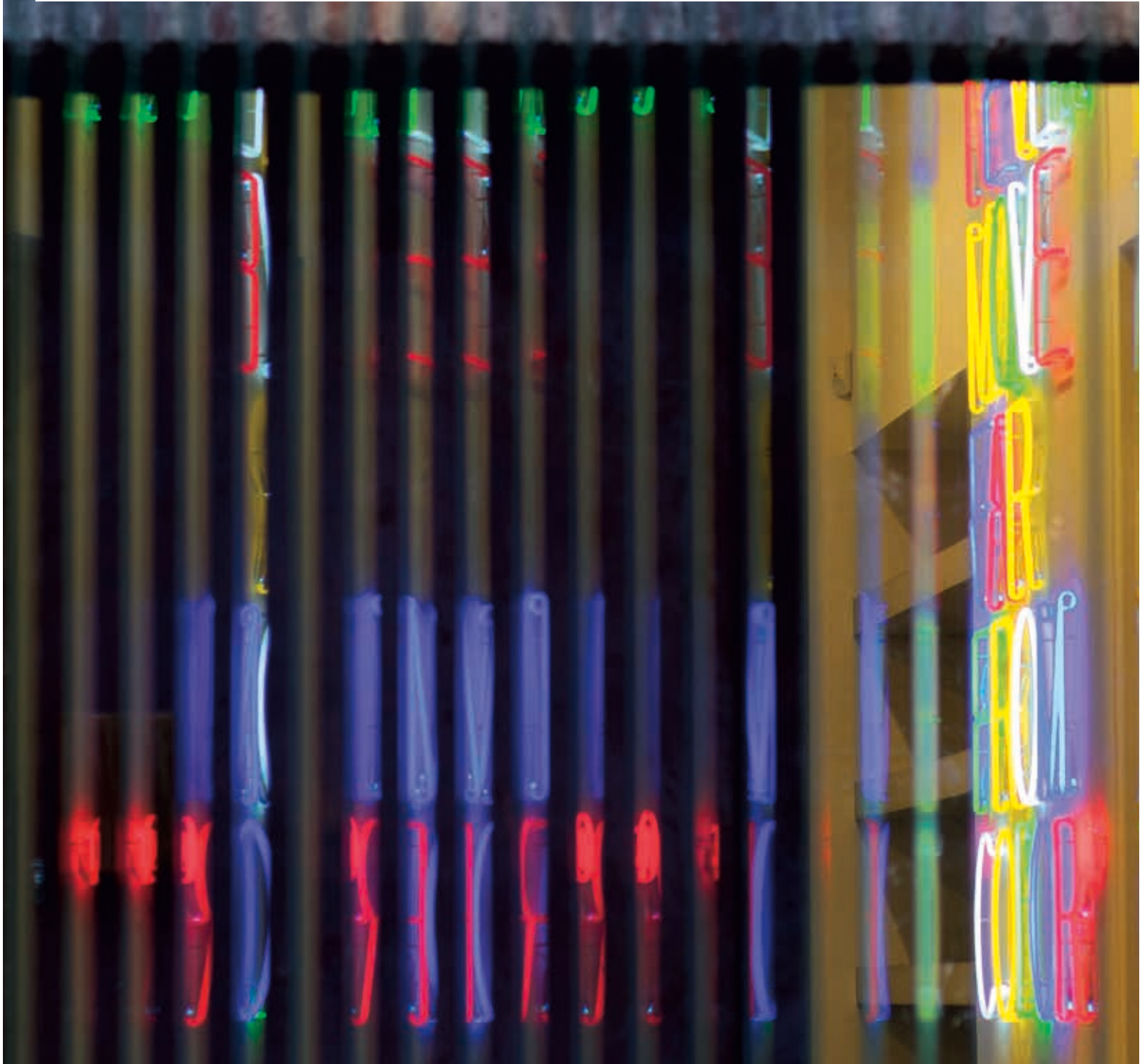


APRIL | MAY 2013

Products in Practice



INSULATION: **KUNSTMUSEUM RAVENSBURG**

ROOFING: **ONE ANGEL SQUARE/ST PAUL'S SCHOOL/READING STATION**

FACTORY VISIT : **ROOFLIGHTS**

OFFICES : **RESIDENTIAL CONVERSION**

EXTREME SPEC: **ANTARCTIC RESEARCH STATION**

BIM: **TAKE WHAT YOU WANT – AND NO MORE**

Care in the Square.

Geberit creates a sustainable quality of life with innovative water management, comprehensive know-how and a strong focus on sustainability – across all products, sectors and processes.

It's an approach that really pays off for the environment and society, as well as customers, partners and for employees. Our examples include products for green buildings – a market of the future – ethically aware training and outstanding logistics, and every drop of water saved by Geberit products worldwide.

That's what «Care in the Square» means to us.

For more information on how Geberit products can improve the sustainability of your designs visit → www.geberit.co.uk or call 0800 077 8365 .

Kitchen, bedroom & bathroom show

Kbb LDN is part of the May Design Series, taking place at London's ExCel from 19-21 May 2013

Having been taken on by event organiser UBM's brand director to co-ordinate not only this year's kitchen, bedroom and bathroom show, but the Arc lighting show, DX for technology and Interiors LDN as part of its May Design Series, architect Ab Rogers will probably need a bed himself. He'll unite the four shows, which take place concurrently at London's ExCel, under a 'single creative vision'. Since it's Richard Rogers' son, expect all three primary colours for the signage, plus black or white. kbb LDN might trendily appear in lower case, but it's in the 'design capital of the world,' so expect all the sectors' major players to put in an appearance – after all, there's a lot of ensuite hotel rooms out there in the world, and someone's got to fit them out.

Aside from the numerous exhibitors, one of the attractions for the kbb LDN event is the Innovation Centre, which claims to be 'the place to see the most pioneering developments this sector has to offer'. It will also run its Innovation Awards for the second year, celebrating the most ground-breaking advancements across the kitchen and bathroom industries – selected from products launched

It's in the 'design capital of the world,' so expect all the sectors' major players to put in an appearance – after all, there's a lot of ensuite hotel rooms out there in the world, and someone's got to fit them out

between May 2012 and May 2013. Martin Allen-Smith, editor of Designer Kitchens and Bathrooms magazine, will chair the judging panel which will select 20 shortlisted products from which three winners will eventually go forward to claim the 'Judges', 'Visitors', and 'Online' prizes. Winners and shortlisted designs will all be showcased at the event.

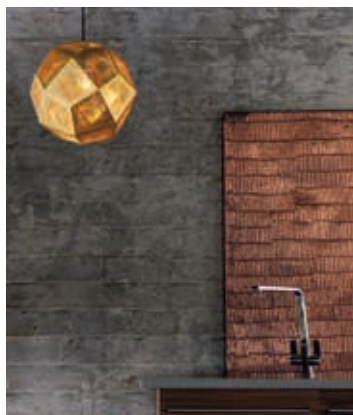
The organisers' big marketing dollar this year is that signing up for one of the shows gets you into all the others, turning the whole of the 100,000m² venue into an interiors stomping ground. The event is also being backed by the Society of British Interior Designers founder Vanessa Brady, who has helped shape the format of the show. Here, you'll be able to peruse the latest in lighting, home technology and high-end furniture, all under one roof. Take my advice, and leave the bedroom show for last: walking around all day will have given you plenty of reason, particularly here, to try before you buy. In the event that there's nothing that you're convinced by, make a bee-line for the Ab Rogers-designed champagne bar. After all, there's nowt so good as can't look better with beer goggles on... ●

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



XTEND+ BY LEICHT

In a 'now you see me, now you don't' take on kitchen design, kitchen manufacturer Leicht has turned to slats to create a kitchen storage system that appears and disappears before your very eyes. An illuminated aluminium shelving system sits behind wide slats that come together seamlessly to create the impression of a solid wall until they are raised. Claiming the design as an industry first, Leicht claims the design forces a rethink of the traditional relationship of unit to niche to wall unit, creating opportunities for constantly changing colours and configurations. leicht.com



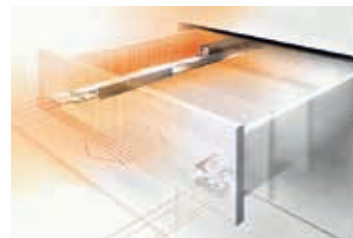
LINEAR FLAIR BY ABODE

In what looks like a high-end offering, faucet designer Abode is launching two new tap ranges at this year's show. It's strange how kitchen taps seem to be able to break all the rules for tap conformity within a house, and this peculiarly tall offering is a case in point. Ultra slim and orthogonal, the monobloc mixertap is a leaning, dual lever design available in chrome and brushed nickel. Paddle handles are placed at the base of the stem and the spout is complete with an aerator. abode.eu



QUARTZ AND MARBLE BY COMPAC

Spanish surfaces company Compac is revealing its 2013 line of 'technological' quartz and marble. Since 1975 the firm has been developing a stone surface range with a variety of colours and finishes ideal for bathroom, kitchen counter tops, flooring and tiling. Mixing raw material with pigments and resins gives the range a natural beauty with outstanding durability. The firm has recently developed a range of facade cladding materials suitable for external use. compac.us



MOVENTO BY BLUM UK

'A bell is a cup until it is struck'; so went the title of post-punk prog band Wire's 1988 concept album. Posited as a meditation on looks and authenticity, Blum UK might well be trying to state the same point in a different guise, with its new 'Movento' concealed runner system for sliding drawers. Anyone who has experienced the joy of cheap kitchen unit drawers that initially perform but rapidly fail, leaving only oceans of pain ahead, may be interested by Movento's synchronised motion, feather-light glide and heavy load bearing capacities. blum.com

PORCELANOSA
TILES · BATHROOMS · KITCHENS · HARDWOOD

DISCOVER THE
NEW PORCELAIN
TILES IN XL
SIZES & LIGHT
THICKNESS

Basic Lava Nature 300x100cm · Basic Sand Nature 300x100cm · Basic Bond Nature 300x100cm

CERAMICS · NATURAL STONE · WOOD PARQUET · TERRACOTTA · MOSAICS · KITCHENS · BEDROOM FURNITURE
HYDROMASSAGE · BRASSWARE · SANITARYWARE · TECHNICAL SOLUTIONS



Specified



**1 ALMA TAPS AND FAUCETS
CISAL**

In an effort to woo consumers by offering extra levels of control, Cisa's latest collection of taps and faucets, Alma, comes with an EnergySave version of all basin and bidet mixers. This allows the lever to open in the central position, supplying cold water and preventing the boiler from igniting involuntarily. Bath/shower, shower and exposed set are equipped with the SafeTouch System, which allows the user to set up and maintain the desired temperature, and stops the mixer surface warming up and scalding the user. Alma is available in chrome finishing.

www.polettistudio.it



**2 SAPHIRKERAMIK BASINS
LAUFEN**

Swiss bathroom specialist Laufen has launched two new washbasin bowls made from SaphirKeramik. The firm's new-generation material has superior hardness and flexural strength which means it can be used to make 1-2mm radii for edges and 2mm radii for corners, as opposed to 7mm to 8mm for traditional ceramics. As a result the firm can generate completely new shapes, while the ability to produce much thinner walls makes each piece up to 40% lighter than if it were made with traditional ceramic materials.

laufen.co.uk



**3 REAQUA+ WATER RECYCLING
WATEREVOLUTION**

Savings of up to 30% water and 50% energy are being promised by WaterEvolution with its reAqua+ technology, which combines greywater and heat recovery systems for the first time in the British market. WaterEvolution estimates that using reAqua+, a family of five could save up to 60,000 litres of water, 3,000kWh of energy and up to one tonne of CO₂ a year, with payback estimated at between three and seven years. The system collects greywater from the bath or shower, transfers the heat to the central heating system and uses the cooled water to flush toilets. The unit fits comfortably into a wall cavity and is Green Deal compliant.

waterevolution.co.uk

**4 SUMMIT RANGE
RAK**

RAK is promoting its Summit bathroom range on the basis of a timeless look with high performance benefits. The collection includes four ceramic basins and two WC designs, and a variety of complementary baths and tiling options. Basins feature a smooth-angled deep basin format and spacious back ledge, while toilets have an angled profile, in either a close-coupled design with a soft close seat, or back-to-wall format with a contoured seat.

rakceramics.co.uk

Axor Starck Organic



Follow
your
Head
and
your
Heart



► How much thought and how much heart has gone into creating Axor Starck Organic?
An extraordinary amount: resulting in a functional mixer shower jet that is unprecedented, revolutionary low water consumption of 3.5 l/min. and a totally new operating concept.
Find out more about the new bathroom collection, which will enable you to experience water in a completely new way, at head-and-heart.com
For more information visit pro.hansgrohe.co.uk

AXOR[®]
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Made

Right: Rooflight Company employees Phil Young and Steve Lewsey make up and check the integrity of glazing units built in the factory.

WHAT: ROOFLIGHTS

WHERE: THE ROOFLIGHT COMPANY, OXFORDSHIRE

Architect Peter King's search for a conservation grade replacement rooflight led him to set up his own company

The saying 'Those who do not learn from the past are doomed to repeat it' usually carries a negative connotation, but for architect Peter King, founder of The Rooflight Company, it was far from doom-laden. Setting up his architectural office in rural Oxfordshire, most of his projects were refurbishments and extensions of existing properties, but in a planning context that demanded like-for-like solutions, King found he constantly experienced problems sourcing new rooflights that looked like the cast iron ones that were being removed.

So in a moment of inspiration, he decided to design one for himself. As it turns out, this did not prove too difficult. King took the original Victorian cast iron design and modified it to allow for a powder-coated steel casement and a double glazed unit. The design was so faithful to the original that the only thing the architect ended up patenting was the casement's thermal break. Fabricating the first models in a converted pigsty on a local farm, the result was the 'Conservation Rooflight' – a high thermal performance, hinged, double

glazed steel unit that, like its ancestor, sat discreetly flush with the roofline. In a savvy marketing move, King sent out drawings of the design to conservation architects and planners all over the country; over time giving his Conservation Rooflight a monopoly in the UK's heritage refurbishment market. The Rooflight Company was born.

