

PIP

Products in Practice September/October 2014

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minus the GPS
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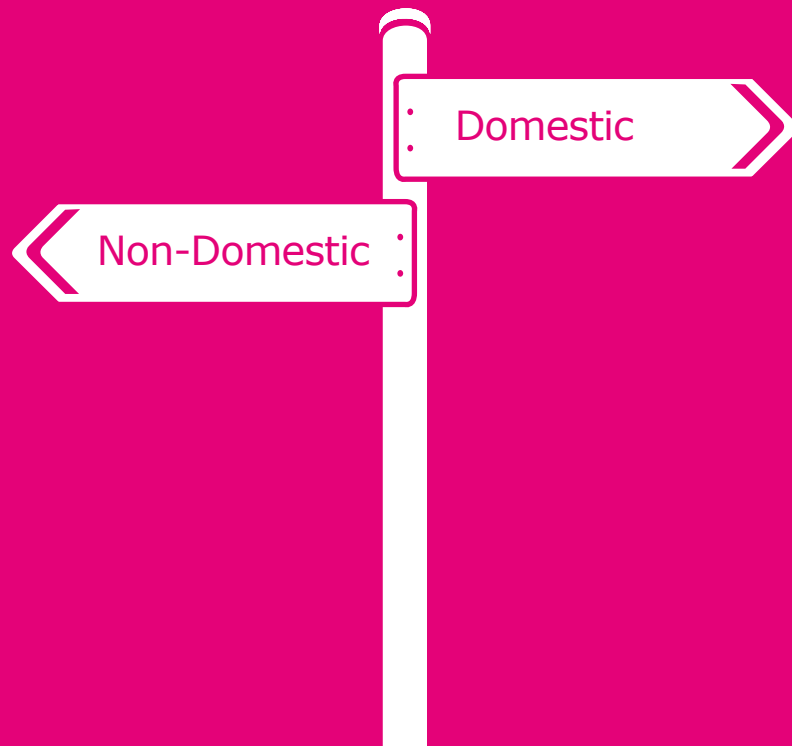
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‘Everybody ...

...has won and all must have prizes.’ The verdict of Alice in Wonderland’s Dodo became the title of American psychologist Saul Rozenzweig’s 1936 ‘Dodo Bird conjecture’, which claimed that all therapies, regardless of their nature, produce equivalent positive patient outcomes.

The Stirling Prize has always been a complex thing to judge; as difficult perhaps as the Turner Prize, in as much as you are constantly comparing apples with oranges – a 300m

commercial tower, say, with a small school of art. And the work is fully in the public eye; you can’t ask ‘But is it architecture?’, as Joe Average might of modern art. A building has a reflexive relationship with the urban realm, so the answer’s non-negotiable: Yes – it has to be.

Having been whittled down from the 119 RIBA Awards to the final six should be accolade enough, and with no cash prize again this year, you might say it will have to be. But a cynic

might see a twisted irony in the fact that small, dedicated architect Witherford Watson Mann, 2013 winner with Astley Castle, walked from the stage last year not a penny better off. But, in fact, at that moment they gained a self-awareness as players in the highly competitive game of architecture; a psychological leap that has no price. The Dodo’s wrong: when you’re this close, you really don’t care about the cigar. ●

Jan-Carlos Kucharek, Editor



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Cover image: Hospitalhof, Stuttgart. Photograph Ronald Halbe

Read all our stories first and more at ribaj.com including our coverage of 2014's London Design Festival

Compendium

UPCOMING

RESI 14 Celtic Manor Newport, 11-12 September

London Design Festival Various London locations, 13-21 September

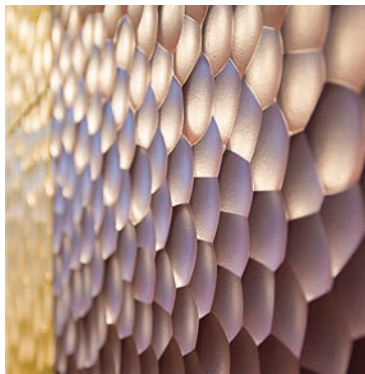
Timber Expo NEC Birmingham, 7-8 October

Construction Expo Kent Event Centre Maidstone, 8 October



Carea change

Crumpled paper anyone? Surface in silicon chip effect? Strange Mother of Pearl-like finish? Ooh-la-la! The R&D guys at French firm Carea have really been working overtime to pull together their latest range of non-porous rainscreen mineral composite panels – influenced by everything from ancient Egypt (Papyrus) to ‘The Matrix’ (Urba). But here, says the firm, you’re not forced to choose between ‘Red pill’ or ‘Blue pill’, as its surface effects come in any colour you want, even metallics. And it seems keen to shout about the bits you can’t see too: its patented fixing structure invisibly holds both panel and insulation layer in place; making them, like the benefits of French employment law, effectively non-removable.



Holy C

Though the ‘Good Pope’ John XXIII died in 1963, he had to wait to be made a saint until the year 2000 – a cool anniversary on which to receive the honour though. But he’s now been etched into history in another way – and not only by having a chapel built and dedicated to him in his home city of Bergamo in Italy. Set in the grounds of the city’s general hospital, the chapel is faced with concrete panels delicately etched with thousands of fern leaves. These were made by Finnish firm Graphic Concrete, which has developed a technique to apply a printed surface retarder to a membrane, against which the panels are then cast in moulds. The retarder slows the surface hardening, allowing it to be jet washed away and expose the grain of the concrete below. Would John XXIII agree with this verdant representation of himself, one wonders? God knows – but he was certainly a firm believer that goodness be more than skin deep.



Industrial light and magic

There’s an old saying that goes ‘In the kingdom of the blind, the one-eyed man is king’ – something Airstar may have born in mind when it produced its utilitarian, air-inflated lighting range, Sirocco. This, and its semi-rigid framed sister Flex, used to light construction sites or during emergencies, has six 1,000W LEDs that can illuminate 32,000m² and with universal voltage that can be powered off a generator, without the need for a permanent power source. With more and more Pop-Ups being created by architects, perhaps there’s room for a compelling-looking light that you just power-up and pop-on.



Eco Showcase New Bingley Hall Birmingham, 23 September; Royal Armouries Museum Leeds, 14 October
Roofing, Cladding & Insulation Show Ricoh Arena Coventry 29-30 October
Lean Construction Summit Birmingham Metropolitan College, 30 October



LEO TORRI

The dark arts

If you've ever been curious as to what Darth Vader's kitchen looked like on the Death Star, look no further. Yes, it turns out that when he wasn't incinerating Alderaan with enormous lasers, he fancied himself as a serious contender for 'The Great British Bake-Off'; and so looked to French designer Christian Ghion to rustle him up an island unit. Fashioned from resilient DuPont Corian, the designer went over to the Dark Side; his 'Super Black' kitchen's coloured surfaces, so the PR tells us, offering 'deep, more intense and durable colours'. The bachelor-pad futuristic styling might not be to everyone's liking – like Darth cares – but it probably went down a treat when chirpy Sue-3PO turned up to score his Leia cake and fondant forces. Any Jedi Knights wanting to witness the phenomenon can pop along to see it at 100% Design.

Chronic chromatics

Until the UK can prove to itself that there is a definitive, quantifiable clinical link between good quality medical environments and the healing process, it seems we're mostly destined to languish in second-rate hospitals waiting for either a superbug or the Oscar Wilde wallpaper to get us. Not so in Germany, where the recently opened 70000m² University Hospital in Ulm, designed by architect KSP Engel and Zimmermann, has been awarded a 'Design Excellence' Award from the German Architects' Association. With its energy-efficient aluminium and glass facade from Wicona, window openings into rooms have multi-coloured glass, so even the sickliest pallor can be rose-tinted.



JEAN-LUC VALENTIN



Antiques light show

Anybody who had the pleasure of seeing Powell and Pressburger's 1946 'A Matter of Life and Death' will be aware that the oldies are always the goodies- something that's obviously been picked up by the guys at Skinflint, who've swapped 'Life' for 'Light' and been going around finding disused WWII airstrips, ripping out the landing lights and restoring them for domestic and commercial use, thus giving them a second pass on the style runway. The luminaires might not come in at Ryanair prices, or qualify weight-wise as 'carry-on' luggage, but the classic retro style they evoke is a given – even if you're not David Niven.



So low silo

Holland's 19th century Fort Asperen armoury in the town of Acquoy near Utrecht might have held explosives in the past, but its delicate timber structure stands at odds with the impressive defence line it is part of – all of which is now a designated UNESCO World Heritage site. Permission for the armoury's conversion into an art gallery stipulated that the original structure must not be touched, so architect Bureau SLA literally built another building within it, completely clad in white LG HI-MACS to create a clear material counterpoint to the old building. Not only that, but the firm excavated 3m below ground level to create a gallery space that is far larger than first meets the eye. The overall effect is of a dramatic insertion into the armoury that is as alien as it is Tardis-like.

Fade away and radiate

There are worse obsessions than developing a fascination with really old radiators and devoting your time to scouring house clearances, local fairs and auctions in order to find, dust down and re-make them new, but that's pretty much Carron's story. And with names like 'Victorian', 'Cromwell' and 'Duchess', you'd think the link between them and the contemporary home was a tentative one. But looking at the proto-functional 'Eton', below, in its creamy buttermilk, you can imagine the hand of Corb not so far from cranking its valve to the 'on' position.



Timber Expo

If you want to know what's going down in the world of timber construction, you could do worse than get to this year's Timber Expo, which again brings together industry speakers as part of its Timber Focus seminar programme. Responding to past feedback, this year's sessions have, Focus organiser TRADA claims, been honed down to seven themed sessions to interest everyone in the sector, from architect to client to contractor.

The 'Pushing boundaries' sessions promise both real and virtual voices – with Ramboll engineer Gavin White discussing his research into building tall in timber and AA Emergent Technologies unit master Evan Greenberg extolling the use of metal-free 'friction fit' connections for his 'Fingers Crossed' birch ply sculpture for the London Design Festival (see below). Meanwhile Arup's Tim Worsfold will talk on engineering the world's largest gridshell structure, Foster+Partners' Crossrail station at Canary Wharf – something speaker Ralph Parker of Price and Myers will probably

If you've ever dreamed of being a client for your own project, pop along to the 'Sense of space' sessions to hear about experiences in the Custom Build sector

have a view on, having engineered both the Savill Garden and Exeter Forum gridshells.

Gridshells will also figure in the 'Client and contractor perspective' sessions, where Willmott Dixon senior bid co-ordinator Richard Bartlett will recount the contractor experience of working on one of the more sustainable recent office schemes – Hopkins' WWF Living Planet centre in Surrey. And if you've ever dreamed of being a client for your own project, pop along to the 'Sense of space' sessions to hear about experiences in the Custom Build sector from Igloo's Jon Sawyer

and White Design's Craig White.

As well as specialist seminars, Toolbox Talks will concentrate on best practice in timber construction, while the industry will be showing its latest innovations in the main hall. Those keen to seal deals could get invited to the Timber Buyers and Specifiers Forum, gathering decision-makers and suppliers together for a more tailored approach to networking and generating business.

RIBA Journal will also make its presence felt when executive editor Eleanor Young chairs the 'Architects and timber: striking designs' sessions, highlighting some of the projects shortlisted for the 2014 Wood Awards. Here she'll be talking to, among other shortlisters, Duggan Morris, on their charming and slightly scale-defying Alfriston School swimming pool – surely a serious contender for an award itself. We'll have to wait until 18 November to see if it is. ● **Timber Expo: NEC Birmingham, 7-8 October** www.timber-expo.co.uk

PIP takes a look at a selection of products exhibiting at this year's show



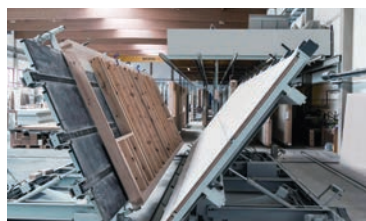
EcoCurves

Bespoke Glulam Timber Curves

Manipulating and bending wood is an age-old practice, from walking stick handles to bentwood chairs. EcoCurves, manufacturer of glulam timber arches, promotes speed and flexibility as its main advantages in the modern manifestation of the technique. Using computers that can turn the most elaborate shapes into products in just 40 minutes, the firm can make roof arches up to 19m wide. It's a far cry from your grandad's walking stick, but retains a satisfying sense of the traditional.

Stand C81

ecocurves.co.uk



Fermacell

Gypsum fibreboard

When a press release tells you its product is manufactured to the highest standards of German engineering, you know it means business. Fermacell says its gypsum fibreboard's Category 1 racking strength beats plywood and plasterboard while its inherent robustness enhances structural stability. It also claims to offer improved impact, acoustic, fire, moisture and load hanging properties. You know what's coming don't you? Oh, go on then: Vorsprung durch Technik...

Stand C30

fermacell.co.uk



Hanson Plywood

SP101 flooring

If you've had problems with gluing failure, varying dimensions, flatness or poor surface quality then SP101 is the product you need, according to Hanson's website. It might sound a bit like a piece of Blue Peter advice on how to build a den at the bottom of the garden, but SP101 appears to boast rather better credentials, being 'the only plywood to be Diamond certified by Technology For Timber'. So it might look like a straightforward slab of plywood flooring, but it's actually a gem.

Stand F70

SP101.co.uk



TRADA

Industry association

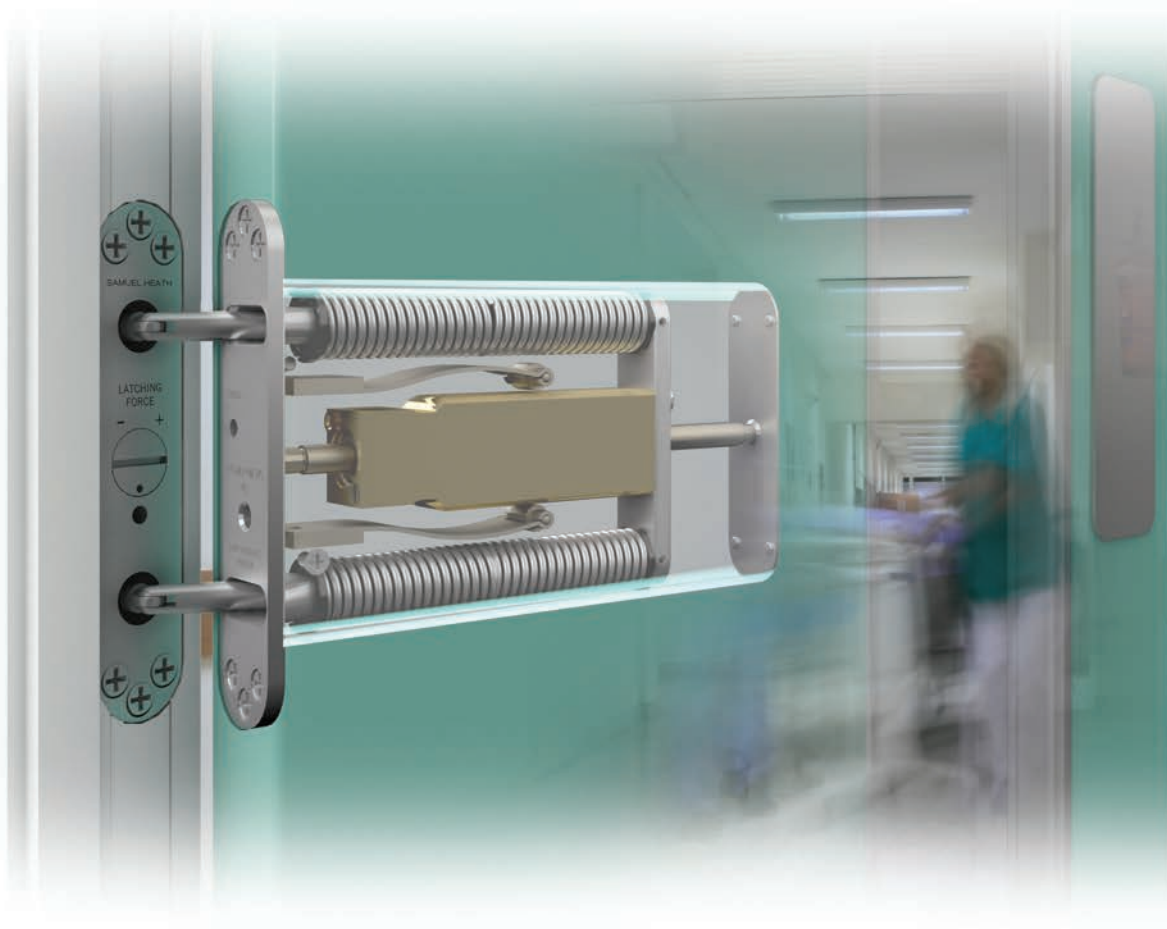
You'd expect R&D association Trada to be highly visible at Timber Expo and it is, sponsoring the show seminars and using its stand to host its own half hour seminars and interactive quizzes (can you get a non-interactive quiz?). Hopefully a question will reveal details of the dinosaur skeleton (above) recreated in timber by the back office staff on a team building awayday to Rhyl. Seriously though, it's an important organisation for timber – don't miss the Wood Awards it co-sponsors later this year.

