



Chris Hodson explains how the changing climate is increasing flood risk, and how SuDS can help



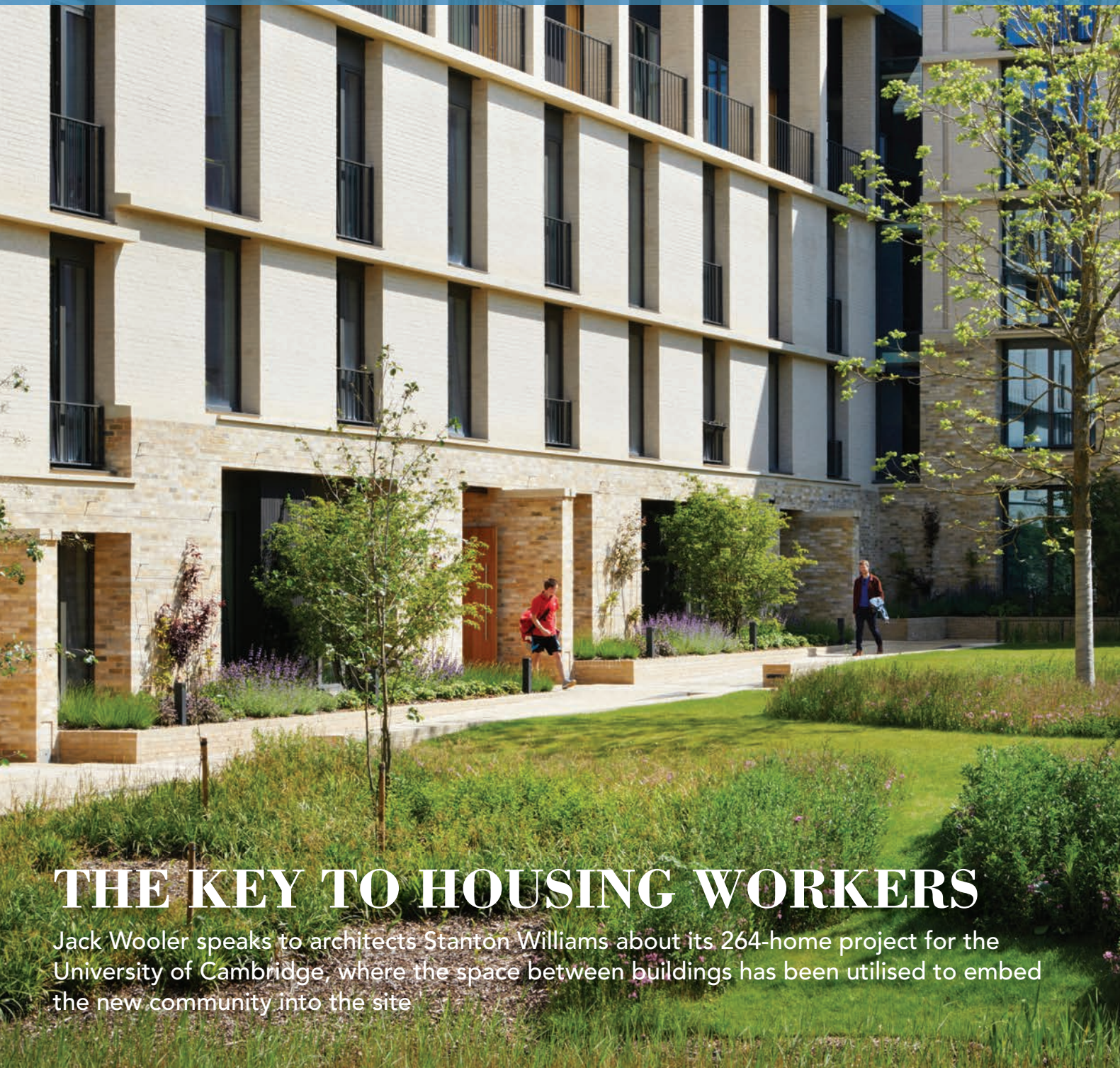
Brian Berry details the barriers to building for SMEs, as outlined in the FMB's recent survey



The World Green Building Council says the construction sector can reach net zero carbon by 2050

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THE KEY TO HOUSING WORKERS

Jack Wooler speaks to architects Stanton Williams about its 264-home project for the University of Cambridge, where the space between buildings has been utilised to embed the new community into the site

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James Parker

FROM THE EDITOR

Put largely down to Brexit uncertainty, the September Glenigan Housing report for the three months to August was more disappointing reading, showing a “marked weakening in private developments and social housing starts.” Could modular be the answer, or does it create more challenges?

I attended UK Construction Week at the NEC recently, and one of the most prominent stands was from the China International Marine Containers Group (CIMC), an example of their containers repurposed as housing. They have already provided several commercial sector projects in the UK, and are moving into residential. A company with this kind of capacity (they have 60,000 employees) could quite easily erect container-based residential projects all over the UK. Japan’s biggest housebuilder, Sekisui, is in a joint venture with our modular-friendly Government expected to lead to thousands of homes built.

Two towers are currently under construction in Croydon to a design by HTA Design, at 38 and 44 storeys the tallest yet to be built using modular methods, and comprising 546 flats. And Berkeley Homes is following housing association Swan Housing and L&G, by building its own modular factory.

But what is happening at the mainstream level? Are traditional housebuilders letting go of traditional methods and embracing modular methods? It means an entire change of not only building itself, but also supply chain, and change is happening slowly. According to a report by law firm Pinsent Masons, only around 15,000 homes built of the roughly 200,000 homes currently built in the UK are modular, so we are lagging behind the leading countries.

Data from the Office for National Statistics has just been released which makes grim reading for the housebuilding sector, given the target of 300,000 homes per year. The ONS estimates that 844,000 new homes will be needed in London alone by 2041 – but fewer than 54,000 have been built in the previous two years.

Year on year, new private housing work was up by 4 per cent, but August was down by a not inconsiderable 0.9 per cent on the previous month. Modular has to be actively pushed forward via Government interventions if we are going to get anywhere near hitting the numbers needed.

It’s not going to be without pain for many private sector housebuilders – offsite is more expensive to build. Currently builders will only build at the rate they can sell – what are their direct incentives to do things differently? It’s going to take a leap of faith for many smaller housebuilders, if there’s no safety net.

James Parker

HOUSEBUILDER & DEVELOPER

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ON THE COVER



THE KEY TO HOUSING WORKERS

Jack Wooler speaks to architect Stephen Williams about its job-home project for the University of Cambridge, where the space between buildings has been turned to embed the new community into the site.

NW Cambridge Key Worker Housing – image courtesy of JackHobhouse go to page 10

Construction can reach net zero carbon by 2050, report says

A new vision for how buildings and infrastructure around the world can reach 40 per cent less embodied carbon emissions by 2030, and achieve 100 per cent net zero emissions buildings by 2050, has been issued by the World Green Building Council (WorldGBC) as part of the 10th annual World Green Building Week.

Together, building and construction are responsible for 39 per cent of all carbon emissions in the world, with operational emissions (from energy used to heat, cool and light buildings) accounting for 28 per cent of this. The remaining 11 per cent comes from embodied carbon emissions, or 'upfront carbon' that is associated with materials and construction processes throughout the whole building lifecycle.

In order to fully decarbonise the sector, it is necessary to eliminate both operational and embodied carbon emissions, says WorldGBC. Its new 'Bringing embodied carbon upfront' report proposes this goal, alongside solutions to accelerate immediate action by the entire building and construction value chain.

It argues that embodied carbon emissions have often been overlooked in the past, but that – as shown by research from the Intergovernmental Panel on Climate Change (IPCC) – achieving drastic cuts in all carbon emissions over the next decade is critical to keeping the global temperature rise to 1.5 degrees.

Addressing upfront carbon is therefore crucial to fighting the climate crisis, as new construction is expected to double the world's building stock by 2060.

WorldGBC has presented what it believes is "a clear pathway of actions" that designers, investors, manufacturers, government, NGOs and researchers across the whole value chain can take to accelerate decarbonisation, address current market barriers, and develop low carbon alternative solutions for market. However, the report warned that change will not happen unless there is a radical

shift in how the industry works together to enable a market transformation.

The transition towards mainstream net zero carbon standards requires immediate action to achieve greater awareness, as well as innovation; improved processes to calculate, track and report embodied carbon; voluntary reduction targets from industry; and roll out of new legislation at city, national and regional level.

Approaches such as maximising the use of existing assets, promoting renovation instead of demolition, and seeking new circular business models that reduce reliance on carbon intensive raw materials are also needed. To kick-start cross-sector collaboration, WorldGBC is calling for new national and sectoral roadmaps to be developed, such as those produced in Finland, Norway and Sweden, with strong support from industry and policymakers.

Homes England seeks investment at Japan's Rugby World Cup

Seeking partners to help raise the pace of UK housebuilding, Nick Walkley, Homes England chief executive, delivered a speech at the British Embassy in Tokyo to tie in with the Rugby World Cup.

The 'Investment in UK housing and Regeneration Event' was aimed at encouraging and fostering positive trade relationships between both Japanese investors and British business executives with regard to international investment in UK housing.

In his talk, Walkley explained Homes England's role, and the issue of tackling the housing crisis, describing it as "one of the biggest domestic challenges facing the country at the moment."

While acknowledging the extent of the challenge, he explained why he believes Homes England is well-placed to address it – the company expecting to spend £27bn in the next five years, "in addition to leveraging significant additional investment by partnering with the private sector."

He said: "As owners of significant amounts of public sector land with land assembly powers, we are well placed to act as master developer, substantially reducing the risk of new large scale

housing projects for private sector partners."

"Put simply," Walkley continued, "we are an organisation with the money, land, and powers to deliver the homes the country needs."

In order to succeed, Walkley told the audience that the company needs partners working across the sector, calling on anyone involved in the development process to offer services.

"We are well placed to introduce you to the English residential market," he added, and "partner with you to unlock opportunities."

Walkley hailed Homes England's current international partners (including Sekisui House UK), discussed the progress Homes England is making currently, and looked toward MMC and other new technologies. Walkley concluded: "We need the support of new ambitious partners who support our objectives and want to work with us. My hope is that our visit to Japan has helped to strengthen existing relationships, and will be the catalyst for new ones."

'Construction Charter' backed by City Hall

Public sector union Unite's Construction Charter has been backed by the Mayor of London, Sadiq Khan.

The Charter, aimed at improving London's construction standards, protecting workers, and outlawing poor construction practices, is set to become a requirement of building projects under City Hall's control.

One way in which the Charter hopes to lead the way in best practice is by ensuring building contractors and sub-contractors under the control of local authorities provide apprentice training, a safe working environment, and the industry rate of pay to workers.

Reportedly, going forward the Charter will apply to all major City Hall development projects – starting with the St Ann's hospital site in Haringey, London, for which the Mayor is now seeking a development partner.

The Charter will add to the Good Work Standard, a benchmark for high employment standards launched by the Mayor in July. This standard includes a set of criteria covering fair pay and conditions, wellbeing, skills and progression, diversity, and recruitment.



