potential, there is more to it than just 'going LED', as overall ambience, glare and functionality need to be incorporated within the design.

Luceco has been involved in many prestigious school projects. Highfield School in Letchworth for example is an impressive state-of-the-art facility providing a superb environment for learning for over 1,000 students. Original school buildings erected in the 1960s have been replaced with a new £15m facility. Funding for the scheme was secured through the Priority Schools building programme which is operated by the Education Funding Agency. The new school benefits from better classrooms, communal and circulation areas and new sports and recreational facilities.

Area-specific requirements

It is vital that pupils' circulation route between lessons is made safe and provides quick access to each destination at all times of the year. Uniformity of light and good luminaire choice is a key consideration when designing for the corridors. The use of LED flat panels, both square and circular, prevent luminaires intruding into what can

already feel like a small space often containing a large quantity of people.

Emergency lighting should be approached as a key design element. To achieve the 1.0 Lux minimum requirement for escape routes, specific LED luminaires are able to meet the required standards with long narrow distribution, produced by special optics which allow maximum spacing between luminaires. Lighting designers can help the end user to meet their obligation for emergency lighting with the right product positioned in the right location.

LED technology enables the school to be optimised to accommodate assembly areas and the range of different indoor sports activities, as well as a multitude of additional functions within the school calendar. This will deliver significant cost savings compared to the traditional alternative for sports halls – linear fluorescent with wire guards, or the high-intensity discharge light sources now consigned to the history books.

Choosing the right lighting in such spaces can be particularly challenging as a main hall is required to serve a variety of different uses. Glare control and adequate illuminance on the vertical combined with good uniformity are necessities in this application. LED technology is long-life – operating life typically four times that of traditional light sources – minimising cost and inconvenience of lamp maintenance.

Lastly, outside space needs to be lit effectively to ensure basic safety requirements are met, especially as the outside spaces are often utilised for a number of important functions from circulation and break out to recreation and sporting activities.

Lighting designers need to consider the quality of the 'lit effect' and practical demands such as colour rendering and suitability for CCTV, balanced with the location and mounting positions available in the area to be lit.

Maria Holton is senior lighting designer at Luceco

In order for a new school to achieve its full potential, there is more to it than just 'going LED', as overall ambience, glare and functionality need to be incorporated in the design

A masterclass in hygiene

With a lack of cleanliness understanding among children, Chris Tranter of Bristan explains the importance of non-touch technology in school washrooms

The education environment is one of the most sensitive sectors when it comes to cleanliness – there is a duty of care to protect young students, but equally, those students may not yet have a strong understanding of cleanliness. For this reason, it's vital to make sure hygiene measures are not only as stringent as possible, but easy to use too.

Nearly 22 million school days are lost every year to the common cold, and while adults tend to contract the cold virus two to four times a year, the rate for children is much higher at six to 10. The reasons for this are two-fold: firstly, school children tend to be more tactile with each other, thus spreading illness and secondly, young people often lack a fully developed sense of personal hygiene.

When it comes to the most high-risk areas in an educational facility, the washroom is top of the list. Cross-contamination is at the heart of this issue, with bacteria easily transferring from hand to surface and back again when another user visits the bathroom.

Poor hand hygiene is a serious matter, with estimates suggesting that 80 per cent of infectious diseases are spread by touch. Despite this, there is a disconnect when it comes to educating children about the importance of hand-washing. A recent study found that one in five parents don't tell children to wash their hands after using the toilet, and three-quarters fail to remind them to clean their hands before eating.

Therefore, the onus is often on the education provider to teach children essential hygiene skills, alongside maintaining a clean and sterile washroom supported with rigorous infection control measures. The good news is that specifying or upgrading washrooms to address these issues is easily done, at relatively little cost.

Fundamentally, it is important to instil behavioural change by encouraging everyone, children and staff alike, to wash their hands regularly. Good practice also constitutes routine sterilisation; with a focus on disinfecting germ-prone surfaces and

objects such as countertops, urinals, toilets, door knobs, toilet handles and faucets.

Even with these measures in place there is still room for bacteria to spread, but this can be avoided by the installation of solutions that offer hands-free operation.

One example is the infrared tap range from Bristan. This uses infrared technology to detect human presence and switch on the water flow, delivering the right amount of water when required. In this way, the non-touch mechanism alleviates the risk of germs spreading.

Another solid recommendation is a urinal infrared automatic flush. Working in a similar way, the technology detects human contact and automatically flushes the individual urinal after use thus alleviating the need for human contact. Plus, the direct flush removes the need for an auto-flush cistern and associated plumbing used in traditional installations, which flush all urinals intermittently.

A major added bonus to using both of these technologies; efficiency. Unlike traditional setups, where taps may be left running and cisterns may have an unnecessarily high water demand, non-touch technology means water is only used as needed.

A new infrared soap dispenser has been specifically created to aid infection control in public sector premises. In a similar vein to water-related infrared products, the dispenser spout incorporates infrared technology to detect human presence and dispense a user-set volume of soap, thus negating the risk of cross-contamination between hands.

The average person carries around 3,000 bacteria on their hands, of over 100 different species. In an enclosed environment like a school, a lack of hand-washing can mean that this bacteria is spread quickly. Therefore it's important that specifiers and contractors bear in mind non-touch solutions that can drastically reduce the risk of contamination.

Chris Tranter is specification product manager at Bristan

When specifying for the washroom, it's important that specifiers and contractors bear in mind the non-touch solutions which can drastically reduce the risk of contamination



CLEANLINESS

80 per cent of infectious diseases are due to poor hand hygiene



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ESSA Academy, Bolton chooses the TAPER-LOC® System from C.R. Laurence

The staircase has been built within the hall of the academy, which exhibits a modern blend of stylish interior design glass features together with the spaciousness and open-air feeling of an outside area.