Stand F30

trada.co.uk

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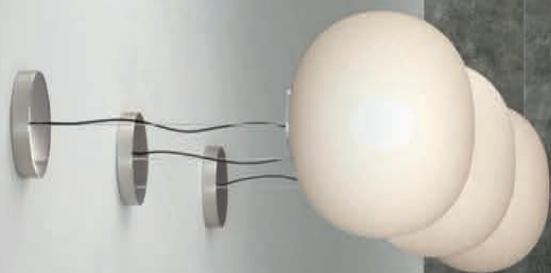
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Underground



What: ZEB1 hand held laser scanner
Where: National Showcaves of Wales

Anyone who relishes a measured survey of the interior of a complex heritage property, without a right angled wall to be seen; who joys in a pinpoint accurate triangulation, look away now. In July students and staff from the University of South Wales mapped in detail and for the first time the spectacular underground cave system of Dan-yr-Ogof, or National Showcaves of Wales. Led by Dr David Kidner and Dr Nathan Thomas, the university's GIS department documented the Cathedral Cave, including the cavern known as 'The Dome of St Paul's' using a ZEB1 hand held laser scanner. The specialised tool, which required only simple instruction to use, was able to capture millions of highly accurate measurements, forming a data point cloud. From this a virtual model has been created showing the cave system in intricate detail including its many delicate stalactites.

What's special about the ZEB1, which was initially developed by Australian space agency CSIRO, is its claim to ensure the spatial accuracy of captured data, even in places without access to a GPS signal – hence

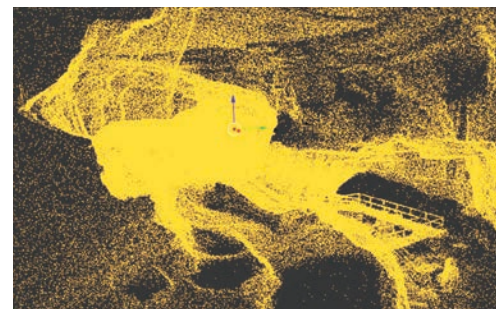
the significance of this subterranean test. This is made possible by a 'wobble' that is built into the device via the simple spring mechanism on which the scanner head sits (the device was originally called the 'Zebedee' after the character from the 1970s children's show 'The Magic Roundabout').

Walking round the space at normal pace makes the scanner loosely oscillate on the spring, producing a rotation that converts millions of 2D laser measurements into 3D fields of view. Its action is based on the principle of 'Simultaneous Localisation and Mapping (SLAM), which reads successive measurements relative to each other, the scanner building a virtual picture of a space as a result of moving through it. This ability to self-localise makes ZEB1 well-suited to covered environments that GPS can't reach.

Students can output the raw data in other formats to create 3D spatial visualisations – translatable using both commercial and open source applications. Now a team from the university is using it to create walkthroughs and virtual tours as the highlight of the National Showcaves' website. ●

HOPPING MAD

While the Welsh caves might be a great natural showcase for the ZEB1 scanner, it is well-suited to surveying buildings. The scanner was recently used to survey Budapest's historic National Institution of Mental Health. Covering more than 40,000m² and 2000 rooms, the surveying task, which was to take no more than a month, was given to engineering firm Burken. Riegl terrestrial scanners were used for the outdoor areas, while internal spaces were surveyed using the ZEB1 for data capture – operatives had merely to walk around the site buildings at normal pace. The survey drawings were part of a tender package to record the current building condition and to support the institution's proposed restoration programme – project delivery meant supplying a full package of survey drawings at 1:200 scale. There was additional benefit too, as ZEB1's data could be merged with that of the Riegl scanners. 'The data captured by the terrestrial scanners was in a global co-ordinate system so the ability to integrate the ZEB1 data within this global reference was another major factor in its selection,' said Lajos Kandra, Burken managing director.



Left The National Showcaves of Wales near Swansea.
Above The same space visualised through point cloud data.



ZEB1 LIDAR Scanner

- Industrial grade inertial measurement unit (IMU)
- Data acquisition speed 43,200 points per second
- ZEB DL 2600 data logger (IP65) with Intel Atom dual core processor
- Maximum range: 30m
- 3D accuracy: 30mm
- Angular field of view: 270°
- Scanner weight: 0.7kg
- Class1 Eye safe

Made



Jeremy Sumeray
EAME sustainability manager



Alan Irvin
Plant manager



What: Armstrong Ceilings

Where: Gateshead, Tyne and Wear

Each time you visit an office, school or hospital, there is a high probability you will stand beneath a suspended ceiling filled of mineral fibre tiles manufactured by Armstrong Ceilings.

The company, an offshoot of US firm Armstrong World Industries in Pennsylvania, makes a range of ceiling products in wood, metal and fabric, but 80% of its output, by volume, is 600mm by 600mm mineral fibre ceiling tiles, most of which are produced at its UK factory in Gateshead, Tyne and Wear.

The business founded by Thomas Armstrong in 1860 in Pittsburgh started out hand carving cork bottle stoppers. By the 1890s it was the largest cork supplier in the world. Later on the firm moved into linoleum then fibreboard and ceiling board. It now operates 35 plants in eight countries with around 8,600 employees, and net sales of around \$2.7 bn in 2013.

The Gateshead facility opened in 1966 and is

one of the few remaining heavy industrial units on the Team Valley Trading Estate, established in the 1930s. Tiles are produced using a modified version of the original dewatering process, with mineral wool, cellulose fibre, Perlite, clay, and starch mixed together with water then dried, cut and painted.

Measures to streamline production have been implemented over the decades; separate manufacturing processes have been automated and combined to create a single line with raw materials entering at one end and finished ceiling tiles boxed and ready for delivery at the other. Monitoring and product testing have been enhanced, and a 24/7 operation introduced to ramp up productivity.

Dewatering is a fairly energy intensive process, particularly due to the use of large gas ovens for drying, but this is mitigated by increasing reliance on recycled raw materials, says plant manager Alan Irvin: 'The bulk of the mineral fibre we use is a waste glass wool insulation, used in lofts and cavity walls, cellulose

fibre produced using pulped newsprint publications, and around 95% of the water used for dewatering is recovered from an on site water treatment plant.' A network of pipes across the factory also sucks up waste sawdust and channels it back into manufacture.

In 2010 the firm set up a closed loop mineral tile recycling initiative, through which end of life tiles are recovered from demolition sites and refurbishment projects, then broken down in the factory and put back into manufacture. Mineral fibre tiles have historically posed a problem for the industry, with a massive 50,000 tonnes installed annually, and most waste tiles still being sent to landfill.

Working with contractors including Carillion, Galliford Try and Balfour Beatty, Armstrong Ceilings' trucks visit projects and load up with stacks of waste tiles to return to the factory. Most sites are run by previous customers of the firm or are renovation projects having a new ceiling installed by one of Armstrong's partner subcontractors.

Far left The spray machine coating dried ceiling panels before cutting.

Above left New boards can be recycled, created from recycled old ones and from factory offcuts.

Below left Cut panels making their way towards batching and packing.

‘Contractors are keen to cut their land-fill costs [currently around £80 per tonne]. Armstrong makes no charge to retrieve tiles, and find ways to meet company zero waste targets. Over the last 12 months we have been talking to the demolition industry where most material goes into landfill,’ says Jeremy Sumeray, sustainability manager for Europe and the Middle East at Armstrong Building Products.

The company recycled about 390 tonnes of waste board taken from sites during 2013, and that figure looks set to double this year. In addition, a recent trial carried out in collaboration with WRAP and the London School of Economics managed to avoid costs at the LSE construction site of between £2,300 and £2,800 and divert an estimated 5,140 kg of CO₂ emissions from manufacture. It’s a more sustainable model that should see Armstrong providing mineral ceilings for schools, hospitals and offices for many years to come. ●

This editorial is supported by Armstrong Ceilings. www.armstrong.co.uk



1. ALL ABOUT THE MIX

Manufacturing at Gateshead is spread across a single floor and divided into four main areas: raw materials offloading, stock mixing, dewatering and drying the mixture to create boards, and tile manufacture. Four crews man the process in shifts 24/7. Tiles are made from waste mineral wool and cellulose fibre, the volcanic glass powder Perlite, and around five percent organic starch, for binding. These are mixed separately in cold water and then combined in a central mixing ‘chest’ to create the finished material.



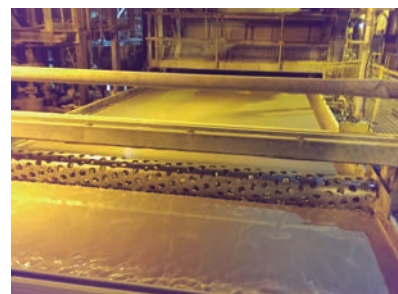
3. DRY

The drying process takes about an hour, depending on the product, as ‘blankets’ of material are fed into a giant eight-deck gas-powered oven, like a sophisticated toaster, that extends across the length of one side of the factory. The oven is divided into several sections, each set to a different temperature, ranging from 150 to 300° Celsius. Temperature levels are important: too much heat too soon and a skin can form on the outer surface, too much heat later on and the board will burn.



5. PAINT AND BATCH

Tiles that require a pattern or acoustic perforations are passed through a textured roller. The boards are finished with a water-based emulsion, mixed on the premises and fed through a distribution system into three machines that apply paint through an overhead spray. A textured surface of granulated calcium, used to make talcum powder, can be applied on top of the paint to give the tile a fine sandpaper-like finish. A smaller dry saw slices the 120cm by 180cm boards into 600cm by 600cm tiles which are finished tiles and packed into boxes ready for transport to distributors.



2. DEWATER

In a process similar to paper making, the material is pumped onto ‘the wire’, a perforated horizontal conveyor that allows water to drain out through the underside. More moisture is removed by three vacuum stations underneath and a roller that compresses the board and gets the product to roughly the correct thickness. Jets of steam are also applied to help cure the starch.



4. SAW AND RECYCLE

The paper making process switches to board finishing as mechanical dry saws cut the boards down to a more manageable size for handling. They are then passed through a stone grinder machine to achieve the correct gauge and create a smooth surface. Extractor fans channel sawdust through pipes back to the stock mixing area to begin the manufacturing process again as a raw material. Off cuts, waste ceiling tiles, and end of life or waste materials returned from building sites, are mixed with water to break them down and pumped back to the stock mixing area as well.



6. TESTING

A range of tests are completed in the factory to guarantee strength and durability. Small samples of board are cut once every hour to check moisture content, thickness, density and the amount of organics in each. Too much combustible matter and the boards will fail to meet fire codes. Other tests measure compression and the modulus of rupture, a minimum value required to prevent damage to boards during handling. A four-day heat and humidity test is run in a sealed cabin to check performance in different climates and ensure boards do not sag or crack.



Hospitalhof, Stuttgart

Windows with mirror linings, triangle forms and portholes bring a quirky flavour to a traditional plan on a new building for a historic church site

Words: Jan-Carlos Kucharek Photography: Roland Halbe



Far left The Hospitalhof looking south, the entrance to the complex between the old church and new block.

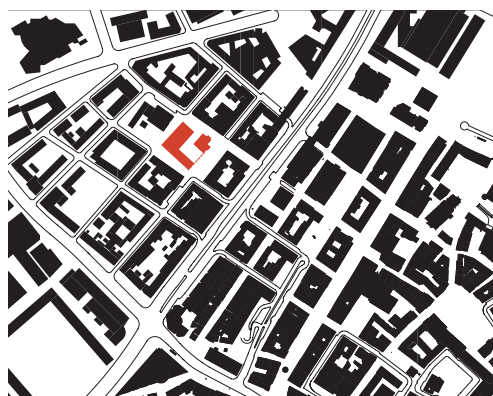
Left The nave wall of the original Hospitalkirche forms one side of the re-instated and longer courtyard. The west face of the remaining church is planned to have huge glazed openings, bringing it too into the courtyard fold.

Below Large timber doors open directly onto the courtyard.



It's ironic that Stuttgart's gothic Hospitalkirche was one of the bigger casualties in the wartime bombing of the industrial city's centre. The 15th century church, hall, cloister and hospital, built by the Dominican Order was, post-reformation, promoted to the one of the city's premier places of worship with the addition of a handsome clock tower in the 17th century. Most of the structure however came crashing down in 1944, leaving the only the apse, a wall of the nave and half the belfry intact. West Germany had little appetite for reconstruction, so former Third Reich architect Rudolf Lempp made poor amends to the Hospitalhof site, patching up what remained in a bizarre secular vernacular style and clearing away the cloister ruins. A future-looking 60s modernist block was built on the site as the protestant church's administrative centre, which served it well until now.

With the Hospitalhof looking to further develop an outreach programme of cultural events for the city, the need for a dedicated gathering space for its quarterly synods and a desire to centralise all its offices, local firm Lederer Ragnarsdóttir Oei won a competition to radically alter the site – a strategy that almost counter-intuitively looked to reinstate its former plan. But expect little by way of pastiche from this die-hard modernist practice, whose intriguing Rottenburg diocesan HQ was recently completed for its Catholic client (RIBA October 2013). While it was similarly intent here on



using local materials to clad its concrete-framed structure, the demands of a dense programme meant that for LRO, like the aspirational master masons earlier, the only way was up.