Brian Berry, chief executive of the Federation of Master Builders

A LACK OF AVAILABLE AND VIABLE LAND IS STILL THE MOST COMMONLY CITED BARRIER TO INCREASING OUTPUT FOR SME BUILDERS

THE INDUSTRY ADVOCATE

FMB SURVEY REVEALS BARRIERS TO BUILDING

In his regular column for Housebuilder & Developer, Brian Berry of the Federation of Master Builders (FMB), walks readers through the results of its annual House Builders' Survey, which has once again highlighted land, planning and finance as the main barriers to SME housebuilding.

It's that time of year again, when the Federation of Master Builders (FMB) publishes its annual House Builders' Survey. This is the only annual survey in England that tracks barriers to small and medium-sized (SME) housebuilders – and it is now in its eighth consecutive year.

This year's top three barriers – land, planning and finance – remain the same as last year, but encouragingly all of these have come down over the past 12 months.

LAND

A lack of available and viable land is still the most commonly cited barrier to increasing output for SME housebuilders. This is now the fifth year in a row where this was cited as the top barrier, with 43 per cent of respondents reporting this, down from 59 per cent last year.

Members reported that it is however becoming easier to find plots of land locally through technology such as Zoopla and Rightmove.

In terms of land supply – despite recent changes to the National Planning Policy Framework (NPPF) regarding small sites – 54 per cent of respondents reported that small site opportunities are, if anything, decreasing. Only 7 per cent reported that they are increasing, with most stating that the situation has not changed.

One disappointing figure that stood out in the report here was that only 26 per cent of respondents reported that local authorities are taking small sites more seriously. This is down from 41 per cent last year.

PLANNING

The second major barrier cited again this year was the planning system, reported by 42 per cent of respondents. When asked what the main cause of delays in the planning system was, the majority of respondents cited 'inade-

quate resourcing of local planning departments' for the fourth year in the row.

This is despite planning fees being permitted to rise by 20 per cent in 2018. In fact, only 3 per cent of SME housebuilders said that the speed and service of planning departments had improved since the rise – 38 per cent reported they had worsened.

Delays in the planning system add extra risk and cost to a development, and can be a major headache for SME housebuilders. We look forward to hearing the government proposals for reforming this area, in the 'Accelerated Planning Green Paper.'

FINANCE

Finally, the third major barrier to SME housebuilders reported this year is the lack of access to finance.

This is one area we have seen a major improvement in over the decade. In 2012, 72 per cent of FMB members cited access to finance as a major constraint on building new homes – in 2019 that was 39 per cent.

We have also seen a fall in the number of sites that have stalled due to financial reasons, falling from 47 per cent to 39 per cent. While this is welcome, we have seen a sudden rise in the number of loan refusals, which had been falling steadily over the last few years. This shot up from a score of 4.67 (out of 10) to 5.15 in the space of a year. This could be an indication that lenders are taking a more cautious approach in the lead up to Brexit.

So overall, there are some positive signs that SME housebuilders are finding it easier to build and increase output, and hopefully this leads to growth in the sector. However, the barriers, while reduced, still remain marked and there is still much more to be done to bring these down.

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NEW DEVELOPMENTS

UK's largest geothermal housing development takes shape

Two innovative ecological estates are being constructed by Gusto Homes in a village in Nottinghamshire, aiming to be at “the cutting edge of green residential development.”

Thought to be the largest housing development in the UK to be heated using geothermal energy, Collingham Park is a residential development with 60 retirement apartments and bungalows. These homes use geothermal energy from 32 boreholes reaching 120 metres underground, with the technology set to cut resident's energy bills by around 75 per cent.

The adjacent site, Collingham Brook, offers 45 properties including spacious three and four bedroom passive solar homes. The houses at Collingham Brook, which are triple glazed and highly insulated, generate the majority of their energy from rooftop solar panels, which provide free



electricity for heating and hot water.

Alongside housing, the developments will also include green spaces, a nursery, a gym, office space, business units, allotments and a local ‘Men in Sheds’ building which older men and women can use to develop their wood-working and other practical skills.

Gusto Homes has previously used their passive solar homes designs at its Woodlands Edge development in Lincolnshire, where 29 eco-homes have been built around private woodland near Lincoln, including homes which cost just £1 per day to run.

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CASE STUDY

Finding the key to housing uni workers



A project to create key worker homes for University of Cambridge staff has been completed – featuring a well thought-out design by architects Stanton Williams. Jack Wooler visited the scheme and spoke to the practice's Gavin Henderson on how the space between buildings has been utilised to embed the community into the new development.

Architects Stanton Williams have completed 264 key worker homes for staff at the University of Cambridge, blending social and retail spaces in the expanding community of Eddington, in the north west of the city.

After being appointed in 2013 as part of an architectural competition, the architects brought inspiration from the historic city – which is well known for its distinctive architectural mix – as well as developing their own ideas as to how key worker housing can, and should, function.

The new development is focused around a network of communal spaces, framed by 10 new buildings in a loose orthogonal shape. This shape has been moulded thoughtfully by the architects, utilising open space and sight-lines to create a sense of openness and comfort for its users.

Between the 10 new buildings are hosted 100 one-bed apartments measured at 50-54 m², 161 two-bed apartments at 62-64 m² (two of which are wheelchair accessible), and three four-bed homes each totalling 155 m². It is hoped this range of sizes will suit the similarly varied expected occupants, of which the likely shortened tenancy of post-doctorate employees required design consideration.

Now a key part of the wider project – which is eventually set to bring 3,000 new properties to the area – the new homes contribute significantly to the ambitious new neighbourhood of Eddington, which is claimed as an exemplar in building community cohesion.

The wider development is the largest capital project in the University's 800 year history, offering homes for university staff alongside additional market housing, as well as the necessary amenities to enable sustainable day to day living and working – with the Stanton Williams-led project adding a supermarket and copious cycle facilities alongside the homes.

THROUGH THE MARKET SQUARE

The brief provided by the university to the architects for the project was to create a new urban quarter – fulfilling the client's aspirations of a place “teeming with its



own life,” including shops and communal amenity space alongside quality housing.

To achieve this, explained Gavin Henderson, principal director at Stanton Williams, the practice placed a firm focus on “fostering communal life,” with “the spaces between buildings as important as the buildings themselves.”

This is evident when walking through the plentiful public realm in the project. Entering along Eddington Avenue, which has its own dedicated bus route, the new site spreads along to the east, with the 2018 Stirling Prize-winning Storey’s Field Centre to the west – offering locals community rooms of varying sizes, from groups of 20 to 180 people.

Residents and visitors then turn east into the new development, and directly into the Market Square – a large paved pedestrian area surrounded by housing blocks and a dedicated supermarket. While this “could have easily led to a blocked-in, imposing layout,” said the project architects, “long sight-lines through the wide open spaces between the buildings retain the sense of freedom in the square.”

Further encouraging this sense of openness, the square “invites the public to linger and commune in the space.” Around these grounds is a large quantity of open seating, which helps host the diverse programme of food outlets and vans that frequent the square, providing a social hub for the site’s users to meet and socialise.

As well as the dining offerings, the Market Square is set to host a range of events, again helping to make it a natural meeting point for its users. The retail offerings too are set to grow, with the Sainsbury’s supermarket and Argos store intended to be supplemented by further retailers in the coming months.

Once the sun sets, the Market Square is

lit up with projections including artworks, poems and patterns, all inspired by Cambridge and the history and heritage of its university. As well as a constant flow of images, there are hourly ‘shows’ with interactive artworks to mimic the idea of a town clock – adding further character to the area.

INTO THE COURTS

Heading further through the development, users are led towards the residential blocks, all of which are centred around various ‘courts’ – each of which offer similarly wide open spaces, mitigating any imposition from the buildings’ heights.

These courts – built around a challenging topography of changing heights – rise and fall with the land, which is now easily navigable through a system of slopes and stairs. These are surrounded by carefully hidden waterways to lead surface water towards the site’s various swales – themselves made into a feature in the centre of some of the courts – and abundant planting, all contributing to a fully realised sense of place.

Gavin explained this site design further: “Being former farmland, the site presented interesting opportunities to respond to typography and to exploit the clear change of levels across the site – something that both the masterplan and our scheme have successfully embraced.”

As to the residential blocks which are separated by these courts, the buildings are expressed as brick plinths, connected visually with the materials and activities in the landscape.

The building forms are “strongly articulated through the use of recessed brick piers and horizontal precast concrete cills,” said the architects, “with the level of detail on different buildings varied to respond to their prominence within the



“CREATING A SENSE OF COMMUNITY AND BELONGING AS QUICKLY AS POSSIBLE WAS KEY”



surrounding context,” added the architect.

These varied buildings differ in scale and function, moving from the large, urban and public Market Square, through to the semi-public Landscape Court, among the multiple other courts. Throughout these spaces area are passages “mediated” between them, providing a more intimate sense of scale.

MATERIAL COHESION

There are a range of typologies around the site, including a wide variety of tenures and house sizes – as Gavin put it, the typologies “reflecting the aspirations of the client.”

One such aspiration was to attract international and diverse workers in order to host the best available talent. In this endeavour however, it was important to consider that they are less likely to stay for as long as a standard family might occupy a household.

“Our occupants are mostly post doctoral members of staff,” explained the architect. “Some of them will be there for no longer than five years.”

This meant that the design needed some differentiation from a typical house type, which would generally hope to house its occupants for many years to come, while appealing to them. “As such,” he continued, “creating a sense of community and belonging as quickly as possible was key.”

One way in which this was achieved was by placing a firm focus on fostering communal life – which the courts have achieved largely through their connection to the city, and the spaces’ own connections to each other.

The courts and square have been designed as a network, creating a transition from the life of the city to the heart of a new community. The spaces are interconnected at multiple intervals in order to form the network, creating what the

architect called a “social landscape.” It “recalls the differentiated spaces of the traditional city and the historical collegiate spaces of central Cambridge into the design process,” said Stanton Williams.

The palette of materials used reflects this, being carefully considered to mirror the local vernacular. This includes two tonnes of brickwork and traditional cobblestones, which were used to reference Cambridge’s domestic architecture. This helps to link the community to the city, ensuring that new inhabitants can see the city and the new neighbourhood as one, allowing them to settle far faster and familiarise themselves with relative ease.

RAIN OR SHINE

As mentioned previously, the project presents a highly developed water management system, which has been embedded into the development into the get-go to produce a cohesive structure which feels “as part of the landscape.”

The masterplan provides for significant rainwater harvesting, offering a 100 year storm water strategy, for example. Much of the remaining water strategy involves cobble rills, which channel water across the site discreetly, following primary routes and terminating in attenuation pools.

It comprises an extremely successful SuDS system, and one which ‘hides in plain sight.’ Instead of frequent and often bulky drainage pipes above ground, the drains run as part of the pathways, culminating in the feature swales, which provide their own focal points and green areas between the buildings.