TAPER-LOC® from C.R. Laurence is the simple way to install glass railings and balustrades. It is 50 per cent faster to install than traditional alternatives and as it is a totally dry glaze system there is no need for wet cement. Conforming to BS6180:2011 the product is completely unique because it uses a horizontal TAPER-LOC® design, which allows the system to be adjusted, dismantled and re-set easily and efficiently. This also makes the TAPER-LOC® System ideal for replacing scratched and broken panels in existing applications.

Steven Gill, of Webber Engineering – steelwork specialists who constructed the staircase, commented: “CRL’s range of Architectural Hardware is first-rate. In

particular, their TAPER-LOC™ System enabled a fast and efficient installation, which not only makes our job easier but keeps costs to a minimum. Their products are also backed up with an excellent Technical Support division.”

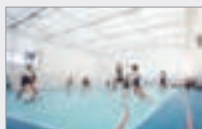
To finish the project CRL’s Cap Rails were used throughout the staircase and balcony area, in a 51mm diameter. These premium cap rails are manufactured by bump-forming to ensure reduced spring back. The Cap Rails have a standard wall thickness of 3.2mm and are available in diameters ranging from 38.1mm to 101.6mm, as well as oval and square profiles in a wide range of architectural finishes.

For further information regarding C.R. Laurence’s TAPER-LOC® Dry Glaze Balustrade System, or any other product from its extensive Architectural Hardware range, please call or visit the company’s website.

01706 863 600 www.taper-loc.co.uk



Collaboration – the key to cost efficiency



Imagine a solution, one that could satisfy an element of your project while freeing up your client’s budget. Now imagine a Collinson built leisure facility, enter the new state of the art sports facility at York St John University. Where the budget and

specification were concerned, the Challenger structure ticked all the boxes and Collinson were appointed as sub-contractor. Constructed from a steel framed superstructure and covered with a heavy duty architectural membrane Challenger™ allows light to permeate in creating a light, bright, energy efficient sporting facility.

www.collinson.co.uk

Fortis – robust exterior LED luminaires



Luceco launches the Fortis family, an LED exterior range with Wall Pack and Bulkhead luminaire styles. Fortis Wall Pack is stylish yet totally practical, offering an energy efficient alternative to HID fittings with a 45W LED luminaire being the equivalent of a 70W traditional HID

fitting, and a High Space to Height ratio providing the idea retrofit alternative to existing Wall Pack installations. With CRI>80, Fortis Wall Pack is ideal for CCTV areas. Variants include standard output, photocell, and emergency options.

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FunderMax more than makes the grade

Re-energised and re-focused... This spring term, it isn't just Yorkshire's pupils who have returned refreshed, but the schools themselves. Working in collaboration with our distribution partner VIVALDA Hull, main contractor Laing O'Rourke, sub contractor Horbury Group and architects Atkins Global, FunderMax is proud to have played a vital role in revitalising these modern buildings. Part of an extensive £150 million Priority Schools Building Program, thus far, Max Exterior has helped to transform 3 schools with vivid and appealing new facades: Samuel Lister Academy, Beckfoot Upper Heaton & The Dean Trust Academy.

The Dean Trust Academy is the latest addition to the line up. Exuding exactly the right image, with bold decors chosen to complement the school's brand, this striking project boasts Max Exterior in elegant (Rubinus) red and contemporary grey shades. Yet it's not simply thanks to its comprehensive colour palette that the product was selected.

VIVALDA Hull led the first design meeting with the contractor, and based on the brief, FunderMax was quickly introduced to the conversation. 'Durability and longevity were central to the requirements, something that Max Exterior offers in abundance. The merits also extended to high resistance to graffiti, with the ability to use acetone directly on the facade without causing deterioration.'

FunderMax excels under stringent testing

In addition to the qualities above, FunderMax's HPL cladding was chosen due to its excellent performance during testing. Laing O'Rourke, along with architects Atkins Global, opted for Max Exterior HPL over its rivals because of how the sample panels excelled. Max Exterior showed ultimate resilience when bombarded with solid ice balls - fired from a cannon at high speed. Specifically in the 'Hail Impact Resistance' test - delivering an impressive 'zero-impact' result.

Peter Watson, Area Sales Manager had this to say about the selection process

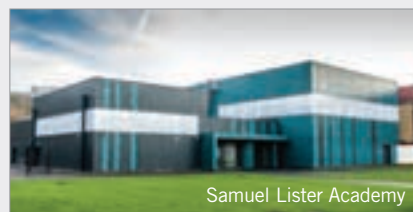
"Being part of VIVALDA's core offer has allowed our product the opportunity to really shine. It's rewarding to know that Max Exterior secured the project, not simply down



The Dean Trust Academy



Beckfoot Upper Heaton



Samuel Lister Academy

to its cost-effectiveness, but because of its superior resistance too."

Speedy installation thanks to pre-fabricated elements

Installers, Roofdec, Rotherham, with their competence, attention to detail and diligence, were also pivotal to the overall success of the project: "We're really pleased with how The Dean Trust Academy project progressed, and everyone seems to be impressed with the end result. FunderMax was chosen for its versatility, practicality and cost edge, but one of the big advantages for us was that it was also available in four sheet sizes, allowing us to minimise waste. We were very happy with the product and it worked exceptionally well for this modular/traditional blend application," said Jon Barnes Jnr, Associate Director.