Celebrating its 20 anniversary this year, and despite working in a competitive industry, The Rooflight Company is still going strong. While King still heads up his own architectural practice, the manufacturer now employs 60 people and has a turnover of £5-10m, operating from a less pigsty-like but no less rural Shipton-under-Wychwood HQ. To survive, The Rooflight Company has had to diversify. It remains in its core sector but has expanded its range to produce the Neo, a crisper, machined version of the Conservation rooflight; the 'Solar', whose module allows it to integrate easily into solar arrays; and the Fortecom, a new high performance unit formed of high strength and performance composite resin.

The company has, as a result, seen its products specified in less conventional situations, like the walls of Zaha Hadid's Maggie's centre, on Will Alsop's 'The Public' in West Bromwich and on the flat roof refurbishment of London's Royal College of Surgeons. Company chair Valerie King puts this down to the fact that every project is treated as bespoke, and designed as such.

'Our steel windows are more design-flexible, and profiled aluminium systems can't do curves like we do, and certainly not achieving the same thermal properties,' she says. 'It's also easy for them to do fixed lights, but as buildings become more reliant on opening lights for natural ventilation, it's a more complex problem.' So it is in this niche that the firm is finding its firmest footing.

Preparing for a more sustainable future, the business is also looking to higher performance materials to develop its range – the latest being its Fortecom rooflight, which has a frame with a far higher thermal performance. 'We've been looking at glass fibre/resin protrusions and helicopter blade

Below: Peter King's inspiration for the Conservation Rooflight – a Victorian cast iron frame.





THE ROOFLIGHT COMPANY'S NEO

Rooflight Company's Neo rooflight (left) is a development of the firm's original Conservation rooflight, and its double glazed units yield a similar U-value of $1.2\text{W/m}^2\text{K}$, with 80% light transmittance. It is also one of the first rooflights to receive Secured by Design accreditation. Calling the product a rooflight however, possibly limits its applications – when Neo was specified on Zaha Hadid's Maggie's Centre in Kircaldy, Fife, it was installed not on the roof but on the walls – its bespoke flashing component robust enough to allow for easy integration into either horizontal or vertical surfaces. And now the Neo range can be integrated into a photovoltaic strategy. In conjunction with Simon Monnery Architects, the firm developed the 1.7m by 1m Neo Solar, that matches the PV module exactly, to meld it seamlessly into a roof mounted array. Aware of the demand for increased performance, the firm can put coatings on its DGUs which results in minimal reductions in light transmittance and achieves a U-value of $0.8\text{W/m}^2\text{K}$.

materials to push our latest range,' says King. 'The unit is a cold bonded frame that has no welds, and with only eight bonds, looks virtually seamless. The double glazed unit (DGU) is fixed without any clips or visible hinges, giving a highly distinctive, sleek and minimalist look,' she adds. The physical difference from the steel Neo is palpable, and has not been lost on the likes of architect Simon Conder, who specified them on a project of his in Cornwall.

The firm admits that having to source the high quality resin from Germany means the slicker details and better performance come at a heftier price – there's a £200 difference from its standard CR9 model, and sales of the Neo are outstripping the Fortecom by up to 20 times. But the company hopes that with sustainability guidance getting ever more stringent, increased demand might push up production volume, which would in turn drive down unit cost. If that's the case, then perhaps a rooflight that's now the choice of the few might ultimately allow everyone to experience the sky with a James Turrell-like clarity. ●

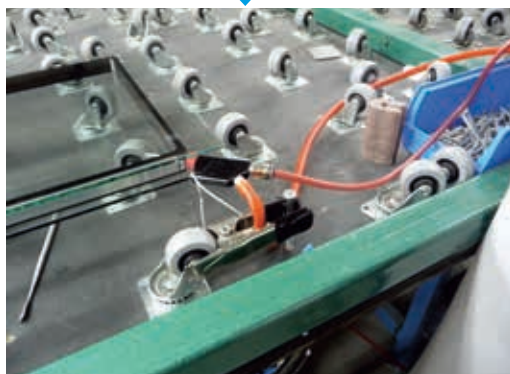


> QUALITY CONTROL OF GLAZING PANES

The Rooflight Company constructs its own double-glazed units using single panes of St Gobain glass. The panes, which have been cut to size, are passed through a glass cleaner before being run across a vertical light box. The glass is then visually inspected to Glazing Federation guidelines from a distance of 3m to check for possible imperfections. Face 2, which is the internal face of the outer pane, is usually where any applications, such as low-e coatings, are placed. The unit will be made of two panes separated with a aluminium spacer bar and filled with 90% argon.

> CONSTRUCTING THE DOUBLE GLAZED UNIT

The spacer, which runs on all four edges of the glass, is filled with 50% desiccant and adhered to both panes with a coating of butyl applied via dual pump nozzles, running on both sides. This will act as the primary seal for the DGU. The newly conjoined panes are then run under an automated press that applies light pressure to the unit. If any water remains within the pane at this point, it is considered a 'wet out', and the pane must be removed from the production line. The outer pane is slightly longer than the inner – a detail that allows the roof flashing to run under it once installed, giving a neater interface.



> ARGON-FILLING THE CAVITY

One of the space strips contains a small hole into which a dual flow co-axial nozzle can be inserted. One pumps argon gas into the cavity while the outer extracts the air. Argon filling has to meet guidelines set out in BSEN1279. The nozzle is fitted with a sensor set to switch off at 92% density. The nozzle is then removed and the hole sealed with a plastic bung. As part of the quality control, every day a panel from the previous day's production is randomly tested with an argon monitor to ensure there has been no loss of gas through the primary seal.

> HOT MELT AND HAND FINISH

The final seal of the panel is provided by the 'hot melt'; namely Bostik 5125, a black butyl edge sealant heated to 190°C and applied to the edges of the DGU with a gun applicator. Care is needed to ensure the glazed panel does not burst as Argon doesn't react well to heat. The windows are then set in the frames with a secondary seal. The Conservation rooflight uses a neutral cure silicone, which is 'dragged off' manually; then it sits in a curing room for 3-5 days to go off. The Neo has a mechanically applied silicon seal, its edges defined by glazing tape. Clips in the steel casement keep the glass in the frame the unlikely event of failure.



Kunstmuseum Ravensburg

Modern technologies meet traditional materials on a new art gallery that exudes warmth while holding in the heat

WORDS: JAN-CARLOS KUCHAREK

IMAGES: WYNRICH ZLOMKE

It's below -4°C outside and random flurries of snow eddy between the narrow medieval streets and stepped, steep pitched, Teutonic rooflines of the Ravensburg's Innenstadt – white noise interfering with the vertical hold of its picturesque chocolate box townscape. By contrast, it's warm as toast in its new art gallery – 22°C to be precise, with a slightly damp, laden humidity of, right this moment, 50%. These seem perfect conditions for an insouciant Latin-looking lady, alone on a wall, staring out from within a heavy, wrought, dark wooden, gilded frame.

European expressionist Alexej von Jawlensky's 1912 'Spanisches Mädchen' is one of the colourful residents of the gallery, which opened last month, holding the collection of eminent local businessman and art lover, the late Peter Selinka. His wife Gudrun had been considering offering her husband's entire collection of 20th century art to Stuttgart's Neue Staatsgalerie, but Ravensburg's mayor convinced her to keep it in his home town, though only after her demand for a dedicated facility to house the collection was met. Two years and €6m later, nestled comfortably in the oldest part of the city, is the collection's home – the compact and antique-looking Kunstmuseum, a commission won, ironically, by Stuttgart firm Lederer Ragnasdóttir Oei.

But don't be deceived by the detailing of the brickwork – for behind it lies a structure and services strategy that has allowed Professor Wolfgang Feist of Darmstadt's renowned Passivhaus Institute to officially designate it the world's first Passivhaus gallery. Professor Arno Lederer, founding partner of LRO, seems proud of this, and he should be – art galleries are a notoriously

services-heavy and energy-profligate typology. But there's more to it than that – it's a homage to his love of Scarpa and Scandinavian modernism.

From a distance the gallery, on a narrow road leading from the central Marienplatz to one of the city's three medieval gatehouses, melds into the streetscape. On approaching it begins to show itself – the sizeable angled cantilever of the upper galleries, projecting out towards the road, has a soffit of unusual hung brick. Below, a storey-height picture window addresses the street, and most obviously, once you've wound your way round it to the front of the gallery, a modern vaulted roof tops it, its end arches strangely terminated mid-spring, their every interface marked by precast concrete scuppers. Once here, you are aware that all is not what it seems. The brickwork is captivating, encased in a pale, gritty mortar of the firm's own devising. It turns out that these are part of a bigger sustainability argument that not even Feist's designation took account of. 'As a firm we love working with old bricks. These were sourced from a ruined 14th century cloister near the Dutch border,' says Lederer. 'It's not only the look – we felt why

Creating the sealed gallery box

The roof is a brick vaulted design topped by concrete ballast and insulation. Thermal bridging was reduced by decoupling so that insulation in the facade and roof formed a continuous layer. The roof form was set by the 450mm deep PFC beams defining the intersecting conical form. Timber formwork was sprung off this, over which was laid a skin of brickwork

and mortar, with a concrete layer cast to give strength in compression. Above, a vapour barrier was laid with 300mm of rigid insulation below a two-ply bituminous membrane and slate tiles. The formwork was removed to then reveal the brick soffit.

Triple glazed windows met Passivhaus criteria but the revolving door mechanism did

create some thermal bridging. Glazed surface areas in the building are low, with the south elevation windows separated from the gallery space by the stair access core. Most of the heat comes from visitors and the lighting. Air tightness tests of the building shell gave a result of $n_{50}=0.31/h$ – 50% lower than basic Passivhaus requirements.



South elevation of the
Ravensburg Kunstmuseum.
Exposed copper detailing
and reveals, 500 year old
brick, and a strange vaulted
roof belie its modern
Passivhaus credentials.



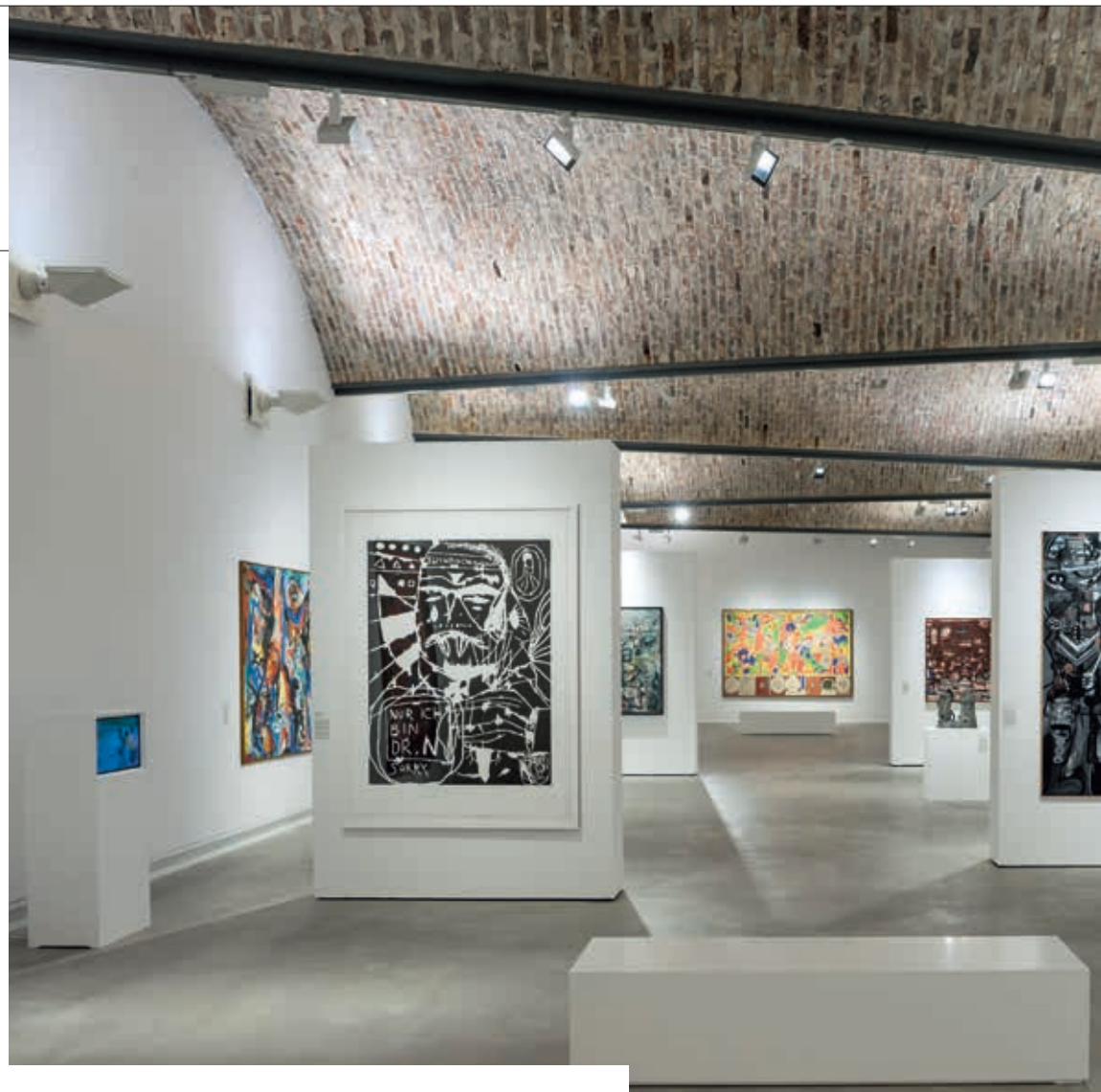
use new material when old is available? It's how it was done until the 19th century and we're just trying to return to that.'

