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Hard on the heels...

...of the Richmond House debacle, which will see William Whitfield’s Whitstable grade II* listed building pretty much demolished to squeeze in temporary Commons’ and Lords’ debating chambers, Michael Hopkins’ nearby Portcullis House has been refused spot listing. Part of the Parliamentary estate, it was willingly pushed by its architect as a suitable candidate for the very function being snatched on Richmond House. Now remodeling of the 2001 building is set to lose the water features in the atrium (part of the original fire strategy) to increase its capacity — all because it is ‘fugly popular’ for users.

Something that certainly can’t make that claim is Japanese architect Tadao Ando’s 2002 scheme in Piccadilly Gardens, Manchester. It was never popular, and this garden cum urban interchange remains disgraced, says the local press, by negative user feedback and anti-social behaviour. Ando’s concrete, more suited to the strong light of Manchuria than Manchester, sits ill here; so his curved wall may be turned into a green one, or part demolished — to create a more ‘family friendly’ space with food and beverage outlets. Not a very Ando-ish concept.

Of course, re-use and re-purpose are real buzzwords now but both examples show how each apparent logic might result in perversity. The popularity of one precluding its repurposing to obviate demolition of another, and the lack of popularity of the other eliciting a knee-jerk reaction to remove public space and hand it over to prettification and commercial interests.

But we are a fickle society and, as the Chinese curse goes, we live in interesting times.

Jan-Carlos Kucharek, editor

Contents

ribaj.com  Products in Practice January/February 2020

Asset management

Compendium 04
Ted IT/Books 06
Extreme spec 09
Roofing 12
Specified Roofing 19

PIP seminar: Housing 22
Sign Up...Sign Off 23

Specified: Interiors 34

Specified: Doors & Windows 33

Sign Up...Sign Off 38

More on Pinterest

04

09

12

19

22

23

24

30

34

37

38

Cea1 bath mixer and shower head by Ceadesign
Zero centre nesting tables by Désirée
Rainfinity shower head by Hansgrohe
Meta side table by New Tendency

Cea1 bath mixer and shower head by Ceadesign
Zero centre nesting tables by Désirée
Rainfinity shower head by Hansgrohe
Meta side table by New Tendency

More online...

There’s lots of innovation in the wood industry, but it’s not readily available. We thought, let’s build a service to make that knowledge available to all.

Stephen Cousins hears about Metsä Wood’s Open Source Wood initiative: ribaj.com/opensourcewood

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Compendium

Silent disco
It would be a rare thing indeed to catch two of these music lions in a room together; and impossible to see all three but Belgian easy listening radio station 5oe seems to have done it without needing Freddie to, in his own immortal words, ‘live forever’. To ‘radiate playfulness and openness’, the fun rotating partition walls at the Brussels-based station’s HQ bring some much needed Tina to their reception area turners, while Hunter Douglas Architectural’s HeartFelt acoustic ceiling system, with its high sound absorbing performance, seems to have quelled even the Jelo4-hunting abilities of Mars and Mercury.

Corporate muscle
There’s a sense of 70s heroics in architect CPMG’s new HQ for British Sugar parent company Associated British Foods, on Cygnet Business Park at Hampton, outside Peterborough. The robustly-named Samson Place building allowed for the relocation of nearly 400 staff from other sites, with the addition of purpose-built conference and training facilities and a showcase reception and atrium area. Forcer curtain-walling systems were specified on the building, including the striking vertical glazed bra-solais, contributing to the office’s N’energy efficiency rating.

2D by degrees
Ceramic tile firm CTD Architectural Tiles is going all 3D on us with its latest range of tiles. The Shapes, Murals Lines and Keno ranges all cut into or extrude the ceramic surface to create a bold dimensionality. With the Keno range, it results in white tiles with sharp arabesque patterning. Murals Lines offers subtle shifts in the surface to generate delicate shading effects in light with a hint of 1950s aesthetic. But the real geometrical punch is saved for the Shapes range (figured), which pulls out tiles’ surfaces in various colours to create three dimensional walls for a bold, future-retro feel.

Sleight surfaces
The future and kitchen supplier Moiety has carved itself a niche in the specification of Kohler kitchens, ensuring cabinetry and appliances are installed to separate meat and dairy products during food preparation. But it’s added an allusory string to its hygiene performance, seems to have quelled even the Jelo4-hunting abilities of Mars and Mercury.

Offices’ moss
If the words ‘partition specification’ have you reaching for the Red Bull, Planet Four curtain-calls, then how an adrenaline shot for you in the form of its biophilic ‘moss wall partitioning solution. Yes, that’s real moss you see in their Clerkenwell showrooms; a fact confirmed by FPD’s editor running his own hand through its damp, dark, bryophytic thickness. The firm says the walls are easy to maintain post-installation and set as an excellent sound-absorbing material. And in the cut-throat corporate jungle, leaning back against this takes you back to your childhood most bestest day out ever.
Housing could learn most from car factories

Despite the oft-reported benefits of Gillian McCall’s Practice and the various case studies in Demand, one of its more notable lessons for the future lies in the way electric cars are regulated. The reason is that, for the most part, electric cars will become the main way to de-carbonise road transport, with battery manufacturers investing vast sums to keep up with technology leaders like Tesla.