Paul Hughes, Director of Sales UK comments on the challenges within the education sector, and how this particular project has helped to change perceptions

"When it comes to education architecture, all too often a compromise has to be made between creativity, cost effectiveness, and dependability. Yet it's refreshing to see that the industry as a whole is responding with more innovative solutions. Creativity is no longer a 'nice to have', but a pre-requisite, made possible by materials such as Max Exterior and its extensive decor range.

This has been a really rewarding project, and despite the tight timelines we've managed to deliver - thanks to everyone's determined efforts. The finished academy is truly impressive and the feedback has been excellent."

If you'd like to find out more about the project, or our Max Exterior Cladding, please get in touch: paul.hughes@fundermax.biz.

07852 867472 www.fundermax.at/en

PROJECT DETAILS

Project: Yorkshire Schools Programme

Brief: A HPL solution that would fit the specified budget, but also last the test of time

Challenges: Limited on-site space meant reliance on accurate off-site fabrication

Architect: Atkins Global

Material: FunderMax Max Exterior

Main Contractor: Laing O'Rourke

Distributor: VIVALDA

Fixing system: Bracket and rail – Nvelope

ALUCOBOND® naturAL Copper creates undeniable luster on UK headquarters

ALUCOBOND®, manufactured by 3A Composites, brings a superior metal panel image to any project. ALUCOBOND®, known for its lightweight qualities, also has other desirable attributes such as a vast spectrum of consistent color and finish options, the ability to form textures or curves or the option to create modules. When you need to present an exceptionally flat, high-tech metal panel image, ALUCOBOND® allows you the ease of mind that you have chosen the proven leader.

The Aberdeen, Scotland headquarters for Norwegian energy company Statoil utilizes the profound luster of ALUCOBOND®'s naturAL Copper finish. The oil and gas production company operates in 37 countries around the world and their recently completed headquarters houses their development and production activities in the UK and Ireland.

Statoil explains that their new headquarters creates collective spaces for the company's 200 employees. The operation rooms are equipped with technology and collaborative tools for connectivity. They also utilize this technology to focus on their "... key issues; such as safety, environment, operations and asset integrity."

The architects at Halliday Fraser Munro worked closely with UK fabricator, Sotech Optima, to create the impressive exterior façade. The contracted windowsill panels create a three-dimensional effect against the remaining distending ACM. This fabrication technique creates an interesting prismatic effect where the panels change hue based on natural light and focal point, adding a new dimension to the facade.



Rustic metal was a purposeful choice of building material for a company focused on utilizing natural resources.

The new 60,000sq/ft building features both Sotech's Secret Fix FC attachment system and their Through Fix Cassette (TFC) Rainscreen System. Sotech explains, "The Sotech Optima FC system was selected for the project due to the precise coordination between panel and substructure that presents a pristine appearance without the use of visible fixings. TFC was also selected as accurate installation is both simple and speedy."

Sotech praises the naturAL series as, "...a subtle rapprochement to real metals without its inconvenience creating a refined metallic look." The surface structure of ALUCOBOND®'s naturAL line brings about interplay between metallic shine and the reflection and absorption of light.

The project, which was built under specifications of Civil Engineering Company Sir Robert McAlpine and the developers at Drum Property Group, is located in Kingswells' Prime Four Business Park. According to Aberdeen City Council's head of planning, Dr. Margaret Bochel, "The high quality of design and materials proposed would fit well into the setting of the business park when taking into account the other development which is underway and proposed."

Paul Herbert, Specification Manager:
07584 680263

Richard Geater, Sales Manager:
07584 680262

Richard Clough, Business Development Manager:
07760 884369

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Construction Type: Cassette on bolts

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Fraser Munro – Chartered
Architects – Planning Consultants

Fabricator/Installer: Sotech
Optima

Year of construction: 2016

Copyright pictures: Sotech
Optima

Yeoman Shield help to maintain standards at Oldham School

The new building of North Chadderton School, Oldham was built in 2013 providing facilities for up to 1500no. students aged between 11 & 18 years.

Built without the provision of wall protection to the school's interior walls, Facilities Manager William Wheatcroft soon noticed that the plastered, white walls, were suffering marking and superficial damage detrimental to maintaining the school's high standards.

"We needed a permanent solution to our problem of continually re-decorating and cleaning the walls along corridors and congregational areas of the school – which was proving to be a drain on the maintenance budgets." Explained Mr Wheatcroft.

Yeoman Shield, manufacturers and installers of wall & door protection products, were called in to survey areas in the school most needing wall protection, where it was decided that 2.0mm thick FalmouthEx



protection panels would be the answer to stopping the continual damage. The work

was to be phased over time as and when budgets became available.

The first area to be fitted with Yeoman Shield FalmouthEx protection panels at 1250mm high, in white, were the dining room, boys WC on the ground, 1st & 2nd floors, reception exit area and along the flat to raking wall of the Assembly Hall Stage.

Other areas which have received the same treatment over the past 2 of years have included, staircases, refuse points, sports exit lobby, performing arts and music centre along with staff changing facilities.

"There has definitely been a marked difference in the time spent re-decorating and sorting out wall damage which I am sure is resulting in a year on year saving in our maintenance budgets. Our cleaning team have also commented that the wall protection panels are certainly easier to wipe down than the painted wall finish.

"We are very happy with the finished products and the workmanship supplied by Yeoman Shield over the years and we will be continuing with the roll out of the wall protection programme in the future." Concluded Mr Wheatcroft.

For more information on how Yeoman Shield wall and door protection products can save on maintenance budgets, call or visit the website.