External drainpipes are slim, wide, open Scarpa-esque channels of recycled copper sheet set flush with the brickwork which, when it's raining, run thick with films of water. Copper too forms the reveals of the narrow, triple-glazed openings that pepper the main elevation, and adorns two entrance doors flanking a revolving glass one. Meanwhile, there's a narrow metal grille covering a gutter that runs around the whole foot of the building, which, though new, seems to be rusting. 'It seems a good colour for something lying on the ground,' says Lederer, utterly unconcerned.

With such distracting surfaces it's easy to forget the principles that make the building perform. Knowing the gallery spaces needed to be precisely controlled, LRO decided no natural daylight at all should enter them. So the gallery is effectively stacked precast concrete rectangular boxes which cantilever to the west. To articulate the form, circulation is installed to the north and south – acting as environmental buffer zones to the gallery spaces and 'sticking out of the plan of the building like two ears', with a picture window to the education space at ground and high level light to the basement library and admin. Between the main south stair and gallery space runs a narrow blockwork service wall carrying the air-handling ductwork, electrical runs and water pipes that feed the building.

At the heart of this essentially simple concrete structure, where the architectural gymnastics are reserved, is the second floor gallery brick roof structure, seven interconnecting partial cones that create a distinctively modern vaulted roof. The internal effect is crafted and beautiful but slightly disconcerting. 'You think you know the form, and then you realise you don't – we thought this odd effect was good for the raumgefühl,' remarks Lederer.

There's certainly a 'feeling' to the air conditioning strategy, which ensures internal temperatures do not exceed the 21°C (+/- 1°C) and 50% (+/- 5%) humidity



demand. Under floor heating, fed from a ground source heat system with 100m deep probes and a gas powered pump, maintains the temperature of the concrete slabs at a constant 22°C. In the basement a handsome and neat Minerga air heat exchange and humidifying system also supplies displacement air via ducts through the service wall at skirting level on all floors. This is drawn up and out through ports in ceiling-recessed fluorescent fixtures. On the second floor, side-mounted vault uprights act as baffles for the exhaust ducts behind. Low energy 10W LED ERCO

Above: The ceiling's dramatic conical vaults in the second floor gallery sit on 450mm deep steel beams.

Below: The entrance courtyard, separated from the road by plexiglass fins, is a good place to view the open copper gutters.

fittings – with adjustable focusing – light the artworks, giving 100W of brightness with minimal heat generation. LRO's whole strategy here has been to make the process of conditioning the gallery spaces as invisible as possible to keep eyes on the art.

In creating a constant temperature, LRO has basically built an incredibly simple, insulated, but certainly not dumb box. Its pragmatism has led to a small and quite beautiful thing, yet one devoid of preciousness. The humidity draws out the musk of the brick, there's early 20th century Dutch detailing and the concrete of the main south stair is lightly stained, while its simple oiled iron handrail, a detail that would have made Martin Luther proud, is being left to slowly rust. Despite all that white, the architect quips, it's not a hospital.

Outside the entrance, a plexiglass screen of thin fins separates a small courtyard from the street outside. While Lederer points out that by night this refracts the neon artwork in the gallery, it's me that's talking about the beauty of incidental spaces – his only comment is that he thinks 'it's a nice space



for smokers'. Nice, of course, until a deluge hits, when the concrete scuppers will take over from his fine copper gutters, directing the waterflow 17m down to the courtyard below. I picture the scene with the adrenalin consternation of a knight expecting boiling oil from the ramparts. 'But won't visitors get soaked?' I ask stupidly, forgetting that this is man who understands our relationship to climate. 'How?' he asks, 'Who's out smoking in weather like that?' ●

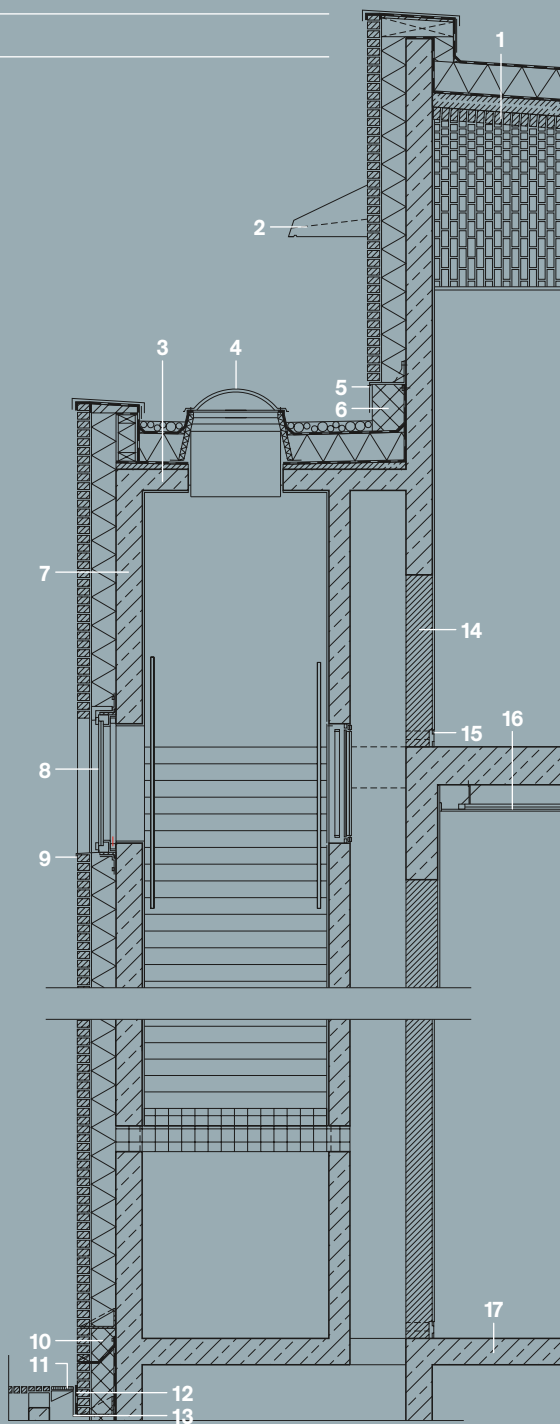
Client: Georg Reisch GmbH & Co. KG
 Architect: Lederer Ragnsdóttir Oei
 > Lead architect: Professor Arno Lederer
 > Project architect: Katja Pütter
 > Executive architect: Schenk Architektur
 Quantity surveyor: Collins+Knieps
 Structural engineer: Schneider & Partner
 > Structural analysis: Peter Bock Dipl.Ing
 Passivhaus consultant: Herz-Lang GmbH
 Mechanical engineer: Vogt and Feist
 Electrical engineer: Ingenieurbüro Sulzer
 Fire consultant: M Oelmaier

BUILDING ENVELOPE

Concrete pile foundations supported the ceiling of the underground car park without a thermal break. Insulation of 300mm on the slab soffit and additional insulation on the outside of the concrete piles reduced heat transference to a minimum. The main structure is 250mm thick in-situ cast and plastered concrete walls with 400mm composite concrete floors, giving sufficient thermal mass for passive conditioning. Outside this runs 240mm Rockwool and a 10mm air gap, with the self-supporting brick face beyond tied back to the concrete structure, to a height of 17m. Ties were specially fabricated for the walls' thickness, but as each was in effect a small thermal bridge, the anchoring system had to be as fine as possible to minimise adverse thermal effects and meet Passivhaus criteria.

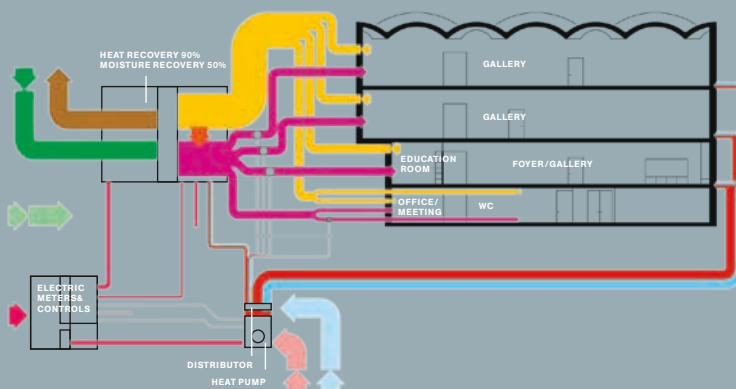
Facade section

- 1 Two-ply bituminous slate surfacing, 300m. Thermal insulation. Vapour barrier. Reinforced concrete. Brick vault, load-bearing shell on 450mm deep steel beam
- 2 Pre-cast concrete scupper
- 3 Two-ply, bituminous. 280mm thermal insulation. Vapour barrier, sloped screed 40-95mm, 200mm. RC slab, plastered
- 4 Dome light, smoke and heat extraction (SHE) system
- 5 0.7mm copper flashing
- 6 Perimeter insulation
- 7 115mm wide recycled bricks as facing. 240mm cavity wall insulation, 10mm air gap. 250mm RC wall, plastered
- 8 Triple-glazed, wood framed, fixed glazing
- 9 Window sill, 1.5mm brake-formed copper
- 10 240 mm perimeter insulation
- 11 200mm cast grating
- 12 Cement-bound sealing slurry
- 13 Drainage layer with non-woven fabric
- 14 Masonry infill at shafts
- 15 Skirting: low velocity air diffuser
- 16 400mm RC slab with thermally activated core on aluminium sheet. 12.5mm planking, gypsum board
- 17 250mm RC slab with thermally activated core

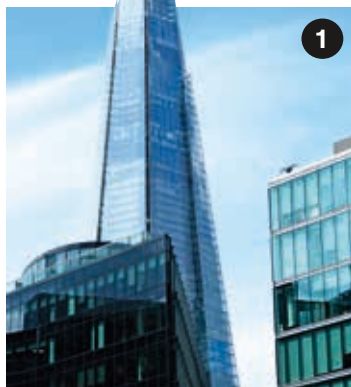


PASSIVE HEATING AND COOLING STRATEGY

- Supply air
- Exhaust air
- Fresh air
- Final exhaust air
- Recirculated air
- Concrete core cooling
- Concrete core heating
- Geo cooling
- Geo warming
- Water
- Electricity runs



Specified



1 SHARD SOUNDPROOFING CMS DANSKIN

With floors as thin as possible to accentuate the Shard's glazing, CMS Danskin Acoustics was engaged to soundproof the 42-floor Shangri-La Hotel in Renzo Piano's London landmark. In some places the floor screed was no more than 25mm thick, so CMS Danskin's Regupol E48 was specified, a robust detail approved (E-FC-6) high-performance screed isolation material. E48 has a maximum load-bearing capacity of 3000kg/m³ (30kN/m²), combined with a mean average impact sound insulation performance of 46dB and mean average airborne sound insulation performance of 49dB, well in excess of building regulations demands. cmsacoustics.co.uk

2 ROOF AND WALL MATERIALS ACTIS

Top of the green agenda is the performance gap between designed and achieved energy efficiency in buildings. Actis is addressing the problem with three products that it claims match lab predictions once installed. Products in the Hybrid range combine insulation, air tightness, moisture resistance and reflective properties, and all resist air infiltration and thermal loss through convection. Hybris is made of polyethylene foam glued to aluminium coated foils and can be used on timber or masonry; HControl is a vapour control layer for the warm side of structures, and Boost'r is an insulating breather membrane used on the cold side. insulation-actis.com

3 RAINSCREEN CLADDING RODECA

Associated Architects specified Rodeca's translucent cladding panels for the £5m myplace youth centre in Aston, Birmingham, working to a brief for a building that had a strong presence but was open and inviting. Some 1,800m² of Isoclear polycarbonate sheets, whose high thermal performance give them U-values as low as 0.71W/m²K, were selected for rainscreen cladding of the first and second floors. The 40mm recyclable panels were bi-coloured (where the interior panel layer is a different colour to the exterior one for a 3D effect) in shades ranging from white to blue. rodeca.co.uk

4 GLASSX FACADE PANELS SCHOTT

Schott GlassX crystal integrates transparent, thermal insulation, protection from overheating, energy conversion and thermal energy storage in a single functional facade unit. A phase change material (PCM) in the glass absorbs excess heat which it releases during cooler evening time, while a prismatic panel between the panes reflects sun rays in the summer but allows their warmth through during the winter months. The triple insulation glass structure offers a U-value of under 0.5W/m²K. schott.com



5 EXTERNAL WALL INSULATION SAINT-GOBAIN WEBER

Saint-Gobain Weber's award-winning External Wall Insulation (EWI) system has been applied to 175 Victorian homes in Leicester in a 10-week pilot scheme. The material was applied to the rear of the dwellings and finished with a brick-effect render to match neighbouring properties. With properties opening directly onto the street, rooms at the front of the terraces had Celotex PIR insulation applied to the interior walls. Other measures include insulation to lofts and floors, boiler and radiator replacement or upgrading, replacement of old electric wall heaters with smart fires, and draft proofing.

saint-gobain.co.uk

6 FLAT ROOFING INSULATION KINGSPAN

Pre-tapered flat roofing insulation from Kingspan has been installed on the terminal roofs of the Emirates Air Line, the cable car that crosses the River Thames between Greenwich and the Royal Docks. Solent Insulation supplied 1,209m² of high performance Thermataper TT47 LPC/FM insulation, helping to achieve the clean lines of Wilkinson Eyre's flat roofed design. Fitted in various thicknesses between 65 and 165mm, Kingspan Thermataper TT47 LPC/FM is factory-tapered and pre-mitred to provide an intrinsic roof fall. With U-values as low as 0.25 W/m²K, it contributes to the project's energy saving performance.

kingspaninsulation.co.uk

7 RAINSCREEN CLADDING KNAUF

Birmingham Airport's new £10m air traffic control tower has been designed to meet high levels of sustainability. To reach the required U-values Knauf Insulation's Earthwool RainScreen Slab was chosen for the insulation component. The material is a rock mineral wool slab containing a water-repellent additive, with sections that knit together without need for tape. This avoidance of potential thermal and acoustic gaps created a snug fit around the curved walls of the 105ft high funnel shaped tower.

knaufdrywall.co.uk

8 BELOW SLAB INSULATION STYROFOAM-A

Two Northumbrian self-builders aiming for standards equivalent to Level 6 of the Code for Sustainable Homes designed insulation, heating and lighting systems to make their new subterranean home carbon neutral. Bryn and Pam Owen targetted U-values of 0.15W/m²K for surfaces next to air and 0.2W/m²K where they were in the ground. A 100mm layer of Styrofoam-A's Floormate 500-A was specified for the below-slab insulation, chosen for its high compressive strength and moisture resistance. Basement walls were insulated with the firm's Perimate Di-A which contains vertical drainage channels protected by a geo-textile.

www.styrofoam.co.uk

Costed

Chris Lee, quantity surveyor at Northcroft, part of Capita Symonds, provides an overview of up-to-date insulation costs

Insulation is an important and broad topic. All materials provide their own insulating properties; both sound and thermal. Many types of specific product are available; glass wool type, rigid urethane foam, expanded polystyrene, extracted polystyrene, wool, etc. All have their own uses, technical benefits and considerations. Specific designed insulation products can generally be classified under three main headings: mineral fibre, plastic cellular and natural (plant and animal fibre).