What is notable is that the number of moving parts in a typical electric vehicle is around 20, whereas internal combustion engines have around 200. This is a vast simplification in a car’s ‘hardware’. The point about an electric car’s ‘software’ plays a vital role in optimising battery operation to maximise efficiency and deliver the required driving range.

An extension of this migration of complexity from hard to software is that software can be improved in situ, unlike hardware, which is fixed at the point that the car leaves the factory. For example, Tesla has pushed updates to improve resiliency for its cars giving owners more power, improved range and reduced charging times.

Like transport, extensive electrification of the built environment is the likely route toward de-carbonisation in the UK, with clean renewable electricity sources being key. The grid’s carbon emissions fell by around a half in the last 10 years and the government has announced a ban on new gas connections in five years’ time.

An electricity grid with a significant amount of energy generated from renewable sources such as wind turbines needs to be controlled differently. We can’t control the wind and need to match demand to the availability of power. And more advanced control software could switch off heaters if there is a drop in wind power output.

A world where our entire built environment is connected, via the ‘internet of things’, is still some way off. But when developing new infrastructure it’s important to lay the foundations for systems where control can make the most of more advanced and evolving digital technologies.

Dan Cash is a building services engineer and Director of Consulting at Atamate

Books

EnerPHIT: A step by step guide to low energy retrofit
James Trayan. RIBA Publishing 192p HB £45

The author is the managing director of eco-conscious architectural practice ECD Architects, which has been championing energy efficiency in the industry since it was established in 1980. That means he has developed real expertise in this field. With a profusion of Punchdrunks’ ‘Wolfgang Field’, Trayan’s book is an invaluable guide to retrofit for those keen to know more than the author did about the EnerPHIT standard. Making from definitions and general guidance through to best practice in both commercial and residential retrofit, and with numerous case studies of both from home and abroad, the book is complemented with rigorous diagrams and photos to see both novices and experts through an optimised energy retrofit process.

Robotic Building: Architecture in the age of automation

The authors work collectively as the Design Computation Lab at London’s Bartlett School and so have a pool of knowledge regarding computational design and automated fabrication methods. But while often through the back doors of cutting-edge design, these techniques and knowledge have also been used to create buildings in the real world. This book gives the historical context and provides an analysis of existing projects in Russia, China and former East Germany.

Masar House in the Saadian City: Heritage, values and perspectives
Marc Angélil ed. DOM Publishers 264p PB £25

In a post-Truther society, with the ever-better idea of state-funded housing now experiencing a resurgence in the golden days of the Steelworkers’ unionism going back to the 19th century, to simply deal with the influx of workers, the guiding principles of design and housing were prioritised over design. This book looks at historical projects and provides analysis of existing projects in Russia, Ukraine and former East Germany.

Product in Practice January/February 2020 ribaj.com
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Pritzker prize-winner Shigeru Ban is a master of experimentation with building materials and his latest project, the headquarters for Swiss watchmaker Swatch, in Biel, Switzerland, pushes the physical limits of glass to create one of the world’s largest and most complex hybrid timber structures.

At 240m long, the cocoon-like double-curved gridshell facade incorporates 7,700 unique pieces of timber engineered to a precision of 0.1mm to fit perfectly onsite.

Swatch challenged Shigeru Ban Architects (SBA) to develop a building that combines elements of its brand, such as transparency, movement, and unexpected and surprising details, with a sense of fun and playfulness.

The 11,000m² vaulted structure rises gently towards a glass entrance before bridging a street to meet a five-storey building, also designed by SBA and completed in 2017, which houses the Cité du Temps museum and exhibition centre and the Omega Factory.

Carlo Giordanetti, creative director at Swatch, explains: ‘The intention was to create a dialogue and a juxtaposition between tradition – as represented by [parent company] Omega and the rational architecture of its new building (inspired by the firm’s historic HQ building) – and the dynamism and innovation of Swatch, where a completely new architectural gesture is accomplished.’

SBA’s idea for the timber structure has its roots in a previous collaboration with Frei Otto to create a cardboard and paper gridshell for the Japanese pavilion at the 2000 Hannover Expo. Engineered timber gridshells were explored by Shigeru Ban’s snaking timber gridshell for Swatch reflects the transparency, flexibility and fun of the watchmaker’s brand.
on subsequent SBA projects, including Centre Pompidou Metz and Aspen Art Museum. Visitors pass through the main entrance into a triple-height atrium lobby where three storeys of office space, a zigzagging white stair-case and glass elevators are enclosed by the vortex-like wooden roof. The self-supporting grid-shell spans the entire reinforced concrete frame used for the core and floor slabs.

At third floor level a glass pedestrian bridge extends back through the entrance facade and over the street to connect to the Cité du Temps. At the ‘tail’ end of the building office floors step down towards an open plan area on the ground. Timber was chosen for its sustainability and speed of construction, and because it can be processed flexibly and cut to very precise dimensions.