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Helping create the future of learning

GEZE UK is giving students a super welcome at one of Europe's newest super colleges – the £228 million City of Glasgow College in the heart of Glasgow.

The technical and professional skills college, which has been created on two sites, one either side of the River Clyde – City Campus and Riverside – has been called a 'college of the future'. It aims to prepare students for the world of work with industry standard and state-of-the art facilities.

Contractor Sir Robert McAlpine, chose GEZE products to create the entrances to match that at City Campus. The cutting-edge, contemporary building with almost 1000 learning spaces, needed to incorporate a statement entrance, but also have practicalities and safety in mind.

The west and south elevations have a similar aesthetic with imposing glass and steel framed facades into which manual revolving doors have been installed along with automated swing doors to one side.

The college has been built to accommodate



40,000 students and 1300 staff, so functionality was key to ensure a steady flow of traffic across the threshold. The TSA 325 NT manual revolving doors are spacious yet easy to operate. They include a control system which ensures that those using the door cannot be forced to speed up by a someone entering the door behind them

The TSA 325 NT also provides an effective draught-free lobby, keeping noise, dirt and dust out of the building.

The Slimdrive EMD-F electro-mechanical swing doors fitted next to the revolving doors are extremely versatile. They provide easy

access for those with mobility issues as assisted opening can be initiated using the operating button with guaranteed constant opening and closing speed.

At just 7cm high, the Slimdrive EMD-F operator is extremely discreet and sits neatly on the frame. It is a low-wear, hi-performance system which is exceptionally quiet in operation.

At Riverside, the RIBA Sterling prize nominated campus incorporates a Slimdrive SL NT single sliding automatic door on the entrance to a 198-bed student accommodation block which is home to more than 3,000 marine and engineering students.

The Slimdrive SL NT blends seamlessly into the entrance of the contemporary pillared frontage. With an operator height of just 7cm – it is almost invisible and can move leaf weights of up to 125kg, making it ideal for public buildings with high levels of footfall and a continuous flow of people moving in various directions.

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Being totally invisible when the door is closed and having few parts on show when the door is open, Powermatic is less likely to be vandalised than surface-mounted devices. This reduces the risk of a fire door being rendered inactive by a damaged door closer and means that maintenance or repair costs are minimised.

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The Optimum Education Solution

Light steel framing is used in offsite construction for a wide range of building types and can be developed in the form of panelised or volumetric modular systems. Steve Thompson, MD of EOS Facades – specialists in the design, manufacture and supply of a wide range of steel section solutions – shares his views on why offsite manufacture is vital to the education sector

The second phase of the Priority School Building Programme (PSBP2) presents a major opportunity for offsite construction to play a crucial role to help meet the challenging targets. One of the most frequently cited benefits of offsite construction is speed of delivery, with the time required to construct and commission an offsite building being typically reduced by 50 – 60 per cent in cases where large elements can be prefabricated. Our robust High Bay Walling systems can be used internally to provide single span stud walls up to 10m high providing an ideal solution for projects such as school sports halls and auditoriums.

I see volumetric modular systems playing an even greater role in PSBP2, this phase represents one of the biggest opportunities for modular construction in the market. The combination of accelerated handover times combined with reducing repair and maintenance



costs throughout the lifecycle of the building, are two major financial advantages to offsite construction which are particularly important to the education sector.

Our approach to design and value engineering is inclusive – working side-by-side with our clients and their designers to create a complete solution incorporating design with structural calculations. Steel offers architects' greater versatility than other building solutions, particularly in terms of cost. Productivity advances have been achieved throughout the steel supply-chain

and such cost saving benefits can be shared with contractors.

The manufacture of steel in factory controlled conditions enhances build programmes and eradicates the risk of onsite variability. As an advanced high performance offsite solution, steel is not susceptible to shrinkage, warping, cracking, rot infestation or moisture absorption. Steel is a robust, rigid and dimensionally stable material that does not suffer from movement created by moisture related issues and is perfectly positioned to meet demands of the Priority School Building Programme – it is future proof and future ready.

To find out more about EOS Facades' and meet the team, come along to Explore Offsite Education taking place on 11 July 2017 at Altitude, Westminster, London.

01325 303030 www.eos-facades.co.uk

Energy efficient, low maintenance student accommodation for Highlands University



Some of the highest performing technically advanced thermal membrane products have been supplied by the A. Proctor Group Ltd for a new build student accommodation project in the Scottish highlands. The project consists of a 40-bed student accommodation development in the Sutherland village of Dornoch, and is part of a wider programme by the University of the Highlands & Islands (UHI). A key factor in the design was ensuring that the materials chosen required little or no maintenance, and that the building continues to enhance its setting over the course of its lifetime. The buildings were constructed using Val-U-Therm® a unique closed panel, factory insulated timber frame system with class leading thermal performance. The Val-U-Therm® wall, roof and floor systems in combination with the high performance breather membranes from the A. Proctor Group give the finished structure outstanding thermal efficiency. Roofshield pitched roof underlay, was chosen for the roof because it has an extremely high degree of vapour permeability, as well as air permeability, so will still perform in conditions in which air tight alternatives will not.