As a rough guide and based on similar performance criteria (ie thickness/ thermal conductivity), mineral fibre insulations are the least expensive, followed by plastic cellular and natural products. However this depends on what specifically needs to be achieved.

Different types of building structure – timber, concrete, steel – will require different insulating strategies. However, complicated details could lead to higher costs, potentially unforeseen at the

initial cost estimating stage of the project. It is therefore important that a strategy is developed relatively early in the project.

Consideration should be given to using combinations of types of insulation; for example does a rarely accessed roof need to be totally covered with rigid insulation that can be transgressed? Could a combination of rigid and less expensive non-rigid insulation be used instead? ●

THERMAL INSULATION

The rates below are a sample of general thermal insulation costs. Rates are capital and assume a new build in Greater London and are based on current market conditions at February 2013.

Thermal insulation to slab floors

Plastic cellular insulation; 25mm thick polyform insulation board; laid under concrete or screed **£4-5/m²**

Plastic cellular insulation; 75mm thick polystyrene rigid board insulation; laid under concrete or screed **£13-16/m²**

50mm PIR rigid cavity slab insulation **£10-14/m²**

75mm PIR rigid cavity slab insulation **£15-18/m²**

Thermal insulation to walls

50mm fibre glass cavity wall slabs insulation **£7-8/m²**

75mm fibre glass cavity wall slabs insulation **£9-10/m²**

Mineral fibre insulation; 100 mm thick rock wool; placed in walls **£5-7/m²**

Mineral fibre insulation; 200 mm thick rock wool; placed in walls **£8-10/m²**

Natural animal wool insulation; 100 mm thick placed within partitions **£13-15/m²**

Plastic cellular insulation; 12mm expanded polystyrene fire resisting grade fixed with adhesive to walls **£6-8/m²**

25mm polystyrene boards fixed to walls with adhesive to walls **£10/m²**

Expanding foam cavity insulation **£12/m²**

100mm thick PIR rigid insulation board foil facings on both sides place, loose **£15/m²**

15mm heavy duty wallboard fixed nails fixed to walls, ready for decoration **£30-32/m²**

Foil quilt insulation fixed with nails **£10 /m²**

100mm recycled paper insulation **£5/m²**

96mm rigid insulation board, bonded 5.5mm WBP exterior grade plywood **£30-32/m²**

Thermal insulation to roofs/ ceilings

Mineral fibre; 170 mm thick rock wool, placed between rafters **£10-14/m²**

200 mm thick mineral fibre insulation placed loose in roof void **£9-11/m²**

100 mm thick expanded polystyrene (EPS) placed on flat deck **£25-32/m²**

Plastic cellular insulation; 130mm extruded polyurethane foam cut and placed between roof timbers **£40-45/m²**

Warm roof; 100 mm rigid installation board; liquid applied membrane; on flat deck **£60-70/m²**

Cold roof system; liquid applied membrane laid on flat deck However will also require, say, 100 mm glass fibre insulation, laid above the suspended ceiling below **£55-60/m²**
£5-7/m²

Steel frame extra over

Extra over cost of steel frame building for general insulation to avoid cold bridging **£6-9/m² (GIFA)**

Insulated render systems for retrofit

Insulation system to solid masonry wall, 75mm thick PIR rigid insulation board and insulated panels **£60-65/m²**

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Homes from offices

Plans for office-to-residential conversions are being presented as a panacea for many ills, but how would it really work?

STEPHEN COUSINS

The proposed relaxation of development rights, due to be implemented this spring, will allow an automatic change in Use Class from B1(a) office to C3 residential in a move intended to address the twin problems of widespread unoccupied office buildings in towns and the housing shortage.

The government hopes this planning shortcut will give construction a shot in the arm and help boost regional economies, while developers stand to profit as residential space is generally worth a great deal more than office.

However, local councils are seeking exemption from communities secretary Eric Pickles' policy, fearing that an unco-ordinated building boom could flood parts of the market with sub-standard properties and perhaps create long-term problems for commercial districts. As a result, some of the UK's largest cities and most of the London boroughs have applied for exemption. Now planning experts are warning that ministers may be forced to delay implementation or face legal challenges.

Whatever form the planning policy eventually takes, architects targeting such schemes need to prepare themselves for the many logistical and technical design challenges involved. While some office buildings will already offer generous heights and daylight levels, others will need intelligent re-inventions of deep-plan offices, incorporating courtyards, light wells and other spaces not seen in most standard new-build housing.

Externally, large office windows and balconies may fall well below the thermal requirements of Part L 1B and the aesthetic needs of potential tenants, making a re-clad the only option. Meanwhile, issues related to sound transmission, privacy, fire protection, increased drainage and other services, outside amenity space and parking provision, may also affect designs.

As a result, some offices will struggle with a change in use but others will flourish, says Stephen Marshall, architect director at Building Design Partnership (BDP), who designed Witham Wharf, the conversion of a 1970s concrete-framed office block in Lincoln: 'The office-to-resi market



Top: Lincoln's 1970s Witham Wharf office block before conversion.



Below: Witham Wharf after BDP's residential conversion.

has so far largely focused on period buildings, but I'm always surprised that there weren't more conversions of concrete office blocks built in the 1960s and 1970s. There's a surfeit of this type of stock, much of it empty and under local authority ownership, and the 3m floor-to-floor heights, great views and relatively open concrete structural frame make it perfectly suited to residential,' he says.

There is an obvious logic to converting office space to residential, especially outside London, where offices are in over-supply. Many councils have gone through a consolidation of their services, leaving significant amounts of city office space lying dormant and un-lettable in this economic climate. Communities and Local Government figures suggest that relaxing the rules could potentially create 22,000 (net additional) new homes.

Frustratingly, however, developers may be most interested in investing in the capital, where house prices are performing best. Without a national house pricing rebound the policy may fall flat.

STILL STUCK WITH PLANNING

Although it is intended to simplify the planning process and help bring schemes to site faster, the proposed deregulation only applies to the Use Class of a building and will not allow design teams to circumvent other time-consuming aspects of planning. For example, material changes to the building facade will still have to be submitted for assessment and listed buildings still need consent.

'It takes things back into the realm of the planning authority, which to some extent defeats the whole object of speeding up development,' says Roger Zogolovich, developer and architect at Solid Space. 'As a result, this is unlikely to lead to a wholesale transformation of our towns and cities with every empty office suddenly becoming a block of flats.'

Still, architects will relish the opportunity to breathe new life into buildings that have outgrown their roles and create more diverse urban environments that cross the conventional boundary between live and work spaces that Use Class orders impose.

'London and other UK cities are increasingly

Below: Berkeley Homes' Rowan House, City of London, exterior visualisation.



controlled by the over-enthusiastic implementation of planning policy, which stifles evolution of the city and prevents densification of use,' says Philip Turner, associate director at architect Allford Hall Monaghan Morris (AHMM). 'This new approach could open the door for housing with a greater density of residential footprint, subverting the utopian BRE guidance on minimum overlooking distances, daylight factors etc.'

Turner points to a new typology of housing created from low and medium-rise groundscrapers, whose deep floor plates will require the insertion of courtyards to bring light and ventilation into the plan. 'This type of housing, designed around an internalised aspect, is quite common in the Middle and Far East and more akin to modernist schemes of the 1960s and 1970s and some of Ralph Erskine's work, than what volume house builders have been producing lately,' he says.

Carving courtyard spaces from existing floor plates can require major modifications to the building frame, as could the inclusion of extra services and drainage for bathrooms and kitchens,

At Witham Wharf, BDP found the existing exposed concrete facade could be easily dismantled to enable a complete re-clad with a high-performance system. But windows in period buildings will almost certainly need upgrading, which could prove a challenge if it is listed.

Replacing mechanical with natural ventilation will be a common path for conversions to allow tenants to open windows, making more recent office blocks appealing to architects, says AHMM's Turner: 'The office and housing sectors are already converging somewhat in environmental terms. Office owners and tenants today often want mixed-mode ventilation, a better quality of construction and reduced energy use with hyper insulation, high performance double glazing, clean plant.'

COST BENEFITS

Where clients have the will even Passivhaus levels of energy efficiency can be achieved on a conversion, adds Marie-Louise Dunk, director at Aberdeenshire-based refurb specialist JamStudio: 'A number of practices have been working with the Scottish Passivhaus Centre and Scottish housing associations to refurbish empty offices to Passivhaus standards, and provide amazing quality accommodation that is cheap to run. Cost-wise this is more achievable than previously appreciated: some HAs have spent £30,000-40,000 per flat and expect to recoupe their costs in just over 10 years.'

Although the changes are almost certain to go ahead, many councils feel a switch to residential will create a long term change to the character of business centres, potentially reducing employment levels. And the government's lack of clarity over developer liability for Section 106 payments or affordable housing provision could affect revenue. A spokesman for Croydon Council told PIP: 'The office market remains strong with new development, refurbishment and transactions. Clearly the contemplated permitted development rights will undermine this economic activity.' Leeds and Manchester city councils voiced similar concerns.

But perhaps the real problem is inflexibility in building design. Today there may be a dearth of housing, but who is to say that in 10 years the same will not apply to offices, necessitating another round of refurbishment or demolition and replacement? 'The renewal cycle of buildings is speeding up at time when it should be slowing down,' says AHMM's Turner. 'The development of a building type that can adapt over time rather than requiring total re-working could ultimately render the idea of Use Classes and separate Building Regulations obsolete,' he concludes. 'We already build schools like offices and healthcare like housing. Perhaps we need a Universal Use Class for all new buildings.' ●

There may be a dearth of housing, but who is to say that in 10 years the same will not apply to offices, necessitating another round of refurbishment or replacement?

perhaps dropping extra service risers through floors, or in the case of offices with tall floor to ceiling heights, gathering services under raised floors or false ceilings. And new stair cores may be needed.

'In many cases you're not going to know exactly what's inside the structure until you start work on site,' says BDP's Marshall. 'Our initial survey at Witham Wharf failed to reveal that some of the floor plates were different sizes, which held things up and added to our risk profile. The biggest alterations were needed at ground floor level, taking drainage connections outside the building perimeter meant a lot of work breaking out the slab.'

A change of use from office to resi will certainly affect Building Regulations, specifically sections on structure (Part A), fire safety (Part B), and conservation of fuel and power (Part L). A building that falls under Section 20 of the London Building Act may also require extra fire safety measures.

Increased thermal performance requirements will often require an upgrade to the facade using an over-clad or re-clad solution, which has the added advantage of increasing the building's lifespan and improving its appearance for potential buyers.

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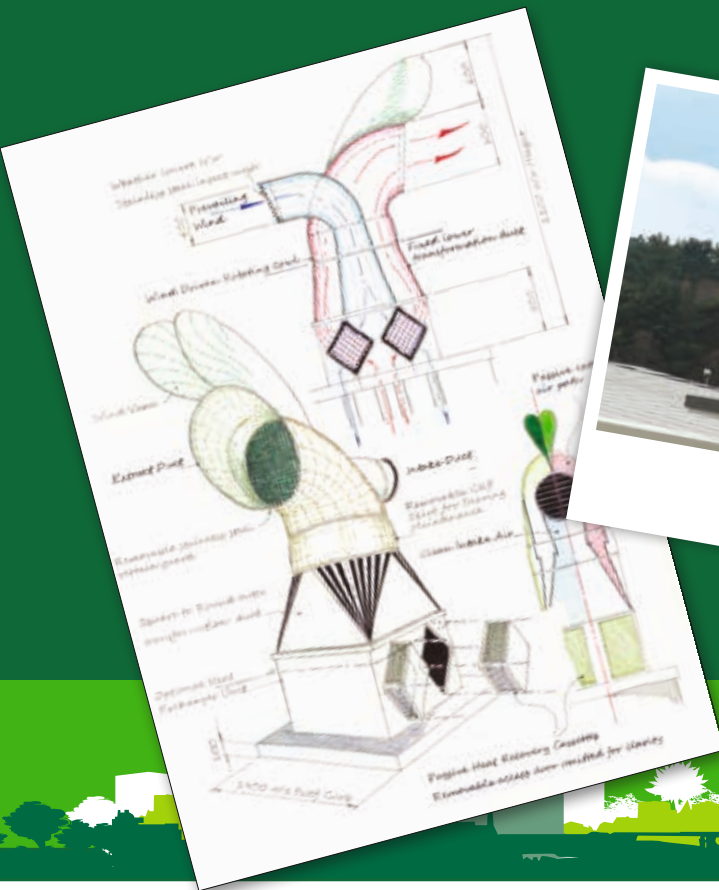
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One Angel Square

Main image: The triangular faceted glazed skin on the Co-op HQ's roof is supported on steel arches springing from the atrium columns.

Left: One Angel Square's south elevation.
Bottom: View from the upper levels.