LRO's adoption of the medieval plan restored an angular twist to the block, at odds with those around it, instantly registered on the ground and wholly driven by the position of the church as the site's original driver. Its historical extrapolation works not just in plan but elevation too, as the whole south nave wall has been in effect reconstructed to bring it back to its original length. At its western end it goes on to form the end wall of what is a four/five storey mix of synod meeting hall, gallery space, large seminar rooms and admin offices, as well as the Hospitalkirche church itself.

LRO was keen to reclaim the social heart

that constituted the medieval cloister, so the sand-struck brick-faced building, whose general massing, looking south, is not dissimilar to Corbusier's La Tourette, has been deliberately turned inwards. Here, looking onto its 670m² courtyard, the architect has given over the whole of the ground floor to public reception and cultural uses. Wrapping around it are generous, high-ceilinged gallery spaces looking on to it via large, timber-frame doors that, when open, dissolve the boundary between inside and out. Beyond this, to the outer edges of the plan, seminar, meeting spaces and café meet the streets around. On the west elevation strangely compelling triangular wooden windows framed in concrete form part of the rusticated base of the new complex. Subconsciously calling to mind the Holy Trinity and the triangle of space in plan, newly revealed by the shift of the building on its block, it's the kind of layered formal play that we're getting pleasantly used to seeing from the firm.

In fact, LRO's curious use of window forms is exemplified all over the facade. Abutting the south-east nave wall, it was reconstructed by LRO to its original boundary, but abstracted it slightly by painting it ghostly white. Its glazed 'gothic' openings are downplayed, with thin timber sections set within an aluminium frame, allowing the old blown-out stone arches to maintain visual supremacy in the elevational composition. Both looking in to the



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VENTILATED FAÇADES

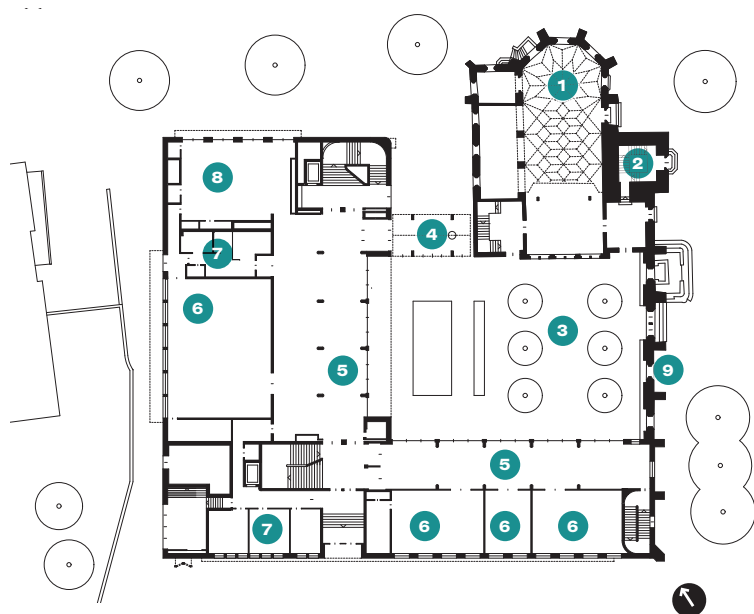
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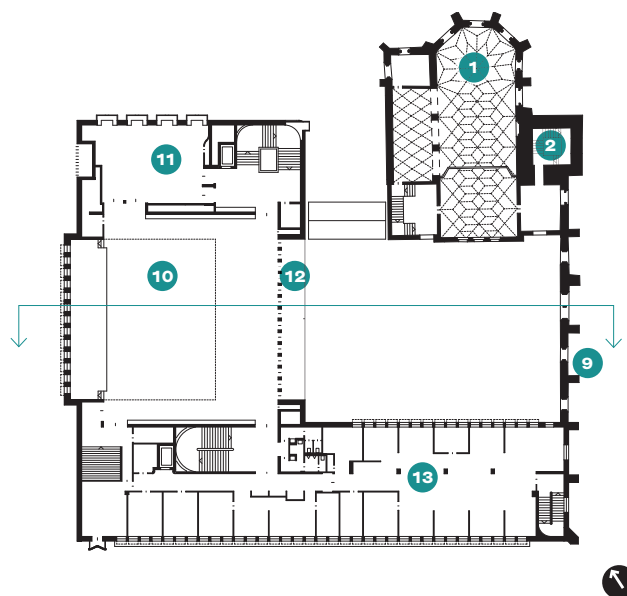
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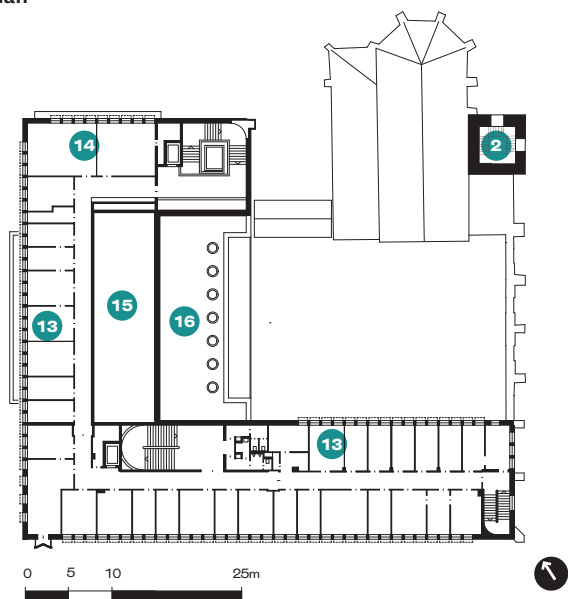
Ground floor plan



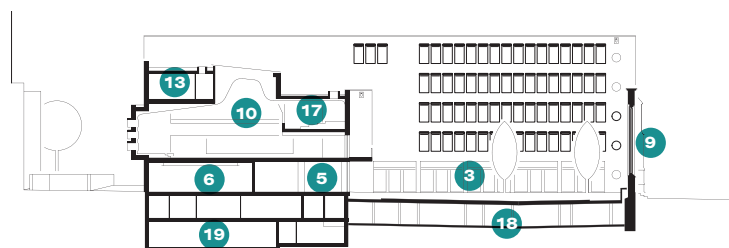
First floor plan



Third floor plan



Section



- | | |
|------------------------------|----------------------------------|
| 1 Hospitalkirche | 11 Breakout space |
| 2 Bell tower | 12 Terrace overlooking courtyard |
| 3 Courtyard | 13 Office spaces |
| 4 Entrance and canopy | 14 Meeting rooms |
| 5 Gallery spaces | 15 Glazed opening over hall |
| 6 Lecture hall/seminar rooms | 16 Roof over hall gallery |
| 7 Front-of-house offices | 17 Gallery |
| 8 Café | 18 Basement car park |
| 9 Existing church wall | 19 Toilets and basement services |
| 10 Main meeting hall | |

courtyard and out to the street, all the office floors are announced with simple narrow, tall openings separated by a brick's width, the effect gained purely by repetition. Aluminium composite windows are set in deep reveals, all of which tilt back to open for comfort cooling and night purging of the narrow, naturally ventilated office spaces. This was an intrinsic part of the building's services strategy, with only the

main hall, which holds up to 800 delegates, being air-conditioned. The strategy also results in the curious detail of white-painted thin steel architraves above each window, protruding from the facade. The architect claims it's merely there to allow windows to be opened even when it's raining, but they seem like a cross between John Hejduk's Kreuzberg Tower and the Farnese Palace – certainly the folded 'scrolled'

projecting nature generates deep shadows on an otherwise flat facade.

At the rear, which faces the blank wall of the neighbouring site, 36 glazed concrete portholes at first floor level announce the presence of the synod space behind it. To combat heat gain from the long, low west light, their concrete housings are pulled out on one side to shade the glazing. This unusual and deliberate animation of a rear



Left The main synod hall, lined in birch, has an Aalto-esque feel.

Below Rendered cheaply and modestly in plasterboard, the Hospitalhof's staircases nevertheless have a deeply sculptural quality.



facade seems strange, until the architect mentions the Hospitalhof's sequestration as a WWII Gestapo HQ, and that this side would have overlooked one of the infamous rounding-up points for those destined for labour or concentration camps. Soon to be marked with a small sculpture in a 'lest we forget' gesture, the architecture also seems to be keeping watchful eyes on past horrors.

Further round on the north-east side, this former site of fear has, at the hands of the architect, become one of welcome. Tall timber doors access the café area which in turn leads to the courtyard-facing gallery spaces. Above them, three projecting oriel windows give cover to the openings and provide nicely detailed timber seating for the break-out spaces of the synod meeting hall. The white steel boxes punched out of the east stair core (value engineered down from their original copper) serve to not only announce the main entrance, but to pull light into the staircase taking delegates up to the hall level. Their sides mirror-lined, these windows create illusory views as you ascend.

On entering the synod hall, the vibrant blossom pink linoleum hits you first. But it's the galleried volume, with an Aalto-like, boldly curved ceiling, and the podium wall that leave the impression. Formed of birch slats, they hide the huge transfer beam spanning the space and the high level services, and allow in a diffuse light from the glazed opening above. They also

perform an acoustic role, ensuring the space has a reverberation time of less than 1.5 seconds.

In the hall you see the internal face of the portholes – three rows of birchwood folding 'butterfly' baffles. Opening and closing manually in vertical sets of three, these can blast the room with light, or reduce it to the merest umbra across the birch wall. Economically realised, the detail somehow ennoble the space, lending this face a sense of occasion. Directly opposite, timber glazed doors open onto a wide balcony, and from here, it is clear this is the new heart of the Hospitalhof. A centralised view overlooks the courtyard's rose garden and its newly planted trees, placed where the nave columns of the old church would once have been.

The remodelling of the old chapel with a glass wall to open out to the square is, funding permitted, still a way off, but this should not bother LRO. For a seriously low budget of €25million, the firm has not only realised a building that serves the religious and cultural needs of its users well; but, once the lock comes off the old gate, will have returned a place of dignity and contemplation to a city that since its wartime bombing, has been driven by the needs of vehicles rather than residents. Public access is a matter for the synod to decide on, but one hopes that soon the one eccentric pensioner who daily snips herself off one of the courtyard's fragrant roses will soon be sharing the space with a wider audience. ●

Client: Evangelische Gesamtkirchengemeinde Stuttgart

Architect: Lederer Ragnarsdóttir Oei

Structural engineer: Knippers Helbig

Project manager: nps Bauprojektmanagement GmbH

Services engineer: Kuehn Bauer Partner

Electrical engineer: Raible+Partner GmbH & Co. KG

Fire Consultant: Halfkan + Kirchner

Health & safety: Architekturbüro Axel Deuschle

Building Inspector: Peter und Lochner

Beratende Ingenieure für Bauwesen GmbH

Surveyor: Vermessung Hils

Office planning: Paul Feederle, Karlsruhe

Suppliers

Heating, ventilating, plumbing: Kuehn Bauer Partner Beratende Ingenieure GmbH

Shell construction: Baresel GmbH

Cladding masonry: Baresel GmbH with Klinker Kuntz GmbH

Brick supplier: Ziegelei Hebrok

Roofing: Spohn GmbH

Windows: Erich Schillinger GmbH

Ventilation: Siegle + Epple GmbH & Co. KG

Internal finishing hall: RIES Akustik-Innenausbau GmbH

Insulation systems: Ullrich & Schön GmbH

Precast concrete: Steinfeld Betonwerk Johann Meinders GmbH

Linoleum / carpet: Armstrong DLW GmbH

Stone flooring: Hubert Killing GmbH using Anröchter Dolomitstein & Anröchte-Berge stone

Washroom fitout: Erich Schillinger GmbH

Washroom fittings: Villeroy & Boch

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1
Modified wood
Accoya

If the embassy represents all that is best in a country, Germany's new outpost in Washington completely looks the part with its no-messing use of Accoya window frames. Solid, durable and robustly attractive, the modified wood's characteristics suit Europe's most efficient nation and bring in a performance to rival that of its World Cup heroes. And with a 50-year guarantee against rot and decay, dare we hope that, over time, those aspects might rub off on the European economy – over which, of course, Germany has such a critical influence.
accoya.com.



2
Imola partition system
Forza

Once, offices had secretaries typing memos, a tea trolley lady, carbon paper and lots of small spartan rooms whose comforts crept up only with the status of the occupier. Today we have email, Starbucks and one large room shared by all. I'm all for equality, but sometimes sharing can get on top of you. So thank heavens for Forza's Imola timber partitioning system, which fit with various modules including glazed sections. At last quiet meetings, a private phone convo and escape from the existential hell of other people's lunches is possible. And if you need a boardroom – pop one up.
forza-doors.com



3
Integrated doors
Centor

Poor old William III must be turning in his grave. The man who first imposed the 'tax on light and air' with a levy on windows would be aghast at a certain Mr & Mrs Sowter, who have installed Centor Integrated Doors to admit as much light and air as possible into their Georgian farmhouse without having to pay a penny to the Crown for the privilege. With built-in screens and shades to repel insects and solar gain while maximising the magnificent views of Yorkshire, the doors sound far too fab to go untaxed. Shouldn't today's tax-o-philes introduce a pleasure levy pronto?
centor.com



4
Aluminium mesh cladding
GKD

A long time ago in a galaxy far, far away... well, more recently actually, architect Elenberg Fraser designed the Luna Apartments in Melbourne's St Kilda suburb. Shaded by light-admitting aluminium mesh cladding supplied by GKD of Germany, it is, reveals the press release, a homage to Star Wars' Princess Leia: 'An appealing and very feminine metallic bronze bikini look [reflecting] Leia's unearthly appearance in both form and colour'. Strewth! Whatever strange shape those Alderaan girls are, the bronzed Sheilas on Bondai cut it better.
gkd.uk.com



5
Sun screens
Hunter Douglas

Green days, deep deep in the sea. A cool and quiet fish, that's me... If you had to pick the most fashionable colour, it would be green because, as we all know, green is more than just a pigment, or a marvellous Dr Seuss's mood; it's a way of living. And at the near energy-neutral Fioretti College in Lisse, the Netherlands, green sun screens might send a subliminal message of its sustainability. Electrically operated and with 12% perforation, the sliding harmonica panels control light ingress to keep students cool, calm and collected. Just like Dr Seuss. hunterdouglascontract.com

6
Aluminium windows
Reynaers at Home

This unfussy house in the Czech republic, built of wood and glass, packs a lot of assets into a simple structure. A bit like Mary Poppins' bag, it holds more than you might expect, looking at its climbing frame style and nuts and bolts aesthetic. There's a sun terrace, pool, al fresco dining and room to house a whole family behind Reynaers' thermally efficient CS104 windows (Uf-value 0.88 W/m²K). So while 'flooding the rooms with light', as we in the architectural world like to say, they also maintain comfortable temperatures in which to keep an eye on the neighbours. reynaersathome.co.uk

7
Replacement windows
Steel Window Association

Surely a prototype for Disney's palaces, Hadlow Tower in Kent was built in 1838 – an addition to the now lost romantic gothic Hadlow Castle. The tower's award-winning restoration from a state of serious dilapidation took more than a wave of a wand though. Steel Window Association member the Cotswold Casement Company refurbished or replaced 93 windows to help return it to a place fit to hire out to Rapunzel's wicked step mother. Now available to rent as a holiday home, it's a place where everyone can let their hair down... steel-window-association.co.uk