Adding to this strategy are living roofs, which both further the drainage strategy and encourage biodiversity – the latter also achieved through the facades supporting wall shrubs and fruiting climbers.

Landscaping as a whole was heavily

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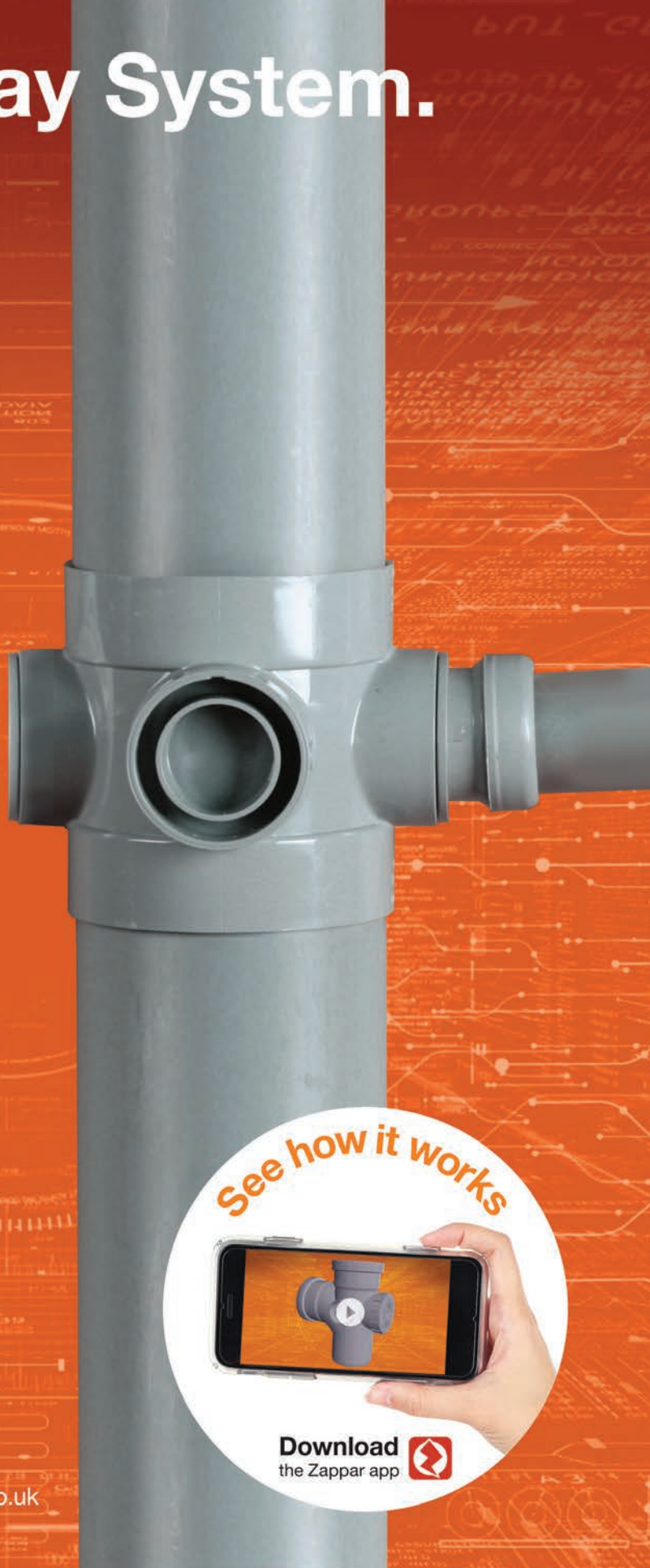
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The project, now completed, already 'teems with life' – the Market Square in particular proving to be a vibrant social hub for the new community

ONCE THE SUN SETS, THE MARKET SQUARE IS LIT UP WITH PROJECTIONS OF ARTWORKS, POEMS AND PATTERNS, ALL INSPIRED BY CAMBRIDGE AND THE HISTORY AND HERITAGE OF ITS UNIVERSITY

considered throughout the design process, with edible plants interspersed across the site. Wildlife was further encouraged through bird boxes and ponds, and a combination of wild meadows and manicured lawn areas.

Gavin Henderson told *Housebuilder & Developer* that this kind of ecological living was “fundamental to the ambition of the North West Cambridge Development,” one which is not just actioned through planting.

The masterplan provides for limited car use for example, site wide combined heat and power energy generation meaning that individual homes do not need boilers, and photovoltaic panels have been roof mounted to all 10 buildings. As well as this, the apartments have been designed to meet the Code for Sustainable Homes Level 5, while retail units and non-residential spaces will reportedly achieve BREEAM Excellent.

The homes themselves display a high performing building envelope to match and fulfil these specifications, including low U-values and high standards of air tightness and sound insulation. The residences include passive solar design to supplement the energy usage, with generous levels of both daylight and views out to the surrounding landscape offered on all occupied areas. The homes also offer natural cross ventilation, achieved through open plan layouts and dual aspects.

These designs are even future proofed to a degree – adaptability being considered through a 120 year design life of principal structural elements.

Aside from the residences, cycling proved to be another avenue for sustain-

ability. With cycling a part of the culture in Cambridge, it was clear from the outset that the mode of transport needed special provision throughout the site.

This is enacted through timber pavilions scattered throughout the site, which not only provide secure storage space, but also provide an opportunity for social interaction. Acting as garden wall-like elements, their slatted timber facades connect the enclosed spaces to the landscape beyond, and create a lantern effect after dark. The single storey cycle pavilions also serve to break down the scale and massing of the surrounding buildings, “celebrating arrival by bicycle,” said the architects.

POSITIVE FEEDBACK

The project, now completed, is already beginning to bustle and teem with life – the Market Square in particular proving to be a vibrant social hub for the new community.

Heather Topel, project director of the North West Cambridge Development was reportedly “delighted” with the project on completion, calling it the “final piece” of Eddington, and one which “establishes a high quality environment for the new and surrounding communities.”

Gavin himself was similarly happy with the result,” especially with the positive feedback the practice has received from the first residents.

Only time will tell, but it appears as though this community-first style of development is set to provide an example of well-catered key worker housing. Blending the urban with the natural effectively, it feels as though this project genuinely belongs in this landscape. ■

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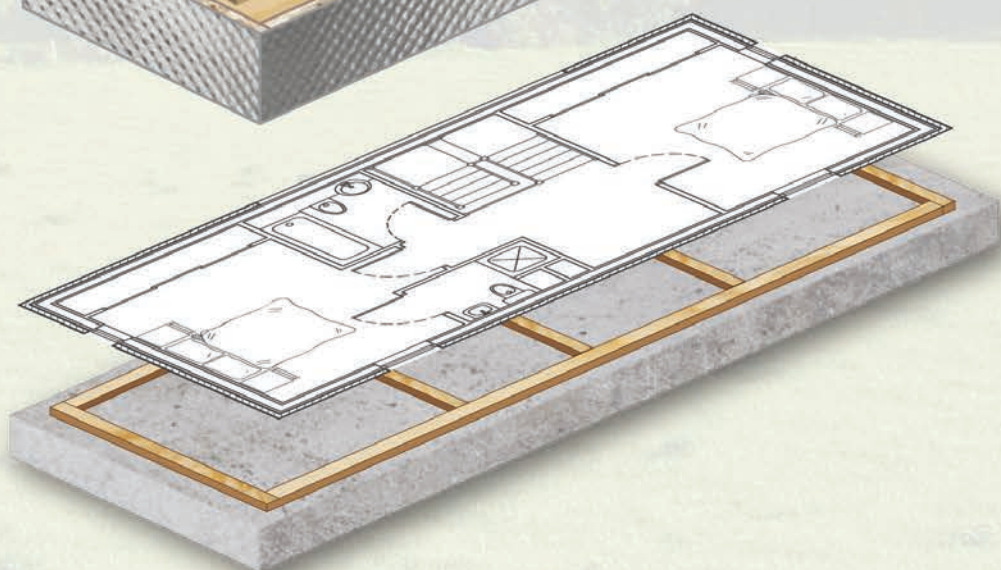
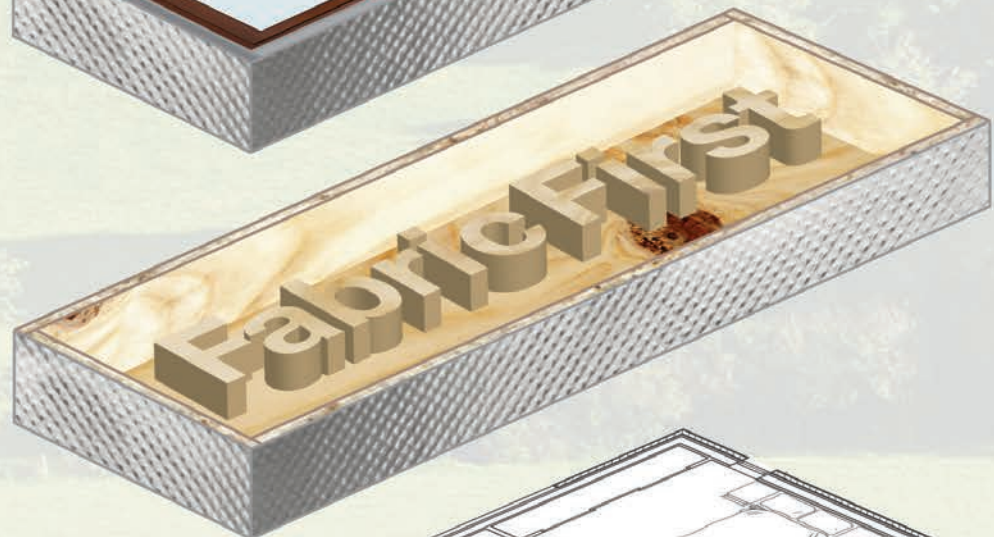
THERMAL PERFORMANCE



ENERGY EFFICIENCY



SPEED OF CONSTRUCTION



The business case for installing SuDS

The strengthening link between flooding and climate change highlights the importance of sustainable drainage (SuDS) in developments. As Chris Hodson of Interpave argues in the second article in our series on tackling climate impacts, well-designed, multifunctional SuDS also costs less.

Development and urbanisation have increased sealed surfaces such as paving and roofs, dramatically reducing the capacity for natural, sustainable drainage. In rural areas with natural drainage, only five per cent of the surface water finds its way directly into watercourses, whereas in densely populated urban areas up to 95 per cent of rainfall becomes runoff, captured in deep, piped systems and placing increased pressures on already overburdened drainage systems.

This problem is exacerbated by climate change which – it is generally accepted – will result in milder and wetter winters and hotter summers, with more intense and frequent rainfall events. Since the 1960s, there has been a 50 per cent increase in the number of three consecutive day storm occurrences, resulting in continuing growth in the volume of runoff which we have to handle. And the rate at which it runs off is also much faster. When designing developments today, rainfall intensity should be increased to cater for climate change – typically by 30 per cent over the one in 100-year rainfall intensity required by the regulators.