01250 872261 www.proctorgroup.com

REHAU top of the glass for school installations



REHAU PVC-U windows have been specified for three schools, as its efficient, secure and easy to fit profiles are top of the class for the education sector. The REHAU TOTAL70c window system was recommended for the installations at the Harris Primary Academy Shortlands (Bromley, Kent), Harris Primary Academy Chafford Hundred (Grays, Essex) and Harris Primary Academy East Dulwich (London) schools by contractor SEH Commercial. The specification for the schools centred on key areas; ventilation, thermal insulation, sound insulation and security, major considerations for schools in order to create an optimum learning environment for pupils. To achieve the brief the windows had top hung outward opening casements and incorporated glazed louvres for ventilation to the classrooms. Harris Academy were keen to ensure its state-of-the-art schools were visually appealing for its staff and students, and the window design vision contributed to achieving a contemporary look for each of the academies whilst allowing the maximum amount of light in for a naturally lit school space. The Harris Primary Academy Shortlands in particular opted for dual colour windows.

01989 762600 www.rehau.uk/windows

Specialist secondary glazing company provides solutions to historic buildings

Selectaglaze's expertise has assisted in creating more comfortable working spaces in a former chapel and a former outpatients building for Oxford University.

The University called on Selectaglaze to support the renovations of St Luke's Chapel and the former outpatient building on the Radcliffe Observatory Quarter site. Both buildings directly face each other across a courtyard, and are Grade II Listed; the chapel dating from 1865 and outpatients from 1913.

As is a regular occurrence with older buildings, both suffered from substantial heat loss due to the inefficient original glazing. As the original windows were to be kept, the University sought advice from Selectaglaze, the specialist in the design manufacture and installation of secondary glazing, to help resolve the issues.

Selectaglaze subsequently installed 82 units across the two buildings using an array of products from its range to meet the required specification. In the chapel the stunning



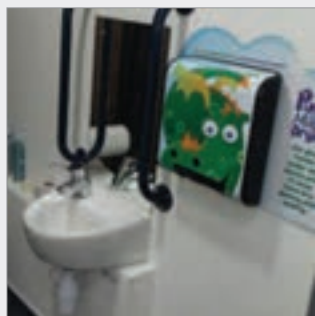
gothic arched windows posed an interesting challenge to Selectaglaze, as the planning authorities were particularly keen to ensure the aesthetic impact of the secondary glazing was kept to a minimum. Selectaglaze collaborated with the architects and designed solutions that would work with all the various styles.

Low emissivity glass was used in both of the buildings which in combination with the primary window achieves a U-value of 1.8, reducing heat loss by approximately 60 per cent. As secondary glazing is used in combination with a wide variety of primary windows, U-values are calculated using modelling software. In addition, the application of secondary glazing achieved a reduction in noise egress and ingress. Acoustic laminate glass will show further improvements particularly at higher frequencies as it provides further dampening. Ideally the secondary glazing should have a different thickness of glass to the primary window to avoid sympathetic resonance which will increase noise transmission.

Selectaglaze has been established for 50 years, and in that time gained extensive experience with working on all building types. Email enquiries@selectaglaze.co.uk for more.

01727 837271 www.selectaglaze.co.uk

Practical plumbing for 21st century schools



Geberit has provided a total plumbing solution at Gwenfro Primary School in Wrexham, which has undergone a £4.9 million makeover funded by the Welsh Government's 21st Century Schools and Education Programme. Upgraded from an existing 1950s school, the new Gwenfro school amalgamates juniors and infants, creating state-of-the-art facilities for its pupils. BREEAM rated 'Excellent', Gwenfro has been constructed in a highly sustainable way, including 'fabric first' design, good use of natural daylight and ventilation, plus solar photovoltaic panels to provide electricity. Twyford products installed include an air button dual flush concealed cistern, helping to save water. In addition, Twyford E100 round basins incorporating Sola non concussive taps were chosen. Apart from Twyford, all plumbing comes courtesy of Geberit Mepla multi-layered pipe, which combines the advantages of synthetic and metallic materials. Corrosion-resistant and light, Geberit Mepla is more inherently stable and durable than plastic pipes. Enabling fast work progress and subsequent economic advantages Geberit Mepla also ensures peace of mind as it is permanently leak proof.

01926 516800 www.geberit.co.uk

Passivent CPD covers changes to BB101 in schools



For specifiers involved in the design of school buildings, natural ventilation specialist Passivent offers a free CPD seminar covering the imminent changes to the Department for Education's Building Bulletin BB101. The new 'Guidelines on ventilation, thermal comfort and indoor air quality in schools' will see a number of key changes to the way air quality and thermal comfort are managed within school buildings. The new document will replace the current 2006 edition and will have a significant impact on ventilation design strategies and system choices. As a member of the BB101 advisory group, Passivent is ideally placed to provide guidance on the changes and how to achieve future compliance. Its recently updated CPD entitled 'Natural Ventilation in Schools & Commercial Buildings' will include the key changes to BB101 and provide advice on the range of ventilation strategies available to enable specifiers to determine the correct strategy at the early design stage of a project. The CPD will also explain the association between BB101 and relevant Building Regulations as well as the importance of computational modelling to ensure a robust ventilation strategy.

01732 850 770 www.passivent.com/cpd

GEZE'S degree of distinction

There's a degree of distinction about Swansea University's new student accommodation where GEZE UK is helping open doors to a new way of living on a campus by the sea.

The Bay Campus, developed by St. Modwen in partnership with Swansea University, has been designed to promote a 'friendly and collegiate feel' and foster a sense of community which flows through the design of 900 apartments.

They have been created in 11 blocks, in clusters of four to 11 bedrooms, each with reception, common room and kitchen and are built around a courtyard, plus the Tower which is a combination of residential, office and management areas. Further phases of student apartments are now under construction and will open in September 2017, taking the total number to 2,000.

Anyone who has lived 'in halls' will know that the comings and goings of student life can be a little noisy which is why GEZE's Slimdrive EMD-F electro-mechanical swing door operator was specified for the 10 external main entrances.

