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CIAT

Editor's welcome

Can you believe that another year has once again quickly flown by in the *Architectural Technology Journal* calendar? Here we are again with the winter issue as we conclude 2023. We now move into the Institute's 59th year and see what 2024 has in store for us. There is much work happening at Central Office which will in turn bring value and further recognition for you as members and affiliates and for the discipline and profession of Architectural Technology.

It has now almost been a year since Tara took on the position of Chief Executive and has been busy behind the scenes overseeing the day-to-day business of the Institute and working on a number of projects and reviews to ensure that we remain relevant and of value to you as members, and not forgetting our external stakeholders such as governments, sister Institutes and the public. Tara has also been reviewing internal processes and procedures to ensure maximum efficiency and output from the Institute which sits alongside the introduction of a new CRM system which will benefit both the members and staff with its capabilities and functionality. Additionally, there is the Membership Engagement Project which will be ensuring that the Institute is relevant to you all and delivering what you want as members and affiliates.

I am leading the review of the Regions and Centres and their structure, to ensure they remain relevant and accessible to not only you, but your fellow and potential members and affiliates. This is an ambitious and radical review which I am excited to be leading on but as a professional membership Institute run by you; the members and affiliates, it is important that CIAT remains relevant to your needs and provides value and security. The Institute must modernise and diversify its operations and be able to plan and adapt for the future as a truly agile organisation. This Review of the Regional and Centre Structure, includes aspirATion, and the operation and function of the Regional and Centre Committees.

The Review commenced this autumn with an initial scoping session to ensure that every aspect is looked at and considered. There will be regular reporting to Executive Board.

This Review is a full and comprehensive study of the current and past situations vis-à-vis the Regions and Centres, to analyse (among other things) data, opinions, trends and how the changing social, economic and environmental factors have played a part. As part of this Review, we will identify and consult with CIAT's key demographics and target audiences to determine the value and benefit of CIAT and its structure to them. This may be broader than grouping by membership class, and we will consider location, accessibility, education, employment status and so on. This will allow us to tailor the questions we ask and will give us a greater understanding of different wants and needs.

There will be a series of workshops in 2024 which all members and affiliates will be invited to attend, addressing different aspects of the Review and allowing members and affiliates to have a full voice. There will be research into 'best practice' and look at like-minded Institutes within and outside the built environment sector. This has already begun with the stage 1 consultation which looks at the perceptions and realities of members and affiliates and I hope you have taken part.

We also have our Institute events review call for evidence currently out for consultation. This is a holistic review of both the AGM and AT Awards events so please do ensure that you complete your viewpoint on what your Institute should be doing and have your voice heard. We need to know what we are doing well and not so well! Please contact Joanne Rowlands, Project Management Executive, for the link to the consultation – j.rowlands@ciat.global

There will also be the Honorary Officer elections next year which includes the role of President Elect – who will be the next person to take on this important position and lead the Institute into its next decade?

As with every New Year, we look to a new and successful future, and I hope you are able to enjoy the festive season as I send my very best seasons greetings to you all once again.

Adam Endacott
Editor

CIAT's position statement on Principal Designer registration

CIAT is focusing on the registration of the **Principal Designer (PD)** as outlined under the **Building Regulations etc. (Amendment) (England) Regulations 2023**. Only Chartered Architectural Technologists will be eligible to apply to register as PDs under CIAT's scheme.

Criteria to register with CIAT as a PD will be based on the legislation and the competence criteria as described in the following British Standards Institution (BSI) publications:

- BSI Flex 8670, *Built environment – Core criteria for building safety in competence frameworks – Code of practice* v3.0) and
- PAS 8671: 2022, *Built environment – Framework for competence of individual Principal Designers – Specification*

The PD is an individual or company that takes on the role to assist the client and contractor in planning, monitoring, and coordinating the designers and design work by taking reasonable steps to ensure that the design work is compliant with relevant requirements.