8
Leaded casements
Mumford & Wood

Call me Prince Charles, but this vintage country manor completely took me in. It turns out it's brand new, its 'period' look admittedly made distinctly more convincing by Mumford & Wood's splendid Conservation range windows and doors. The firm's leaded light oak casements look the Arts and Crafts part, but closer inspection of the house itself reveals its Poundbury-style newness. And is that pseudo-Italianate clipped and bobbled planting in front quite right? It looks just too suburban darling. More crafty than arty in the end, despite the windows. mumfordwood.com

Costed

Jonathan White, R&D consultant at Gleeds gives an overview of costs

Selection of windows and doors tend to be driven by appearance, durability, security and compliance with regulations. This can be a complex process given the range of products available. Changes to Building Regulations over the last 20 years have significantly improved the thermal performance of windows and external doors. Timber and uPVC windows are often preferred for the new build residential market; uPVC windows and external doors generally

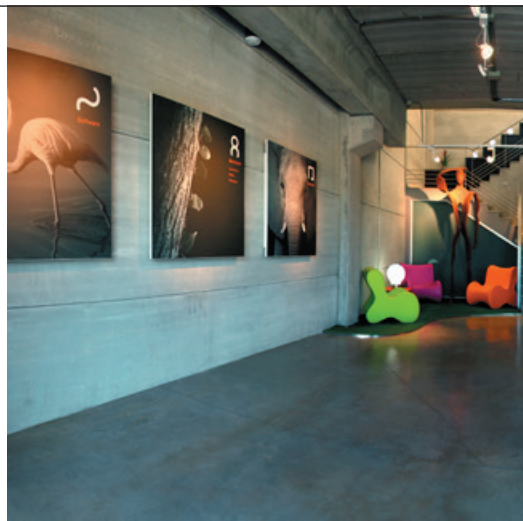
have higher security features than other types. Steel windows offer greater strength relative to the slim frame. Steel, and increasingly aluminium, are favoured by the education sector due their strength and longevity – if they are well maintained. Aluminium does not corrode, accepts finishes well, needs little maintenance, keeps its appearance and is 100% recyclable. Doors are subject to many statutory requirements including fire resistance, disabled access

governing minimum width, ironmongery requirements and positioning of the opening in relation to any return wall. Enhanced security requirements are important when specifying doors and windows. The police initiative ‘Secured by Design’ is a guide to crime prevention measures around residential design. Gleeds has found that clients, insurance companies and the like increasingly require full compliance as part of their brief. ●

The rates stated below represent a guide to windows, doors and ironmongery costs and are current as at Q3 2014 and UK mean. No allowance is made for sundry costs or related preliminaries costs. VAT is excluded.

Windows	£ per point
Standard wrought softwood windows, double glazing, ironmongery, painted	
Area not exceeding 0.5m ²	£300-£450
0.5m ² - 1.0m ²	£250-£350
1.0m ² - 1.5m ²	£200-£300
1.5m ² - 2.0m ²	£180-£250
2.0m ² - 2.5m ²	£170-£230
2.5m ² - 3.0m ²	£160-£220
Purpose made double hung wrought softwood sliding sash windows, spiral spring balances	
Over 1.25m ² each; both sashes in medium panes	£750-£1,000
Not exceeding 1.25m ² each; both sashes in medium panes	£900-£1,200
Composite double glazed aluminium/timber windows, low-e glazing, laminated glass, multipoint locking, ironmongery	
Area not exceeding 1.0m ²	£300-£350
1.0m ² - 2.0m ²	£270-£320
2.0m ² - 4.0m ²	£240-£300
uPVC windows, standard ironmongery, low-e double glazing	
Area not exceeding 1.0m ²	£120-£250
1.0m ² - 2.0m ²	£150-£210
2.0m ² - 3.0m ²	£100-£190
Rooflights, sky lights, pre-glazed, aluminium/timber, flashings and soakers, sealed double glazed unit	
Area not exceeding 0.5m ²	£550-£670
0.5m ² - 1.0m ²	£270-£560
1.0m ² - 2.0m ²	£250-£360
Extra for power supply for electric windows	£200-£300
External doors and frames	
44mm thick, flush door and frame, half hour fire-resisting, Georgian wired polished plate glazed opening, glazing beads, skeleton or cellular, plywood faced both sides, lipped on all four edges, painted	£350-£450
46mm thick, insulated security door and frame, sheet steel bonded into door, polyester coated laminate finish, hardwood lipping and frame, standard ironmongery, weather-stripping, aluminium threshold	£1,200-£2,500

	£ per point
uPVC white doors, reinforced, fixed light, standard ironmongery, thresholds, factory glazed with low -e double glazing	
Half glazed/fully glazed	£230-£350/£270-£380
Sliding/folding, aluminium double glazed patio doors, acrylic finish	£380-£480
Internal doors and frames (excludes ironmongery and decoration)	
Moulded panel doors, in two, four or six panel options	£50-£75
Standard flush doors, wrought softwood, skeleton or cellular core, lipped on long edges only: hardboard faced	£60-£90
chipboard veneered, faced both sides	£80-£100
Purpose made partially glazed panelled doors, including glazing beads: wrought softwood/ selected Sapele	£110-£350/£140-£380
Internal softwood door lining sets with loose stops	£25-£50
Purpose made, wrought softwood, door frames and lining	
Jambs, mullions, transoms and heads as linings/frames	£8-£10/£10-£20
Purpose made, selected Sapele, door frames and linings	
Jambs, mullions, transoms and heads as linings/frames	£10-£15/£15-£35
44mm thick, flush door, half hour fire-resisting, (FD30), lipped on two long edges faced both sides: chipboard veneered	£75-£90
Sapele veneered	£110-£140
54mm thick, flush door, one hour fire-resisting, (FD60): chipboard for painting, hardwood lipped on two long edges	£175-£200
beech or oak veneer, hardwood lipping to all edges	£200-£270
Fire-resisting door frames (FD30) with intumescent strips, 12mm deep rebates: softwood/ hardwood	£70-£100/£120-£150
Galvanized steel rolling shutters: collapsible gates, one hour fire resisting	£250-£500
Ironmongery (supply and fix)	
150mm Barrel bolt with easy clean socket	£20-£30
Overhead door closer	£100-£200
Stainless steel push plate	£10-£20
Stainless steel kicking plate	£20-£30
Stainless steel hinges	£20-£40
Aluminium round cylinder night latch	£25-£35
Mortice dead lock	£20-£40



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Building the NHS

Inefficiency is a charge often levelled at the NHS estate, but it's a complex beast. Christopher Shaw picks a way through the procurement maze



JILL TATE

Providing services to the NHS can be bewildering. It's a vast organisation that uses its own jargon and procedures. Building guidance and standards are described in health technical manuals and building notes that are often incomplete and poorly aligned. But it's an expanding global market where the UK commands respect and the people are mostly highly committed to improving care and wellbeing.

Compared to healthcare systems in 10 other countries (Australia, Canada, France, Germany, Netherlands, New Zealand, Norway, Sweden, Switzerland and USA) the NHS was judged most impressive overall by the Commonwealth Fund in 2014. It was rated the best system in terms of efficiency, cost-related problems and effective, safe, co-ordinated and patient-centred care. It also came second for equity.

However when it comes to buildings and infrastructure the NHS fares less well. The last 20 years have seen major capital investment in

many large acute hospitals through the Private Finance Initiative (PFI) and Local Investment Finance Trusts (NHS LIFT and LIFT Express), but much of the infrastructure is in poor condition and many buildings predate the foundation of the NHS in 1947. There are about 2,300 hospitals and 8,000 GP practices in the UK, plus services delivered through other community based accommodation and care homes.

Same but different

At national level, the NHS is managed by different organisations. Although priorities and standards differ, Scotland, England, Wales and Northern Ireland have many commonalities. The overall NHS budget is just under £110bn: despite a significant increase in expenditure over the last 20 years the UK spends a broadly average proportion of its GDP on health in European terms – 9.4 % of GDP in 2011. This compares to 17.7 % in the USA, 11.9 % in the Netherlands, 11.6

% in France and 11.3 % in Germany.

The annual NHS construction budget in a steady state is likely to be around £2bn, although the recently published UK National Infrastructure pipeline identifies £1bn to £1.4bn a year on major healthcare projects.

Selling to the NHS client requires an understanding of the service structure and management organisation. In England, the concept of the market has introduced Community Commissioning Groups as purchasers and the primary care management layer; they in turn purchase services from secondary and tertiary services. This is not problem-free.

The problems of the NHS are less the capacity of the infrastructure, than its efficiency and effectiveness. The financial climate across the NHS suggests internal inflation will continue to outstrip funding, so year on year savings will be needed. 'Efficiency savings' have limits and we are moving towards possible service mergers and hospital closures.

NHS AS CLIENT	
Home or self care	Home or community based – often run through local authority or district nursing teams.
Primary care	Family doctor or GP services – often based in local practices or health centres.
Secondary care	Local hospitals – often without emergency treatment facilities but providing local outpatient and inpatient care. Psychiatric hospitals – hub for outreach services and inpatient care for the acutely ill. Acute hospitals (or district hospitals) – providing emergency outpatient services a full range of treatment and diagnostics with beds.
Tertiary and quaternary care	Teaching hospitals – academic medical centres offering full trauma care, a wide range of specialisms and expertise. Specialist hospitals – particular focus on specialisms, eg children, cancer, or orthopaedic.

Opposite Medical Architecture's Ferndene Child and Adolescent Centre: a regional forensic mental health and learning disabilities unit newbuild hospital delivered through NHS Procure 21 design/build framework.

Below Kidderminster Treatment Centre by Medical Architecture: an urgent restructuring of local health services recycled the existing hospital estate – a pioneering local treatment centre and the first NHS hospital designed with all single bedrooms.

The capability of many NHS organisations to implement change is doubtful amid economic and regulatory pressures. The NHS Confederation says the average length of tenure for an NHS chief executive these days is 20 months and leadership turnover is clearly a factor in some of poor performing trusts. Although there is evident need for strategic estates planning only the stronger and more stable organisations will be able to plan effectively.

There are three broad areas the construction industry should consider when making an offer: asset utilisation, sustainability and operational efficiency.

Several recent reports have noted that the NHS has capacity to dispose of land and buildings, although historically there have been well publicised examples of NHS land being sold for poor value. There are evidently opportunities for development partnerships with the private sector, such as local asset backed vehicles.

Although many activities make acute hospitals high energy users, the sustainability performance of the estate is poor. It emits 2,840m kg/y of CO₂ – equivalent to 550 Boeing 747s crossing the Atlantic and back every day. The big gains are in rationalisation and improved utilisation, where savings in energy costs can help deliver a more resilient core estate. The impact of climate change is poorly appreciated but can affect the whole system performance. Experience from other countries, for example deaths at the Memorial Medical Centre New Orleans after hurricane Katrina or the Paris heat wave of August 2003 that led to 14,800 excess deaths, point to a need for a strategy for climate change equivalent to pandemic planning.

Fragmented finances

Utilisation levels are often poorly reported and there is often a fit between the efficiency of the estate and the value in terms of clinical impact and staff cost. The capital cost of a hospital department represents about 2.5% of its operational cost over 30 years.

In the past, capital investment was detached from revenue impact and determined by Capital Investment Manual procedures and central capital allocation. Now procedures in England are fragmented with financial control governed by a variety of bodies including NHS Monitor, the Trust Development



Although many activities make acute hospitals high energy users, the sustainability performance of the estate is poor

Authority (TDA) and the National NHS bodies. Increasingly investment must be justified directly in revenue terms, which can be short-life.

Over 80% of NHS interactions with the public take place in primary care, mainly GP surgeries and health centres. The investment cycle of the 1970s and more recently through NHS LIFT and HUB has provided some impetus, though the results have been varied. Capital commissioning structures are weak, particularly in England. However, the shift towards a primary care-led service and the prospect of structural stability will see increasing demand for integrated primary health and social care facilities.

Health boards, NHS Trusts and Foundation

ASSET UTILISATION	
The NHS Estate, the buildings that provide the NHS infrastructure, is generally large and inefficient:	
Size measured by floor area (DH England only 2009/10 Statistics)	28.4 million m ²
Area: Buildings, grounds and gardens	7,462,000 ha
Direct costs (DH England only 2009/10 Statistics)	£6.6 bn
Underutilised estate NHS England 2009/10	1,974,983 m ²
Backlog maintenance (NHS England ERIC Returns 2010/11)	£4.1 bn and growing

Trusts dominate the provider side and act as client for larger healthcare projects. They own the bulk of the estate; employ most staff and have most room to improve operational efficiency. Trends worldwide mitigate towards fewer, larger and more specialised acute hospitals serving larger populations and offering better care more efficiently with fewer staff. The design and construction challenges are in consolidating and adapting hospitals to do more with less.

Construction procurement can be messy and deliver poor value. Frameworks are proliferating fast. There is concern to drive down cost and often poor definition of scope or overarching objectives. Frameworks such as NHS SBS or LPP are used by firms needing an undertaking for payment of a percentage of design or construction costs from participating consultants.

The Public Private Partnership (P3) investment and development vehicles PFI, PF2, and NPD are all still active despite a public sense that they give poor long term flexibility. UK procedures are mature but there are high entry barriers to the market where construction companies carry substantial risks and consultants must demonstrate a wide array of prior P3 success. This has become an increasingly small pool in what has been a difficult market place.

The smaller developer frameworks of Express LIFT and LIFT are coming to an end. NHS frameworks were established when securing a construction partner was difficult. These frameworks have brought together experienced consultant and contractor teams: Procure21+ in England, Hub (Scotland), Design4Life (Wales) and Performance Related Partnering (Northern Ireland). At face value they should be closed to the established teams but consultants are regularly novated into the framework. This undermines framework coherence benefits but can give smaller consultants a way in.

For a new market entrant the best approach is to establish a relationship with the Estates Team at your local NHS Health Board or Trust. Expect not major commissions, but to consult with a wide range of project stakeholders rather than a single client. Look for opportunities to work across the NHS and third sector charities or private health providers. ●

Christopher Shaw is senior director of Medical Architecture and chair of Architects for Health

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A giant 3D puzzle of architecture

The architectural strategy for Perth Arena was simple – to create an innovative, multi-functional events space, supported by variable circulation and striking aesthetics.

Unique façades

High-performance, bespoke glazing solutions were essential to ensure the building's design features could be met. Reynaers' solution was based on the CW 50 Structurally Clamped (CW50-SC) curtain wall range.

Reynaers created custom-made glass supports and T-connections to withstand the weight and obscure angle of the project. They enforced special protection due to the high loads caused by the slope, to keep glass in place. The result: a solid design that can withstand all wind loads, thermal and structural movement, and system loads imposed by the building's diagonal transoms.

Sustainability

As if the building's structure and aesthetics were not ambitious enough, Perth Arena also has a strong environmental agenda, with mixed-mode natural ventilation, low-energy-displacement air conditioning, and photovoltaic arrays on the roof.

With U-values of approximately 1.5 and a Solar Heat Gain Coefficient ranging from 0.23 to 0.6, the CW 50 system fulfils these ambitions. The building has also been recognised for its bespoke windows by the Australian Window Association and won the AWA's coveted 'Best Use of Windows and Doors Commercial – New Construction' award.