It eliminates the possibility of banging doors in the wee small hours as the Slimdrive EMD-F is virtually silent in operation and has the capacity to move large and heavy, single leaf doors with ease. Its durability also means that it's a low-maintenance solution for areas of heavy footfall and its slimline design - the Slimdrive EMD-F operator is just 7cm high - means that it is extremely discreet.

Inside, more than 2000 TS 2000 NV manual overhead closers have been fitted to student rooms, corridors, and communal areas, while eight TS 4000 closers were chosen for some of the external doors.

The TS 2000 NV was the ideal choice for the accommodation blocks as it features an over pressurisation valve which protects the internal workings of the unit from damage. It is also highly efficient and has a fully adjustable closing speed, hydraulic latching action and adjustable closing force, making it easier to conform to the requirements of Approved Document M and BS 8300.

The TS 4000 was chosen for the larger doors, particularly external swing doors which may have to battle with the elements.

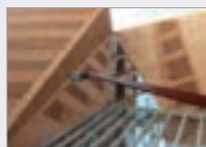


The adjustable power 1-6 makes the unit a great solution for heavier door leaves, particularly those which may need to be opened in windy conditions by the sea as they are suitable for doors from 750 – 1400mm wide and are also fitted with an adjustable backcheck as standard.

Lock-Tech carried out the supply and installation of the Slimdrive EMD-F operators and the supply of the TS 2000 NV & TS 4000 closers working closely with VINCI Construction and their sub-contractors. The company attended several site meetings to refine the ironmongery schedules to suit the client's needs.

01543 443000 www.geze.co.uk

Fixing the complex facade



Ancon designed and manufactured the complex stainless steel brick support and restraint system behind the facade of the award-winning London School of Economics Saw Swee Hock Student Centre. The Ancon stainless steel system comprises special inclined MDC type brick support

angles fixed back to 30/20 cast-in channels, and bespoke rolled hollow section Windposts, featuring surface-fixed channels to accept wall ties. This project demonstrates Ancon's ability to engineer an innovative, practical and cost-effective fixing solution for any brick feature.

0114 275 5224 www.ancon.co.uk

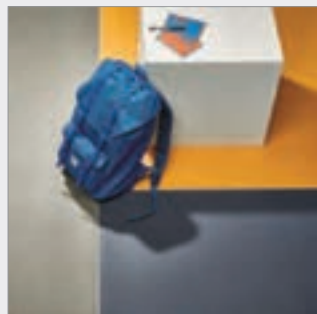
Celotex for Sunderland University



The project involved the refurbishment of a Grade II listed building and part new-build. After careful consideration, Teams Roofing specified 11-12 vertical metres of Celotex' insulation board FR5000, primarily due to its lambda of 0.021 W/mK and impressive U-Value calculation compared to typical insulation boards. The innovative product, manufactured from rigid polyisocyanurate (PIR), prevents moisture build-up and would successfully future-proof the energy performance of the refurbished building. For a comprehensive range of specification tools, e-learning video tutorials and more, please visit the website.

01473 822093 www.celotex.co.uk/members

Forbo's new Sphera Energetic adds colour to the curriculum



Forbo Flooring Systems has launched Sphera Energetic, its second homogeneous vinyl collection range produced in a new state-of-the-art production facility. Reflecting the latest education trend colours, and with low emissions and high LRVs, the new phthalate-free collection will contribute towards a stimulating, yet healthy indoor environment for any educational establishment. Forbo's Sphera Energetic is a bold, exciting new range that challenges traditional flooring design in the education sector. End users are presented with a fresh and playful colour proposition consisting of 52 shades: 41 'flecked' colours alongside 11 complementary 'vivid' hues, which feature corresponding highlight chips to create an integrated flooring solution. Ideal for zoning and way-finding through corridors, the colour palette has been designed with tint combinations that will create standout, inspiring flooring schemes. Janet Lowe, Head of Marketing UK and Ireland commented: "The new Sphera Energetic range delivers an exciting proposition for educational design: a stylish and contemporary yet wholly practical flooring solution."

www.forbo-flooring.co.uk/spheraenergetic

Ayrshire College gets the Metal Technology lesson in excellence

Metal Technology supplied a comprehensive suite of architectural aluminium systems which complemented the creation of a futuristic look to the world class educational facility for Ayrshire College, Kilmarnock.

The design places two legs of teaching accommodation around a central atrium, creating a mature, open series of interconnected spaces. Working with main contractor McLaughlin & Harvey and the project design team, Metal Technology supplied two variants of its System 17 Curtain Walling (capped and silicone pointed) allowing light filled spaces to become a real feature of this project.

System 10 commercial doors were used in the main thoroughfares with System 5-20D Hi+ doors and 4-20Hi+ casement windows from the [thermal] range used extensively throughout the building. These systems feature bespoke gaskets, cellular foams and polyamide thermal



isolators, delivering impressively low U values.

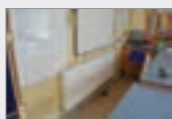
Developed with an ethos of sustainability, the exceptional structural, thermal, acoustic and security performance of the Metal Technology systems used also contributed to the Colleges BREEAM Excellent rating,

as well as the building's Secured by Design status.

The £53 million campus was built on the former Diageo site and will be used by 5,000 students each year.