There is no intention to include the Construction (Design and Management) Regulations 2015 (CDM) in this initiative, as they serve a different purpose (albeit that the same professional maybe competent to offer both services). The relationship and differences between the two PD roles are covered under PAS 8671 as below:

This PAS does not cover the duties of Principal Designers under the Construction (Design and Management) Regulations 2015 (CDM). Whereas the primary objective of the Principal Designer under CDM is to plan, manage, monitor and coordinate health and safety in the pre-construction phase by identifying, eliminating or controlling foreseeable risks, the primary objective of the Principal Designer under the BSA is to plan, manage, monitor and coordinate design work compliance.

CIAT is currently in the process of:

- establishing competence performance criteria
- determining performance evidence requirements to demonstrate competence
- determining proportionality for registration determining proportionality for registration under different building types
- developing methods to assess competence
- establishing CPD criteria to maintain registration

The requirements, processes and fees for registering as a PD with CIAT will be published early in the New Year.

A presentation on CIAT's activity in relation to the BSA and the registration of Principal Designers can be found on our BSA hub, architecturaltechnology.com/resources/building-safety-hub/principal-designer.html. Members and affiliates are advised to continually check the hub for further updates and information as well as checking our events calendar.

For further information, please contact practice@ciat.global.

Professor Sam Allwinkle PPBIAT FCIAT
Chair of CIAT Principal Designer Competency Steering Group

What does the rise of AI mean for Architectural Technologists

Words by Ashley Hewson, Chief Executive, Serif

Whatever side of the fence you come down on, there is no denying that AI is already upending traditional architectural practices – and this is only the start.

Evangelists of the technology will tell you about the enormous efficiency and productivity gains firms could see if they were to automate the most labour-intensive tasks using AI.

At the same time, others worry that it could spell the end of technical proficiency and creativity, and ultimately lead to job losses. They may be concerned too that the next generation will not develop the necessary skills if they don't go through the same painstaking processes at the design stage

Many firms will by now have played around with generative AI tools, like ChatGPT, DALL-E and Midjourney, and some will already have embedded it in their daily workflows. Back in April, studio principal at Zaha Hadid Architects Patrik Schumacher said he was encouraging experimentation with AI during ideation. This has already resulted in 'interesting ideas and new kinds of form and moves' – and allowed the team to work more closely with each other and clients, sharing early iterations and generating ideas together.

We know too from our own conversations with firms how valuable AI could be. In our recent report, Jack Cole, head of automation and computational design at Stephen George + Partners LLP, says it could drastically reduce the time spent on routine tasks.

For Dave Moyes, a partner at SimpsonHaugh, the power of AI lies in its decision-making capabilities, as well as its potential to reduce admin. With better-quality information available, professionals are able to choose the right materials for assets and design them in a way more suited to their context.

Should we be worried though?

It is difficult to argue with any of this, of course. As an Architectural Technologist, you have been at the sharp end of developments like CAD and BIM, which have shaped today's industry.

Still, the recent advances in AI also taps into existential questions about what it means to be a skilled professional in today's world. According to one expert, 'AI is already

beyond what human designers are capable of' – so we are left wondering what threat this poses to those who have spent years training and developing their expertise.

Fear of mass job losses due to AI are rippling through every industry, not just architecture. If anyone can automatically generate hyper-realistic images of buildings and cityscapes in seconds, then does the craft of technologists and architects become redundant? What is more, if AI is used without proper oversight, then it is easy to imagine a dystopian future of cookie-cutter buildings, with originality becoming diluted at every iteration.

There are also legal implications to consider, particularly around intellectual property (IP).

We can see how someone might inadvertently infringe copyright because AI models have been trained using existing images. On the flipside, they may be the victim of copyright infringement themselves if their proprietary designs and commercially-sensitive information start to appear in AI-generated text and imagery. Currently, and unlike in most countries, UK law protects 'computer-generated works which do not have a human creator', so firms that see elements of their work produced elsewhere may have little recourse for legal action.