SBA has long advocated the use of wood as the only truly renewable construction resource. Giordanetti adds: ‘The carbon footprint of timber buildings is generally half that of concrete buildings and a third of steel. All the wood used in the construction is Swiss spruce and despite the huge amount employed, the equivalent amount grows back in Switzerland in just two hours.’ The building’s facade lattice features 2,800 diamond-shaped elements, and glulam beam heights vary from 760mm to 925mm. Each element has a different cover – either opaque, transparent or translucent – to control levels of light and privacy inside. Some can be opened for smoke extraction, others are equipped with photovoltaic cells.

SBA director Taro Okabe explains: ‘Each facade element comprises multiple components. For example, the transparent glass element is a closed cavity system that contains a shading device in a sealed environment between glass panels. The cavity space is slightly pressurized with dry air to avoid condensation and to protect the cavity from any dust entering.’

Translucent diamond shapes cover 40% of the facade and each one contains an ETFE cushion with a polycarbonate panel fitted inside. ETFE was chosen for its playful organic shape and, crucially, to reduce the overall weight of the gridshell structure. The cushions are lightly ventilated to put them under tension with the strength to withstand the weight of snow or ice.

Significant development work was needed for the ETFE to meet thermal and acoustic performance required on an office facade. Okabe
comments: “The low mass of ETFE made acoustic insulation a challenge and thermal insulation was not enough so we added the polycarbonate layer inside the cushion to solve both issues.”

There were a few headaches during design due to the need for the gridshell structure to discreetly integrate a complex network of services, including electric cables and pipes for sprinklers, air, and heating and cooling water. Beams were CNC milled to create precise spaces for services and to enable intersecting beams to tightly interlock.

Parametric design software was critical to co-ordinate the building’s services and define the precise shape and positioning of beams in the facade. All data related to the timber structure was input to a 3D parametric model, which generated timber elements semi-automatically to reduce manual design effort and duplication.

It is intended that the project’s environmental credentials will serve as a benchmark for future buildings. A total of 442 individually manufactured curved solar PV elements were inserted into the pocked structure of the facade, enough to generate around 212.3 MWh per year, equivalent to the average annual consumption of 61 Swiss households.

Autonomous operation of ventilation, cooling, heating and basic lighting in both the Swatch HQ and the Cité du Temps was achieved using a combination of solar panels and ground source heat pumps, which extract energy from nine underground wells, and two former oil tanks converted into water reservoirs.

Energy demand is reduced using technologies such as radiative cooling and heating with activated ceiling panels and water pipes cast into the concrete slabs to provide draft-free air conditioning. Charging stations, LED lighting and Velospot bicycle sharing add to the sustainable credentials.

As a showcase of low carbon construction and cutting edge design, the Swatch HQ is truly a building of its time. ‘Working with Shigeru Ban we have learned a huge amount about new solutions, materials and processes, and witnessed the architect’s fascination with Switzerland and the ability of Swiss manufacturing,’ says Giordanetti. ‘We’ve seen the Swatch brand philosophy coming to life in a completely unexpected dimension and in architecture, which is unprecedented for us as a brand.’
Now I had been four months in Arabia continually on the roof. In the last four weeks I had ridden fourteen hundred miles by camel, not sparing myself anything to advance the war; but I wanted a bath, and something with ice in it to drink: fortunate indeed it was that the Renolit ALKORSMART ivory lightweight waterproofing membrane had Solar Shield technology, highly suited to the harshness of this clime, and had resisted the onslaught of the sun’s rays rather better than I.’

– TE Awrens, ‘Seven Pillars Of Beamwork’ (1926)

We regret to report that Alumasc’s stunning replacements for the cast-iron drainage pipework at the grade I Royal Albert Hall, though an undoubted improvement, have proved unnecessary. The individually sand-cast ‘Apex Heritage’ replicas are, yes, indistinguishable from the superannuated installation they supplant, and yes, perform beautifully. Turns out, though, that the ceiling mushrooms they were installed to eradicate are in fact 85 acoustic diffusers, installed to damp reverberating sound. Heads – unlike sound vibrations – will roll!

Specified

1. Biodiverse Green Roof
   Eco Green Roofs

   ‘I know we planted Eco Green’s roof to encourage biodiversity, but on reflection it may have been too successful. We always expected the sedums, grasses and wildflowers to attract a variety of insect life, but we never bargained on finding a small herd of Bob Flowerdews living up there. It’s becoming a real problem. Yes. We’ve think we’re going to have to get them off air’, so to speak. It stinks! Yes, and I know the drainage is excellent – I KNOW! But there are loads of them, all wandering about and doing their ‘nutritive watering’