JAN-CARLOS KUCHARÉK

'People have started calling it the 'Walnut Whip', says Michael Hitchmough, divisional director and head of offices at architect 3DReid. He is referring to the Co-Operative Group's new circular HQ at One Angel Square in Manchester's NOMA regeneration area, with its characteristic ziggurat-like step backs between the 8th and 14th storeys. But the building's attractions are of wider relevance. The company's £114m, 69,700m² HQ has achieved the highest-ever awarded BREEAM rating of 95.4%, giving it an A+ Energy Performance Certificate and Display Energy Certificate A Operational standards.

The construction is a 15-storey hybrid steel doughnut-shaped structure, with passive chilled beams and floors of pre-cast



concrete coffers. Hitchmough explains that the doughnut form responded to the client's wish that no desk was more than 7m away from daylight, but the result was a huge internal atrium that allowed for stack effect ventilation, drawing exhaust air up and out of the building. The double-skin facade remains sealed for energy conservation purposes, with 50,000l/sec of air being delivered to the bottom of the building via huge Pompidou-like pipe intakes in the public courtyard in front of the building, via a subterranean concrete labyrinth that conditions it to a constant 12°-14°C.

The heat exchangers installed at the top of the building are only part of this roof's story. Hitchmough explains that the desire was to connect the building to the city and the Peak District and Pennines beyond it. 3DReid opted for a stepped ziggurat section over six levels, creating external terraces accessible to all, with the building orientated to the south to grab as much passive solar energy as possible.

Linking these stepped sections over

MICHAEL HITCHMOUGH

DIVISIONAL DIRECTOR AND HEAD OF OFFICES
3DREID

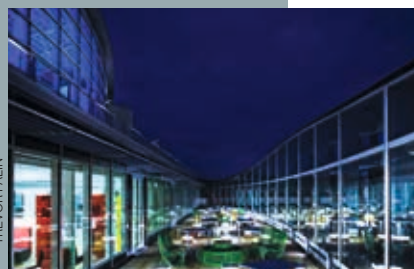
The Co-Operative Group's decision to build this highly sustainable HQ was about changing not just the physical environment in which the company's 3,500 employees worked, but their very mindsets, says Michael Hitchmough. The firm, founded 150 years ago in Rochdale, decided to come out fighting in the battle against the big four supermarkets. The board felt this partly involved moving from the dozen or so buildings it occupied across the city to one central, open plan

environment. This decision may have been helped by the fact that the facilities management strategy for the estate for the next 20 years was projected to cost over £180m in excess of the newbuild cost and the reduced operational bills associated with it.

the atrium are concentric, interconnected curved roofs. The self-supporting steel structure is made up of 200-250mm by 70mm square hollow sections spanning the open space to land on the atrium's perimeter columns. To maximize elegance and views, engineer Buro Happold augmented this with a gridshell structure installed by Austrian firm Waagner-Biro. Hundreds of faceted glass panels have a 60% frit controlling heat gain while still yielding clear internal views outwards.

The Co-Op's board hopes the building will mark a new chapter for the company. It's certainly made a profit – the firm has

recently sold it on a buy and leaseback arrangement with a Chinese investor for £150m. Hitchmough says the board wanted the HQ to whisper rather than shout. 'This was never about eco-bling,' he concludes. 'They always wanted it to be energy efficient, but discreetly so.' ●



St Paul's Boys School

Main image: The entrance elevation of the first phase of St Paul's School development shows the contrast of solid masonry construction and fine roof detailing.
Below: St Paul's main elevation.
Bottom right: The third floor roof cantilever.

Strange for a private school that can lay claim to a history going back over 500 years to find itself parked in bucolic Barnes within a 1960s Modernist CLASP structure.

But it's plus ça change at St Paul's west London site, with the first completed piece of Patel Taylor's 2002 quinqucentenary masterplan being designed and built by Nicholas Hare Architects. The school's science block has just opened, forming two sides of a new courtyard and interfacing with a CLASP block destined to be replaced. The new block's sense of enduring permanence makes it quite a different animal from its reductive neighbour.

The four-storey building forms part of a new entrance to the school. Its undercroft, below 18 state-of-the-art teaching laboratories, leads to a cloister of shallow pre-cast concrete arched vaults sitting on broad concrete columns. Materials have been selected for their quality – the entrance area's 75mm thick blocks of self-supporting English sandstone were supplied by Marshalls and built out by Putney and Wood. Ties hold it back to the concrete frame and infill blockwork of the inner leaf; the buff coloured Das Baksteen brick making up the teaching block façade.

The finer roof profile, explains project architect David Tompson, was driven by the desire to reduce the possibility of an overbearing scale relative to the size of the internal courtyard and, on the south, to respond to the demands of the outline planning permission. 'We did a lot of studies on the building massing but decided that by setting the levels back, we could create what in effect looks like a rooftop pavilion,' he explains. This resulted in a thin-edge, tapering anodized aluminium profile cantilevering out 2m from a square galvanized frame, tied back to the concrete slab face but resting on 168mm diameter CHS steel columns, which in turn sit on the trabeated concrete frame. The cantilevers shade the aluminium ribbon windows that run 185mm behind the column centres. Curiously, vertical cladding was by Red Architectural, while Cristo Cladding fabricated the horizontal profiles. 'We were concerned that using two different fabricators would lead to inconsistency in the anodizing process,' recalls Tompson. 'But we were aware that reflections of the vertical cladding on the cantilever soffit would darken it, so we specified the soffit



50mm central falls and drains internally through the science labs' service risers.

The result is a fine, crisp termination to a solidly built structure. Another sharp component is the south block's fully glazed north elevation, which counterpoints the formal solidity of the main structure in another way. Housing open study and internet areas with views over the courtyard; its nocturnal crystalline brightness would be enough to dazzle sceptical Saul himself. ●

anodizing two shades lighter.' It also meant the two subcontractors would not have to try and match anodising from different batches. Thermal bridging through the slab face by the galvanised tapering I-beams was prevented by a 25mm Sarrat thermal break plate behind the galvanised fascia.

The I-beams attach to a 300mm concrete slab roof with downstand. This forms the edge of an inverted biodiversity roof, formed of a Permatec membrane which is laid to



Reading Rail Station

Main image: Steel spine beams are supported on minimal steel 'V' columns to platform level.
Below: Visualisation of the finished structure.
Inset: The steel standing seam and ETFE roof give direction to the structure

With the entrance areas and transfer decks over the platforms due to complete this month, Phase I of architect Grimshaw's three phase upgrade of Reading station is on track for the expanded and anticipated 2015 arrival, which will double its capacity. And linking five new track runs, the new north entrance, better facilities and platform access, is the station's bold new roof canopy, sailing over its transfer deck and stretching out east and west along the run of the track. Grimshaw's proposal for the new £81m station has been not just a constructional but a logistical challenge – as it has had to be built above and around a fully operational facility.

These constraints led to an engineering-led, pre-fabricated solution, employing bridge technology not only to construct the elements, but to deal with loads transferred down to the platform level. Grimshaw has created a fluid canopy running along the platforms and crossing a new 135m long and 30m wide transfer deck, (effectively two massive Vierendeel trusses), constructed west of the existing operational one. This transfer deck connects the existing south entrance (and grade II-listed original building) with the firm's new north entrance, 13m below the level of the south entrance, making for some dramatic internal spaces.

'While it was desirable to use a single repeating element, differing platform widths and existing conditions meant we had to adopt quite a reflexive structural solution,' explains Grimshaw associate Tania Dee. 'The steel canopy is made of pre-fabricated standard 3m cassette modules, and a higher number of varying ones, connected on site'. The standing seam steel roof canopies with characteristic electric blue soffits run parallel to each other, following the line of the tracks. They sit on huge curved spine beams connected to steel 'V' columns set on low concrete pedestals, flanking the escalators to the platforms. 'We used jumbo hollow sections for the canopies, some of the largest on the market' adds Dee. 'They are the largest steel members they've managed to curve at such a tight radius. This was better and more cost-effective than welding smaller faceted sections together.' Reducing the platform spring points for the columns minimised disruption and lends lightness to the canopies.

Dee explains that self-finished materials,



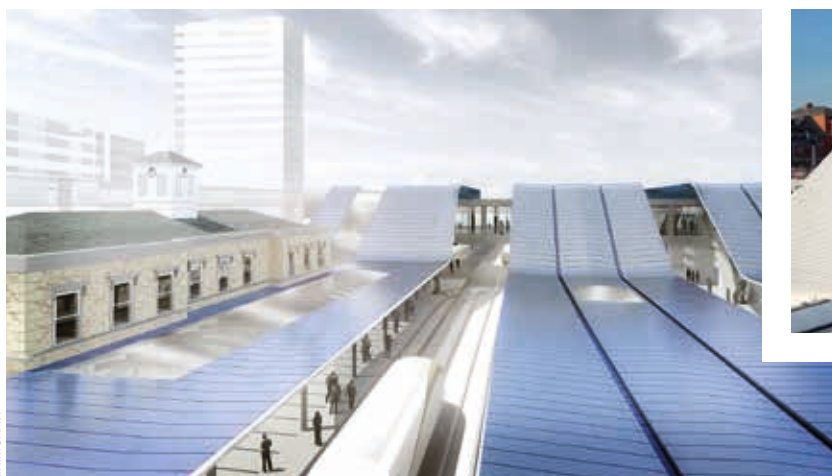
which were easily installed and added consistency, were key. The steel standing seam roof has a flush finish soffit with concealed lighting and tapered edges. Canopy profiles were minimised to a shallow gull wing with a central box gutter either side of ETFE rooflights, which is drawn down through steel downpipes.

The fact that the principle design moves have carried through on this performance-specified project speaks of its robustness. But it's about function too. The metallic blue soffits ribbing through ensure they are read easily by the users, acting as a form of orientation from entrance area to carriage. ●

UPGRADING BRUNEL'S READING

Reading station handles 14m passengers a year, still on the four tracks Brunel laid down in 1840. But that's about to change. Identified as a serious 'pinch point' in the government's 2007 White Paper 'Delivering a Sustainable Railway', it was awarded £600m to spend on more platforms and five new

tracks, also allowing capacity for Crossrail and Airtrack-Lite services to London and Heathrow when they come online. Due to be completed in 2015, the upgraded station will be able to deal with four extra trains in each direction every hour, alleviating the serious bottleneck currently stifling the line.



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Kalzip's standing seam system with a Class A [$\alpha = 0.95$] sound absorption performance was specified for the roofs of Glasgow's Emirates Arena which includes the Sir Chris Hoy Velodrome. The complex will be one of the Glasgow 2014 Commonwealth Games key facilities. Kalzip supplied over 18,600m² of aluminium sheets in lengths of up to 98m, plus a similar quantity of fully perforated liner sheets with high density insulation acoustic boards. This achieved a U-value of 0.25 W/m²K and the sound absorption and reduction levels required by the architect's acoustic criteria.

kalzip.com

2 BITUMINOUS FLAT ROOFING LANGLEY

Langley Waterproofing Systems has refurbished 900m² of multiple flat roof at The Bishop Bell School in Eastbourne. The firm replaced worn out black asphalt using its high performance bituminous Flat Roofing System to provide a complete, durable, long-term water resistant with a 20 year independently insurance backed guarantee. A project specific Parafoam cut-to-falls insulation scheme improved the drainage and brought the roof into compliance with current regulations.

langley.co.uk

3 GREEN DEAL LOFT INSULATION REDLAND

Redland is hoping to attract Green Deal work with two roof insulation products, Rapid Rafter Insulation and Rapid Loft Board. Rapid Loft Board targets lofts that are used for storage. Tongue and groove board, rather than mineral wool, is laid across the joists. Mineral or glass wool is used only to seal the edges, and off the shelf fixings are used. Rapid Rafter Insulation is applied directly to the rafters with tiles laid on top, creating a fully sealed, habitable loft space. Suitable for re-roofing projects, it has an integrated vapour permeable underlay and is bonded to the upper surface with self adhesive laps.

monier.co.uk

4 SAGEGLASS SKYLIGHTS SAGE

Problems with sun glare and heat gain in Utrecht's Provincial House in the Netherlands have led to the installation of dynamic glass from Sage. A round skylight was designed to bring natural light into the circular Commission Room but this prevented audio-visual presentations being screened, so SageGlass, an electronically tintable dynamic glass that can darken or clear to maximise daylight and outdoor views in buildings while controlling the sun's rays was installed. The 32 glazed panels provide four zones of sun control which also manages solar gain.

sageglass.com



5 GREEN ROOF MEMBRANES SIKA TROCAL

Single ply roof membranes supplier Sika-Trocal has launched a range of green roof systems. Each system incorporates single ply waterproofing membranes, which have been certified by the BBA with a life expectancy durability statement of 'in excess of 30 years'. The Trocal SGmA membrane also has full FLL approval, meaning it has been independently tested to ensure it will resist penetration by even very aggressive roots. A Green Roof Specification Guide has been produced to support the launch which can be downloaded directly from the website.

sikatrocal.co.uk

6 FIBRE CEMENT SLATES MARLEY ETERNIT

Marley Eternit's Rivendale blue/black fibre cement slates have been used to finish 45 luxury homes at Castletown on the Isle of Man. The slates matched the local aesthetic as well being affordable and durable enough to withstand the Irish Sea weather. Manufactured in the UK, Marley Eternit's fibre cement slates can achieve an A+ rating in the BRE Green Guide to Specification and are accredited to BES 6001 Responsible Sourcing.

marleyeternit.co.uk

7 STEEL BEAM SYSTEM U-ROOF

A birdcage style structure of U-shaped cold rolled steel beams that fit together 'like meccano' has been used as a cheaper and quicker roof option than conventional timber trusses and beams on a mixed use development near Halifax. Designed and manufactured by U-Roof, the system is fully bespoke and arrives flat packed and ready to install. The lightweight steel superstructure sits on top of preformed concrete floors and is supplied complete with structural walls, roof structures and timber floor decks.