Human-led AI

All of these concerns are legitimate, given the power of the technology, and more questions and challenges will emerge as it becomes more widely-adopted and sophisticated.

For now, AI is no substitute for the human empathy that clients value when working with an Architectural Technologist, nor does it have the skills to delicately negotiate with stakeholders.

It can speed up everyday processes – but in a tight labour market, it is unlikely to replace the need for professionals any time soon. While there is no room for complacency, AI, in its present form, is not capable of replacing entire tasks let alone people.

As Jack Cole points out in our report, AI visualisations may look good but without technical expertise, there is no way of knowing whether it is safe, compliant or meets planning requirements. Furthermore, there are currently technical limitations in AI imagery. Most generative image models are trained on 512 x 512px imagery (or 768 x 768px), which means skilled designers are still needed to upscale them.

However, what we are already starting to see is a synergy between AI and creative software, with automation being introduced at the right point to enhance creativity and professional knowledge.

Training the next generation

At the moment, architecture and other industries are relying on human expertise and oversight to ensure AI is used in an effective and responsible way.

But what about the next generation starting out on their careers? Most students will have at least experimented with the tools, and many will be using them in their academic work and other areas of their lives. While they may be adept at using AI, how can they develop the technical skills required if many entry-level tasks can now be automated.

Like Cole, Professor Wassim Jabi, from Cardiff University, also said in our report, he believes that even though AI-generated designs are impressive, they 'do not necessarily adhere to architectural principles and can sometimes be deceptive.' What is more, AI risks making creators lazy. He argues there will always be a need for traditional skills that allow designers to identify the perhaps hidden problems with a design. That said, he says teaching staff at universities must embrace AI to ensure students learn to use it in the right way.

Another concern is that firms will see AI as a way to reduce the number of younger people they employ but this is short-sighted.

For a start, this digitally-savvy generation can take the lead in showing the wider team how AI could be implemented and maximised. More importantly, firms that reduce their intake of career starters will eventually suffer from a loss of creativity and new ideas. It is therefore critical that young people are not only offered job opportunities but a chance to immerse themselves in the creative process too, as their older counterparts were.