   egro.co.uk

2. Apex Heritage cast iron guttering
   Gutterworks with Alumasc

   We regret to report that Alumasc’s stunning replacements for the cast-iron drainage pipework at the grade I Royal Albert Hall, though an undoubted improvement, have proved unnecessary. The individually sand-cast ‘Apex Heritage’ replicas are, yes, indistinguishable from the superannuated installation they supplant, and yes, perform beautifully. Turns out, though, that the ceiling mushrooms they were installed to eradicate are in fact 85 acoustic diffusers, installed to damp reverberating sound. Heads – unlike sound vibrations – will roll

   alumascwts.co.uk

3. Alkoresmart waterproofing
   Renolit

   ‘Now I had been four months in Arabia continually on the roof. In the last four weeks I had ridden fourteen hundred miles by camel, not sparing myself anything to advance the war; but I wanted a bath, and something with ice in it to drink. Fortunate indeed it was that the Renolit ALKORSMART ivory lightweight waterproofing membrane had Solar Shield technology, highly suited to the harshness of this clime, and had resisted the onslaught of the sun’s rays rather better than I.’

   renolit.com/en

4. Heavy 3 slates
   Cupa Pizarras

   ‘Hello, Tony? We’ve had a call from a Mrs ‘Bertha Mason’ on Jane Eyre Way, regarding the Heavy 3s on her arts and crafts new-build. Yes, Thornfield Hall. The site had been a total burnout, yeah…

   ‘Well, thing is… erm… she says the slates are very nice and all, and the mini dormers let her see out if she stands on a crate (yeah, bit weird...) but she says the slates are too good! Specifically, she’s saying there’s absolutely no draught up there now – “so nothing wants to catch light?” She’s asking quite specifically for someone from the Medway branch to come round and take a look…

   cupapizarras.com/uk
Climate change was one of many battle grounds for the parties in the run up to the December general election. Though the Green Deal will and the disappointment over past government initiative such as the Green Deal.

About the Netherlands showed how it could work on a large scale, but they are foundations on which the sector is building. Knowledge and trust.

Making performance pay
In 2012 the government’s Green Deal sold homeowners the vision that the cost of home retrofits would be covered by savings on energy bills. That deal was doomed, but a year later the Netherlands showed that it could work with EnerPHit. The EnerPHit standard enables net zero energy retrofit, paid for by the saving 50 years of savings on energy bills, and is based on a 50 year performance guarantee, which is confirmedly ongoing monitoring. The performance guarantee is broad ranging, covering maintenance, energy costs and consumption, comfort (at a temperature of 21°C for living areas and 19°C for bedrooms), internal air quality and noise, and kerbside appeal. EnerPHit retrofits are also carried out without displacing residents and to efficient timescales – in the UK the target is 15 days per home but more experienced contractors in the Netherlands can retrofit a home in a day. In three years it has been applied to 100 homes in the UK, mostly with the aid of grant funding and all for social housing clients. In 2020, however, it will shift up a gear, with more than 1000 homes in the pipeline. Funding is self-funded by social landlords. It will deliver its first project in a London location: a RETROFit Accelerator programme, which will deliver 1000 whole house retrofits in Greater London. That was always the aim to make this commercial, but to do that we have to build the industry,” says Ian Hutchcroft, head of market development at Energiesprong UK.

The UK initiatives are relatively modest, but they are foundations on which the sector is building, knowledge and trust.

To that end, in November it launched a competition for consultant, contractors and service providers, setting challenges for low rise apartment blocks. “They are opportunities for the supply chain to form solution providers, partner

The service will work in up to 11 target neighbour

**Below left** Gardner Stewart Architects’ Willmote Home, environmentally designed by ECD Architects.

**Left** Gardner Stewart Architects’ Willmote Energiesprong homes in Morden Road, Maldon, Essex.

**Right** Mauer’s prefabricated, super-insulated initial pilots and included overcladding homes.

The architect advocated using the Passivhaus Energiesprong approach to deliver the Energiesprong self-funded by social landlords. It more than 1,000 homes in the pipeline, including 25 in Mundon Road, in Essex.

**Energiesprong homes in Mundon Road, Maldon, Essex.**

**CARBON CO-OP**

**EnerPHit approach to deliver the Energiesprong self-funded by social landlords. It more than 1,000 homes in the pipeline, including 25 in Mundon Road, in Essex.**

**Mauer’s prefabricated, super-insulated initial pilots and included overcladding homes.**

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Better housing needn’t break the bank

Affordable post occupancy evaluation and stylish bathroom pods were the unexpected stars of PiP’s recent housing seminar

Words: Ruth Slavid

It is always exciting to have one’s preconceptions challenged, and this certainly happened at the PiP seminar on housing, held in October. We all know that post-occupancy evaluation, while important, is expensive and time-consuming. Not so, said Professor Fionn Stevenson, who has written a new book on the subject. And pre-manufactured bathroom pods? We know they’re great for mid-range hotels and student residences, but you wouldn’t want them in a high-end apartment building would you? Yes, you would, said Stephen Wade-Palmer, specification manager of Offsite Solutions. And he showed this with a case study of one of Europe’s tallest residential blocks.