u-roof.com

8 TILES AND ACCESSORIES SANDTOFT

Handmade bespoke tiles and fittings for the heritage market are available from Wienerberger company Sandtoft, as part of a wide-ranging selection of products made from clay, concrete and slate. As well as traditional plain roof tiles, pantiles and slates, the company also offers innovative products such as its New Generation clay tile, which it says makes clay roofs more affordable. Judging by this photo of Sandtoft's Ian Martinson carving heritage roofing accessories in a public place, making the products demands a level of attention that renders surroundings irrelevant.

sandtoft.com

PASQUILL GROWING PORTFOLIO OF PANELISED ROOF SYSTEMS

Pasquill previewed its new PasRoof system at Ecobuild in March. PasRoof is a pre-insulated, panelised roof system capable of achieving a U-value of 0.16W/m²K, and can be upgraded to 0.12 W/m²K by adding British Gypsum's thermal laminate board. The system targets the 2.5 storey narrow-fronted town house currently favoured by most major UK housebuilders.

www.pasquill.co.uk

PROCTOR GROUP RENOVATING RAASAY'S MEAL MILL

The A Proctor Group has donated 10 rolls of its high specification pitched roof underlay, Roofshield, to renovate the Meal Mill on the Scottish Isle of Raasay. Roofshield's vapour and air permeability characteristics allow even the most complex pitched roofs to breathe without the need for traditional air gaps or secondary venting products. Roofshield is as easy to install as traditional roofing felt.

www.proctorgroup.com

MARLEY ETERNIT LOG HOMES PICK EDMERE SLATE

Marley Eternit's Edgemere interlocking slate has been chosen for two pre-fabricated Canadian log homes at a campsite for Christian charity Foundation Matters. Edgemere was selected as an aesthetically pleasing and practical roofing which would complement the natural look of the two log homes dwellings, of 700m² and 500m². The larger building used 6,800 Edgemere slates, and the smaller approximately 2,300.

www.marleyeternit.co.uk

SIKA SARNAFIL LEAD-LOOK ROOF BLENDS WITH HISTORIC ARCHITECTURE

A Sika Sarnafil lead-lookalike roof is helping make new student accommodation in Royal Leamington Spa is sympathetic to its historic surroundings. RLW Roofing installed 1,500m² of Sika Sarnafil S327-15EL membrane in lead grey to the flat roofs, using 1,200m² of Sika Sarnafil G410-15ELF, also in lead grey, for the mansards. Both areas were then covered with around 3,500m² of batten profile at 1m intervals.

www.sarnafil.co.uk

U-ROOF WARM FRAME HOME BUILDING SYSTEM

U-Roof, a revolutionary light-gauge steel, home building system has received a seal of approval in the form of test evidence produced by the Steel Construction Institute. Tests showed the system has a minimum 200-year expected lifespan for a warm frame construction. Its galvanised cold-rolled steel roofing and full frame solution is attracting interest from many architects across the UK.

www.u-roof.com

SIKA LIQUID PLASTICS BRAMHAM PARK ROOF RESTORED

Sika Liquid Plastics, pioneer of cold applied liquid roofing systems, has worked with architect and building surveyor W R Dunn and Co, and roofing contractor Surface Protection, to provide a new waterproofing system for the grade I listed Bramham Park in Leeds. A Decothane Gamma 20 system was installed in slate grey which mimics the look of lead, keeping the new roof sympathetic to the original structure.

www.liquidplastics.co.uk

MARLEY ETERNIT SUSTAINABLE REFURBISHMENT IN SWANSEA

Swansea Council has again used Marley Eternit's pollution-absorbing EcoLogic roof tiles, this time on a large residential refurbishment project. The 50% recycled tiles, in Nimbus Grey, were used to re-roof a mixture of council properties and leased dwellings. EcoLogic's unique 'pollution-eating' coating absorbs nitrogen oxide pollutants and converts them into soluble nitrates that wash away with rainwater.

www.marleyeternit.co.uk

DVS (ROOFLIGHTS) LTD CE-APPROVED ROOF GLAZING

The PR60 roof glazing system from Daylight & Ventilation Solutions has been engineered specifically for glass roofs – it is not an adapted curtain wall system. It is CE-approved according to EN 13830, even when installed at less than 2°. Request a brochure today for full product details, including our PR60energysave; the first inclined glazing to achieve Passivhaus standards.

www.dvsltd.co.uk

SIGA YOUNG ROOFERS ACHIEVE PERFECT PITCH WITH SIGA SLATE

A new build detached house in Cheshire is testimony to the use of SIGA natural slate, and celebrates the success of two young roofers, both with apprenticeship backgrounds. Completing the installation single-handedly, the 670m² six-bedroom house features SIGA 32, 500mm by 250mm Spanish-sourced slate, across single and double storey sections, flat roofs and pitched dormers.

www.sigaslate.co.uk

SELECTAGLAZE ENERGY SAVING IN PERIOD BUILDINGS

Secondary glazing systems designer Selectaglaze has reissued its guidance literature on energy saving for architects, building surveyors, energy consultants and contractors. The literature deals with a range of projects including inner city house conversions, educational establishments, hotels and offices.

All literature is issued free. Call 01727 837271 or visit the company website:

www.selectaglaze.co.uk

SENIOR ARCHITECTURAL SYSTEMS ALUMINIUM CURTAIN WALLING

Curtain walling from Senior Architectural Systems was specified for the main foyer at the Norfolk Showground as part of a £1.4m, 3,000m² refurbishment project. Installed by Harrier Aluminium of Newark, the aluminium two-storey curtain wall is faceted on plan and includes Senior's high performance windows and entrance doors – the SMR900 curtain wall and SPW 300/600 window systems.

www.seniorarchitectural.co.uk

KINGSPAN TEK PANELS TAKE TO THE STAGE

The Kingspan TEK Building System is helping the Hafren theatre in Powys to stage far more ambitious productions. The panels have provided racking resistance and stability plus excellent thermal performance and airtightness to a fly tower extension on the theatre roof, which houses a new stage winching system. The Kingspan System's highly insulated core achieve U-values of 0.21 W/m².K and below.

www.kingspantek.co.uk

SAGEGLASS SKYLIGHTS SOLVE DUTCH SUN GLARE PROBLEM

Sage Saint-Gobain Europe has installed its dynamic glass in the new Provincial House in Utrecht in the Netherlands. Glare caused by a skylight had made the space unusable for audio-visual presentations, one of the primary functions of the room. Now 32 SageGlass skylights provide four zones of sun control that can be tinted and cleared on-demand with the push of a button, with the added energy efficiency benefits that brings.

www.sageglass.com

STO STOMIX LAUNCHED AT ECOBUILD

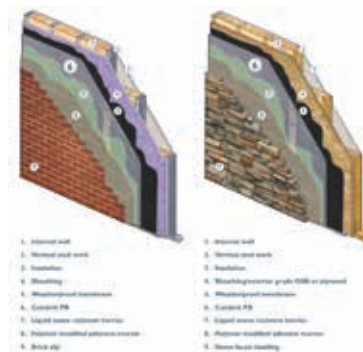
External wall insulation systems supplier Sto launched a new Stomix brand at Ecobuild 2013. Stomix is designed specifically for refurbishment projects with a particular focus on hard-to-treat social housing. Stomix provides an attractively priced solution backed by technical expertise. All Sto and Stomix EWS options satisfy Part L requirements for a U-value of 0.3W/m².K, and lower values can be achieved by adding more insulation.

www.sto.co.uk

VMZINC OVERLAPPING PANEL FACADES

VMZINC's 200 overlapping panels provide the ideal alternative to shiplap timber cladding for installations up to 30m high. Available in pre-weathered ANTHRA-ZINC® (black) and QUARTZ-ZINC® (mid-grey), panels neither fade nor require recoating, and zinc's self-protecting patina prevents corrosion at cut edges. Standard 3m lengths are supplied in kits containing panels, flashings and fixings.

www.vmzinc.co.uk

CEMBRIT CEMBRIT PB RENDERBACKER PRODUCT

Cembrit has launched Cembrit PB, a versatile base board for insulated render systems. Using liquid renders, specifiers can create facades combining a monolithic appearance with the advantages of rainscreen cladding. The cement based product has low water absorbency and is dimensionally stable, so can withstand changes in temperature and moisture, inhibiting surface cracking in the render finish.

www.cembrit.co.uk

BAGNO DESIGN CRAFTED STONE BASINS AND BATHTUBS

Bringing natural materials to the bathroom, Bagno Design offers a range of basins and bathtubs manufactured from composite stone. This specially crafted stone offers a luxurious finish, while many baths and basins are embossed to be focal points of the traditional or contemporary bathroom. Pictured is the Fiore freestanding bath, made in Glacier White, which measures 1700 x 800 x 550mm and has no overflow for a seamless finish.

www.bagnodesign.co.uk

STEELIGHTS /COPPERLIGHT GLAZING

NJG Steelights is marketing a design adaptable, stainless steel and glass, 30 minute fire-rated glazing system, designed to a 19th century glazing principle but built using contemporary material to produce a very strong, engineered 21st century 'retro' decorative system with a hidden jointing method. Available in different sizes within a single unit, it has extra design potential, and can be used with different glass types and textures.

www.steelights.co.uk

KALDEWEI SHOWER SURFACE SCOOPS TWO AWARDS

Xetis, the latest enamelled shower surface from Kaldewei, has received two prestigious awards for its visionary style. The firm has received the Interior Innovation Award – Best of Best 2013, presented by the German Design Council; and a prize given by Deutscher Designer Club e.V. (DDC) in the 'Gute Gestaltung 13' design competition.

www.kaldewei.com

IGUZZINI ILLUMINATING PADDINGTON'S SAVED 4TH SPAN

iGuzzini used new LED lighting technology instead of energy-hungry traditional lighting for the refurbishment of the 4th span of Paddington Station. Saved from demolition by a Save Britain's Heritage campaign, the 1916 span has been sympathetically renovated, its restoration enhanced by iGuzzini's choice of Woody LEDs and Warm White LEDs to light it. The fixtures have a rated life of 50,000 hours.

www.iguzzini.co.uk

KEMMLIT CLASSIC DESIGN AT THE ROYAL COLLEGE OF ART

Kemmlit's Classic Cell cubicle system in a brushed stainless steel finish was specified for washrooms in the Royal College of Art's Dyson Building, which opened last year. The system, available in the UK from Skirmett Washrooms, has straight profiled lines and 42mm thick smooth surfaced welded doors. Available in a range of colours and finishes, its robust construction makes it ideal for all types of washroom applications.

www.skirmett-washrooms.co.uk

SAS INTERNATIONAL GLAZED PARTITIONING FOR DERBY COUNCIL

Interior fit-out specialist SAS International has supplied over 700m of its System 8000 fully glazed partitioning system for the refurbishment and extension of Derby Council's main administrative and community building. The system, with ± 15 mm deflection heads, was installed in the atrium area with 15.5mm heat strengthened acoustic laminate glass, giving high levels of sound attenuation, strength and durability.

www.sasintgroup.com

GEBERIT PIPING SYSTEMS SPECIFICATION ON AN OLYMPIC LEVEL

Geberit pipework is one of the lasting successes of the London 2012 Olympics, specified on the Aquatics Centre. It was chosen for its reliability, ease of installation and sustainability, and for its flexibility to adapt and fit to the undulating building. Geberit's Duofix installation system, along with Geberit HDPE, Mapress Carbon Steel and Mapress Copper piping systems all played a key role in the building's foundations.

KERAKOLL BMW SEEKS TECHNICAL ADVICE

As BMW's chosen supplier due to its environmental policies and products, Kerakoll used its adhesive and grout for the car manufacturer's Bristol Motorrad showroom refurbishment. Kerakoll's technical team advised on how to speed up the construction of the floor to ensure the showroom could open on time and its on site assistance service was involved in each stage of the project.

www.kerakoll.co.uk

TORMAX COMPULSORY AUTOMATIC DOOR MAINTENANCE



Three years ago, Tormax took over the maintenance contract for nearly 180 automatic entrances at the University of Hertfordshire. 'With a planned maintenance schedule for all automatic doors, our remedial call out rate has been cut by nearly 80%', says Duncan Rennie, technical services manager for Graham FM at the University. 'We are delighted with the reduced expenditure delivered by Tormax.'

www.tormax.co.uk

BAILEY ARTFORM DESIGN-LED STREET FURNITURE



An inspiring collection of design-led street furniture from Landscape Forms has been launched in the UK by Bailey Artform. Aimed at helping specifiers to enrich outdoor public spaces, the Landscape Forms product range includes seating, chairs, benches, shelters, bollards, waste bins and advanced LED lighting, which combine innovative urban design with functionality and sustainability.

www.baileyartform.co.uk

JUNKERS RUSTIC COLOURED OILS FOCUS ON FLOORS



Junkers' professional Rustic Coloured Oils come in a range of rich colours. The oils can be used on all timbers to add a deeper shade, enhancing the natural grain pattern of the wood. The surface can be finished in either oil or lacquer which is unique to Junkers. The finished product complies with relevant EU standards and VOC limits and is NMP free.

www.junkers.co.uk

CROWN PAINTS SPONSOR OF CLIMATE WEEK



Crown Paints marked Ecobuild with prominent support for Britain's biggest climate change campaign, Climate Week. The UK paint manufacturer was a national partner of the initiative, reinforcing its long-standing commitment to the environment. Crown's award-winning 'Earthbalance' programme embeds sustainability at the heart of its business, securing it a clutch of high profile accolades.

www.crowntrade.co.uk

FLÄKT WOODS ACTIVE ROOM DIFFUSER



Manufacturer of ventilation equipment, Fläkt Woods, has introduced Optimix, a pioneering 'active' room diffuser that improves the performance of demand controlled ventilation systems, maintains comfort levels for occupants and can achieve a cooling effect greater than 100W/m². An integral motorised regulating plate controls the flow rate via an LCD display on the purpose designed Fläkt Woods actuator.

www.flaktwoods.co.uk

D R SERVICES GIVING BUILDING OWNERS A STEP UP



The new range of stainless steel library ladders from architectural glazing and interiors specialist D R Services helps make the best use of wall space. Ideal for buildings with high ceilings, the ladders allow building users to access floor-to-ceiling bookshelves or storage safely and easily. Made from tubular stainless steel, the ladders are fixed at the top to a horizontal sliding rail, leaning at a 10° angle to the wall when in use.