MULTIFUNCTIONAL SUDS

In contrast, SuDS replicate greenfield (pre-development) conditions with natural losses, slow flows and reduced discharge rates. They should also improve water quality by removing pollutants and provide amenity (including biodiversity) through multifunctionality. Well-designed SuDS incorporate exceedance routes to provide climate change resilience in extreme weather events. They also help mitigate against climate change with planting and green spaces, reducing urban heat island effects.

It's over three years since the Government chose to abandon dedicated requirements for SuDS on new developments in England using the 2010 Flood and Water Management Act, despite the Committee on Climate Change's 2014



At the Cambourne SuDS Monitoring project, concrete block permeable paving at the head of the management train also accepts water from impermeable paving

Adaptation Progress Report. This stressed that increased flood risk is the greatest threat to the UK from climate change and called for the Act to be implemented without further delay. Instead, the Government now relies on planning policies, implemented at local planning authority level. However, a recent Landscape Institute and CIC Report highlights that this approach has been far from successful and merits rethinking.

In contrast, earlier this year the Welsh Government did implement Schedule 3 of the Act as intended, with measures including establishment of a SuDS Approving Body (SAB) within each local/unitary authority. SAB approval will be needed for all but the smallest developments, and the SAB will be required to adopt and maintain approved SuDS that serve more than one property.

The Welsh National Standards spell out the situation: "The SuDS approach mimics natural drainage, managing surface runoff at or close to the surface and as close to its source as practicable. Surface based sustainable drainage components are visible in their operation and performance and are generally simpler and easier to operate, monitor and maintain." By its very nature, concrete block permeable paving (CBPP) is uniquely placed to satisfy these requirements as an attractive, surface-based, multifunctional SuDS technique.

AVOIDING LAND-TAKE

Of course, developments need paving anyway, but CBPP also provides an inherent drainage system with no additional land take or dedicated constructions for water storage, treatment or conveyance. In fact, CBPP can also accept runoff from other impermeable paving and roofs, giving further savings.

It is therefore well-suited to higher-density urban schemes. For example, at

a high-density (104 units/hectare) town-centre housing scheme in Stamford, most public areas between buildings are CBPP, which also accepts runoff from other hard areas and roofs. Clean water then passes gradually from the paving directly into planted rills and canals, adding interest and much-needed greenery to the courtyard environment, before passing into the nearby river.

CBPP addresses both flooding and pollution issues by storing and cleaning water runoff at source. It removes water-borne pollution and provides a gradual flow of clean water at the head of the 'SuDS management train,' enabling safe, open SuDS features on the surface, and enhancing landscape design and biodiversity. CBPP also eliminates the cost of pipework, gulleys and manholes.

COST SAVINGS

These and other savings resulting from SuDS are demonstrated by the Lamb Drove SuDS Monitoring project in Cambridgeshire. The SuDS design optimises natural flow routes through the site for low and high flows, as well as for exceedance. SuDS have been integrated with landscape design adding amenity, interest and biodiversity to a conventional housing layout with no reduction in density. The scheme is also popular with residents.

The project assesses various SuDS techniques – including CBPP – in a management train, compared with a conventional piped drainage system nearby. The Monitoring Report noted that capital cost savings of £314 per home were achieved using SuDS, with further potential savings available when SuDS are integrated with layout design from the start.

Chris Hodson is architect and consultant to the trade association Interpave

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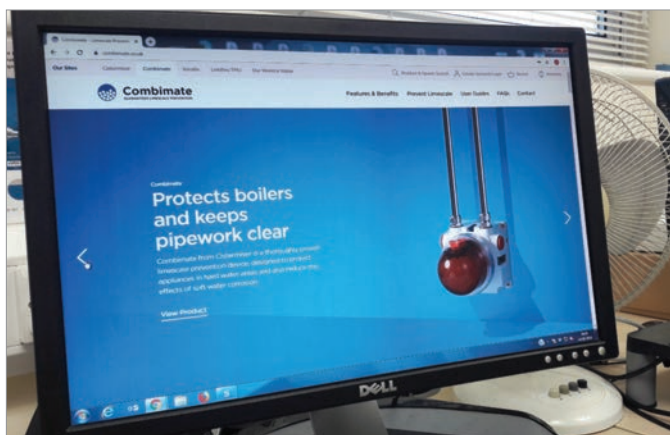
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Working to help roofing merchants grow

Whilst Freefoam building products have traditionally been available from specialist PVC suppliers the more ambitious roofing and general builders merchants are now seeing the potential and benefits of stocking fascia, soffit and gutter alongside their existing ranges. With 12 branches in and around the capital, Skyline made a strategic decision to add PVC roofline products to their range. Greg Homer, General Manager Hanwell branch explained: "We have seen our customer base widen from our core roofing professionals, to now include builders, loft convertors, renovation companies and cladding contractors. We needed to introduce a wider range of products to service this new business. We chose Freefoam as our roofline provider because we get a wide and comprehensive range of products, enabling us to provide the variety our customers need." Skyline now hold substantial stocks of PVC roofline products. With an initial installation of bespoke racking for roofline and rainwater products provided by Skyline for each branch, alongside training for counter staff and Point of Sale provided by Freefoam, roofline has quickly become an integral part of the Skyline range.

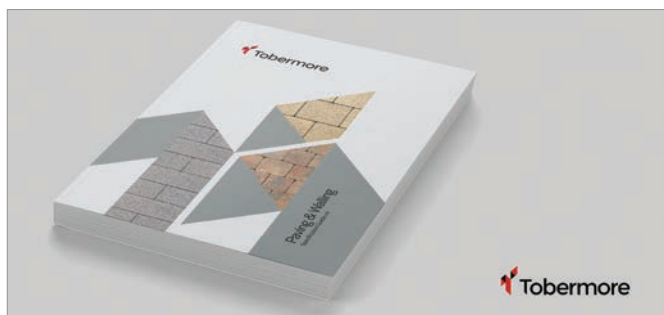
www.youtube.com/watch?v=XhlfMkqobhg&t=12s
www.freefoam.com



Cistermiser's new-look Combimate website

Combimate, Cistermiser's proven and popular limescale prevention device, is presented on an eye-catching new website which has been designed to appeal to housing specifiers, installers and homeowner customers alike. Available in a choice of models for 15mm or 2mm pipework, Combimate keeps domestic water systems clear of limescale and energy costs down. Combimate is WRAS approved and uses Combiphos spheres to efficiently dose the water, as required. This 100 per cent safe, food-grade natural material stops scale build-up on taps, boilers and appliances. The new website explains the benefits of phosphate dosing in detail, with helpful FAQs and informative User Guides to ensure that consumers get the most out of their Combimate, which is commonly installed to prevent limescale formation in hard water areas but will also reduce the effects of soft water corrosion. Combimate can be fitted to provide limescale protection for whole house water supplies.

0118 969 1611 www.combimate.co.uk



Tobermore launch new Specification Guide

Tobermore continue to set standards with the launch of their official new Specification Guide. Designed with architects, landscape designers, developers, building contractors and housebuilders in mind, the all-encompassing new guide is complete with all the latest additions to Tobermore's extensive paving and walling ranges, and photography of stunning commercial schemes. The almost 300 page guide is a carefully detailed resource with extensive visual and technical references to help designers and architects choose the ideal solution for their project. The clearly indexed format enables the user to choose from the hundreds of colour, size and finish options suitable for the full range of traffic applications and project sector. Importantly, all the product options are located in one document so essential elements including steps and kerbs can be referenced and specified at the same time. Tobermore's Managing Director, David Henderson, has expressed his delight at the launch of the new guide: "Throughout the years, we've set ourselves apart in the marketplace with our undeniable product quality, our innovative manufacturing processes and our first class customer service. Our new Product Specification Guide reflects these values perfectly – it is simply quality like no other"

0844 800 5736 www.tobermore.co.uk



On the road with Cromar

Cromar, in partnership with their hauliers JMS of Doncaster, are pleased to announce the expansion of its fleet of branded wagon sides. JMS, who distribute almost 50 per cent of all Cromar's deliveries, have invested in new trucks and trailers worth more than £400,000 so far in 2019 and as part of the deal with Cromar, one lorry and trailer have been fitted with Cromar-branded curtain sides promoting the companies various ranges, which it distributes into independent builders' and roofing merchants. Independently owned Cromar, established in 1997, now moves up to 100 pallets a day on average, turned to JMS, a member of the Pallet-Track network, to handle shipping.

John Sheard, Managing Director of JMS of Doncaster, said: "Our relationship with Cromar goes back many years and we're delighted to have teamed up again to ensure their range is shipped quickly, efficiently and safely to its destinations. We're delighted to have a very visual reminder of the partnership on the side of our new trucks, which looks great and can only help us grow together."

Cromar manufactures more than 70 per cent of its product range at its facility in Yorkshire and recently acquired an additional 47,000 sq ft warehouse to enable them to hold even more stock.

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- Excellent thermal performance
- Significant cost savings



The most cost effective energy for building off-grid

Mains gas tends to be the first-choice energy supply for housing developers. But in rural locations, the cost of connecting a development to the gas grid could potentially make the project unviable. Under these circumstances, Ian Digby, Specifier Sales Manager at Calor, explains why LPG offers the most cost effective alternative source of heating to build and install, without compromising a development's attractiveness to customers.

Heating systems powered by electric, oil or LPG have traditionally been specified for off-grid developments. In more recent years, renewable technology has also become available in the form of both ground and air source heat pumps.

Each of these technologies have a variety of pros and cons, but LPG heating systems have consistently been recognised as the best alternative available. In fact, these systems offer the biggest savings on build costs; a recent report by Briary Energy revealed that housebuilders could save approximately £500,000 on build costs on a typical 100 plot development if they choose to install LPG heating¹. Here's why:

NO MAJOR EXPENSE

In recent years more focus has been placed on the impact our homes have on the environment, which has driven an increasing interest in technologies such as air source heat pumps (ASHP). However, these represent a major expense both in terms of purchase price and the modifications required to standard designs to accommodate the required systems within a property. Indeed, a recent report suggested that the additional costs of installing an ASHP system can be anywhere between £5,000 - £8,000¹.

What's more, a hot water cylinder is always required in conjunction with an ASHP because, unlike combi boilers, heat pumps do not produce instantaneous hot water. This means changes have to be made to standard design



layouts, potentially resulting in smaller bedrooms and living spaces for the homeowner. It is also important to note that heat pumps operate on a low temperature system. Therefore, more complex and costly heat emitters, such as underfloor heating or Low Surface Temperature (LST) radiators, are usually needed to achieve the best performance.

In contrast, schemes with LPG technology can cater for standard internal property layouts much more easily. This is because LPG boilers are the same size and have the same flue clearance as mains gas ones, which means that neither expensive alterations nor special compromises are necessary.

EASY SAP COMPLIANCE

Because LPG has a lower fuel factor compared to oil and electricity, only small 'bolt on' energy saving measures are required to pass SAP. In fact, it is becoming increasingly unattractive to specify oil or electric heating technology for new builds due to the additional changes required in order to meet SAP ratings.