028 9448 7777 www.metaltechnology.com

School chooses Stelrad Planars

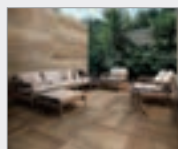


Nower Hill High School in Harrow recently underwent a major heating system upgrade that saw Stelrad radiators installed throughout the school buildings. The work saw the installation of the full range of Stelrad Planar flat fronted designer radiators – standard horizontal and

vertical Planars, and Heavy Duty Planars for parts of the school where the radiators would need to stand up to the knocks and bumps that a busy school might dish out. Full details of the Heavy Duty Planar and the wider Planar range can be found at Stelrad's website. You can also see regular updates from Stelrad on Twitter and Facebook.

0870 849 8056 www.stelrad.com

A flexible external flooring solution



Levato Mono Porcelain paver system from The Deck Tile Co. Ltd is a flexible external flooring solution for the design conscious. The system enables fast, cost effective installation over most surfaces including; single ply membranes, roofing felt and other delicate waterproofing systems. The porcelain pavers are also available in larger formats, are highly abrasion and stain resistant, fire and frost proof and achieve R11 slip resistance. With all it's features such as height adjustable and slope correcting supports, high load bearing and only 45kgs per m², over 40 finishes available.

0118 391 4120 www.thedektileco.co.uk

Formica brings a vibrant identity to a school with energy efficient rainscreen cladding



When Ellis Williams Architects (EWA) were appointed to undertake the design of Barrow Hall Primary School, they consulted with the school and local authorities to develop a design that avoided the pitfalls of existing building stock. With consideration to occupant comfort and energy efficiencies, EWA specified VIVIX® by Formica Group for the rainscreen cladding. The application of VIVIX panels to the exterior helped meet the brief for the build to incorporate minimal mechanical ventilation; while also establishing a distinctive aesthetic character for the school buildings. The former Barrow Hall Primary School occupied buildings which were considered by the Council to be in poor condition. For the new build it was imperative that consideration be given to good design that limits future maintenance costs. The durable properties of VIVIX panels offers a rainscreen cladding solution that is easy to clean and one that will maintain its aesthetic regardless of weather conditions or exposure to UV rays. Should the material need to be replaced, its lightweight nature and ease of application means less disruption to the running of the school.

0191 259 3512 www.formica.com

School hall keep its traditional look



Wood effect luxury vinyl tiles from Polyflor's Expona Design PUR collection were the perfect choice of flooring for a school hall refurbishment project at Erskine Stewart's Melville Schools in Edinburgh. 315m² of Expona Design PUR luxury vinyl tiles in the Walnut design

were installed by Forever Flooring of Broxburn at the independent school for girls. The school hall needed to be refurbished, and as Expona Design flooring was performing well elsewhere in the school, the same luxury vinyl tile range was selected for this space.

0161 767 1111 www.polyflor.com

Flame-free sustainable roof refurb



Conyers School in Stockton-on-Tees has benefitted from an extensive roofing refurbishment using 3,000m² IKO Mach One, which guarantees reliable waterproofing and protection for at least 20 years. Project management consultancy Faithful+Gould asked IKO PLC to

carry out a comprehensive survey for the academy, which included guidance on the overall project. The single layer, bituminous membrane IKO Mach One was recommended as a flame-free, sustainable and fast-fit system. The project also included an enhanced insulation scheme with new modular and structural mono-pitch roof lights.

01257 255 771 www.ikogroup.co.uk

Bickley Park specifies Jacksons Fencing



Jacksons Fencing was commissioned to supply and install security fencing around two perimeters at Bickley Park School, a selective, independent preparatory day school for boys located in South East London. Jacksons Anti Trap Bow Top fencing was installed around the nursery site perimeter to

provide a visible layer of security that was aesthetically pleasing to the eye and sensitively fitted to lessen the impact on the area's main occupants; very young children, as well as to complement the surrounding natural habitat.

0800 408 2236 www.jacksons-fencing.co.uk

Good posture and exceptional comfort



KI's iconic Postura+ chair was the first one-piece polypropylene chair introduced to the UK education market in 1996. It is ergonomically designed to promote good posture and provide exceptional comfort. Made in the UK from recyclable high impact-resistant

polypropylene, Postura+ is available in 16 standard colours and recently extended its warranty from 10 to 20 years. Durable, comfortable, practical and offers excellent value for money, the Postura+ continues to be the chair of choice for students of all ages.

020 7405 7082 www.kieurope.com

Knauf AMF is the educated choice



Having undergone a refurbishment programme to improve the building interior, Joseph Swan Academy in Gateshead has been transformed into an eco-friendly school. Knauf AMF THERMATEx® ceilings were installed throughout, offering bespoke solutions to

help reduce the school's energy consumption, provide durability and acoustic control in areas with differing requirements. The AMF THERMATEx® ceiling range offers 88 per cent light reflectance and full light diffusion which maximises the use of natural daylight.

0191 518 8600 www.amfceilings.co.uk

Pland supplies University Laboratories



UK stainless steel manufacturer, Pland Stainless, has supplied 50 new sinks for the refurbished Labs in the STEM department at John Moores Liverpool University. The refurbishment, caters for 4000 undergraduates and has vastly improved the facilities for the university, now

reflecting the commercial environments the students will work in upon completion of their degrees. Stainless steel is an ideal material for use in laboratories and Pland Stainless supplied a number of different sized sink models to the project. All of the sinks produced in 316 grade stainless steel for improved acid and corrosion resistance.