Figures set the context

The seminar started, however, without specific but an overview of the UK construction industry and of housing’s place within it. This came from Adrian Malleson, head of economic research and development at the RIBA. In the three months to July 2019, UK private housing output fell by 63% and private housing repair and maintenance by a staggering 59%. Public housing started to go up, but at a minuscule share of the total market at just 3%. The total housing market, in contrast, makes up 43% of the total revenue, and it’s not evenly distributed. Not for example, that the public housing market is only costing £5,000 to £10,000 for a development. It tackles such issues as perceived human needs and capacities, comfort, control and satisfaction.

Performance, feedback and learning. It sets out to be as practical as possible – she described the primer at the back ‘the most useful part’. Performance, feedback and learning. It sets out (with POE (post-occupancy evaluation) and says it does not need to be expensive or difficult – just done correctly.

Three ways to minimise the problems that

It was shocking to hear that new buildings typically use twice as much energy as they were designed to do. Most shockingly, new buildings typically use twice as much energy as they were designed to do. Stevenson believes the answer is POE (post-occupancy evaluation) and says it does not need to be expensive or difficult – just done correctly. But if such work does uncover a problem, then one must move to a diagnostic POE – and that is not conclusive on to full-scale forensic investigation. As that could cost upwards of £50,000 it should only be used when necessary she said, but it has a dual value that would allow errors to be put right and stop mistakes being repeated.

Stevenson’s book is admirably clear. It has, for example, an entire chapter on ethics, since carrying out POE on somebody’s home can be expensive or difficult – just done correctly. But if such work does uncover a problem, then one must move to a diagnostic POE – and that is not conclusive on to full-scale forensic investigation. As that could cost upwards of £50,000 it should only be used when necessary she said, but it has a dual value that would allow errors to be put right and stop mistakes being repeated.

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The UK’s largest Passivhaus school placed high demands on its doors and windows, to bring as much natural light as possible into the building without compromising insulation levels.

Architype’s new Harris Academy in Sutton, Surrey, is part of the proposed £2 billion regeneration of the 20ha former Royal Marsden Hospital site. Once restored, the derelict 19th century hospital will form the nucleus of the London Cancer Hub, a joint Royal Marsden/ UCL initiative to attract top cancer researchers to London. At the site’s north west edge, the new school expects its science specialization to gain from its proximity to the centre.

The first Passivhaus secondary school and largest Passivhaus school in the UK, the academy will form one small component of one of the world’s centres of cancer learning. As if in anticipation, Ab Rogers has just completed his Maggie’s Centre south of the £38 million, 1200 pupil school.

And given the school’s science bias, the design’s Passivhaus principles seemed to resonate with this educational objective. As Architype project architect Christian Dimbleby explains, “Passivhaus isn’t just an energy but a comfort standard and you’re using environmental conditions and building physics to create a place that performs well in an empirical, provable way. It was felt those scientific methods complemented Harris’ aspirations.”

Architype was already on Sutton’s framework to help develop a more sustainable school building programme for the One Planet Living council and when appointed in 2014, was already busy with the borough’s Hackbridge Primary – a Passivhaus Plus school with net zero carbon emissions. While Sutton is less onerous performance-wise, it is also on a greater order of scale, so Architype partnered with Willmott Dixon, which had cut its Passivhaus teeth on Leicester University’s George Davies Products in Practice January/February 2020

The UK’s largest Passivhaus school placed high demands on its doors and windows, to bring as much natural light as possible into the building without compromising insulation levels.

Words: Jan-Carlos Kucharek  Photographs: Jack Hobhouse/Architype

Right: Sutton Harris Academy looking west. The UK’s largest Passivhaus secondary school nestles comfortably into its low-density suburban landscape.

Below: Douglas fir trees, bricks, copper cladding and aluminium windows make up the formal language of the school.

Harris Academy, Sutton

Douglas fir, bricks, copper cladding and aluminium windows make up the formal language of the school.
Medical centre, and educational consultant Lloyd Wilson to develop the school’s specific brief. Architype worked up the design to take onboard the concerns of local planners and immediate residents as well as its place in the borough’s broader masterplan.

The result is a timber-clad building that hunkers into the sloping site, hiding the copper-clad main hall and gymnasium in the hill to the south and stepping down on the north, residential, side to mitigate the impact of the classroom blocks. On the main west entrance side, a public promenade accesses the main site to the south. Dimbleby says the school’s form went through a few iterations: ‘A building has a context so you need to accept that the final form will not always be ideal,’ he adds. ‘The north/south facing aspects of the design are fine, but we had to concede that its east/west classroom arrangements were not optimal for Passivhaus.’

But it was accepted that design solutions creating ‘overshadowing’ of the east and west court-yards and external spaces, even if performing better technically, were not tenable. The final form sees classrooms either side of a corridor arranged in three spurs opening off a core reception and library area. This is the school’s central focus, overlooked by the radiating circulatory corridors themselves.