What's more, oil tanks, which must be located above ground, can have an impact on a site's aesthetics.

Compared with electric heating, there is no need to install solar PVs in most cases if LPG is specified. Only low-cost modifications such as the addition of hi-therm lintels or waste water heat recovery are needed alongside LPG technology to reach the required SAP ratings.

FAMILIARITY OF GAS

LPG is the closest alternative to mains gas, which means that associated boilers and their controls operate in exactly the same way as the type of mains gas combi boiler familiar to most homeowners. It's versatile too, and provides an instant, controllable flame for cooking.

LPG can be easily installed as a communal system, with the gas stored centrally underground in tanks and then distributed through a network of pipes. This means that site aesthetics are unaffected and each individual home can have its own meter for easy billing. The LPG supplier owns the central tanks, maintaining and refuelling them automatically as necessary, giving homeowners the reassurance of an uninterrupted gas supply.

By using LPG as the source of heating new homes, developers bringing forward schemes located in off-grid areas can cost effectively offer a versatile and reliable fuel without compromising on a development's design. Our Developer Team works closely with housebuilders throughout their projects - from initial specification to testing, commissioning and ongoing maintenance support - making LPG and partnering with Calor the smart choice for off-grid housing schemes.

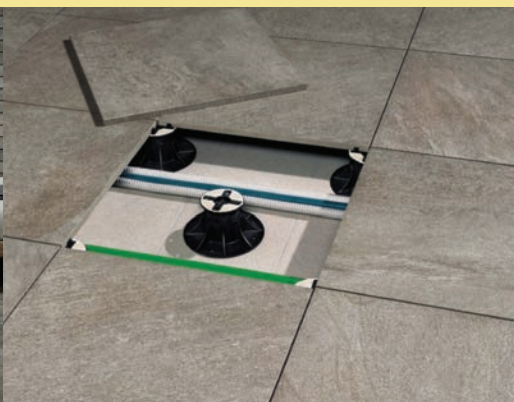
¹ <http://www.calor.co.uk/briary-report>

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The professional decorating industry will again convene at Coventry's Ricoh Arena on November 26 and 27 for the **2019 National Painting and Decorating Show**. Now in its 25th year, this is the annual trade event targeted specifically at professional decorators, interior designers, stockists and facility managers.

The National Painting and Decorating Show provides visitors with a valuable networking opportunity to meet exhibitors face-to-face, find out who's doing what in the decorating industry, and exchange ideas and solutions with like-minded decorating professionals.

www.paintshow.co.uk www.paintinganddecoratingnews.co.uk

Vent-Axia solution shortlisted in HVR Awards



Vent-Axia is delighted to announce that it has been named as a finalist in the prestigious HVR Awards 2019. Shortlisted in the Commercial / Industrial Ventilation Product of The Year category, the Vent-Axia Acoustic Solution leads the way in quiet living, offering acoustic solutions for

its Sentinel Kinetic mechanical ventilation with heat recovery (MVHR) units. With the negative effect of noise on our health now recognised, the Vent-Axia Acoustic Solution has been designed to further reduce the already low noise levels of the MVHR units to improve the quality of life of inhabitants and reduce noise complaints in very noise sensitive applications.

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AG Woodward Brick

AG, one of the UK's leading manufacturers of innovative concrete products, has launched a new Fine Cast Brick which has been developed specifically with Housing Associations and Private Developments in mind.

Woodward, which comes in nine colours and both smooth (sharp) and antique (rumbled) textures, has been designed with a depression in the top face – commonly known as a frog – in order to hold mortar. The 'frog' also makes the product easier to handle and reduces the weight of each brick.

The new range taps into AG's strong track record and experience in the development of innovative concretes that stretches back some 60 years.



AG Commercial Director, Rodney Davidson said: "Woodward's carefully created design replicates the aesthetics of a wire cut finish. One of the things of which we are most proud is the integrity of the colour, made possible through the use of Lanxess pigments which combats significant colour changes during its lifetime. All of our bricks are designed to be durable and stand the test of time and our 60 year guarantee is testament to the confidence we have in our facing brick range."

AG believes the new Woodward range is especially suited to Housing Associations and Private Developers.

"We know from our experience in these sectors that any product used needs to be aesthetically attractive and technically robust. Given the major growth being experienced in house-building throughout the UK and Ireland we believe the Woodward range will be an attractive option for those seeking an option which ticks all the boxes and has guaranteed delivery times made possible by the efficient manufacturing process that enable us to produce Woodward twice as fast as our other brick ranges."

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CAN MMC QUALITY REDUCE FIRE RISK IN BUILDINGS?

Mary McCollum of Sapphire Balustrades explains how the quality control possible through modern methods of construction (MMC) can reduce fire risk in buildings – particularly when installing balconies.

Modern methods of construction (MMC) may hold the key to a myriad of industry woes, and key players are increasingly turning to offsite construction for solutions. MMC offers improved efficiency, quality control, and cost savings, among many other appealing benefits.

In the wake of numerous balcony fires, the Hackitt review, and drastic regulation changes, reducing fire risk in residential buildings is at the forefront of the minds of many throughout the supply chain. Not only is compliance with the latest regulations made difficult due to a lack of explicit and specific guidance, but with this guidance in a state of continuous evolution, the industry is left in a position of hesitation, anticipating further developments.

But how does MMC relate to reducing fire risk in residential buildings? Primarily, the benefit lies in the substantial improvement in quality control.

A key takeaway from the Hackitt review was the need for higher levels of quality control. Hackitt pushed for clearer chains of responsibility with a top level 'duty holder' to be responsible for the safety of individual buildings. For said duty holder to verify the safety standards of all elements involved in a building, step-by-step quality checks must be carried out with a traceable history. These standards are integral to modular construction, but far more challenging with traditional methods.

**WITH PRE-FINISHED
MODULAR BALCONIES A
HOLISTIC APPROACH
TO PRODUCTION IS
ACHIEVED AND QUALITY
STANDARDS ARE
MAINTAINED**

Traditional methods of construction have always been plagued by the dramatic variation between different workers, and the results of their labour not meeting the specification. Understanding becomes diluted as the information is distilled from the intention at the design stage to the onsite interpretation of it. Variation in skill, time and conditions can result in dangerous inconsistencies.

With traditional construction, quality standards and fire safety are dependent on the complete synergy of a multitude of trades interfacing with each other. Achieving this level of cooperation and smoothness of project programme is extremely difficult, and costly delays are common.

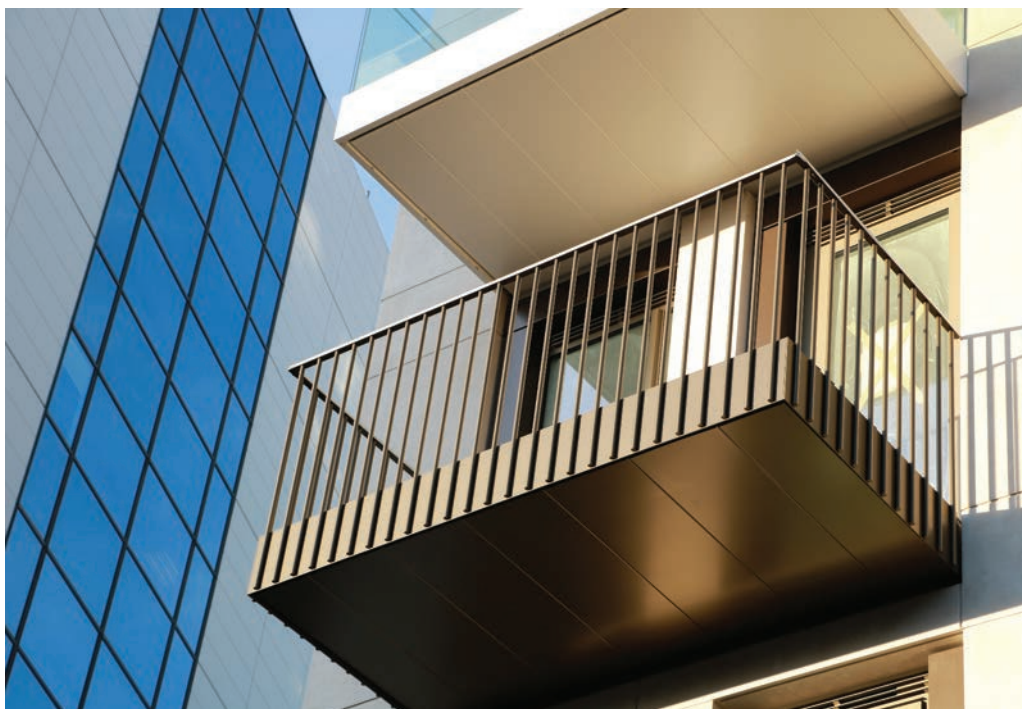
Offsite construction, on the other hand, benefits from consistency along the production line, and controlled conditions reduce the opportunity for error. Factory environments entail regular checks allowing faults to be found and remedied. Highly trained specialised workers can

work with the support of supervisors without the complications brought by being onsite.

Traditionally, balconies rely heavily on onsite finishing and install work, from concrete balconies cast entirely onsite, to steel framed bolt-on balconies which often claim the MMC title while relying heavily on onsite labour. With pre-finished modular balconies, a holistic approach to production is achieved and quality standards are maintained, just like car production.

Limiting inconsistency reduces a range of risk factors, including fire spread. Ineffective firestopping for example can leave hollows which can act as chimneys, allowing fires to spread more readily with greater risk to life and property. In a controlled factory environment these oversights can be avoided far more consistently.

Another fundamental aspect of volumetric modular construction is the high level of design specification required. Especially when adopted early on,



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balcony design costs and common issues can be significantly reduced.

At the design stage, improvements and lessons learned from previous projects can be applied consistently across all modules and components. For example, a fire stopping solution like a StubGuard is CNC manufactured for the bespoke stub and interface. The design is intended to avoid gaps in the firestopping, and because it's moulded for the specific stub, it cannot be installed incorrectly. A modular approach provides the benefits of CNC machined

products and avoids the variations and issues of high labour products.

Other risk reducing measures can also be implemented at design stage, such as soffits in modular balconies, ensuring uniformity across the project. Soffits help to stop fire spread by containing balcony fires and preventing falling embers reaching the balcony below and blocking flames from reaching the balcony above. With some MMC modular balconies, soffits are installed offsite and arrive pre-finished and ready to be quickly installed,

avoiding the traditional need for time consuming soffit fitting and improving programme costs.

Balcony construction is critical for fire spread prevention, as they are often the space used for smoking and even barbecues. With modular solutions, measures to reduce the risk of fire spread can be included at design stage, making the process more efficient and cost effective.

MMC has often been used inaccurately as more of a buzzword than a range of innovative solutions to industry challenges. But if these modern methods were implemented successfully, they may revolutionise the industry and have the potential to transform the landscape to meet modern demands.

Developers like Berkeley, L&Q and Barratt are among the key early adopters to embrace MMC within their business model, with significant investment. Others are gaining the benefits of offsite production by working with expert supply chain partners – innovative experts within the supply chain bring the benefits of MMC without the capital investment and logistical challenges of radically transforming project processes.