0113 263 4184 www.plandstainless.co.uk

Safety stems success with Allgood

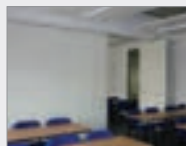


Allgood ironmongery and doorsets are helping to provide fire safety at the new state of the art science, technology, engineering and maths (STEM) facilities at Kingston University, London. As with any science laboratory, the consideration of safety was of paramount

importance. Allgood supplied 15 doorsets with traditional exposed lippings. The exposed lippings provide extra protection to the door faces and ensure they can be easily repaired and replaced if necessary. Alite levers, latches, surface maglocks and hinges were also installed, providing the laboratories with fire protection for up to 30 minutes.

020 7387 9951 www.allgood.co.uk

Folding partition and movable walls



Building Additions are a specialist folding partition and movable wall company based in the UK that offer a complete one stop service from initial design of your bespoke sliding partitions or operable wall systems, through manufacture and installation of the individual units and a full after care service.

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01373 454577 www.buildingadditions.co.uk

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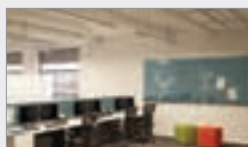


You know the old adage “you get what you pay for.” Well, **Fordingbridge** live and breathe by this. During their 50 years in business, Fordingbridge have built and maintained many relationships working with contractors across all sectors. Fordingbridge consistently deliver successful canopy and

walkway solutions for architects and specifiers utilising our in-house expertise. Whether collaborating with architects to turn a vision into reality or offering complete design, our specialist design and build team are on-hand to make your next project a success.

01243 55 44 55 www.fordingbridge.co.uk

Magnx range offers complete flexibility

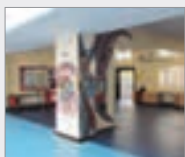


The **MagnX®** magnetic glass range from **Gx Glass** is now available with customised back painting and bespoke printed designs providing architects and interior designers with complete flexibility. In addition, the **MagnX-CF** features a new fixing system, allowing

the magnetic glass to be quickly installed and easily relocated. A robust and modern alternative to a traditional whiteboard, the **MagnX** range comprises glass magnetic whiteboards that enable documents to be ‘pinned’ to the board using magnets.

01233 642 220 www.gxglass.com

BAL helps mosaic artist transform hall



BAL have helped mosaic artist **Tamara Froud** transform a primary school dining hall with installations designed by pupils and taking inspiration from the school's values. A fixing solution of **BAL** adhesive and grout provided Tamara with the perfect materials to permanently fix ornate **Cinca** ceramic mosaics

to a six-sided, T-shaped concrete pillar at **Richard Alibon Primary School** in **Dagenham, Essex**. Tamara was commissioned by the school to work with pupils to create designs based on the school's values of confidence, perseverance, ambition, curiosity, respect and happiness.

01782 591100 www.bal-adhesives.com

Hunter Douglas expertise add up

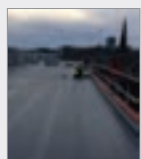


When a university mathematics building was designed with a complex, intricate ceiling, **Hunter Douglas** was specified for the project. They supplied 600m² of solid wood grill for the reception and atrium of the University of

Kent's new £26 million **Sibson Building**. **Hunter Douglas** provided class O, **Forest Stewardship Council** approved ayous wood, white-washed panels, 20mm x 80mm slats with 50mm gap, and black fleece. The complexity of the design came in the orientation of the panels at 45°, which meant the installation team had to cut all the perimeter panels on site so that the changing angles could be fitted perfectly.

01604 766251 www.hunterdouglas.co.uk

Teamwork helps deliver roofing solutions



Premium quality student accommodation is being delivered up and down the UK, through teamwork between **Torsion Group**, **Roofdec** and **Protan**. **Torsion's** two most recent projects will together deliver over 260 student bedrooms in the redevelopment of two brownfield former sites in **Reading** and **Newcastle**. Both roofing schemes are being

installed by **Roofdec** – **Reading** features **Protan SE1.8mm** single ply membrane, mechanically-fixed over **PIR** insulation, and **Protan PE VCL**; the **Newcastle** scheme in addition uses 100m² green roof, constructed using **Protan G** membrane, prefabricated.

01925 658001 www.protan.co.uk

Senior's study in efficiency



Two of **Senior Architectural System's** most innovative and thermally efficient glazing solutions have been specified for a new high school in **Reading**, helping to maximise the sense of light and space whilst reducing the environmental impact of the building. The new **Reading Girls'**

School in **Berkshire** features **Senior's** patented low U-value **PUR®** aluminium casement windows throughout the two three-storey high teaching blocks, with the company's thermally enhanced **SF52** curtain walling used to create the school's main entrance area and atrium.

www.seniorarchitectural.co.uk

Nothing to be a-frayed of!



Heckmondwike FB, one of the UK's leading manufacturers of fibre bonded carpet, has reported an increase in demand for its renowned heavy duty **Supacord** range for use in educational environments. Like all **Heckmondwike FB's** carpet, **Supacord** has anti-static and anti-slip

properties, it also offers low maintenance. Great thermal performance is another property attributed to **Supacord**, which is warm and comfortable underfoot. Schools like the fact that **Supacord** is available in all primary colours to match their branding or classroom themes.

01924 406161 www.heckmondwike-fb.co.uk

University protects students with Aico



Harper Adams University in **Shropshire** has installed **Aico's** 160e Series of mains powered **Smoke Alarms** into its student accommodation in a move to increase levels of protection for students. The University wanted to increase the level of protection, but without the considerable expense of

moving to an **LD1** system. The solution was found in the use of **Aico's** **Ei160e** Series mains powered alarms with 10 year rechargeable **Lithium** cell back-up with **Ei164e** Heat Alarms fitted in the kitchens and **Ei166e** Optical Alarms in the bedrooms.

enquiries@aico.co.uk

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