With its sustainability credentials, Architype opted for CLT main structures with acoustically insulated concrete slab floors, clad in Wienerberger’s Forum Charcoal brick, Douglas fir and copper cladding. Internally, value engineering contributed to pared-down but satisfactory exposed concrete soffits with acoustic rafts, and less satisfactory grey carpet throughout. These are offset by exposed CLT corridors attenuated by attractive larch ceiling soffit strips, but the real punch is delivered by cut outs in the corridor slabs, which allow daylight to stream from Lamilux rooflights into the depths of the section, producing subtle, rhythmic pools of light. Installed with actuators, the specialist triple-glazed panels are designed to open automatically when internal temperatures rise.

Window design was important to ensure observed space as a prelude to the more open playground space beyond. Below This library space, overlooked by all these circulation levels, brings an active focus to the school.
they performed as part of a Passivhaus strategy to reduce artificial lighting – and contact was key. And it wasn’t just about optimising the g-value of the triple glazing panels to ensure equivalent heat gains and losses; Dimbleby says ground floor classroom ceiling heights were increased by 300mm to 2.9m, to compensate for shading from surrounding trees. All the Lang Fenster aluminium composite windows tilt, a hinge open if behind louvred external vents.

Dimbleby says their sheer height involved efforts to meet their specification. ‘Most UK manufacturers follow the general guidance that places the handle midway up the tilt frame, which put them out of reach in this scenario,’ he explains. ‘Placed off-centre, as they are here, it needed a stronger piece of ironmongery, and one that Lang Fenster was prepared to install and warrant!’ He confirms that with dedicated MVHR manual operation should be rare but a handy, simple red and green light signal by each teacher’s desk notifies users if the temperature rises enough to merit opening them.

Optimising levels of daylight in teaching spaces affected the specification of the 350mm deep window reveals too. The specific light grey shade of their polyester powder-coated aluminium was critical in ensuring the requisite level of reflected daylight into classrooms. To mitigate the effect of longer, lower light on the east and west facing classrooms, a ribbed type extend vertical aluminium fins in the window reveals too, coloured to match. But the strategy worked. ‘Even on a horrendous, rainy day, you rarely need the lights putting on,’ says Dimbleby, adding that sensors are in place to trip them off when light levels become adequate again.

With this ironmongery, and with the more robust stainless-steel doors – used for the main entrances, exit and refectory and main hall courtyard – as well as the 1.3m deep h sights solely on the south elevation, keeping a keen eye on the RAL numbers was critical. ‘Different manufacturers have different versions of the same RAL colour,’ Dimbleby cautions.

The architect won the battle to install triple glazing rooflights in the ceiling of the gym, introducing a generous wash of light down its long CLT walls. Treated with an opaque film to bring light across to a roof that would otherwise have felt quite heavy. The assembly hall was brought lightness to a roof that would otherwise be “heavy”. The assembly hall was

The main hall has huge composite windows giving views over the east entrance courtyard. A steep stage area and retractable bleacher seating make the space extremely versatile.

Above Aluminium composite windows abound in the more formal communal areas, providing greater tactility and warmth. Here in the refectory, they look out onto the east courtyard.

Top The main hall has huge composite windows giving views over the east entrance courtyard. A steep stage area and retractable bleacher seating make the space extremely versatile.

Right The west face of the school makes good use of the level changes southwards and imbues The building with a civic presence.

public face, its rooflights give what Dimbleby terms ‘an art gallery standard of lighting’.

MVHR associated with maintaining the variable volume control of this sealed building resulted in a lot ofought work, and it’s most evident in the classrooms where build-up abounds. Their size is dictated by the need to maintain high volumes of air exchange with minimal noise – Passivhaus is a holistic comfort standard after all. Dimbleby opines that Sutton is not Passivhaus Plus; while low energy gas heating still gives it a carbon footprint. But Part L prevented a move to electricity to meet its heating demand. And he adds that reducing energy savings from 80% to 100% has its costs – ground source heat pumps at the firm’s smaller Hackbridge primary school cost £450,000 to install and scaling up here with the required PV, he says, could have added £5 million to the final value-engineered figure of £13 million.

But he’s still happy with the result – and so, it seems, are parents. At the last open day 4000 of them turned up to enquire about the 200 places on offer hoping to benefit from reduced CO₂ and better daylight levels, adding condensation. ‘Kids today are really switched on; they know how this building works and how to make it work at peak level too,’ Dimbleby concludes. They lo at the Vanguard of a new way of building. It’s what the RIBA Manifesto for Change wants by 2030. But if we can do it now, why wait?’
Costed

David Holmes, associate at AECOM, provides supply and cost fixes for a range of commercial and industrial and windows.

The market for doors and windows is estimated to be around £6 billion and demand is largely driven by construction output with newbuild and repair and maintenance sectors achieving significant market shares. The Green Deal roll out is encouraging home owners to upgrade energy saving components for financial and environmental benefits, which will contribute to overall market value.

The following rates include for the supply and hang of doors and windows, complete with all frames, architraves, typical medium standard ironmongery set and appropriate finish.