Mary McCollum is marketing executive at Sapphire Balustrades

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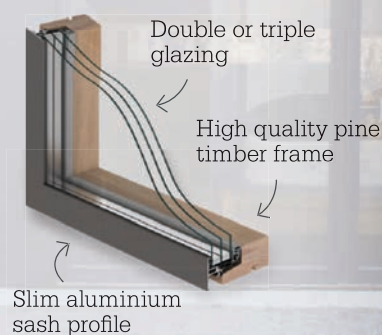
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Schöck capability at major North London development



The former site of the National Institute for Medical Research (NIMR), on The Ridgeway at Mill Hill, in North London, is being redeveloped by Barratt London as a major residential development known as Ridgeway Views. The NIMR building, with its distinctive green copper-roof, has been a local landmark since the 1950s, but more recently the Medical Research Council decided the NIMR should relocate. In 2016 it became part of the Francis Crick Institute in St Pancras. Work on the forty-seven acre site is due to be completed by the end of 2021 comprising around 460 residential units, with apartments across nineteen buildings of three to nine-storeys and twelve three-storey houses. New offices, leisure facilities and a café will also feature.

THERMAL PERFORMANCE IS CRITICAL

Minimising energy use by improving thermal performance is key and the prevention of thermal bridging is critical to this, particularly within the balcony and parapet detailing. Ineffective insulation at the connection points means local heat loss, resulting in more energy being required to maintain the internal temperature of the building. Also, low internal surface temperatures can cause condensation, leading to structural integrity problems and even the potentially serious occurrence of mould growth.

A VARIETY OF CONNECTIONS

Schöck Isokorb structural thermal breaks are being installed throughout to minimise thermal bridging risk. For the concrete-to-concrete



cantilever balconies it is mainly the Isokorb with 80mm insulation thickness that is used, transferring both negative moments and positive shear forces. For the recessed balconies where there is continuous support, a variant of the same Isokorb is installed. Steel-to-steel connectivity on the project uses a modular unit which can meet practically any profile size and load-bearing capacity. A special requirement here involved a steel balcony needing to be bolted down to a precast plank. To achieve this an L-shaped bracket was first fixed to the slab, then a stub bracket and balcony attached to the bracket using the modular Isokorb.

The Isokorb with 120mm insulation thickness for parapets is also used within the first phase of the development. Parapets are just as prone to



thermal bridging problems as balconies and the conventional insulation method is to wrap the perimeter of the wall with an insulation barrier. With the Isokorb no wrapping is required

TOTALLY VERIFIABLE PERFORMANCE

The comprehensive Schöck Isokorb range meets full compliance with the relevant UK building regulations, has NHBC approval and offers LABC Registration. There is also the security of independent BBA Certification. The requirement too that the temperature factor used to indicate condensation risk (fRSI) must be greater than, or equal to, 0.75 for residential buildings is easily met by incorporating the Isokorb.

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Profile 22 used in social housing development



Profile 22 Chamfered Windows were specified and commissioned for 39 new build houses in Telford. When it came to the windows and doors on the project, the contract was awarded to Profile 22 Approved Window Contractor Select Windows. Profile 22's Optima Chamfered Windows is increasingly becoming the commercial system of choice because of its ability to meet demanding requirements at a competitive price. Optima delivers a 1.2 W/m²K U-value as standard, with U-values as low as 0.8 W/m²K possible. Optima windows achieve PAS24 2016 Enhanced Security and have Secured By Design options when these are required, as they were in this case.

www.profile22.co.uk

Glass alignment made simple



With the trend for minimalistic architecture going strong, many designs involve a frameless glass balustrade system that doesn't require a handrail to meet the legal loading requirements, and that is easy to adjust. To help achieve this, architectural

hardware specialist **CRL** has launched two new adjustable glass balustrade systems. Ideal for residential projects and small commercial applications, CRL Spig-Lite Pro is a fully adjustable glass balustrade system with a unique clamping design that removes the need to hold the glass with locking pins. The elongated holes allow for easy adjustment of the glass panels, ensuring the top edge of the glass is equal when a handrail is not required.

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Balconies add value to luxury development



McCarthy & Stone's Stapleton Court development of retirement apartments near Hull has utilised **Neaco's** design expertise for an extensive specification of glass walk-on balconies. Fraser Mitcalfe, Regional Surveyor at McCarthy & Stone, said: "We have used

Neaco for numerous previous developments due the high standard of their product and their reliable service. As a company, they bring more than just product quality to the table – they also bring useful design input and experience from a supplier's perspective. Their Neatdek decking is now specified group-wide due to its non-combustible quality which is now a legal requirement for balconies on residential developments."

www.neaco.co.uk

Spectus Flush Tilt & Turn Windows



Spectus Flush Tilt & Turn Windows specified in the construction of 22 houses and 22 flats in Crawley. Spectus Flush Tilt & Turn Windows were specified with Spectus Approved Window Contractor Jade Window and Door Specialists appointed to manage the fabrication and installation of the 200 windows the project required. Spectus Flush Tilt & Turn Windows

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Profile 22 specified for high quality development










Over 500 Profile 22 Optima Flush Casement Windows were installed in a private housing development in Whalley Range, Manchester. The Profile 22 Optima Flush Casement Window more than met the demanding requirements of the development. Jonny Reynolds, Technical Director at Kingfisher Windows, said: "The Optima Flush Casement Window offers the perfect solution for developments in areas protected by conservation orders that need a window that replicates the 19th-century timber window design, whilst offering modern features and benefits." Like all Profile 22 products the Optima Flush Casement Window System is produced to BS EN 12608 and manufactured to BS EN ISO 9001.

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The build quality of any housing development is always the most important aspect of any project. Having a poor infrastructure can lead to untold issues with the future performance of the house. As such, ensuring that all elements are painstakingly planned is of the utmost importance.

We all know that drainage should not be an afterthought when it comes to this process. However, what many people do not realise is that drainage can play a role in increasing the value of a home.

So, how can you increase your development's worth? Ultimately, creating a better place to live will raise the value of any home, such as improving kerb appeal through the selection of high quality products which complement and benefit the design. Ensuring that drainage is structurally sound and in the right place is essential here.

Landscaping and gardening features can also help improve the value of a home. Outdoor living spaces remain popular with homeowners, and some figures suggest that a well-maintained garden can add between five and 20 per cent to the value of the whole property (data from Yopa).

Ultimately, a well developed and designed home goes hand in hand with a higher quality build. Housebuilders and developers must bring in drainage specialists at the earliest stage of the project to ensure that this function runs smoothly and as efficiently as possible.

FOUR KEY AREAS

As alluded to above, each individual area within the home presents its own unique water management challenges. From the driveway and entrance to patios and gardens, there is definitely no 'one size fits all' fix when it comes to drainage, especially if you want to maintain a high quality finish.

There are a plethora of solutions that can be mixed and matched, but having a true understanding of the key requirements for each area of the house is key.

Driveways

For many homes, the driveway is the first point of 'aesthetic contact.' Having a well-planned driveway that is both spacious and functional is very important. When working on a development that includes domestic driveways, selecting an aesthetically attractive drainage solution can not only help add value, but also increase customer satisfaction.

There are a range of drainage systems available which can complement garage threshold and the driveway entrances, helping to create an attractive space. However, it is important that the drainage is able to withstand the rigours of every-

PLAN AHEAD – RAIN OR SHINE

Oliver Collins of ACO Water Management explains why implementing an effective surface water management system is integral to delivering long lasting value for any new residential development.



day pedestrian and vehicular use.

Housebuilders and developers should look to utilise a channel which has a load class of B125 or higher, which would be suitable for most driveways. This is due to the increased likelihood that delivery vehicles will drive over the gratings, meaning a structurally sound channel is used. Additionally, when trying to 'mix and match' gratings and channels, it is imperative that builders are not tempted to pair an A15 grating with a B125 channel, or vice versa, as this will result in the load class of the system defaulting to the lowest grade.

Patios and pathways

Unlike driveways, patios and pathways can utilise an A15 load channel assembly, unless it is likely that they will be driven over by a vehicle. Patios are an area where a developer can really deliver an

aesthetically pleasing solution, to help provide an elegant and modern finish.

From slate or porcelain to natural stone, the intricacies of patio projects should not be undermined by a poorly selected, or lack of, drainage solution. Some options to consider here are domestic drainage channels with contem-

**TO ACHIEVE THE BEST
FINISH, DEVELOPERS
SHOULD SERIOUSLY
CONSIDER THE DIFFERENT
SYSTEMS AND TYPES
OF GRATING THAT CAN
BE PAIRED**



porary stainless steel or discreet brickslot grating styles.

Entrances

With patios and driveways, the entrance of a house offers another opportunity to blend finishes with substance via the installation of threshold drainage products. Helping to create an attractive entrance to

the home, threshold drainage is important here because it removes any risk of water ponding, which both looks unprofessional and can degrade the brickwork over time. The use of threshold drainage can help enhance the aesthetic appeal when combined with slimline stainless steel channels, or doorway mats with anthracite carpet gratings.

Landscaping

Garden spaces can also provide opportunities to housebuilders and developers. For domestic driveways and paths where a natural grass or decorative aggregate finish is required to complement the landscape, for example, utilising a landscaping and attenuation system will help reduce the risk of potholes, rutting or grass damage. If installing domestic soakaways, it is important to ensure they comply with current Building Regulations concerning run-off from drives. If unsure, it is recommended that you speak with a drainage expert, who will be able to provide advice and guidance on the best option.

FINAL THOUGHTS

When working on a housing development, it can be all too easy to go to a local merchant and select one channel drainage system and grating for the whole of the project. However, to achieve the best finish, developers should seriously consider the different systems and types of grating that can be paired. Understanding the environmental impact, as well as the load requirements, is also crucial.

Oliver Collins is product marketing manager at ACO Water Management

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Vortice launches Vort HRW Mono



Vortice has launched a new single room heat recovery unit which is quiet, efficient, energy saving and anti-allergic thanks to built-in filters preventing the release of pollutants and allergens into the surrounding air. Easy to install and maintain, the Vort HRW Mono is an ideal alternative to tradi-

tional ventilation systems and intermittent fans. Suitable for recessed installation in outside walls of thickness between 285 and 700 mm, it has a low voltage EC motor-driven fan and five speeds. There are two versions of the Vort HRW Mono, manual or RC (remote control), allowing the unit to be turned off and on and the mode of operation to be selected.

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A new build estate of bespoke modular houses is benefitting from the outstanding thermal performance of **Kingspan Kooltherm K110 Plus Soffit Board**. The Beechwood West estate forms the first step in Swan Housing Association's 10 year development plan for Basildon. Swan Housing Association is aiming to reduce the operational CO₂ emissions of each of its properties to 2.6 tonnes per year by 2021. With this commitment in mind, the Kingspan Kooltherm K110 Plus Soffit Board was specified for use in the houses with recessed entrances, in order to effectively insulate the spaces above. This outstanding thermal performance allowed the target U-value to be met with a slim thickness of insulation.