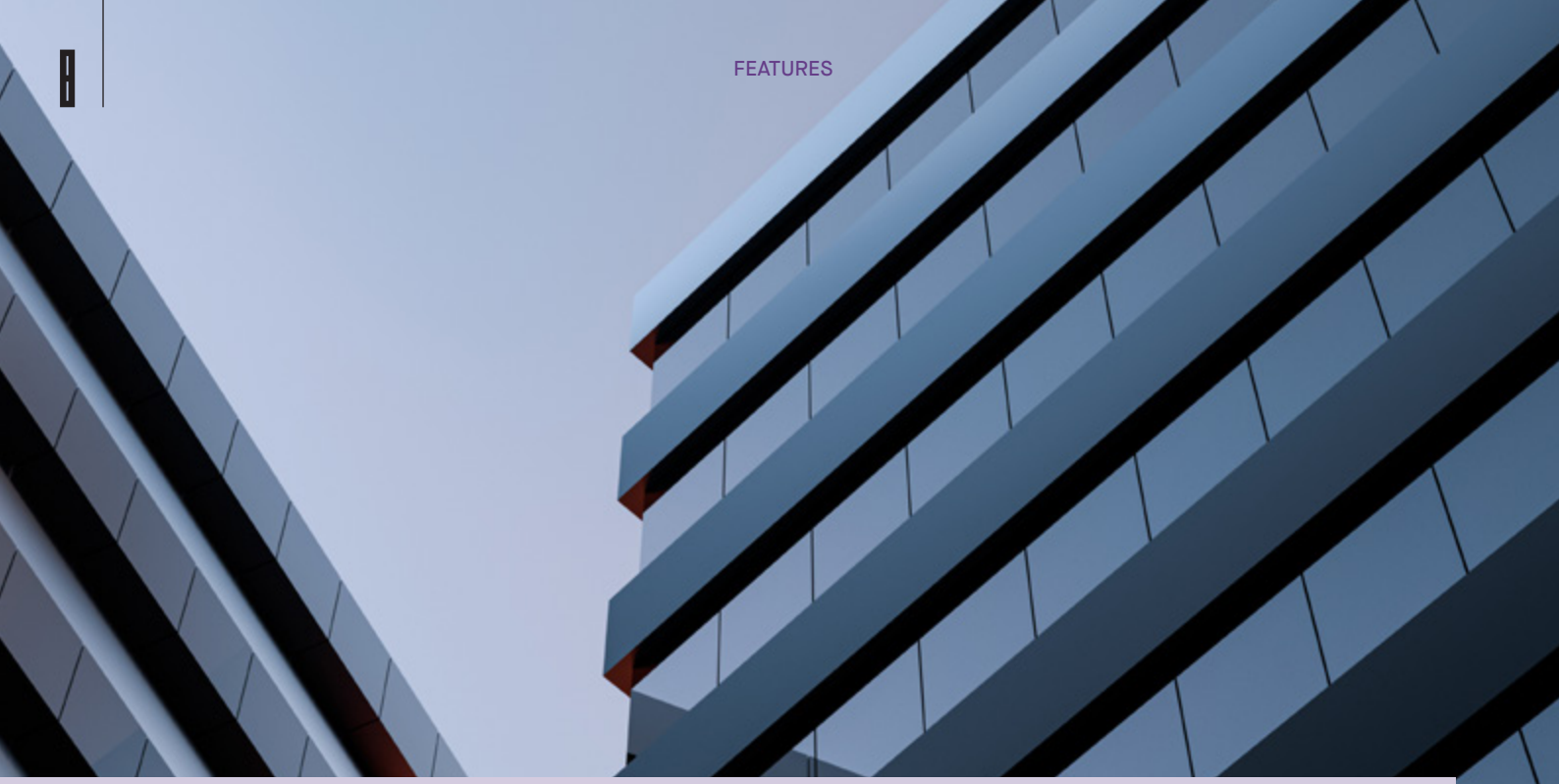
As Jack Cole points out in our report, AI visualisations may look good but without technical expertise, there is no way of knowing whether it is safe, compliant or meets planning requirements.

Final thoughts

When architect Manas Bhatia used AI to set out a vision for cities of the future – which comprised curved skyscrapers, decked with green plants – he said that anyone can use AI 'but they will not be able to achieve as good a result as a creative person.'

And perhaps this is the crux of it. The AI tools he used (ChatGPT and Midjourney) are freely available to everyone but non-professionals would surely have struggled to produce something with the same depth and creativity. He drew on his experience to design a building that would encourage natural ventilation to save energy. It is telling too that he refined his prompts almost 100 times to get the right result, which again, requires an expert eye.

How firms use AI will evolve over the coming months and years, and it will be interesting to see what innovations it drives in building design and project delivery. Conversely, as AI adoption increases, we may well see firms bring the human element to the fore to create the point of difference clients want to see. ■



Paving the way to net zero for designers

Words by Matt Richards, Partner, Ridge

While it is undeniable that a substantial share of the UK's annual 367 million tonnes of CO2 emissions emanate from oil and gas corporations, they are not solely responsible. With the Government's net zero by 2050 target fast approaching, the carbon emissions of the UK's non-domestic building stock are under the microscope. In 2020, the UK's commercial buildings accounted for 23.6 million tonnes of carbon dioxide (about nine percent of the UK's total emissions). And this was during the height of the pandemic when global emissions were down on average. So, retrofitting is pivotal to achieving net zero.