Source: Spon’s Architects’ and Builders’ Price Book 2020

Doors, windows & ironmongery

Hardenled panelled hardwood bi-folding hardered architrave; aluminium ironmongery (lockable, self-closing) painting or polishing

Single double leaf four panelled doors; mouldings 500-610/1175-1390

Sheet ironmongery

Genuine independent third party certification

Hardened leaf Oak veneered 80 mm FR polished 780-950/1420-1790

Purpose made steel double glazed+; lockable, self-closing panelled doors; mouldings 525-650/1150-1400

Certified for use on one-hour and half-hour fire doors

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30 minute FR; polished 500-610/1175-1390

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1 Airlock security doors
Warrior Doors

Two households, both alike in dignity,
in Lunduntahn, the place we lay
our scene, to compete for some Boodles’
jewellery.

Here’s one who foots plays to buy
the cream;
the other chooses skiing masks, a sawn-off and a safe-crack team.
The first wins big, boys trimlets
by the handful.
The fearful passage of the other
shoves
crime cannot pay; the stolen
Landie fails
when faced with Warrior
security. And so
by ram-raid’s end is proved
nought can defy
iMotion 2302-operated stainless
steel
that’s interlocking, styled to
please the eye.

warriordoors.co.uk

2 Dualframe 75 profiles
Technal

“Yes, this is a picture of what it
was like a year ago. God, we loved
the view, didn’t we Ray?”

“Hmm. We don’t even open the
curtains now.”

“It’s very depressing. The whole
point of installing Dualframe 75
and Elegance 52 was to indulge
superior thermal performance
while still enjoying the glorious
countryside.”

“It’s the crowds, you see. Very
off-putting.”

“Yes, our marriage has definitely
suffered. Ray just can’t keep his
mind on the job any more. But he
would make that bloody video.”
technal.com

3 Minimal Windows sliding doors
IQ Glass

When a day that you know
is Wednesday starts off by
sounding like Sunday, there is
something seriously wrong.
I felt that from the moment I
woke. And presently I had my
first evidence – a distant clock
struck what sounded to me like
eight. Then I knew things were
awry.
The way I came to miss the end
of the world was sheer accident: I
had specified ‘Minimal Windows’
for my new extension, and the
solar coatings on the structural
glass had repelled the meteors’
glare as effectively as bandaged
eyes…

iqglassuk.com

4 SPW501 doors
Senior Architectural Systems

“Boy, no Coca, it’s absolutely fab!
The new spa extension blends
seamlessly with the Jacobean
style of the house, and the guests
absolutely love Mr Carson’s
“Quintessentially English”
tea-tray reiki! They adore it!”

“Really, Robert! You just never
listen, do you? It’s your mother
I’m so dreadfully worried about.
The doors. The modern doors. I
selected them specifically. If the
dowager works out how to use
them, no-one will visit the spa
again! It will fail instantly! Has
she worked out yet how to use the
doors?”
seniorarchitectural.co.uk

PiP specifieds are
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House for Theo and Oskar

Tigg + Coll Architects’ extension future-proofs the home of two young boys suffering from a rare condition that will change their needs as they grow

Words: Stephen Cousins Photographs: Andy Matthews

Theo and Oskar suffer from Duchenne muscular dystrophy, a genetic condition causing progressive muscle weakness that will change their physical needs over time.

London-based Tigg + Coll Architects won an international competition to radically remodel the family’s cottage, in Box Hill in Surrey, to create a spacious and adaptable interior sympathetic to the children’s gradually reducing mobility and interaction with their environment.

The initial budget, around £100,000, was not considered enough to extensively reconfigure the cottage, so the architect proposed a wraparound extension with a new accessible entrance.

The open layout features an entrance hall with level access, two large bedrooms for the boys with full height sliding glass doors providing views onto the garden, a large wet room and accessible WC, and a spare bedroom for carers or a guest. The kitchen and family room were relocated to the middle of the plan and open out into the rear extension to improve natural light and connection to the garden.

Key to the transformation is an expansive flat timber roof designed to unite the extension and create a cantilever for a covered veranda for the boys.

Collaboration with contractor developer Ballymore and its project management and procurement team, which donated services, time and materials to the project, created an opportunity to use advanced prefabrication techniques rarely seen on domestic jobs. The free-spanning diagrid roof was developed in collaboration with structural engineer Engenuiti and glulam manufacturer Buckland Timber. The 550mm deep beams thin out towards the edges and extend to a maximum 5m from the building line at the longest point of the cantilever. Concrete sandwich panel walls pre-fabricated by Byldis & Hurks Facades support the roof deck.

Offsite techniques helped ensure accuracy and speeded installation. The commercial scale of the elements might have seemed out of place on another domestic job, but not here, says Helen Sutton, associate at Tigg + Coll: “The extension had to be big to accommodate the large accessible rooms and the 100m-long garden, could withstand the scale. There is also a nice contrast with the interiors of the existing house, where the low ceilings open up into the extension.”

The solid timber soffit can be exploited to adapt the internal layout and support the use of hoists or other supports. Diamond shaped openable roof lights in the lattice above the boys’ bedrooms improve light and ventilation.