In Perth Arena, the architects have created a building that's easy to navigate and brings people together. It generates a level of buzz that goes through its vivid colours and dynamic geometry that will attract acts to the city that may not have otherwise visited. Most importantly, it keeps the city, and

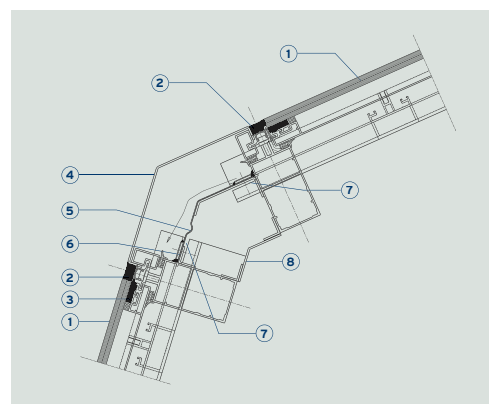
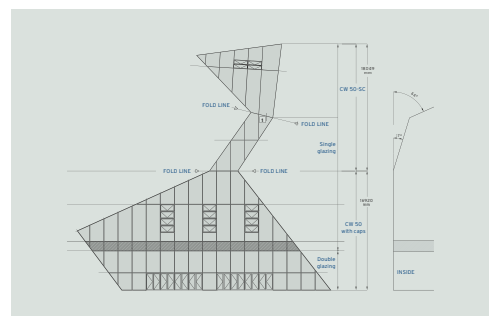
its sporting and entertainment scenes, vibrant.

The glazing was adapted to a non-standard shape with parallel sashes to integrate seamlessly into the overall triangular cladding system. Reynaers incorporated several irregular-shaped parallel opening windows in the façade for ultimate airflow, to improve indoor air quality and thermal comfort, and to create a healthy indoor climate for the building's users.

Aesthetics

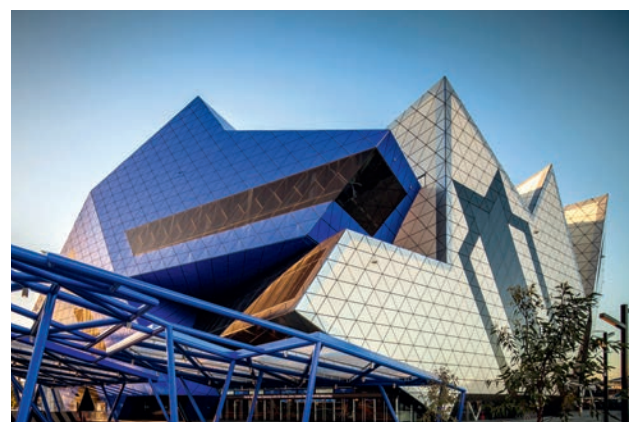
The design was inspired by the 209 irregular-shaped pieces of Christopher Monckton's Eternity Puzzle. The luminous blue façade continues through the interior and is complemented by vast, light-filled spaces and warm timber panelling.

The state-of-the-art design features a retractable roof, five multipurpose event rooms, half a dozen food and beverage outlets, function spaces, corporate hospitality suites, and a basement car park.



1. Single glass structural clamped
2. Silicone seal
3. SSG silicone seal
4. Aluminium sheet
5. EPDM membrane
6. Mechanical fixation EPDM
7. Cut out in mullion
8. Inside finish sheet

The architects have created a building that's easy to navigate and brings people together. It generates a level of buzz through its vivid colours and dynamic geometry that will attract acts to the city that may not have otherwise visited. Most importantly, it keeps the city, and its sporting and entertainment scenes, vibrant.



Look deeper, and discover how our aluminium expertise and collaborative approach solved the Perth Arena puzzle. See the full story at www.reynaers.co.uk/thisisnotafacade





Above The Common House space, facing south over the river, acts as the physical and spiritual heart of the development. **Left** The interior of the Common House is simple but has a homely, domestic feel.

Site plan

- 1 Mill House and parking
- 2 Common House
- 3 3-bed houses
- 4 2-bed houses
- 5 1-bed flats
- 6 4-bed houses
- 7 Car pool parking
- 8 Joiners' workshop
- 9 Shared garden/green amenity
- 10 River Lune

Lancaster Co-Housing

Insulation has played a major role in helping to realise the biggest Passivhaus development in the UK

Words: Pamela Buxton Photography: Luke Mills



Lancaster Co-Housing, a development of 41 riverside homes just outside Lancaster, is a project of many milestones. Not only is it the first group project to achieve both Code Level 6 and Passivhaus standards, it is the largest Passivhaus scheme in the UK and the first fully Passivhaus development by architect Eco Arc, which has specialised in low-energy architecture for nearly 30 years.

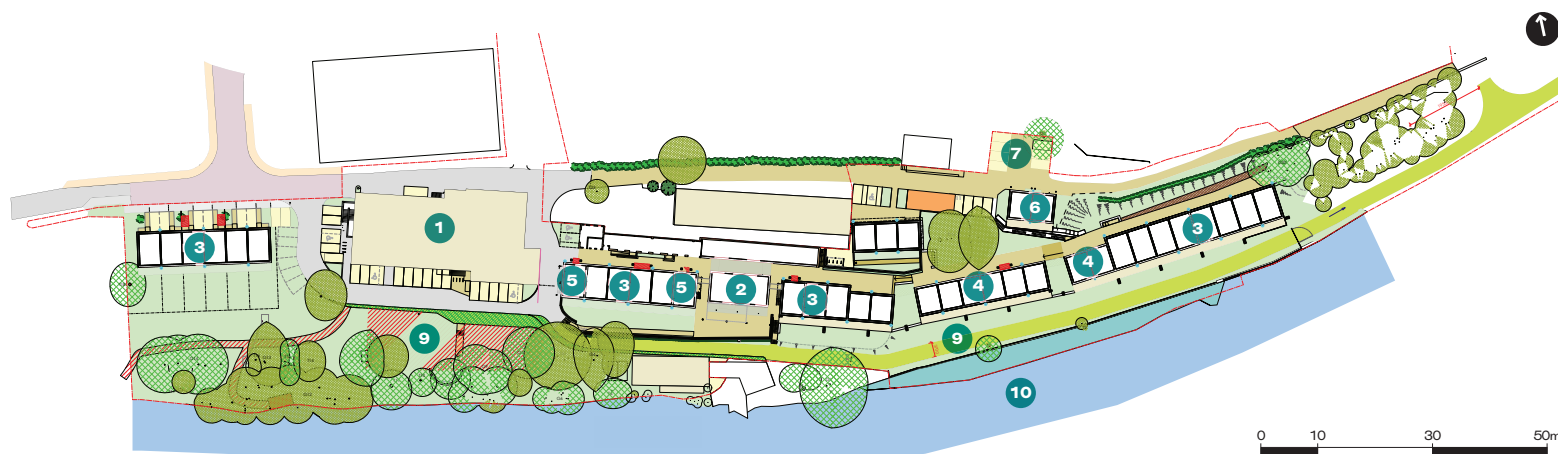
With those credentials, it's no surprise that this housing is packed with insulation to help meet Passivhaus' stringent requirements, contributing to overall u-values of 0.12 for exterior wall, 0.09 for roof and 0.14 for floor.

A major factor in this success was the unusual co-housing nature of the scheme, and the commitment of owners, architect and builder to cutting-edge sustainable design and living. Owners benefited from a 1.25% mortgage rate reduction from Ecology Building Society for achieving Passivhaus certification, and zero stamp duty for Code for Sustainable Homes Level 6 as well as vastly reduced energy bills.

Contractor Whittle Construction, an experienced Passivhaus builder, was secured on a two stage partnering contract to encourage a non-adversarial process. All parties enjoyed a profit share if they were able to come in under the agreed maximum price.

The 2ha site sits on the north bank of the River Lune at Halton. It was bought from receivership after the previous developer went bankrupt by a group of like-minded individuals keen to develop eco-housing collectively. Eco Arc took on a Ralph Erskine community architect type role to facilitate a participatory design process with the future residents, using Christopher Alexander's 'pattern language' technique. Decisions were agreed by consensus on the general site layout, organisation, and design for the house types – limited to five to help simplify the collaborative process. These ranged from one bed flats to 3/4 bedroom houses. Even so, Eco Arc produced no less than 378 contract drawings for the project.

It is a mainly linear development of houses





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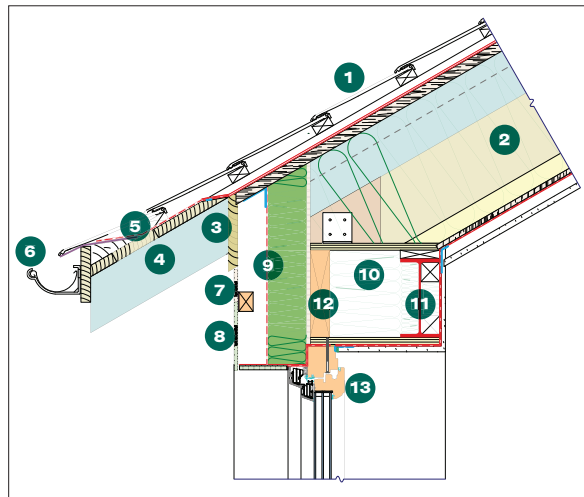
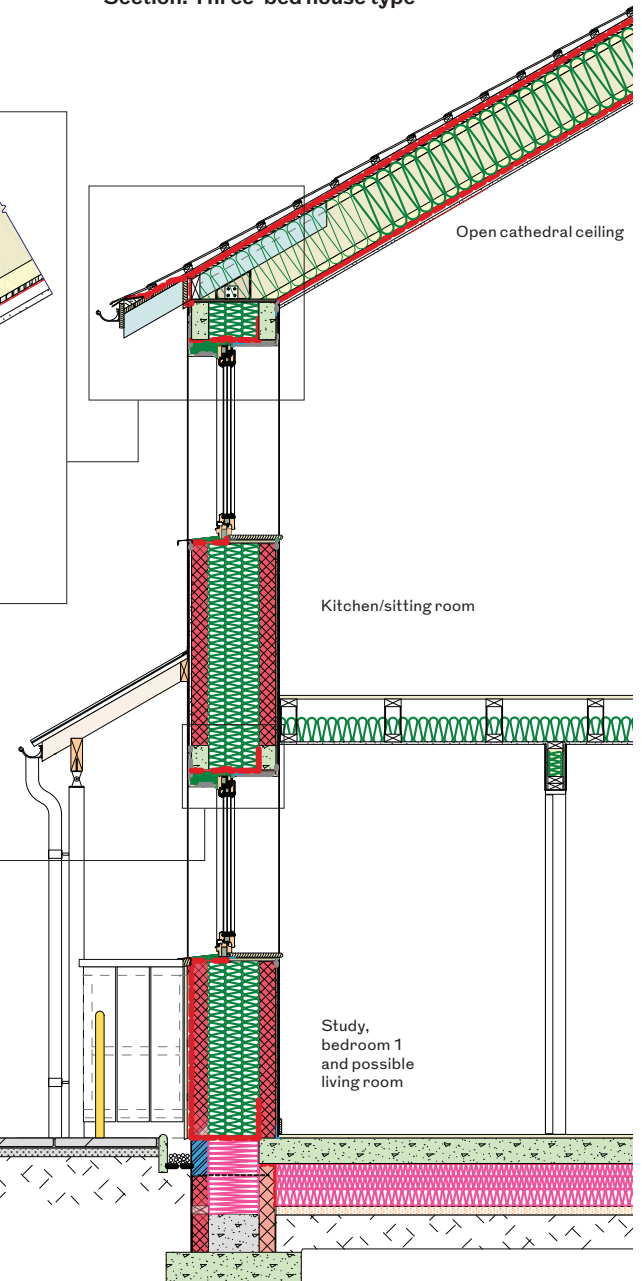
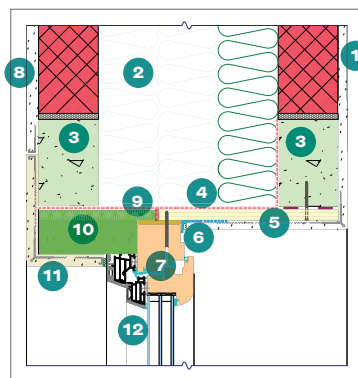


www.armstrong-ceilings.co.uk/projectgallery
www.armstrong-ceilings.ie/projectgallery

Armstrong®

Eaves detail

- 1 Sandtoft Cassius clay roof tiles on 25mm battens, 2mm Gutex Multiplex Top sheathing
- 2 350mm deep JJI rafters @ 600 c/c with full fill insulation
- 3 25x185mm chamfered SW fascia
- 4 50x125mm SW eaves overhang support bolted to JJI rafter
- 5 100x25mm thick SW sarking boards at eaves
- 6 Lindab steel half round gutter on 25x125mm SW fascia board
- 7 Marley Eternit self colour finished 9mm Operal board
- 8 Marley Eternit self colour finished 9mm Cedral board cladding. On vertical battens & cross noggings
- 9 ProClima breather membrane on Pavatherm Plus external fibre board insulation board on OSB sheathing board secured to Kerto structural in fill sub frame
- 10 200mm full fill Knauf Crown Dritherm-37
- 11 Steel beam to engineer's details with 50x50mm SW framework lined with vapour control layer lined with plasterboard and skim
- 12 225x50mm thick Kerto to engineer's specification
- 13 Window fixing to manufacturer's recommendations

Eaves detail**Section: Three-bed house type****Window head detail****Window head detail**

- 1 2-coat wet plaster internal wall
- 2 300mm thick overall Dritherm-37 full fill cavity wall insulation
- 3 Concrete lintel to engineer's specification
- 4 1.5mm thick pre-formed cavity tray to drain at weepholes
- 5 300x18mm thick WBP Ply structural reveal board
- 6 Airtightness tape
- 7 Window screw fixing to window manufacturer's recommendations
- 8 8-10mm external wall render by Wetherby with corner beads, bellmouths and renderstops
- 9 Tolerance gaps filled with airtight Illbruck FM330 PU Foam
- 10 75mm thick EPS reveal insulation
- 11 8-10mm external wall render to 170mm deep window reveal and to 175mm wide window surround detail with reinforcing mesh, corner beads and renderstops
- 12 Greensteps triple glazed window

with a pedestrian street to the north and private space facing the river. A few houses make up a second row, and there is a community building in the centre as well as communal and car pool facilities. A renovated industrial building provides optional, rentable, workspace.

Using the Passive House Planning Package, Eco Arc analysed seven wall options including SIPs, insulating concrete formwork, masonry and timber frame.

After cost analysis with the builder, it chose a rendered masonry cavity wall structure with a truss rafter roof. Walls have two skins of recycled aggregate blockwork and a super wide (300mm rather than the conventional

75-100mm) insulated cavity with recycled glass insulation. This structural option worked out £77,000 cheaper overall than a timber frame.

For the 300mm wall insulation, Eco Arc specified Knauf DriTherm Cavity Slabs 37 & 32 on grounds of cost and ease of installation. This is used with Teplo basalt fibre wall ties that minimise thermal bridging.