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TURN DOWN THE VOLUME

Ben Hancock of Oscar Acoustics explores how housebuilders and developers can prevent noise from ruining occupants' health, as our cities grow ever larger.

The UK urban population living in cities is set to rise to 92.2 per cent (65.8 million people) by 2030. As our urban areas continue to expand with more people, traffic, construction and industry, noise pollution has become a major concern. Such a concentration of people, building activity and transport hubs will bring noise that, in many cases, is unwanted, yet avoidable.

We're already living on top of each other (43 per cent of Londoners now live in flats), which comes with problems which will only get worse with increased urbanisation. Unfortunately, people are a major source of noise, and a recent study by Jacksons Fencing found that the noise that infuriates us the most comes from other people around us (56 per cent).

The serious implications of exposure to noise is gaining more international recognition, but the built environment is still catching up. Research from the WHO calculates that noise contributes to the loss of one million years of life a year in Western Europe alone. England's Chief Medical Officer has already warned of the dangers of unchecked noise pollution. Her latest report put it as the second largest contributor to disease in Europe, after air pollution.

Urbanisation isn't likely to slow down, so developers need to make sure cities are prepared to handle the inevitable increase in noise pollution that comes with rapid growth, otherwise, we'll end up building houses that aren't fit to live in.

Reducing unnecessary noise while improving or maintaining the look of the surrounding space is a challenge for many architects, specifiers and builders. It will therefore be crucial to ensure housing developments are well defended against transport hubs, construction sites and general hubbub that comes with an increased population density.

Noise is often left out of interior design plans due to its lack of visibility. While it's easy to imagine what a room will look like from the blueprints, it's far harder to predict what it will sound like. Julian Treasure, founder of consultancy The Sound Agency, argues that 'invisible architecture' needs to be taken into consideration. This means designing for the overall experience, not just



appearance, of a space. For example, using products which will provide a tolerable soundscape.

The first step towards tackling this issue for housebuilders is to identify the main sources of noise pollution that will affect a new build by analysing the surrounding environment. This could be a traffic junction, transport hub, large public space, recreational buildings, or indeed other houses. Monitoring the average decibel level in the area, at both day and night, will help guide how extensive noise mitigation measures need to be.

Living in a city, it's inevitable to be surrounded by noise, and some will make it into the home. Interiors need to be designed in a way that is conducive to good acoustics to mitigate the cacophony from outdoors. Cavernous rooms with lots of hard surfaces will lead to long reverberation times, exacerbating any sonic irritation, and while windows bring an open and spacious feel to a room, they offer little insulation against exterior sound. However, this doesn't mean designing cramped, claustrophobic, dark rooms.

There are a range of methods and products that can ensure a comfortable

decibel level. Soundproofing ceilings against noise is a great way to start, especially in today's packed metropolises, helping avoid any disturbances from upstairs neighbours. Sound passes through ceilings and floors as vibrations, and sound pressure waves generated by footsteps, music or voices in an upper flat penetrate and travel through floorboards, joists and ceilings in the form of vibration and noise. By creating an isolated, floating ceiling using acoustic hangers you will stop the vibration that causes the transfer of unwanted noise from flat to flat.

Moving forward, it is hoped that more architects and developers will take noise into consideration from early on in the planning process. A home is supposed to be a retreat from the chaos of daily life; noise will ruin comfort and eventually cause serious health issues.

With the UK's population density rapidly increasing, we need to move fast to mitigate noise in all new and existing builds to prevent Britain becoming a sonic battleground.

Ben Hancock is director of Oscar Acoustics

Icynene spray foam insulation for historic building restorations

An Edwardian Terrace restoration and extension in Bath – The Client wanted acoustic separation so high-performance sound insulation was essential.



Official figures show that over 60 per cent of our current housing stock was built pre-1960 when little thought was given to heat loss prevention. So, when forward-thinking design practise CASA Architects, was commissioned to oversee the renovation of two historic buildings near their base in Bath, high performance insulation and reduction in CO₂ emissions was high on the agenda.

The two properties could not be more different in architectural style and location:

One, the complete refurbishment and extension of an architecturally significant Edwardian Terrace house in the heart of Bath; the other, the renovation of an early 19th Century farmhouse/barn in rural Wiltshire together with the conversion of an adjacent, Grade 2 listed cow byre.

CASA project Architect, Matt Hanna explains: "The Edwardian Terrace property was a significant refurbishment and extension



Restoration and conversion of an early 19th Century Grade 2 listed Cow Byre.

and our client required exceptionally high environmental standards, with internal insulation, triple glazing, rainwater harvesting and so on. Being a terraced house, the client also wanted acoustic separation to the party

walls so high-performance sound insulation was essential"

CASA's solution involved the construction of 75mm thick internal timber studwork, spaced 10mm off the solid stone internal and



Icynene, spray applied insulation is "vapour open" allowing the building to breathe naturally.

party walls. Spray foam insulation from specialist supplier, Icynene was then applied directly to the exposed stone-work, followed by a proprietary vapor check membrane and plaster-boarding.

SPRAY FOAM INSULATION

Icynene is a high performance, spray foam insulation applied using a pressurised gun system. Foams are sprayed as a two-component mixture that come together forming a foam that expands 100-fold within seconds of application, sealing all gaps, service holes etc

According to Icynene, traditional forms of insulation are relatively inefficient in creating a "sealed box" environment, in that they cannot completely fill all voids or seal the interface between the insulation and the building structure. Nor can they cope with small structural movements which will often lead to air gaps.

Minimising air leakage is one of the most effective ways of reducing heat loss in a building, as up to 40 per cent of a building's heat loss can be attributed to air leakage.

For the barn and byre conversion, a similar studwork treatment, 95mm thick, was applied to external rooms of the barn. Icynene was also used to insulate the roof of the cow byre. Here, additional timber battens were applied to

increase the thickness of insulation whilst still allowing exposure of the original timber roof structure.

WUFI MODELLING

Matt Hanna continues; "For both projects, we engaged environmental consultants to run WUFI, hygrothermal modelling tests on our proposals". WUFI is a computer program that can show how moisture and heat flow affect building materials over time. "The results showed that Icynene was the right product to use" he added.

Icynene FoamLite LD-C 50 insulation was used on both projects. FoamLite is a "vapour open" material that allows moisture vapour to pass freely through it, allowing the building to breathe naturally, resisting cold bridging and condensation.

Unlike the urethane foams of 20 years ago, modern spray foams such as FoamLite use water rather than environmentally damaging petrochemicals as the blowing agent. This means that the reaction between the two components produces CO₂ which causes the foam to expand.

As the foam expands, the cells burst and the CO₂ is replaced by air. Consequently, from an environmental perspective, Icynene has a Global Warming Potential [GWP] of 1 and an

Ozone Depletion Potential [ODP] of 0 [Zero]. Icynene does not, therefore emit any harmful gases once cured.

RAPID INSTALLATION

Icynene installation contractor, Heatlok, undertook the work on both projects, with spraying completed within a day for the terraced house and roughly three days for the farmhouse and barn. It has been estimated that, if conventional rigid board type insulation had been used on the projects, installation would have taken significantly longer and with less efficient results.

Since completing the Bath Terrace and Wiltshire Barn projects, CASA has gone on to use Icynene on further schemes where high performance, low environmental impact are influencing factors in the construction solution.

"CASA's name embodies our approach to design and construction" says Matt Hanna. "We aim to create Contemporary and Sustainable Architecture, hence the name (CaSa) and we work incredibly hard to give our clients the best solution with the lowest practical environmental impact".

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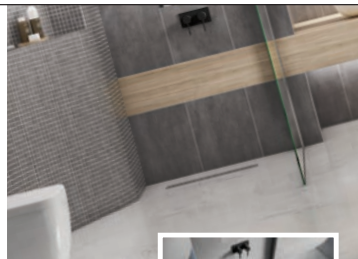
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THE SCIENCE BEHIND THE SENSORY SPACE

Awareness of mental and physical wellbeing has never been greater, yet many still struggle to find the time, freedom and sanctuary necessary to recover from the stresses of everyday life. Drawing on content from a new white paper, Sophie Weston of Geberit explores the role housebuilders have to play in sensory bathroom design.

Faced with increasingly busy lives, nearly three quarters of us struggle to find time to relax according to recent research, and almost three quarters of people in the UK have felt so stressed they have been overwhelmed or unable to cope in the last 12 months. It's a damning snapshot of modern lives consumed by technology and an 'always on' mentality.

As a result, good design is increasingly less about how spaces look and more about how they make us feel – seeking to improve both mental and physical wellbeing through a multi-sensory approach. Where better to help restore the natural balance of our sensory system than in the bathroom, so often a place of sanctuary and rest.

REIMAGINING BATHROOM SPACES

The domestic bathroom space offers a retreat from the pressures of modern life. In fact, Geberit's research shows that in the quest for some respite, the most popular place of refuge was the bathroom.

That is why the modern bathroom or washroom should not be designed as a purely functional zone, but as a relaxing space to unwind, combining clever product innovations and intelligent design with nature-inspired materials and textures which help to restore the natural balance of our senses.

Key to this is biophilic design, an increasingly popular approach which covers everything from surfaces and design choices, to air quality, ventilation,

acoustics and lighting, creating valuable opportunities to deliver sensory spaces.

With this in mind, finding the formula for a well-considered bathroom space could be the key to unlocking better lives.

BATHROOM SOLUTIONS

To do this, designers must first understand the four key senses – auditory (sound), visual (sight), kinaesthetic (touch) and olfactory (smell) – and the impact they have on our wellbeing, before applying this understanding to specify the bathroom technologies and innovations that can help reduce the impact of each.

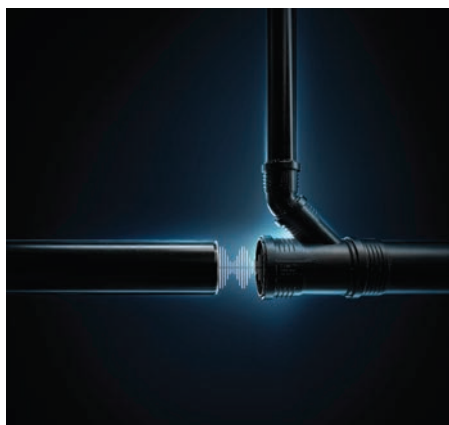
Take auditory, for example. Architects have a role to play in minimising noise in any space and even behind the wall, by taking advantage of product developments such as acoustically optimised pipework with noise reducing properties and decoupled pre-walls. These innova-

tive sound-proofing solutions help to mitigate the age-old issue of noise from flushing toilets, contributing to a better sensory experience for those in the room and in adjoining rooms too.

Preventing overstimulation of the visual



FINDING THE FORMULA FOR A WELL-CONSIDERED BATHROOM SPACE COULD BE THE KEY TO UNLOCKING BETTER LIVES



sense can be achieved through orientation lighting, which helps preserve the sanctuary of sleep by eliminating the need to switch on additional lighting, or by innovative storage solutions, which support decluttering to instill a sense of calm in the bathroom.