The architect consulted occupational therapists from the local council on future-proofing the property. Interior features include large turning circles and sliding instead of swing doors for wheelchair access, widened openings in the existing cottage, and textured floor surfaces to ensure slip resistance.

The family’s decision to adapt their house will mean they can enjoy it for as long as possible without having to move or rely on external support. “It’s about future proofing the house, but at the same time adding warmth and interest,” says Helen Sutton. “It was very satisfying after the project was handed over to see the boys settled in and excited to have their own bedrooms and play with friends unrestricted,” she concludes. •

Left The rear elevation of the section shows the generosity of the cantilever of the timber diagrid roof, allowing the children space to play beneath it.

Below left The large garden accommodates the scale of the intervention.

Above left A wide accessible rear entrance gives direct access from the children’s rooms to the covered play spaces and garden.

Above right Reconfiguration of the existing building was kept to a minimum but it segues nicely into the new space.

An expansive flat timber roof is designed to unite the extension and create a cantilever for a covered veranda for the boys.
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Interiors

37

Specified products are compiled from supplied company press releases.
**Sign Up**

John Walker, director at Walker Simpson Architects, chooses three of his specification favourites.

**UPCYCLED QUARRY TILES**

Staffordshire Blue quarry tiles have a varied finish and texture, from matte to almost vitreous. These have been salvaged from a building basement, dated around 1895, and used as a design feature across the floor of a residential project. With skylighting overhead, the tiles are highly light sensitive with grey blues and silver tones reflecting across the surface as occupants move through the space. The quarters are laid on an underfloor heating system powered via a small photovoltaic array. An upcycled product, the new embedded carbon comes mainly from the jointing grout and transportation of the tiles from a 50 mile distance.

**SANDSTONE**

Walker Simpson specified stone as a principal facing material in a project for Holy Cross College in Bury. Stanton Moor sandstone was sourced through Marshalls with careful consideration of the provenance and proven weathering, described in McKay’s Building Construction Series, Volume Two (1975) as ‘Mistyto very light drab: very hard and durable; uniform texture, close-grained: good provenance and proven weathering, described in Bury. Stanton Moor sandstone was sourced from research into the notion of a woven fabric, to produce a building for Girlguiding using timber slats fixed in a building with different planes accented using primary colour stains. Visual continuity across the fabric is maintained by a single slat size. The building’s forest setting gives views of the contrasting precision and irregular organic forms of the trees. The project was Building of the Year 2019 at the Manchester Society of Architects Awards.

**TREATED TIMBER**

Shifting from clay and stone, we recently completed a building for Girlguiding using timber slats fixed to a Buisland Insulation Panel. The concept evolved from research into the notion of a woven fabric, to produce a highly textural apparatus. Layering produces a subtle interplay of light and shade with different planes accented using primary colour stains. Visual continuity across the fabric is maintained by a single slat size. The building’s forest setting gives views of the contrasting precision and irregular organic forms of the trees. The project was Building of the Year 2019 at the Manchester Society of Architects Awards.

**...Sign Off**

San Carlos Kucharek enjoys three stand-outs from the inbox.

**END OF AN EPOQUE**

PIP’s always loved a title – especially going out on them on the occasional night out; when you see these bespoke circular ceramic ones, part of Penrice’s Fruit champagne’s ‘Metamorphosis’ installation at last year’s Design Miami, it warmed the cockles of its heart. Drummed up by Italian designer Andrea Manzoni, the ceramic now was there to showcase his six exclusive crystal cup designs, crafted on the Venetian island of Murano, for the 200-year old house’s Belle Epoque curves. The19th-century PR doesn’t go into either Manzoni’s calle, art or post-show recyciability of his stand, but we suspect that one, the other – or both – go well and really smash.

**VAC'S POP**

Looking like the lovechild of James Dyson and Ted Rogers’ 1-2-1 show body, prissy Dusty bin,杜氏科技UK proudly launched its new range of Tromb industrial dust extraction units at the much-anticipated Executive Hire Show 2020. Now, while Dyson’s busying himself diversifying into draws and lights, it’s good to see the nuts and bolts Tromb sticking to what it knows best with its ‘bucky’ ‘grease separador’, filter change system and ‘butter package’ that’s easier to remove. We especially like its DC Bin cleaning cabinet – a vacuum cleaner that, as well as a vacuum cleaner to facilitate maintenance cover version of fifth genus band ‘Pop will eat itself’.

**CRYFACE**

In a world where elections can be won or lost by Ryanian backed Twitter campaigns, it’s good to get a ‘sho, handle’ on the social media worth of some of TV’s home and interiors stars. Website millitanda decor has researched some interesting, in unconnected, data on influencers’ commercial value to advertisers. CRYF is How Flash makes an eyewatering £122 per post, more than twice Ritrino’s tours of post-completion joy-making £55. Restoration Man George Clarke holds it together at £339 and while Location co-host Phil Spencer must be feeling gazumped at £94, Grand Designs’ Kevin McCloud gets a decidedly un-grand £71 per post.

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