'We've done super-insulated buildings for 28 years, so it wasn't a big stretch for us. The challenge was avoiding cold-bridging,' says Andrew Yeats, principal partner at Eco Arc, adding that this was particularly true for the depth of the plywood cavity closer boxes around the windows. For this reason, these

were changed from full to half depth.

Residents could choose from two roof designs, which required different insulation systems. An open, 'cathedral' style, design used a 350mm I-beam filled with recycled glass insulation blown in with a jet by a specialist installer to give a full fill around the beam. For this, the architect specified Knauf Perimeter Plus.

The other roof option was a bobtail truss with 500mm depth of Knauf Loft roll laid in criss-cross layers of quilts. On the underside is 12.5mm of plasterboard and skim-on battens on an OSB airtightness layer and insulation support. This had to be reinstalled in many of the houses after thermal imaging revealed that it

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Above The Co-Housing development takes full advantage of its riverside location, with shared green spaces running down to the river bank.



Top Detailing is simple, robust and designed to last. **Above** A green roof tops the Common House.

had not been properly installed the first time. To minimise air leakage, it was important that residents understood there would be no loft hatches or access to the loft spaces. Additional storage was provided elsewhere on the site to compensate for this loss of capacity.

For the floor, Eco Arc used a combination of Jablite insulation products. Most of the houses have 300mm of Jablite Classic beneath the 150mm GGBS cement replacement concrete slab, which is itself topped with timber floorboards with Proclima airtightness tape at the junction with the walls. In Terrace E, however, the Premium product was used instead. The same depth of Jablite's Premium expanded polystyrene gives an even higher thermal performance below the damp course in the walls.

GreenSteps supplied the triple-glazed, low-e timber windows and also the doors. The windows have 75mm of EPS expanded polystyrene insulation. Over this, 8-10mm thick Wetherby external wall render is applied to wrap around the 170mm deep window reveal and to the 175mm wide window surround detail, again to reduce thermal bridging. Proclima

Contego airtightness tape is used internally around the window screw fixings. Windows – including the glazed doors – achieved 0.89 W/m²k air tightness.

Including site demolition and preparation, the project cost £5.4m at £1,825/m². The housing itself came in at £1505/m² – a 'very reasonable' price says Yeats, bearing in mind the long-term benefits of the 150kW biomass boiler, 40kW solar thermal and the 50kW PVs that this includes. Energy use for heating comes in at less than 15kWh/m² a year, and the scheme has a 100 year lifespan.

According to Yeats, one of the main lessons taken from the project was the need to embrace the rigour of Passivhaus from the outset, and the benefits of working collaboratively with a committed client and contractor.

Lancaster Co-Housing this year won a Galvanisers Association Galvanising Award and was shortlisted for an RIBA Regional Award. Eco Arc is now using some of the designs and techniques employed at Lancaster Co-Housing in several of the many Passivhaus projects it has under way. ●

Client: Lancaster Co-Housing
Architect: Eco Arc
Project manager and quantity surveyor: Turner and Holman
Structural civil engineer: Ramboll
M&E engineer and certified Passivhaus designer: Alan Clarke/Nick Grant
District heating system designer: Pettit Singleton Associates
Passivhaus certifier: WARM
CSH & Life Time Homes consultant: Eric Parks
Main contractor: Whittle Construction

Suppliers

Insulation: Knauf; Jablite ● **Doors and windows:** GreenSteps Ltd ● **Timber roof:** James Jones Joists; C R Taylor Timber Ltd; Metsä Wood ● **Window insulation:** EPS by Wetherby render installer/supplier ● **Clay roof tiles:** Sandtoft Cassius ● **Roofing membrane:** Pro Clima Solitex Plus ● **Basalt wall ties:** Ancon/MagmaTech ● **Weatherboard cladding:** Marley Eternit Cedral Boards

Specified



1 Armaflex Armacell

The World Cup in Brazil seems a long time ago now, but football is all about statistics and Armacell has some healthy figures of its own (eat your hearts out you English boys). Its Armaflex insulation was used in eight of the 12 venues, to provide condensation control and energy savings – useful when you think of all the sweating that must have gone on, both hot and cold. Of more concern now though is that lake in front of the Arena Fonte Nova – any second now it will slide back and a swarm of Bond nemesis Blofeld's killer copters will fly out and seize control of Fifa. You only live once...
armacell.com/uk



3 Shield range Springvale EPS

Springvale EPS is at the forefront of the fabric first revolution enabling specifiers and builders to meet energy efficiency targets with proven product solutions. Increased insulation use is widely accepted to be the only certain way of reducing heat loss whilst at the same time getting value for money for the builder and resident. It is vital that the insulation used is fully tested, third party certified, green and is manufactured under independently audited quality. Management systems and the Springvale range of EPS products meet all of these requirements.
springvale.com



4 Taper-Bond and Eco-Fix EcoTherm

Giant lego bricks seem to be the material of choice on this supermarket/office complex in north London. There isn't a curved line sight – excluding the flowing lines of the passers-by of course. But insubstantial though this building may look, it has high insulation values. This is due at least in part to the use of EcoTherm's Taper-Bond and Eco-Fix products, 7,000m² of which helped it achieve a u-value of 0.15W/m²K. Is that blue and white facade is a sort of cubist rendering of the sky, I wonder? It's better than the supermarket's cubist take on concrete anyway.
ecotherm.co.uk

2 Styrofoam insulation Dow Building Solutions

Nothing conjures up 'cosy' like artificially lit windows glowing amber on a dark night. But is it warm inside? You'd think it would take more than a couple of orange light bulbs to truly warm the cockles especially if there's no heating. Step forward Dow, whose Styrofoam – including Floormate 300 which can be used below a concrete floor slab – insulates this modern earth-sheltered hobbit home enough for the firm to point out that it is a Passivhaus. I always wonder about lost daylight – though with those energy bills I assume you can afford to burn the lamps all day long.
building.dow.com



5
Earthwool
Knauf Insulation

Like the people, homes in Yorkshire are generally solid stock, built of unforgiving but reliable local materials that can repel attack by almost anything. Now, energy efficiency has arrived, and sustainability is up there with robustness. So Knauf Insulation's Earthwool was just the job for the RoofSpace I-Roof system being used at Derwenthorpe Village, which met Code for Sustainable Homes level 4. But while we all know you don't get owt for nowt, there's a resilience in these homes which will see occupiers tret well, and that's rate good all round.
knaufinsulation.co.uk

6
Weber.therm XM
Saint-Gobain Weber

Student life is not what it was in my day I know, but had we encountered the activity levels in new University of Cambridge Sports Centre we'd have assumed we were on a bad trip. This a spanking multi-sports facility for students, staff and locals offers numerous super healthy delights, while Saint-Gobain Weber's weber.therm XM external wall insulation gives the building a matching sleek, high quality finish that boasts a 0.25 W/m²K u-value. Did you know that the average modern student has 40 pairs of shoes, a personal business plan and works out for pleasure?
netweber.co.uk

7
Koolduct
Kingspan

Architect Rick Mather's Chester Balmore in north London claims to be the UK's largest Passivhaus-inspired residential scheme, and Kingspan is very proud to have contributed with its KoolDuct insulated heat recovery system. As you might expect in Highgate, the development is very swish – in fact it looks quite mediterranean in the sun. And there's room to grow – all you need is a roof on that glass wall by the flower beds and the local housing shortage could be solved in one fell swoop – perhaps the domestics could live there too, saving travel time and costs...
kingspaninsulation.co.uk

8
PL4000 plasterboard laminate
Celotex

Be not afear'd, gentle reader, by the forbidding mansion before you. If once a Mrs Rochester, wild-eyed and dishevelled, railed at the heavens from this Victorian tower, such savage days are long gone. For Dartford's former City of London Lunatic Asylum has been completely overhauled to become The Residence, high spec homes with an outstanding thermal performance and aesthetic finish aided by the use of Celotex PL4000 plasterboard laminate. I'd happily live here myself now – but only of course with a handsome young man of whom I could say: 'Reader, I married him'.
celotex.co.uk

Pegasus Academy, London

Internally expressed pitched roofs draw together a fragmented school site

Words: Jan-Carlos Kucharek Photography: Kilian O'Sullivan

In a sense, the golden TECU-clad exterior of the Pegasus Academy, counter-pointing the brick, late Victorian suburban make-up of Thornton Heath in London, serves as something of a distraction to the complex spatial plays going on behind its blingtastic walls. But it is also this clever contrast to the existing school buildings that makes architect Hayhurst and Co's insertion into and expansion of Whitehorse Manor infant and junior schools so intriguing. Certainly for this rather deprived suburb of south London, when the Croydon Guardian called it 'the Golden tooth in Thornton Heath's smile', it could only have meant it as a compliment.

Hayhurst and Co was charged in 2009 by the London Borough of Croydon with increasing the Whitehorse Manor Schools' pupil roll from 420 to 630 pupils as part of a three-phase development of the site. Although, in reality,

this only meant adding another six classrooms, the real challenge was stitching together a school whose sum was nothing more than a few piecemeal additions to the original Victorian building, with the kind of inherited circulatory logic that resulted in lorries having to reverse directly into the playground to empty its kitchen's paladins.

As part of making sense of this chaos, the firm looked to the roof form of the original building. Developing what it called a 'responsive roofscape', its proposal was to use the repetition of the roof forms to bring internal logic to the school. As a result, primary classes were gifted with a gaggle of wendy-house scaled pitched roofs, juniors gained a little more headroom and wider pitches, and reception/welcome spaces, where parents would be in attendance, benefit from the new block's full height.

In this way, the firm claims that 'the language of the Victorian School is adapted to shape the character of the spaces created... a roofscape intended to animate and excite a playful and stimulating learning environment'.

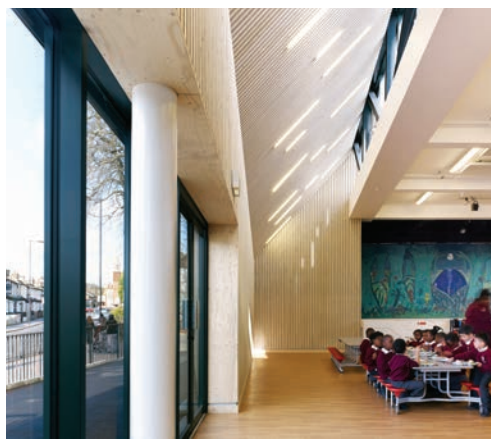
A ribbon of fire-treated birch ply timber slats forming the new soffits have been used as the design vehicle to spatially unify the school, connecting classrooms to circulation spaces and new to old. So, the architect says, they not only act as a way-finding device, but serve as a temporal one – 'a shared formal reference point for children progressing through each year-group in the school.'

In a world of school buildings characterised by brash, rumbustious design, Hayhurst and Co's subtle intervention speaks of another way: a school that looked beyond its own skin-deep facade to reach nuanced and hidden depths. ●

Main image The scale of the birch roofscape changes according to where it is in the school – a simple move that speaks volumes.

Below right The new gold-clad entrance block announces itself to the street and connects the junior and infant schools.

Below left Birch cladding acts as a unifying material for the school's interior spaces.



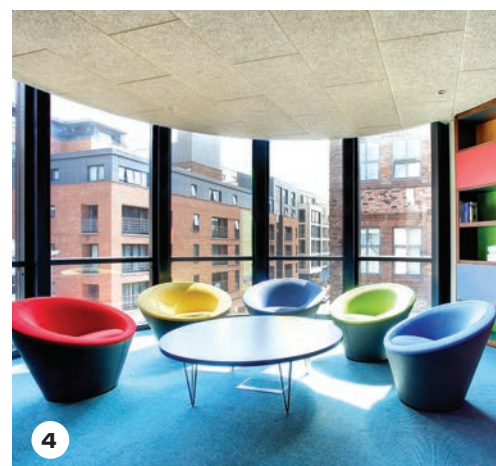
Client: London borough of Croydon
Architect: Hayhurst and Co
Structural engineer: Ian Wright Associates
M&E engineer: Edward Pearce
Main contractor: Kier Wallis, Morgan Sindall

Suppliers

External cladding: TECU-Gold shingles
Timber shingles: Western Red Cedar, Silva timber products
Timber slatted ceiling: Wisa Twin plywood
Glazing: Technal
Flooring: Tretford



Specified



1 Dadalo table Formabilio

Now here's a table that could be a real dinner party conversation piece. Of course, the Dedalo's legs keep out of the way of the chairs, but those elegant trapezoidal shapes could inspire all sorts of ideas. The menu, for example: Globe artichokes; meatballs with alphabetti spaghetti and curly kale (it's getting a bit thin...); angle cake or ice cream cones; cheese triangles and table water biscuits (getting better...). After the story I heard this week about a man who crafted a poodle out of a butternut squash and cauliflower florets for an eat your own dog party, anything's possible.
formabilio.com

2 Electric heating Intelliheat


Yikes! We know winter's on the way but it's a bit early for snow. However, fortune favours the prepared, and in this season of mists and mellow fruitfulness it's as well to be set up for the cold as it will be here soon enough. You might think this image is all about the upturned pumice stone that's masquerading as a chair, but that's the point – Intelliheat's slimline NeeDo electric heater is so stylish and discreet that it blends into this streamlined monochrome room perfectly. Made by Zoppas in Italy, it both heats and recovers used energy, warming hearts as well as toes.
intelligentheat.co.uk

3 Shower seat Impey showers

When you think of the aspiration that all those home improvement shows on the box have spawned among the petit bourgeoisie – tiled front paths, Juliet balconies, five-ring hobs and wetrooms – it's remarkable how many more essential items have escaped the stylists' notice. Now though Impey Showers has designed the Slimfold shower seat, with an 111mm profile, designer look and capacity to carry 47 stone. Unlike some of the above, shower seats are a necessity for some people, so this is sharp design for a good cause. Next: Ray Eames rethinks the Stannah Stairlift.
impeyshowers.com

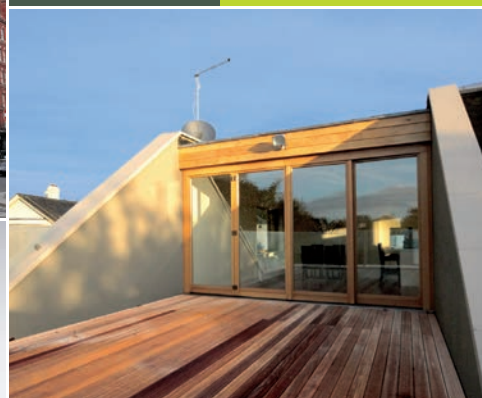
4 Ceilings Knauf AMF

Heradesign, from Knauf AMF Ceilings, has helped turn a dated commercial block into an aspirational working environment for property law specialist, JB Leitch. 800m² Heradesign ceilings feature in the main reception, meeting rooms, open plan areas and the training, reading and social spaces. Heradesign, with its unique, organic wood-wool woven surface, helps create an inspiring place to work and meet that has a welcoming ambience for staff and visitors. Heradesign offers superior acoustics, fire resistance and ease of installation too.
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Innovate



SOLAR BREAKTHROUGH

One of the advantages of the installed PV system is the use of 'solar-edge power optimisers'. With normal PV arrays, panels are set up in an array in series, which means that if one is in the shade and has a lower output, it affects the efficiency of the whole array.