We explore this subject in our latest report, *The Role of Retrofitting our Non-Domestic Buildings in the Race to Net Zero*. We questioned 101 property and facilities heads from leading UK organisations and found that despite a resounding 76% of organisations expressing their commitment to net zero objectives, a mere quarter are genuinely deliberating how to integrate sustainable practices within their premises. The report further uncovers an array of factors that are impeding the much-needed retrofit revolution.

Unveiling the barriers to retrofit transformation

A central finding our study uncovered is the absence of board level discussion around the issue. More than half (55%) of the facility and property managers we spoke to say their boards fail to recognise retrofitting as a pivotal part of their net zero roadmap. What is more worrying, is the limited involvement facilities managers have in crucial decision-making processes. Nearly a quarter (23%) remain wholly uninvolved in any net zero strategic planning, and most are kept in the dark about their company's five-year plan.

Those who are engaged in net zero planning are facing a battle, with the carbon footprint of commercial buildings being consistently underestimated by boards. Astonishingly, 86% of organisations remain oblivious to how retrofitting can promote energy efficiency and reduce emissions.

Misconceptions also pervade about the longevity of the UK's current commercial building stock. More than a third of decision-makers mistakenly predict that a mere 39% of existing non-domestic structures will still be in use beyond 2050, while the actual figure will be closer to 70%. This, coupled with a presumption that transitioning to a new building is better for the environment, endangers the UK's ability to achieve net zero.

Averting a looming retrofit crisis

How can this trajectory be rectified? Our research highlights five pivotal areas that with concentrated effort from expert support, including designers and wider multi-disciplinary teams of consultants and engineers, will help overcome the challenges of retrofitting:

1. **Education –** A lack of education is the main culprit for boards misunderstanding the scale of the issue. For example, 45% believe that if the grid is carbon neutral, they do not need to worry about their buildings being net zero. And almost a quarter (24%) do not feel that retrofitting will make a difference to their building's carbon footprint. Yet moving to technologies such as heat pumps, that can deliver heat to our commercial spaces up to three times more efficiently than gas boilers, can dramatically reduce in-use emissions. There seems to be an underestimation of the environmental gains such technologies offer older buildings as part of a retrofitting programme.
2. **Involvement –** The role and expertise of facilities and property heads need to be more widely recognised and utilised by boards. One in five are not even privy to the strategic plans of their organisation. Yet, buildings can address many strategic decisions beyond net zero – such as energy security, energy costs, employer brand, staff wellbeing, and productivity – all issues occupying boards at the moment.
3. **Budget –** The way organisations budget for their buildings need to change. We found that over half (54%) set their building budget based on the previous year's costs. Such a retrospective approach will not accommodate general inflation and energy price hikes, let alone a retrofit programme.
4. **Expert support –** Whilst many organisations want to do the right thing to achieve net zero, they are confused about how to achieve it. Our research identified a lack of clarity around whether new build or retrofitting is the better way to go and how to evaluate the possibilities.

   Even if they are convinced about retrofitting's merits, a quarter of facilities heads do not know how to make a business case for a retrofit project to the board. There is also confusion around which of the many technologies and solutions available will deliver the best carbon gains.

   Such organisations need external support to scope the possibilities, make the case, and help facilities heads choose the right technologies and approach. This approach will ensure that the maximum carbon and sustainability gains are made and any barriers, such as the potential disruption to the wider organisation and drains on facilities team time, are kept to a minimum.
5. **Incentives –** Currently, there are no government incentives to encourage organisations to make their buildings more energy efficient. In fact, almost half (49%) say that current business rates operate to discourage retrofit. Without government intervention, achieving net zero hangs on the goodwill of boards whom we know misunderstand the scale of the problem.