www.drservices.co.uk

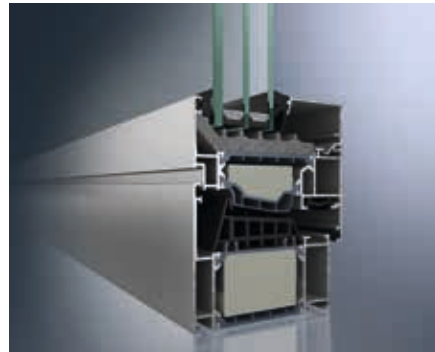
LYNDON DESIGN HIGH BACK BOOTH FOR 'ARTHUR' SEATING RANGE



Lyndon Design has introduced a high back booth version of its flagship Arthur seating collection. Available in both sofa and armchair options, it can be specified in contrasting fabrics and colours, and like the standard Arthur range comes in six width and panel options. Arthur appeals to the hospitality and corporate sectors, forming a stylish addition to reception areas and breakout spaces.

www.lyndon.co.uk

SCHUECO UK 'GREEN' FACADE AND WINDOW SYSTEMS



As part of its 'Thinking Ahead' initiative, Schueco UK is launching two new aluminium systems, the FW 50+.SI Green Facade and the AWS 90.SI+ Green Window. Schueco has increased insulation levels so that both systems can meet PassivHaus standards. The company is also using natural raw materials to manufacture key components in them. Both systems will be available in the UK later this year.

www.schueco.com

Sign Up

DAV BANSAL DIRECTOR AT GLENN HOWELLS ARCHITECTS, GIVES US THREE OF HIS SPECIFICATION FAVOURITES



FUNKTION RANGE DOOR HANDLE

This functional, elegant and contemporary door handle is manufactured in the UK and based on the classic D-line design. The Funktion 16mm/19mm diameter stainless steel straight lever handle is fabricated from a solid core base, giving its feel a real sense of quality and robustness. We find this product a great finishing touch to residential, commercial or cultural use. Ironmongery is an important part of our projects, where the end users appreciate the quality of the specification, so robustness and 'sense of touch' reflect our high aspirations for a project. The simple and timeless design of the Funktion handle works exceptionally well and is good value for money. We continue to find the cost of these handles competitive even in today's difficult market.

Manufacturer: Eisenware Swann



CORIAN SOLID SURFACE

This versatile and composite resin product has given us a high quality hardwearing finish – from residential splashbacks and worktops in our conversion of The Rotunda in Birmingham, to an integral vanity bowl and countertop with engraved grooves in our new-build office at One St Peter's Square in Manchester. Available in sheets up to 3.5m long, Corian has exceptional water resistance and is maintenance free, making it an attractive alternative to tiles and granite surfaces. Textured, patterned and translucent hues can create convincing 'lookalike' stone surfaces or simple bold colours that will not delaminate, with a range of colours, tones and mould forms. Seamless, inconspicuous and razor sharp corners/edges can be produced by gluing sheets together with a special resin-based sealant.

Manufacturer: Dupont



FLOATING CORK FLOORING

This click system flooring is made of recycled cork from wine bottle tops – a naturally sustainable and affordable alternative to timber flooring. Water resistant and hardwearing, it also offers low conductivity to heat, sound and vibrations. We find that with fabulous designs, textures and colours, it offers unlimited possibilities to help create elegant, calm or vibrant spaces. We specified the Champagner Sand product from the Emotions range for our housing project in Swindon (The Triangle) where its application throughout the ground floor and bathroom gave the space a soft, modern feel. Its durability, meaning it needs no decorating or expensive cleaning, went down well with the housing association maintenance team. Above all, it's so eco-chic it's unbelievable!

Manufacturer: Granorte

...Sign Off

JAN-CARLOS KUCHAREK ENJOYS THREE OF THIS ISSUE'S OUT-TAKES



TO BE PERFECTLY FRANK...*

I used to stalk Swedish Modernist Josef Frank; well, his lighting to be precise – ever since a visit to Liberty when I caught a stolen view of his 1939 'Little Camel' floor lamp. I put it out of my mind, and went off to menswear in the basement, but then my finger must have hit the 4th floor button by mistake. It was still there in the corner, being sidled up to by an expensive looking studded leather club chair. I hadn't the money, and anyway, there's no way that slim, brassy yet demure and fragile thing would be interested in me. Before long I was going online, looking it up in all guises, with or without shade, and just staring at it. Friends helped lower my sights to IKEA, and I managed to stop obsessing; but then designer Michael Anastassiades sent a release on his contemporary take* on Frank's work for his old fabricator, Svenskt Tenn. I barely batted an eyelid, so I must be over it – hence why I didn't run the story.



NOT TAUT IN SCHOOL

Knauf's new plasterboard range has been developed to offer a wider range of performance options from a smaller number of board types, and they've introduced two new products for more demanding applications: Knauf Performance Plus and Knauf Soundshield Plus. Then there's Knauf Moistureshield and Knauf Vapour Panels. My, that's a lot of panels and boards. The PR states that their dry lining been used in this school here and one assumes that it is not only code, but BB93 compliant. But I'm grabbed by the school's maxim: 'Tomorrow's Future Today.' What? Isn't 'Tomorrow's Future' a tautology? As absurd as 'Today's Future Tomorrow?' Wouldn't it make more sense to say 'Today's past yesterday?' But though correct, it's less aspirational. It's the kids I feel sorry for, every day walking under a statement that makes no sense at all. No wonder our teenagers are so screwed up...



TH-AIR HE BLOWS

Product launches are so secret at Dyson Towers that when you get an invite, they don't tell you what it's about. Once we asked for a clue but the only hint was: 'You do it in a bathroom and it takes just 10 seconds!' Half an hour's office chat later we settled on a German style flat pan WC that auto-analysed your stool samples. 'Eat more bran!' 'Eat less fat!' we imagined it advising in its Hawking-esque tones. But given those heady heights, the innovation that is the Dyson Airblade seemed a bit underwhelming. Let's hope it's not the same for its Airblade Tap, allowing you to wash AND dry your hands without moving your feet AT ALL. But we've figured that, as you're just standing there, it may as well blow dry the rest of you too. So as and when Dyson launches the post-shower 'Bodyblow', remember, you heard it here first!

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Customer Service Centre
T 0845 303 2524
www.wienerberger.co.uk

Porotherm, the clay block walling system from Wienerberger, has been specified to speed up the construction of a new 50-unit apartment development in the centre of South Harrow. Porotherm offered the ability to complete the development three months earlier than if another method of construction was used. This gave obvious benefits both in terms of construction costs and also the sales cycle as it means the properties are released onto the market much sooner than usual.

KALDEWEI

BOUNDLESSLY FLAT

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Given

... that we spent part of the last issue drawing attention to what can go wrong when residential Passivhaus projects are badly specified, this month's look at Ravensburg's Kunstmuseum – officially the world's first Passivhaus gallery – offers some redress. In the highly conditioned nature of the art gallery, it's a wonder that Passivhaus principles haven't been applied to them before. What isn't surprising is that it's Germany, which has far more progressive approaches to energy conservation and indeed generation, that pioneered it. It is also a great example of contemporary, high performance architecture, that seems completely part of the medieval context in which it is situated, and preserves a sense of modernity despite using 500-year-old bricks.

Meanwhile, initial response to *PIP* is positive, with busy readers I've spoken to liking the bite-sized articles and nuggets of product information. It's not about dumbing down, but realising that time-pressed architects need rapid access to information; and that if we show you the products we think are interesting, we can leave it to you to make a judgement on them.

Our cover shows a detail of coloured light refracted off thin plexiglass fins at the Kunstmuseum, showing how in the hands of the architect, even the prosaic can be made sublime. Likewise, we'd like to think here at *PIP* that if we lay it out, you can play it out.

Jan-Carlos Kucharek, Editor



LENGRANT

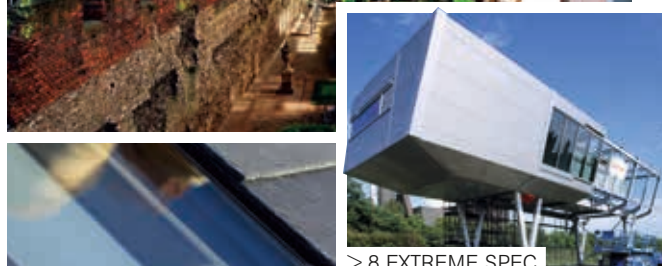
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Compendium

UPCOMING

12-14 Apr National Self Build and Renovation Show, NSBRC, Swindon
19-20 Apr International Passivhaus Conference, Congress Frankfurt, Germany
30 Apr - 01 May BIM Show Live, London
19-21 May Design Series, ExCel London
21-23 May Clerkenwell Design Wk, London

THE WOODENTOPS

You should always look up when you hear the word 'Timber!', and now Armstrong Ceilings has given you another reason to. The firm has expanded its range of wooden suspended ceilings – an innovation it launched last year with grids, tiles and planks in wood veneer for a high-end finish, and more affordable laminate. All are easily installed and give rapid access for HVAC and electrical runs above them. Now it's all the three, with the range available as hook-on panels in three panel sizes of up to 2.4m long, with three veneers and with three perforation options, for optimal acoustics.



JAVIER FUENTE



3LHD

GEBERIT'S LONE RANGE

Cutting-edge Zagreb architect 3LHD has earned a few plaudits for its Lone Hotel, whose modernist terraces sweep down to Croatia's stunning Adriatic coast. The five-star complex offers 236 luxurious rooms, 12 unspeakably indulgent suites, three restaurants and copious conference facilities. For the plumbing, the firm specified Geberit HDPE, Mepla and

'Silent-db20' acoustic pipework to the guest bathrooms. Its Duofix framing system for behind-wall concealed cisterns are lo-flush, cutting water use significantly. And in public areas, its electronic urinal flush controls were fitted as standard. Geberit's behind-the-scenes presence amid all this overt ostentation smacks of being the bridesmaid rather than the bride; but then, if you were invited to a wedding at a swanky place like this, who'd care?

PUTTING THE LUX IN LUXURY

Like a bellowing comedy mouth in the stiff facadism of London's Piccadilly, Burlington Arcade, infamous in the 18th century for providing London gentlemen with 'Red Light' services, has had an illumination makeover to bring it into the 21st.

The owner, Mayer Bergman, was keen to re-establish the arcade as a key luxury retail destination and commissioned lighting consultant Speirs+Major to work alongside architect Blair Associates in the refurbishment. The client wanted the intimate ambience of the arcade restored with a minimal physical impact. Existing light fittings were removed and replaced with Cree XP-E LEDs that can be varied in temperature throughout the year to create different lighting effects. On dull summer days, 4,200K white light can be used, while much lower temperature and warmer 2,700K



JAMES NEWTON

in winter emulates the glow of gas lanterns. The whole system is programmed to be able to change throughout the day, and can be completely altered with its DMX system for special events. The arcade's famous Piccadilly facade now has a layered lighting scheme,

intended to highlight its architectural features and create a sense of drama to the street.

Suppliers for the completed scheme were, ACDC Lighting and Control Lighting, and the electrical contractor for the project was Polyteck.



SG PHOTOGRAPHY

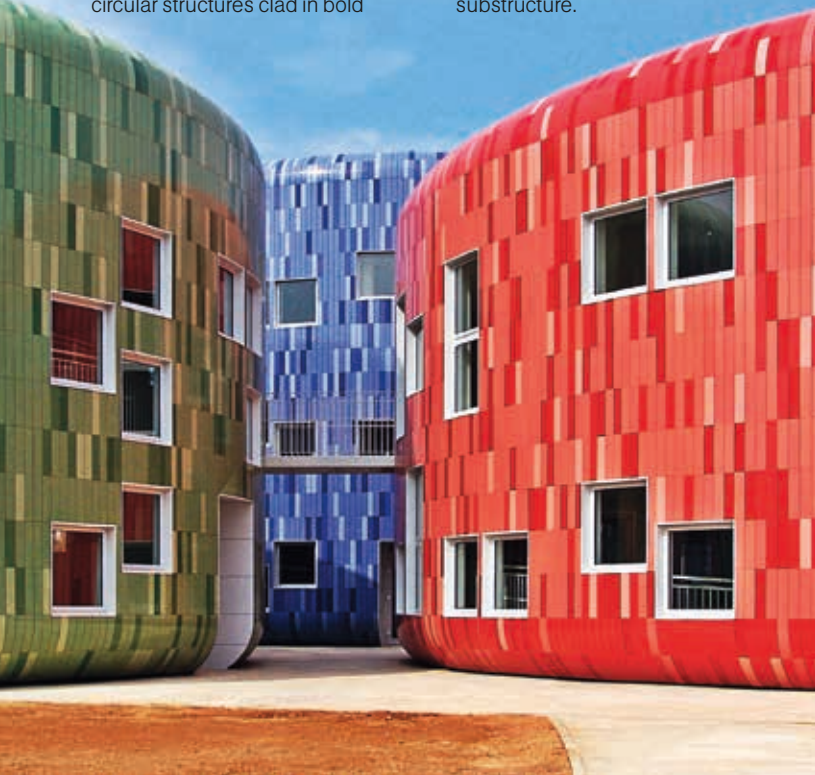
BREEAM IN BRIGHTON

There's some high achieving going on in Sussex, and we're not talking by the students. Feilden Clegg Bradley's £22m Brighton Aldridge Community Academy for 11-18 year olds, which completed last year, has won a BREEAM Excellent rating, plus a 2012 RIBA South East sustainability award. Designed for the topography in which it sits, the front elevation is clad in a blend of anthracite and dark facing bricks. Light Kawneer AA100 curtain walling on the upper levels to contrasts with the brick plinth below.