'Not to install solar panels in series would involve hundreds of metres of wires and is not feasible,' says Bauder project manager Tom Raftery. 'Done like this, the optimisers turn each panel into its own power plant, making a negligible impact on the array, even if some of it is shaded some of the time.' Raftery says the optimiser system means that the PV arrays can yield up to 25% better outputs than standard

ones. He says that it also means that the siting for any array is critically important, something Bauder and Evogreen advise on as part of their contractor role. 'The adoption of the technology means a 4-5% uplift in outlay, but with a £100,000 project over 20 years, the returns would be much better,' he adds.

BAUDER

What: Bauder bituminous membrane and solar panel installation

Where: Roundwood School, Harpenden

Bauder project manager Tom Raftery can reel off one horror story after another about PV sub-contractors and some of the ruination caused to membrane roofs as a result of their retro-fitting, so it's good to catch him in a more enthused mood at the firm's latest installation in Hertfordshire, where, together with PV funding and installation partner Evogreen, the firm is bringing a palpable sense of energy and purpose to a local school.

Bauder worked with Evogreen at Roundwood School in Harpenden, fitting over 5,000m² of bituminous roofing membrane to its original buildings, along with 471 panels producing 140kWp of solar power. Key to the project was Bauder's patented PV installation system, consisting of base plate pedestals adhered to the roof, integrated cable runs and slide on/snap in PV panels. All of it was fitted and tested in just over a week.

Raftery explains that as part of the £0.5m refurbishment, Bauder asked the school if it wanted to install the PV system that would allow it to generate 40% of its total energy need, at no extra cost, as part of a risk-free, maintenance free package.

The installation's simplicity is its strength. Patch-welded pedestals, made by Solon, are laid out at 1.45m by 2.12m centres along the roof's length, their adhesion to the membrane's surface obviating the need for ballasting. On top of these, robust plastic trays are installed, angled at an optimised 10°, into which the glass PV panels are simply slid on and snapped into place. The low angle is key to minimising wind loading; a greater one, while producing more electricity, necessitates ballasting or mechanical anchors into the membrane, potentially weakening the integrity of the waterproofing. 6mm cables, connecting the PV arrays, are tucked into sturdy moulded walk-on cable trays that allow maintenance access to the panels themselves.

With Bauder and Evogreen both responsible for design, installation and maintenance, the systems are fully warrantied and give schools a risk-free way to lock down their future energy demands and avoid spiralling costs.

Main image The PV system fully installed on the membrane roof.

Left Patch-welded pedestals laid out to centres.

Right Moulded plastic forms are a lightweight base for the PV panels.

Doors, windows & ironmongery

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A leading UK specialist supplier of architectural glass elements and associated fittings, DR Services combines practicality with elegance in internal glazed walls incorporating multiple doors and other features. It helps interior designers and top end contractors to fit-out hotels, spas, high class restaurants, corporate headquarters and residential properties. A recent contract involved a fully glazed wall along one side of a swimming pool, with glass doors to a steam-room, sauna and changing facilities. www.drservices.co.uk

GEZE Door drive turns heads at international award ceremony



The ECTurn Inside, an automatic swing door drive developed by GEZE UK parent GEZE GmbH, was declared a 2014 Interior Innovation Award Winner by the German Design Council and imm cologne. Offering accessibility without compromising the door design, the drive aims to make life easier, particularly for people with mobility problems or little strength. It can be used for both automatic and manual opening in addition to automatic closing in accordance with DIN 18650. www.geze.co.uk

KEYLITE Futuretherm roof window has unique prefitted thermal collar



The key innovation of Keylite's new Futuretherm Roof Window is its unique integrated thermal collar, which is pre-fitted to the frame as standard. By simply pulling the release tape positioned around the frame, the insulation collar expands, closing the gap between the window frame and the roof, and providing an effective barrier against heat loss and the effects of cold bridging. This contributes to improved overall roof performance, reducing potential issues such as condensation. www.keylitteroofwindows.com

SAMUEL HEATH New website reveals benefits of concealment



Samuel Heath has a dedicated new product website, providing detailed information on its renowned ranges of Perko, Perkomatic and Powermatic concealed door closers. The sleek, visually-appealing site will be useful to anyone involved in the selection, specification and installation of Samuel Heath door closers; from architects, designers, specifiers and installers to estates and facilities managers. Each door closer has its own page, summarising its key features and performance credentials. www.concealeddoorclosers.com

SWA Thinnest Part L-compliant steel windows designed for energy efficiency



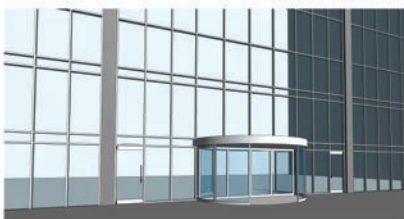
Designed for energy efficiency, W30 steel windows from Steel Window Association members are the thinnest steel window range on the market complying to all Part L building regulations. For domestic applications the W30 system is C-rated by the BFRC, with a B-rated option also available. Each C-rated window incorporates an 18mm double glazed unit, comprising 4mm soft coat low e-glass and 4mm clear float sandwiching a 10mm krypton gas filled cavity with a warm edge spacer bar. steel-window-association.co.uk

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NJG Steelights offers a design adaptable, stainless steel/copper and glass, 30 minute fire rated glazing system, based on a 19th century glazing principle but updated to use modern materials. Extremely strong, engineered and with a hidden jointing method, the traditional look has a 21st century 'retro' decorative potential. Available in various sizes within a single unit, extra design potential is possible, together with different glass types and textures. www.steelights.co.uk

DORMA Single Revit components add flexibility and reduce hassle



Dorma, the trusted global partner for premium access solutions and services, has further expanded its BIM product library with a new Revit object for its KTC-2 Flex revolving door and BST automatic curved sliding door. It has produced a single, user-friendly component for the KTC-2 Flex revolving door and optional 180° and 360° BST curved automatic door types that are easily customised and configured by the user through selectable options according to size. www.dorma.com

URBAN FRONT Strong, contemporary hardwood doors



Urban Front designs and makes hardwood contemporary front, internal feature and garage doors with steel reinforcement, high security locks and pivot or 3D hinges. Our six timbers are European Oak, American Black Walnut, Iroko, Western Red Cedar, Fumed Oak and Wenge, but doors are also available with a painted finish. Also recently launched is the E98 Passive door certified to Passivhaus level. All of our doors are finished with stainless steel fittings. www.urbanfront.co.uk

Doors, windows & ironmongery and Interiors

ORIGIN Double set of bifolds for family home extension brings the outside in



A Cambridgeshire based family created a light-filled, modern family space in its recently completed extension by installing two sets of Origin bi-fold doors. The aluminium doors are powdercoated in hipca white to maintain a modern fresh look in keeping with the painted white walls. The high grade, hard wearing finish removes the need for periodic painting and maintenance and protects against scratches and colour fading, minimising upkeep. www.origin-global.com.

LUMEN Modern rooflight that is sympathetic to Victorian original



The Lumen conservation rooflight replicates a traditional Victorian design, which is unobtrusive and sympathetic to the original external architecture of a building. It offers a high specification Pilkington Activ self-cleaning glazing and provides a glazing U-value of just 1.0. With its fine lines of steel, the Lumen rooflight has a low profile and genuine glazing bar. Manufactured in Britain to ISO 9001:2008, it is available in standard or bespoke sizes. www.lumenrooflight.co.uk

GEZE Perfect solution for Places for People has warm reception



A gloomy unappealing entrance at The Pavilions in Preston has been transformed with the installation of a light, spacious and draught proof curved lobby from GEZE UK, the UK's leading manufacturer of door and window control systems. GEZE's Slimdrive SC curved sliding automatic doors were specified by architect Summers-Inman to create a stunning focal point and welcoming entrance in the extended reception at the Places For People Group's headquarters. www.geze.co.uk

PROFILE 22 First BIM object launched



Window, door and curtain walling specialist Profile 22 has developed its first BIM Object, providing 2D and 3D product representations, information and data associated with its Fully Reversible 70mm window system. In Revit file format, this allows the product to be incorporated into a 3D model and its associated component database. The Object is available free direct from profile22 or via bimstore. www.profile22.co.uk

GRANITE TRANSFORMATIONS New worktop finish is all white



Kitchen and bathroom makeover expert, Granite Transformations, has launched its Hydra White worktop finish. With 67% recycled glass content, including mirror fleck for subtle highlights under halogen lamps, this surface also chimes with current consumer demand for eco-friendly materials. With cool, classless white making a comeback in everything from kitchens to cars, Hydra White makes a kitchen feel open, airy and spacious, reflecting back natural and artificial light. granitetransformations.co.uk

MORGAN Pimlico chair is playful and youthful, timeless and elegant



Recipient of a 2014 Design Guild Mark, the Pimlico chair is now on display in the new Morgan showroom which was officially launched during Clerkenwell Design Week. Pimlico features smooth curved lines with an inset oval seat pad which is wrapped by the frame. Fully upholstered for maximum comfort, its look is both playful and youthful as well as being timeless and elegant. This makes it suitable for a wide range of interior schemes and applications. www.morganfurniture.co.uk

JOHNSTONE'S Super durable Endura paint colours up Halifax academy



The unrivalled durability of Johnstone's Trade's Endura super durable matt has been put through its paces at the £27m Trinity Academy in Halifax. The product is 50 times tougher than standard vinyl matt emulsion and has been scrub tested to achieve official ISO and BS standards, providing a lasting finish for the Academy. It is available in more than 7,000 colours, so feature walls are painted in bright blues, bold greens and striking reds, which perfectly complemented the more neutral shades. www.johnstonstrade.com

HECKMONDWIKE School library makeover gets Array of colour



Array fibre bonded carpet from Heckmondwike FB has been chosen by Newbridge High School Academy Trust in Coalville, Leicestershire for its newly refurbished library. Library Administrator Ms Surenne Zake used a square border around the perimeter of the library and a similar design around the soft seating area to create an attractive, eye-catching look. Heckmondwike FB supplied 92m² of Array tiles and 20m² of Broadrib tiles for the borders. www.heckmondwike-fb.co.uk

Insulation & Bathrooms

KINGSPAN KoolDuct for the UK's largest Passivhaus standard homes scheme



Chester Balmore, the UK's largest residential scheme so far designed to meet the demanding Passivhaus standard, is the latest project to benefit from the premium performance Kingspan KoolDuct System. To help achieve the stringent Passivhaus standard, over 1,200 m² of the Kingspan KoolDuct system was installed by RDS Projects throughout the residential units, helping to deliver perfect airflow through the mechanical ventilation and heat recovery system.

www.kingspaninsulation.co.uk

CELOTEX Reaching new heights with rainscreen cladding



Celotex, has demonstrated its innovative credentials again, launching Celotex RS5000. The latest addition to the '5000' series product range, offers our super low lambda of 0.021W/mK, delivering better U-values and thinner solutions. As well as achieving Class 0 fire performance, it is successfully tested to BS 8414-2 meeting the criteria set out in BR 135, and so suitable for use in rainscreen cladding applications including buildings above 18m high.

www.celotex.co.uk

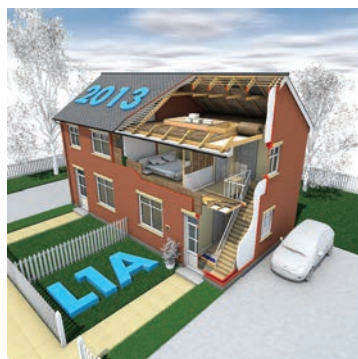
KINGSPAN TEK Capital performance for London's Greenhouses



Kingspan products were used on London's largest Passivhaus scheme, The Greenhouses in Sulgrave Gardens. Minimising the thickness of the wall build-ups, while attaining the required level of thermal performance, was key, so the Kingspan TEK® Building System was specified for the external walls of the remaining Block A and D and Kingspan TEK® Cladding Panels installed on the concrete frame. Kingspan Insulation's premium performance Kooltherm K-range products were also used.

www.kingspantek.co.uk

KNAUF INSUALTION Aid for specifiers tackling different Welsh regulations



On 31 July 2014, the Welsh Approved Document L1A (Conservation of fuel and power in new dwellings) came into effect – the first version of its kind for use solely in Wales. It brings differences to those of England that housebuilders and developers need to be aware of. Knauf Insulation can recommend practical guidance to specifiers, and offer high performing, quality product solutions that comply as part of a more flexible and commercial approach.

www.knaufinsulation.co.uk

HANSGROHE More reasons to choose the expanding Select range



Additions to Hansgrohe's Select range include the ShowerSelect thermostat with integrated shower support; ShowerSelect S concealed thermostats in a round design, perfect for use with round hand and overhead showers; and new ShowerSelect manual mixers to complement existing thermostatic options. The Select collection includes Raindance Select showers and pipes with push-button controls. Intuitive to use, there are no complex electronics, just a reliable mechanical control.

www.hansgrohe.co.uk

VITRA Timeless, elegant style in Christophe Pillet's functional new range



Vitra has just launched Memoria, a range by renowned international designer Christophe Pillet who is known for his stylish, functional and elegant designs. A minimalist, timeless and elegant style runs through the range which encompasses bathroom furniture, brassware, mirrors and sanitaryware. Its refined aesthetic makes it possible to create a truly integrated living-bathroom space which enhances the home, says Darren Paxford, national sales manager at Vitra.

www.vitra.co.uk

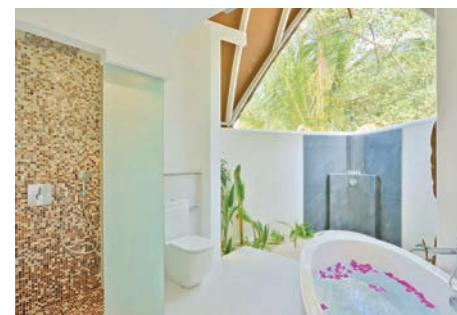
BAGNO Bagnoquartz basins blend elegance and durability



Enabling the latest trend for composite stone products to be integrated into the bathroom with ease, the new Metreaux collection by Bagnodesign features a beautiful range of washbasins crafted from Bagnoquartz. Made from a specialised compound of natural minerals, this material has all the benefits of natural stone, while being highly durable. With a distinctive design, the Metreaux basin can be chosen with either an inward or right to left slope, giving it a contemporary edge.

www.bagnodesign.co.uk

LAUFEN Creating a bathroom paradise in an exclusive Maldives resort



Ensuring the bathrooms are as luxurious as the location, Laufen sanitaryware has been chosen for the exclusive Kandolhu Island Resort in the Maldives. Laufen's Il Bagno Alessi One bathtubs invite guests to lie back and relax while enjoying their beautiful surroundings, and are matched by washbasins and WCs from the same collection. Featuring elegant curves and minimal styling, Il Bagno Alessi One creates a real style statement in this most idyllic of settings.

www.uk.laufen.com

Flooring

JUNCKERS Whalebone Staves make a classic style contemporary



Junckers is launching a new parquet floor with longer, pre-finished wide board staves. Whalebone Staves is a contemporary take on the classic parquet floor with a perfect, factory applied finish in UltraMatt lacquer, which means there is no need for on-site treatments after installation. The extra-long staves measure 700mm by 140mm and come in solid, natural oak or Black Oak. As well as a herringbone pattern, Whalebone Staves can be laid in square basket or ladder patterns. www.junckers.co.uk

JAMES LATHAM New Valchromat colours paint the town red, green, blue...