Navigating the realities of retrofitting

Even if these areas are addressed and there is an organisational consensus on retrofit integration, challenges persist. Among the facility heads surveyed, 31% identify operational disruptions as the biggest hurdle to implementing a retrofit programme. Consequently, almost half (48%) view building new as a cost-effective alternative. While grappling with potential disruptions is daunting, the enduring benefits of retrofit projects – encompassing net zero goals, enhanced efficiency, employee well-being, heightened productivity and talent retention – far outweigh transitory interruptions. Meticulous planning through multidisciplinary consultation, including with designers, will minimise disruption and ensure a seamless operation during retrofit initiatives.

Concluding thoughts

While public and private entities progressively embrace sustainability via waste reduction and digital transitions, the intrinsic role of buildings in an organisation's carbon footprint remains overlooked. Progress hinges on a collaborative approach that tackles the five critical areas. Addressing these, through pragmatic solutions backed by expert guidance from designers and multi-disciplinary teams, will empower facilities heads and boards to steer the UK towards its ambitious net zero goals.

To delve deeper into our insights, please explore the complete report, *The Role of Retrofitting our Non-Domestic Buildings in the Race to Net Zero*. ■

The future of carbon-neutral buildings: trends and predictions

Words by Paul Bullard, Product Director, SFG20

As the world grapples with the realities of climate change, the construction industry has a significant role to play in reducing carbon emissions. In the UK, buildings contribute to 33% of the greenhouse gas (GHG) emissions and 40% of the global energy consumption. This article explores the concept of carbon-neutral buildings, current trends, future predictions, and the role of sustainable building practices in achieving carbon neutrality.

Understanding carbon-neutral buildings

In a carbon-neutral building, energy efficiency is paramount. Designers and engineers use principles such as passive solar design, natural ventilation and high-efficiency insulation. In addition to energy-efficient design, carbon-neutral buildings also use renewable energy technologies to generate electricity. This can include solar panels, wind turbines, and in some cases, geothermal systems. The electricity generated by these systems can be used to power the building's lighting, heating, and cooling systems, as well as any appliances or equipment in the building.

Current state of carbon emissions in the construction industry

In the UK, the construction industry is a significant contributor to carbon emissions. The embodied carbon of a building, which includes the carbon emissions associated with the extraction, production and transportation of construction materials, as well as the carbon emissions from the construction process itself, can be equivalent to 20 years' worth of its operational carbon emissions.

Trends in carbon-neutral buildings

The drive towards carbon-neutral buildings is gaining momentum, with several key trends shaping the future of the built environment. These trends reflect a growing commitment to sustainability, energy efficiency and technological innovation.

1. **Renewable energy sources**
   Solar panels and wind turbines are becoming a common sight on buildings across the UK. As the cost of these technologies continues to fall, they offer long-term cost savings, making them an increasingly attractive option for building owners and operators.
2. **Energy-efficient design**
   Designers and engineers are using principles such as passive solar design and high-efficiency HVAC systems to minimise energy consumption. Passive solar design takes advantage of the sun's energy for heating and cooling, while high-efficiency HVAC systems use less energy to provide the same level of comfort.
3. **Sustainable building materials**
   These materials, which include recycled or reclaimed materials, can significantly reduce a building's embodied carbon - the carbon emissions associated with the production, transport and disposal of building materials.

   By choosing sustainable materials, builders can reduce the environmental impact of their projects while often also improving the performance and aesthetics of their buildings.
4. **Smart technology integration**
   Smart thermostats, energy management systems and other technologies can optimise a building's heating, cooling and lighting systems, further reducing energy consumption. These technologies can also improve comfort and convenience for building occupants.

Future predictions

The landscape of the UK's built environment is set to undergo a significant transformation. The drive towards carbon neutrality is expected to accelerate, spurred by technological advancements, evolving government policies, and heightened public awareness of climate change.

The Government's Ten Point Plan for a green industrial revolution and net zero strategy provides a roadmap for this transition, outlining strategies for improving energy efficiency, promoting low-carbon heating solutions and encouraging the construction of energy-efficient new homes.