Manufacturers have also developed solutions to support designers in meeting kinaesthetic demands, such as clean lines, sleek corners and the use of natural materials, as well as olfactory solutions – most notably modern, efficient odour extraction technologies.

MEETING CURRENT TRENDS

These are just a small selection of the technologies and products available, of course. The key is in finding the solutions you need to meet the individual demands of residential projects.

Whether designing luxurious master ensembles, family bathrooms, guest bathrooms or creative cloakroom spaces, designers are increasingly tasked with getting the most from a variety of rooms, meeting changing demands from developers and homebuyers.

The need to bring the luxurious feel of a hotel bathroom into a stylish, family home is just one challenge. With the rise of home working, our relationship with

the home is changing and designers must think more creatively in order to create the multi-functional rooms needed to live modern lives at home.

These trends and others identified in a new white paper, 'The Science Behind the Sensory Space' – such as increased global travel and the 'joy of calm' (think Netflix sensation Marie Kondo) – are shaping the way in which designers approach bathroom projects in high end properties.

The decluttering trend, for example, has given rise to enhanced storage solutions which offer space saving benefits to support the creation of calming, relaxing spaces free of unnecessary clutter. Meanwhile, achieving affordable style and international-standard spa-like opulence is made easier thanks to a growing number of partnerships between leading bathroom brands and global designers, making even the most luxurious of stylish living more achievable.

With a greater societal focus on physical and mental health and wellbeing to help combat the stresses of modern life, good design in the bathroom could be the key to unlocking better lives. It is critical for designers to be aware of this opportunity.

Sophie Weston is channel marketing manager at Geberit



Accessible, adaptable bathrooms

As the Government is urged to make accessible, adaptable housing mandatory within Local Plans, public and private sector housing developers are being offered a simple way to achieve it. Leading social provider Habinteg is lobbying the Government to ensure more new homes meet the Building Regulations Approved Document M4(2) baseline. **Closomat**, a leading provider of accessible toilet and bathroom fixtures, says it is not hard for homes to be built to meet the M4(2) criteria, especially in the bathroom. Closomat has produced a simple quick reference guide that highlights key areas to consider in the bathroom in accessible housing. The guide can be downloaded free of charge from the company's resources tab on its website. The company offers C(DM) compliant support from design advice to supply, installation, and – if required – subsequent service & maintenance options for public & private housing providers. Closomat is already the 'go to' provider for accessible toilet provision in domestic and 'away from home' environments.

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Tilesure Waterproofing & Decoupling Membrane



CCL Wetrooms have launched Tilesure, a new Butyl Waterproofing and Decoupling Membrane, suitable for waterproofing wetroom floors on timber and solid floors. Tilesure is an evolution of the market leading RIW Tilesafe bitumen-based membrane. Tilesure is a 1.4mm self-

adhesive membrane with decoupling properties of 12mm, ensuring that any movement in the floor substrate is accommodated, preventing the grout and floor tiles from cracking. Tilesure is quick and easy to apply, compatible with silicone sealants and creates a secure waterproof barrier that is guaranteed to remain waterproof for the life of the wetroom tiles.

0844 327 6002 www.ccl-wetrooms.co.uk

Matte Black from AQATA



As the trend for a softer 'industrial vibe' continues, **AQATA's** matte black option has grown in popularity. The walk-in screens have an elegant matte black finish, either as a plain glass screen or with three alternative glass patterns. The three patterns are: grid format, horizontal or a stark black border; the

design detail for each is applied to the glass prior to the toughening process. This ensures a flat surface for the finish, with no edges to trap dirt or dust making it easy to clean; the result is a chic, smooth and stylish shower screen.

01455 896500 www.aqata.co.uk

Record £32m orders for bathroom pods



Offsite Solutions has announced £32m of orders for more than 9,500 units in the last six months – a record performance and a significant increase on the same period last year. James Stephens, Managing Director of Offsite Solutions, said “We have continued to grow market share and diversify

into new areas such as retirement living and timber-framed housing. This is testament to our team’s consistently outstanding performance in delivering every bathroom project to the highest standards, and is reflected in the high number of repeat customers we now have.”

www.offsitesolutions.com

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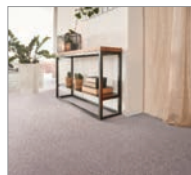


Designed to meet the demand for strong, sturdy and stunning sinks, **BLANCO’s SILGRANIT® PuraDur®** portfolio boasts contemporary trendy styles which are made to last. Made of up to 80 per cent granite, SILGRANIT® PuraDur® is incredibly strong. The engineered stone-like material is scratch-,

heat-, impact-, light-, and acid-resistant so all SILGRANIT® PuraDur® sinks are able to withstand temperatures up to 280°C and do not discolour due to acid or light. With a repellent surface which features the patented Hygienic+Plus protection formula to ensure bacteria and odours are not absorbed, the sinks are hygienic and always germ-free.

www.blanco.co.uk

Designer Contracts launch ‘exquisite’ collection



Designer Contracts has introduced a luxury new carpet collection to its extensive portfolio of floor-coverings. Exquisite is a two ply, soft pile carpet constructed from 100 per cent polypropylene with a soft fleece backing. Suitable for heavy domestic use, it is the ideal choice for families looking for a durable, yet luxurious carpet for their property.

Said Designer Contracts md, Peter Kelsey: “Carpet is still the number one choice of flooring within the home, and with this in mind; Exquisite has been designed to meet the needs of homeowners looking for something super-soft and comfortable underfoot. It also provides the all-important, easy-to-care-for properties that so many families require.”

01246 854577 www.designercontracts.com

TeknosPro for professional paints



TeknosPro will once again display and demonstrate their portfolios of innovative and high-tech quality paints at the National Painting & Decorating Show 2019. The ranges have been developed for specifiers and professional decorators and demonstrate the high quality finish that can be achieved with water-based paints. This year’s National Painting & Decorating Show will see TeknosPro

showcasing their EN 13501-1 products classified for fire performance. At the TeknosPro stand, visitors will also be able to see the popular Futura Aqua portfolio. The go-to for professionals is specifically designed for interior and exterior woodwork and metalwork. Take a closer look at their stunning range of colours, across the back panels of the TeknosPro stand.

www.teknospro.co.uk

Get a head start with Rapid Level CT 3220 from Mapei

Rapid Level CT 3220 is the latest addition to Mapei’s extensive product range, offering a levelling compound that promises a quick drying time of just 45 minutes prior to the installation of ceramic and porcelain type tiles. Suitable for internal use, Rapid Level CT 3220 is used for levelling, smoothing and infilling differences between 3 and 20mm in a single application.

Rapid Level CT3220 must be primed, and is designed for the installation beneath ceramic tiles. It is suitable for levelling a variety of substrates including new and existing concrete, anhydrite and cementitious screeds, stone and ceramic tiles, and can also be used over boarded timber floors. In addition, it can also be used in areas subjected to castor wheels and onto screeds with incorporated underfloor heating systems.

Its impressive application allows up to 20mm per coat without any shrinkage, cracking or crazing, and develops very high compressive and flexural strength, in addition to resistance to indentation and abrasion.

In its pre-mixed form, Rapid Level CT 3220 is a grey powder consisting of special cements with rapid setting and hydration, together



with graded silica sands, resins and special additives. A fluid and easily workable mortar when mixed with water, the smoothing and levelling compound provides a high bond

strength to the substrate, as well as offering ultra-fast drying.

0121 508 6970 www.mapei.co.uk

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01455 634855
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01455 634855 www.ukbuildingcompliance.co.uk

FENCEMATE Durapost® offers elegant alternative



An industry first, Birkdale's FENCEMATE DuraPost® is an innovative galvanised steel fence post system that provides a durable, lightweight and wind-resistant alternative to wooden or concrete fence posts. Due to its makeup of cold-rolled galvanised steel, DuraPost® is capable of withstanding wind speeds of up to 70 miles per hour and is guaranteed for up to 25 years, so specifiers can be sure that they are selecting a quality product that will last. While installing concrete fence posts can often be a two-person job, due to their weight, DuraPost® is ergonomically designed to be up to 80 per cent lighter than concrete. As such, the DuraPost® is easy to transport, store, carry and install by a single tradesperson, which can reduce build time significantly.

0345 646 0590 www.durapost.co.uk

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Centurion improves its offering of Ratchet Straps



Centurion Europe Ltd, one of the UK's leading independent distributors of DIY and Trade products including, hardware, ironmongery, gardening, plumbing and electrical have launched an improved own branded range of Ratchet Straps. Centurion offer 4 grades of Ratchet Straps, Light Duty, Medium Duty, Heavy Duty and Commercial, all made from strong quality polyester webbing and provide widths of 25mm – 50mm, strength ratings from 750kg to 5000kg and lengths from 4.5m to 10m, so whether it be a large object that needs securing to a pallet or keeping your possessions attached to your car, Centurion's range offer a Ratchet Strap for many applications.

01302 788700 www.centurioneurope.co.uk

Norbord build sustainable dream home



Lindrick Eco Build, which specialises in energy efficient off-site housebuilding, has used **Norbord's** CaberDek and SterlingOSB Zero on a project in Doncaster, Yorkshire. The new house has been built for a couple who are approaching retirement and wanted to embrace the joys of life in a sustainable home which overlooks

Yorkshire Wildlife Park. The SterlingOSB Zero timber frame kit enabled the structure of the house to be developed off-site, while CaberDek ensured that construction on-site continued – even with the bad British weather thanks to its weather-resistant properties which provide protection from dirt and rain for up to 42 days.

www.norbord.co.uk

Hultafors new range of 'Snap-Off' knives



Precision, quality and long-lasting sharpness are the hallmarks of these superb new products.

Hultafors Tools has launched a new range of 'Snap-Off' Knives for professional craftsmen and women. With 13 different knives and 4 long-lasting precision blades, these all-round, ergonomic knives

are designed and built to suit a wide range of jobs on site. From industrial and warehouse applications to specialist work on site – from like cutting boxes open and shaping plasterboard, to trimming flooring and paring cables. Symmetrically designed so that the blades can be turned over, they're adaptable for both left and right hand use so that left handed craftsmen and women can adapt the knife rather than their own usage.

www.hultafors.co.uk

The ultimate choices in work trousers



New styles, new designs and **Snickers Workwear's** most advanced work trousers yet – with four-way stretch. September sees the next generation of Work Trousers choices from the premier brand of working clothes for professional tradesmen and women. There's the Flexiwork 2.0 trousers, designed for craftsmen who want nothing but the best. These high-spec trousers

are made of durable four-way stretch fabric that offers a new level of comfort and freedom of movement. Then there's the 'loose-fit' AllroundWork stretch trousers with a classic Snickers Workwear look and feel plus the new FlexiWork Denim Work Trousers where Workwear meets Streetwear in these slim-fitting work trousers made of washed stretch denim.



www.snickersworkwear.co.uk

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