James Latham has added three new colours to its exclusive Engineered Fibreboard, Valchromat, an innovative and award winning material already popular in the interior design, shop fitting, furniture manufacturing, education and exhibition sectors. With a 11 bold and impactful colours including grey, black, red, orange, yellow, blue and green, Valchromat offers almost limitless decorative applications and, BSA approved, is ideal for the children's sector. www.lathamtimber.co.uk

GRADUS TEX stair edgings keep students on their toes at Mid Kent College



TEX stair edgings from flooring accessories specialist Gradus are helping to improve safety at Mid Kent College. With thousands of people a year passing through the campus, the college needs to ensure a safe environment for students, staff and visitors. TEX stair edgings from Gradus have been installed on exterior steps leading to the main entrance, and in the car park. The heavy duty aluminium stair edgings were selected with the yellow Firestorm insert, providing both slip-resistance and visual contrast. www.gradusworld.com

MAPEI Ultratop is flooring's first line of defence at IWM London



Mapei flooring products have been specified in a major redevelopment at IWM London. Part of the Imperial War Museums, the historic museum has been transformed to mark the centenary of the First World War by Foster + Partners. Mapei's high performance cementitious flooring system, Ultratop, was chosen to complement the exhibits and provide a low maintenance floor coupled with resistance to heavy pedestrian traffic. www.mapei.co.uk

KARNDEAN 2 New Product Selector app lets specifiers select and go



The UK's market leader in luxury vinyl flooring, Karndean Designflooring, has unveiled its latest App designed specifically for architects, interior designers and contractors to use at the point of specification. The free Product Selector app for iPad showcases more than 150 wood and stone designs from Karndean's portfolio, including full technical specifications. Each product can be viewed up close, giving users the flexibility to select and demonstrate floor designs both on-site and in the office. www.karndean.com

KARNDEAN Pets Corner picks Karndean for style and practicality



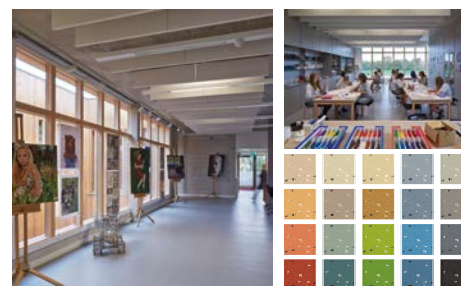
As part of plans to revamp its entire store estate, the UK's leading pet supplies specialist Pets Corner selected Karndean Designflooring to complete its new-look store design and help improve the overall shopping experience for its customers. Moving away from an industrial look in favour of a contemporary design scheme throughout, Pets Corner looked to replace an existing resin floor with Karndean's Opus Niveus (WP411) for a warm and inviting finish. www.karndean.com

NORA Noraplan stone — a classic product in a new look



Celebrating its 25th anniversary, noraplan stone rubber floor covering from nora systems is now available in a refreshed colour palette and additional surface version. As well as the classic refractive surface structure, it is now available in a new, smooth version while the colour range now includes vivid new shades like Kiwi Green or Aquamarine, in addition to the timeless, discreet grey and beige tones. Customers can now choose from 20 colours in the refractive surface and 8 for the smooth one. www.nora.com/uk

NORA Noraplan stone helps award winning school avoid any slip-ups



Challenged to find a durable flooring solution that provides excellent slip resistance and is easy to maintain, architect Walters & Cohen specified noraplan stone for Lady Eleanor Holles School in Surrey. Over 2500m² was installed in many areas throughout the school, chosen for its durability, its excellent slip resistance properties (R10) and ease of maintenance. The art department at the school won a 2014 RIBA London award. www.nora.com/uk

General

KOMFORT Polar fire-resistant products keep police secure



Komfort's expertise enables it to design intelligent interiors with built-in fire performance properties that limit the growth and spread of a fire. Its fire screen products provide up to two hours of resistance, during which they retain their integrity and insulation properties – providing a highly attractive option in glazed environments with effective passive fire resistance. The firm recently supplied its fire rated Polar partitioning system and bespoke fire screens to Avon & Somerset Police.

www.komfort.com

KAWNEER All types of Kawneer glazing systems used on new Spires Academy



Elements of the whole portfolio of Kawneer systems were used on the new, mostly naturally-ventilated Spires Academy in Canterbury, where the indoor and outdoor teaching spaces achieved a BREEAM Very Good rating. Kawneer's AA*110 and AA*100 (sloped) curtain walling, with 65mm and 50mm sightlines respectively, were used on the main entrance and corridors. They are complemented by AA*541 casement windows, series 190 heavy-duty entrance doors, and AA*605 swing doors.

www.kawneer.com

H+H Longer blocks improve efficiency and capacity



To improve efficiency and increase block capacity, H+H is updating the sizes of three of its product ranges. Celcon Plus Blocks will increase to 630mm from 610mm in length, with the course height remaining at 215mm. The Jumbo Blok and Multi Plate ranges will increase slightly from 610mm to 630mm long. A reduction in course height, 250mm and 350mm respectively, will also be made to comply with manual handling guidance from the Health and Safety Executive.

www.hhcelcon.co.uk

SAFEGUARD Safeguard does stellar job for Soho's Star Café



The vintage charms of a vaulted basement are once again being appreciated by the patrons of a popular watering hole and cafe after damp-proofing systems from Safeguard Europe tackled severe penetrating damp. The Star Café's basement had provided an intimate venue for meetings and private functions but severe penetrating damp, made worse by nearby work on the Underground, had ruined the painted brickwork décor and solid wood floor.

www.cellars.co.uk

HUNTER PLASTICS Stylish quality gutters give Orion Homes 'kerb appeal'



Orion Homes chooses stylish Regency guttering for its developments; for its smart looks, quality and ease of installation – thanks to the patented Hunter Surefit fixing system. The latest development using Surefit Regency is Spring Place Park near Mirfield, where Regency brings together the best of old and new: the low maintenance and durability of modern PVC-U, with attractive traditional curved, stepped profile.

www.hunterplastics.co.uk

ANCON Wall Tie Selector App updated to feature extended TeploTie range



Structural fixings specialist Ancon has updated its popular Cavity Wall Tie Product Selector App to feature its extended range of award-winning basalt-fibre TeploTies. Freely available to download on Apple and Android mobile devices, it makes choosing the most appropriate wall tie for any cavity wall construction quick and easy. Launched last year, the App has been updated to feature Ancon's longer lengths of TeploTie, now available for cavity widths up to 450mm.

www.ancon.co.uk

TIMBER EXPO Showcasing global timber innovation



Timber Expo is a two day show brimming with the latest products, innovations and developments across the timber sector – not just from the UK but from an increasingly exciting and diverse international market. Visitors to the show will be able to see the full range of timber technologies available on the market and experience an unrivalled collection of high calibre speakers. Pre-register free on the website.

www.timber-expo.co.uk/book

LG HAUSYS HI-MACS raises a glass to its new bar at L'Ora



At L'Ora, a lounge bar inspired by air and water, the star feature of the decor is indisputably the white bar, which stands out like a valuable monolith. The front and top are created from HI-MACS® by LG Hausys, a new material made from acrylic, minerals and natural pigments. HI-MACS® is thermoformable and has no visible joints, so is ideal to create the bar to the exact shape and size required, with the appearance of having been carved from a single block, like a sculpture.

www.himacs.eu/

SSQ Slate roofing gives school a new Hope for its heritage

Helping to achieve an unrivalled aesthetic while also meeting heritage requirements, SSQ Slate has provided its exclusive Del Carmen Ultra slate to the new Hope House building at the Royal High School, Bath – part of the Cranwell House expansion project. A heritage-accepted slate, it is commonly seen as a viable alternative to indigenous slates and ensured a uniform aesthetic appearance to the adjacent Victorian listed building, Cranwell House.

www.ssgroup.com

STRUCTURA Kalwall at night

Architects are familiar with the highly insulating Kalwall translucent system and its intense quality of diffused daylight which makes interiors so stunning. Blackburn College, designed by DLA Architecture, shows here what the unique cladding looks like in reverse at night. As well as new build, Kalwall is increasingly specified for the refurbishment of cladding or rooflights on aged buildings.

www.structura-uk.com/kalwall

NEACO Low maintenance gap-free decking steps out in style

NEACO has launched a new aluminium decking system with drainage gaps concealed below the surface to provide an unrivalled combination of privacy, low maintenance and safety underfoot. With a unique T-bar grille which appears to be closed but is actually open, Neatdek 188 completely restricts the view from above and below (making it ideal for balconies) and keeps litter on the surface for easy cleaning. The absence of surface gaps also makes it safe to walk in any type of footwear.

www.neaco.co.uk/188

SIKA Flooring continues the Olympic legacy at Stratford's Velodrome

The 6000 seat London Olympic velodrome has reopened in Stratford with a resilient, durable, and high performance flooring system from global building products manufacturer Sika in its refurbished reception areas. A Sikafloor 264 broadcast with anti-slip quartz aggregate was installed. A two part, coloured, epoxy resin, Sika 264 protects against mechanical stress, abrasion, chemicals and water. It was coated with Sikafloor 305W to resist the effects of UV light.

www.sika.co.uk

STRONG ENERGY Waterkotte distributor pumps up the heat

Strong Energy is now the exclusive UK and Ireland distributor for Waterkotte GmbH high performance heat pumps, adding a new dimension to its renewable energy technologies portfolio. This makes state of the art German engineering available to homes and businesses up and down the country, supported by the technical expertise of the Strong Energy Registered Installer Network. The pumps are for domestic and commercial heating and hot water applications, from 4kW to 1MW.

www.strongenergy.com

YEOMAN Rainguard XL aluminium rainwater system saves installation time

When a Leeds home owner extended his 16 year old detached house, he also replaced the whole house's failing PVC rainwater system with an XL aluminium system from Yeoman Rainguard. 125 x 100mm gutter and 75 x 75mm square downpipes in XL aluminium were fitted to the house, in a bespoke system designed to reduce the number of joints resulting in a quicker and easier installation. Finished in a textured black polyester coating, the system needs no maintenance or repainting for years of service.

www.rainguard.co.uk

REYNAERS Aluminium systems give college light and airy campus

Reynaers Aluminium has supplied a range of systems to South Staffordshire College's Cannock Campus, helping to create a smart and modern new look as part of a £4.2m upgrade of the premises. As part of an overall refurbishment, new classrooms and an impressive glazed main entrance have been created. Reynaers is achieving a light, airy and modern look, with the CS 24-SL thermally insulated three-chamber window system and CS 77-FP fire resistant range.

www.reynaers.com

GAIA Underfloor heating helps warm retirement home residents

Gaia has supplied its low-temperature hot water (LTHW) underfloor heating system to an exclusive development of retirement homes in Storrington, West Sussex. The system was chosen to provide space heating to the ground floors of all 20 of the houses on the site, built by Beechcroft Developments. Gaia's wide range of heating products offers the optimum solution for all types of floor, whether concrete or suspended timber, and all types of floor covering.

www.gaia.co.uk

Sign Up

Louis Scott of Ellis Miller Architects gives us three of his specification favourites



FIREBORN

A large-format facing masonry block, Fireborn is a very robust, elegant and long-lasting cladding alternative to standard units. It has various colours, glazes and sizes based on a multiple of standard brick-gauge; we typically specify an unglazed dark-blue finish in homage to engineering brickwork. The large format introduces a strong constructional rhythm while reducing installation time. Rigorous control of bond pattern and setting-out is important: on our Catmose Campus project we specified stack bonded panels, raked-out joints and dark grey mortar. www.ibstock.com



U-CHANNEL GLASS

We specified this glass cladding profile, which comes in lengths in excess of 7m on our Shoreditch Village masterplan to provide a hard wearing, translucent rainscreen finish. It formed the upper parts of taller building facades, softening the impact of the massing when the buildings are viewed against the sky. The channels come in a variety of widths that can be bolt fixed or held in standard frames. The system also offers textured, back-enamelled, and coloured finishes, which can be tempered or annealed for strength. www.lamberts.info



PRE-PATINATED WEATHERING STEEL

In the course of our commission to upgrade and refurbish the Grade 2* Listed Winter House we were tasked with matching the 1969-vintage cladding as closely as possible. This precluded the use of most 'new' Corten as it lacked the particular patina acquired by the original – a unique product of the building's age and location. FacadeTek offered the capacity to pre-patinate the steel through a process of factory-based wetting and drying periods that simulate the natural weathering cycle. www.facadetek.com

...Sign Off

Jan-Carlos Kucharek enjoys three of this issue's out-takes



MEAT 'N' TWO GREGGS

Obviously taking a leaf from Little Chef's attempt to re-brand itself under 'Fat Duck' wonder chef Heston Blumenthal, high street baker Greggs has brought in hot shot designer Philip Watts to add a certain 'je-ne-sage-'n'-onion-croissant' to its prosaic retail offering. Greggs turned in a £16m profit this year while Watts has done more Yo!Sushi restaurants than you can shake a crab stick at; so this seems a match made in heaven. Greggs' press release says its strategy is 'about heroing the great tasting products' by changing the decor. Why bother? I've only just weaned myself off their addictive pulled pork lattices, steak bakes and sausage rolls. 'Heroing'? Is that 'g' a typo, Phil?



ONE NEVER NOSE

Italians are well known for a fixation with their noses (have you ever heard of a 'Parisian nose'?), none more so than Pinocchio and his creator Carlo Collodi. For while writing about penniless carpenter Geppetto and his wooden puppet son, it seems the author's origins were a lot less humble. Collodi's childhood home, the huge 17th century Villa Garzoni set in 'scenographic Italian baroque gardens' in the Tuscan village of, ahem, Collodi, is on the market for €20m. The family reputedly partied in marble tubs in the gardens serenaded by quartets hidden in the trees – teaching young Collodi all he needed to know about timbre and other people pulling the strings.



LEARNING THE DRILL

With Gove booted off, let's look at the educational legacy we're left with. Blair's optimistic Building Schools for the Future changed to the Coalition's austere 'Free Schools', but both strove to ensure our youth are trained up for industry. Politics and philosophy – pah! That's for the Oxbridge bods. UK plc needs IT, maths and apprenticeships! Take these kids at Burlington Danes Academy in London, supplied by Norbord with over a grand's worth of SterlingOSB to teach them how to build super-insulated houses. Forget the last two policy fads. Is this a taster of would-be PM Boris Johnson's trailblazing merger of the two: 'Building Your Own School in the Future – For Free'?

Editor-in-chief Hugh Pearman
Editor Jan-Carlos Kucharek
Chief sub Alysoun Coles
Art editor Richard Krzyzak

Telephone +44 20 7496 8300
Fax +44 20 7374 8500
firstname.surname@ribajournal.com

Advertisement manager
 Richard Tomlin +44 20 7496 8329
Business development manager
 Midge Myatt +44 1902 851645
Advertisement executive
 Clive Waite +44 20 7496 8338
Production
 Logical Connections
Director of media
 Jonathan Stock

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Hello Future

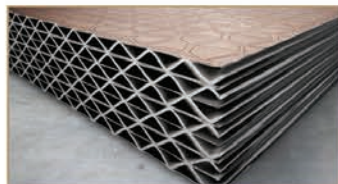


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