The decarbonisation of the UK's electricity grid and the development of a low-carbon hydrogen sector are set to make it easier for buildings to reduce their carbon footprint.

At the same time, investments in carbon capture usage and storage (CCUS) technologies could further help offset emissions from buildings and industrial processes.

Beyond government initiatives, we anticipate a growing number of businesses and individuals investing in carbon-neutral buildings. As energy prices continue to rise, buildings that generate their own green electricity can offer a financially attractive proposition.

The public sector is leading by example, with the government committed to achieving net-zero emissions from its operations by 2050. This sets a precedent for the private sector, demonstrating the feasibility and benefits of carbon-neutral buildings. ■

WHAT WILL YOU TAKE A STAND FOR?

Build a better future for the built environment

Futurebuild provides the stage for inspiring ideas, innovative solutions & knowledge sharing to drive sustainable construction and help us reach our goal of net zero. The exhibition brings together the entire supply chain to showcase, debate and understand the advancements in sustainable construction and the emerging technologies that will make net zero possible.

Futurebuild is taking a stand for a better built environment and is urging companies and professionals throughout the construction supply chain to make a similar commitment by 'taking a stand' on an issue they passionately believe will help propel the industry towards a more sustainable future.
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by EASYFAIRS

How designers can rise to the challenge of choosing the right fall protection system

Words by Stuart Pierpoint, Specification Sales Manager, UK and Netherlands, MSA Safety

Design aesthetics, multiple test standards and changing construction materials - all can pose challenges to designers when it comes to choosing the right fall protection system.

What are some of the challenges facing designers today when it comes to specifying fall protection?
Buildings are constantly evolving in complexity and, as a result, a roof has a lot more happening on it today. Designers need to consider the multiple products present on a modern roof, when designing a roof's capacity, such as: solar panels, CCTV, air conditioning units, lightning protection, green roofing systems, roof lights, general roof maintenance and more. With this comes the planning of safe access for their installation, as well as planning future access to service these products, and maintain other high-risk areas for the lifespan of a building.

The challenge for designers is to incorporate a fall protection system that enables safe access, whilst also addressing their other priorities, such as the freedom to design aesthetically pleasing buildings. Designers need systems that complement their designs.

Then, of course, there is the challenge of how to position a fall protection system. This is where MSA Safety's free design service can really help. If designers provide architectural roof drawings, we can recommend system designs to help them maintain their architectural integrity, whilst not compromising user safety.

When, and why, should fall protection be a key consideration in the design phase?
Working at height is still the biggest cause of workplace deaths, with an average of more than two workers a month in the UK losing their life from falls in 2021/22. Fundamentally, fall protection systems are designed as one layer of protection to prevent loss of life and keep workers safe. This is a massive responsibility for designers when selecting fall protection systems. This decision can benefit from consideration at the start of the

design process, alongside the access and maintenance strategy. Additionally, putting the user at the forefront of future maintenance will support long-term safeguarding of both workers and the building.

What are some of the most important things to consider when choosing a fall protection system?
As previously discussed, building complexities are continuing to evolve and fall protection systems need to keep pace. Designers often like to be ahead of the curve, so when it comes to worker safety, they want to know they are choosing a solution that is both innovative and proven.

Some key considerations for fall protection systems for designers include ease of installation, compliance, worker safeguarding, building/roof protection and meeting standards. Whilst this may seem like a lot to consider, a well-designed fall protection system will do what the designer deems as important for the application, whilst still helping to protect the integrity of the roof.

It is important to note that if a system is not practical or easy to use, workers may not use it properly and could put themselves and others at risk. Designers should also consider the walkways and other exterior paths that workers use to access a fall protection system, remembering that it is not always dry and sunny and that workers may need access when it is raining, windy or in sub-zero temperatures – all conditions that increase the risk of workers slipping.