CHILDSPLAY WITH COLOURED CLAY

They start them early in Spain, where Foursquare Arquitectos was commissioned to design a €4.6m children's education and innovation centre for a technology Park outside Valencia. The firm decided to use the architecture to inspire its young users to explore the world around them, creating a group of connected circular structures clad in bold

ceramics. The firm went to porcelain specialist Natucer to specify the 13.5cm by 55cm glazed tiles, as well as bespoke 13.5cm tiles with a bowing radius of 85cm. The blue, red, green, pink and violet tiles were single-fired at nearly 2000°C, and mounted on insulated aluminium panels, supported on a metal substructure.



HUFTON + CROW

BUMS ON SEATS AT WEMBLEY

The Manser Practice has been busy designing the new Wembley Hilton, part of the wider Wembley development facing out over Arena Square. The 361-bed, nine-storey, flush black granite and curtain walling hotel was designed to reflect the architecture of the iconic English venues surrounding it, but inside dark woods and leather give it a more Iberian feel. Four furniture collections from Morgan add to the sensation. Its Seville lounge chair is a signature element in all the bedrooms, and appears as low back chairs and bar stools in the hotel's 'Icons Bar'.



NAME CHECK

I can't imagine rock'n'roll starchitect Jean Nouvel uses mail boxes. I imagine everything either gets emailed or skyped, or it's zipped over by courier on a sleek black BMW bike. Perhaps he'd use the need to pick something up as an excuse to get into the Ferrari and take it for a cruise along the Champs Élysées, stopping off en café on the way. But if he did use a mailbox, you imagine they'd be exactly as he has designed them for mailbox specialist DAD. 'Transcript' is a monolithic, modular, aluminium-faced wall of narrow horizontal slats, into which owners' names can be inserted, in the manner of old-fashioned linotype typesetting. Names are composed on a name plate and inserted into runners on the front of the mailboxes quickly and simply.

'The names are what should be seen first,' says Nouvel. 'I want people to put their names in the architecture so that each box door becomes a calling card.' I'd like to question big man's logic, but he's the one with the flash car, and deep down, I just know that he's right.

CUPRIC PRIX

Entries are invited for the 2013 European Copper Architecture Awards, a showcase for architects designing with the material. The awards attract high calibre entries demonstrating innovative uses of copper. Entries must incorporate cladding, roofing or other elements of copper or copper alloys, and any scale or type of project can be entered, but judging criteria centre on overall architectural design. This year's judges are yet to be announced, but last year's included: Einar Jarmund of Jarmund/Vigsnæs in Oslo; Patrick Genard who runs a practice in Barcelona; Pia Salin of Basel-based Zwimpfer Partner Architekten and Keith Williams, of London based Keith Williams Architects. Download the entry form at copperconcept.org





Daniel Heselwood
is associate
director at BIM
consultancy Evolve

Your best BEP

So I began life... My parents had grandiose ideas of my brother and I 'being successful' and 'achieving' but without any real plan. My dad was in middle management and mum a PA so there were no real family footsteps to follow. My upbringing and anything I achieved was very much pot luck, but if I could live life again, I'd take steps to weight the chances for success more in my favour. Hindsight allows me to apply that principle now. When I'm working on a project, effective planning can edge the odds in my favour and avoid wasting time and cost.

Using BIM in our workflows has all of a sudden added this huge dimension to what we deliver. I've seen projects that have had to be remodelled because the designer worked to such a high level of detail it was impossible to use; I've seen people adding so much extra information that deadlines came and went as they obliviously modelled away; I've seen deadlines delayed just because different project teams couldn't use each others' models.

Planning begins with a Project BIM Execution Plan (officially acronymed by the government to

'BEP'), essential to avoid errors in judgement. The BEP is intended to outline exactly what you want to achieve on completion of the project and how you plan that. Imagine having a BEP for life and all the mistakes you could have avoided: first loves, bad investments, not wearing shellsuits to name a few.

Here are some of my more important items for inclusion in a BEP.

> BIM uses: My dad taught me very early on to use the right tool for the job. This I flagrantly ignore anytime I am doing DIY and subsequently end up spending three or more times as long, trying to achieve the same result. If you don't know what you will be using the model for, how do you honestly

expect to know what needs to be added?

> Test exchange formats: Ever been to a dinner party where two people clearly didn't get on? Had you known you could have put them at opposite ends of the table. This situation tends to be quite rare (ignoring 'Come Dine with Me') because people are polite, but when working with BIM, before any important deadline, test the exchange formats to make sure all the design team can use them. If not, you can plan other ways to share that information.

> Level of detail/information: You wouldn't wear just underpants to work, or your heavy winter coat for the one scorching week of summer we get each year. The same is true for a BIM project – if you are delivering early stage planning consent you need no more than an indication of a door and swing – the type of door and its furniture aren't important. Products and detailed metadata can wait until later. The LOD (graphics) and LOI (metadata) need to be defined clearly at each stage.

If you need to start getting a BEP together, save yourself the effort and download ours: evolve-consultancy.com/ and head for resources. ●

You wouldn't wear just underpants to work, or your heavy winter coat for the one scorching week of summer we get each year

Tech books



PEDESTRIAN BRIDGES – RAMPS, WALKWAYS, STRUCTURES
Andreas Keil
Edition Detail £37

You can always rely on the Germans for the presentation of cold, crisp facts. The language demands it – they can't help but be precise. It's why they've got so many great philosophers. So when the Detail series decide to do a book on pedestrian bridges, they don't disappoint. Keil's book starts with a breakdown of functional requirements, engineering physics, statics and dynamics – even economic comparisons. Chapters on materials, design, construction and finishing are approached with similar analytical rigour. The writing style can be dry, but copious technical drawings and high quality photography enliven the pages. Perhaps inadvertently, the book stops being about the cold communication of how you get from A to B and more about how nice it might be perhaps to linger in the liminal zone between them. You begin to read the bridges as a response to the context in which they are placed, and at this point, like soldiers walking over one without breaking step, this book begins to resonate.



101 RULES OF THUMB FOR LOW ENERGY ARCHITECTURE
Huw Heywood
RIBA Publishing £17.99

Architects can sometimes obsess with the technicalities of environmental sustainability. That's no bad thing in practice since carbon regulation is getting ever more stringent and buildings are increasingly expected to perform. So we look to high performance envelopes and eco-friendly materials, ground source heat pumps and PV; piecemeal approaches that together hopefully result in a BREEAM Excellent rating or a Code Level 5 home. But perhaps, by dwelling on 'soft landings' we might have lost grip on a few hard facts. That, in a nutshell, is the charm of Huw Heywood's book. If you are looking for the latest eco-innovations, look elsewhere. Heywood's book peels away the sophistry of eco architecture to 101 back-to-basics rules of thumb. You'll probably know most of them, you might have forgotten you know some of them, and a few you might not know at all; but the next time you sit in front of a blank sheet of paper, Heywood's simple advice and graphics might just spur you on to something great.



DETAIL IN CONTEMPORARY BAR AND RESTAURANT DESIGN
Ed. Drew Plunkett and Olga Reid
Lawrence King £35

I'm usually quite ambivalent about this kind of coffee table detail book, thinking that they present a triumph of style over substance, but perhaps one could say that about modern bar design in general – we have shorter attention spans and tire of things far quicker now. So as an expression of the typology's general directionless malaise, this one works for me. With 50 or so projects covered in the book's 200 pages, for a start, there's adequate space to highlight some of the myriad approaches being adopted by designers to stimulate our neural networks, even if the martinis we're drinking don't. Projects are taken from around the world, giving a sense of local flavour, and also various budgets, so even the dog has its day. Naturally, photos abound, but there are plenty of drawings too, both plans and sections, as well as furniture, giving the book added value for inspiration-seeking architects. That said, I would recommend a lost Saturday night in Adolf Loos' 1908 American Bar in Vienna as inspiration enough for anyone.

A roof tile that eats pollution. Only from **ME**.



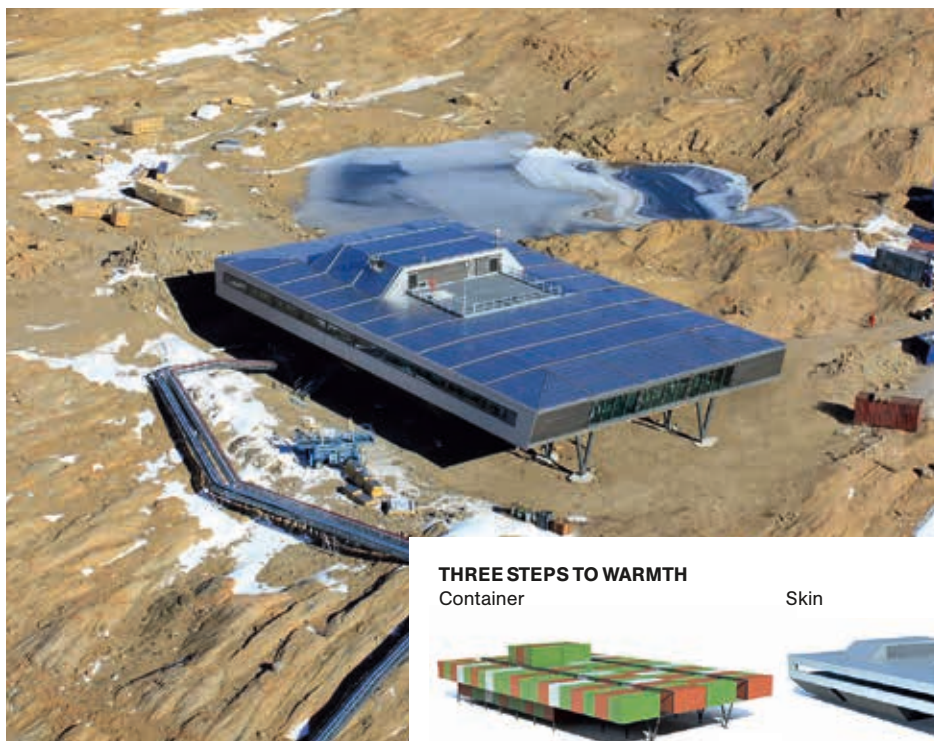
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Antarctic

Left: The completed Bharati Research Station.
Right: A module constructed to test buildability.
Inset: Diagram of the constructional approach.

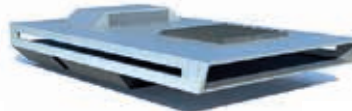


THREE STEPS TO WARMTH

Container

Skin

Research base



WHAT: WICONA HIGH PERFORMANCE GLAZING SYSTEM

WHERE: BHARATI RESEARCH STATION, LARSEMANN HILLS, SE ANTARCTIC

Perhaps remembering that the hole in the ozone layer was discovered in the Antarctic, the designers of the Bharati station for the National Centre for India's Antarctic and Ocean Research kept its carbon miles down by using the containers that carried the construction materials to the Antarctic to form the main structure. The result, explains Bert Bücking, partner at Hamburg based practice Bof Architekten, is a station made of shipping containers whose contents formed its double insulating skin.

Bof won the competition to design the station, which completed last month, in 2006 with German engineer IMS, who had built Germany's Neumayer III research station. Sitting the foot of the Larsemann Hills in the Eastern Antarctic, where the winter sea freezes over, it had to be about logistics. 'While the station's infrastructure and foundations had been built the previous summer, in winter all the stations are locked down and isolated, and we only had three months to build it,' says Bücking. 'Prefabrication was key – all the containers had to be transported from Antwerp to site.

Value engineering was hard – we'd never before had to consider the cost of hiring an ice breaker.'

Each of the 134 containers making up the body of the station was constructed with 170mm rigid insulated walls with steel sheet either side and was designed to deliver a U-value of 0.135W/m²K. The container form however, was not sufficient in terms of thermal performance or aerodynamics, as winds here reach up to 270km/hr, requiring the second insulated skin around to be shaped aerodynamically round the facade to avoid snow drifting. The upper level of the station overhangs 6m above the ground, where steel 'V' columns create a corridor between the container face and outer skin.

With magnificent views the firm wanted large glazed areas but this was difficult with temperatures ranging from -40°C outside to 20°C inside plus 30% internal humidity. Bof made the space between the outer skin and the container 'inner skin' a huge cavity. The outer glazed section is triple glazed with a U-value of 0.5W/m²K. A second double-glazed layer in the container wall offers a further U-value of 1.1W/m²K. Bücking acknowledges that the coastal climate here is temperate compared to the more hostile position of the UK's Halley VI station, which has virtually no glazing. ●

WICONA GLAZING ON THE BHARATI ANTARCTIC RESEARCH STATION

- > Exterior facade: WICTEC 50HI aluminium curtain walling system (fixed to 106mm deep profile steel frame) with 50mm sightlines, triple glazing and elastomer foam insulation profile in area of glass rebate
- > Triple glazed Thiele Glas system – total thickness 53mm. Comprising:
 - Outer pane: 12mm laminated safety glass (VSG) from 2x6mm heat strengthened glass (TVG) with 1.52mm PVB film
 - Outer cavity: 12mm SZR Krypton
 - Centre pane: 5mm Toughened safety glass (ESG-H)
 - Inner cavity: 12mm SZR Krypton
- > Total U-value 0.8W/m²K
- > Interior facade: WICLINE 75. Evo aluminium casement window system
- > Pilkington Pyrostop FR30 – total thickness 36mm. Comprising:
 - Outer pane: 6mm float glass
 - Cavity: 12mm SZR Argon
 - Inner pane: 18mm fire protected
- Total U-value 1.2W/m²K

Wicona offered a technically advanced glazing solution for the Bharati Station. Its double-skin facade is separated by a 500mm ventilated cavity which provides an air cushion and houses building services and access. The curtain wall framing system was completely sealed to avoid water ingress. Additional electric wire/element heating was installed all around the glazing. This maintains the temperature between the external and internal facades at between 5°C and 10°C even when winter temperatures fall to -40°C. The high performance glass units were 1.3m wide and 2.65m high. Static loads on these were calculated to achieve wind speeds of up to 270km/h. The system was pre-assembled to speed installation on site, and gaskets had vulcanized seals to avoid the need for liquid sealant.