What are the current regulations and legislations that UK designers need to be aware of?
The key UK regulations that designers need to understand and comply with, both at the design stage and throughout the specification stage, are the Work at Height Regulations. These were updated in 2007 and apply to all work at height where there is a risk that a worker can fall and sustain an injury. They combine Construction Regulations, The Workplace (Health and Safety Welfare) Regulations and CDM (Construction Design Management) Regulations.

What test standards apply to fall protection systems in the UK?
Test standards are regularly updated, in line with changes in construction which are driving the development of fall protection systems. Currently, the European standards for anchor devices (these also apply in the UK) are EN 795:2012 for single users and CEN/TS 16415:2013 for multiple users.

However, the latter does not cover permanent anchor devices and only requires testing on a rigid structure, not the actual roof structure itself. In light of this, the UK introduced BS 8610:2017, an additional standard that covers testing of anchor devices on the actual base structure. Particularly in the case of roofs that are made of a thin material, such as copper, zinc or aluminium.

In addition, since 2013, permanent anchor devices for roofs need to comply with EU Construction Product Regulation 305/2011.

How have fall protection systems changed in recent years?
Fall protection systems continue to evolve with developments in roofing technology. At MSA, innovation and the premium nature of our products over time have resulted in systems becoming simpler to use and easier to install – a key benefit for installers and contractors alike.

With the use of materials like copper and zinc, some roof profiles have also become thinner and potentially more fragile. This is driving developments in load absorption technology. For example, at MSA Safety, we have utilised our Constant Force® technology so that our systems can typically be installed on these roof profiles and still control the load in the event of a fall. We have also increased our emphasis on comfort and enhancing the user experience , and help encourage proper use of fall protection systems or personal protective equipment (PPE).

Can you tell us a bit about MSA Safety's heritage in fall protection systems?
MSA Safety has been protecting lives for more than a century and has experience in cable-based fall protection systems. This means we have a thorough understanding of safety challenges and the needs of working at height.

In 2001, we introduced an innovative and ground-breaking fall protection system called the Constant Force® Post. This has an energy absorbing coil inside that limits the load to the roof, helping to protect both the worker and the roof from the sudden energy of a fall. It has been tested on more than 500 different representative roof constructions and is used around the world on thousands of roofs.

Some key considerations for fall protection systems for designers include ease of installation, compliance, worker safeguarding, building/roof protection and meeting standards.

What makes MSA Safety systems unique?
There is no one size fits all when it comes to our fall protection systems. With the use of high quality materials, proven performance of energy absorption systems and specialised design service, we are proud to offer our customers a holistic safety system that considers the architect, the user and the building.

Finally, if you had one message for designers around the specification of fall protection systems, what would it be?
MSA are here to be your trusted source and help you select practical solutions, even within challenging applications. You do not need to choose between innovation and safety – MSA's Latchways Constant Force® Post means you can have both.

We have a team of experts available to assist you in understanding and choosing the right fall protection solutions from our range. MSA Safety knows that considering fall protection can sometimes feel like a struggle and we are here to assist you. ■

Debunking myths around Passivhaus design: separating fact from fiction

Words by Mike Edwards ACIAT, Technical Director, HLM Architects, Certified Passivhaus Designer

In the realm of sustainable architecture and energy-efficient construction, few concepts have garnered as much attention and intrigue as the Passivhaus design. Since the world's first Passive House was completed four decades ago in Germany in 1991, the Passivhaus standard has gained recognition worldwide for its promise of exceptionally low energy consumption, high indoor comfort and reduced environmental impact. For the UK, certified projects have risen exponentially in the last ten years from single figures to well over 1000 units today including both new build and the retrofit standard EnerPHit.

With the UK Government striving to meet net zero carbon targets, standards such as Passivhaus will become even more common. However, progress has been slow to bring in effective national policies with expectations on the long-awaited Future Homes Standard (FHS) likely to feature Passivhaus in some way. Recent uplifts to Part F and L of the Building Regulations are part of the FHS roadmap but have received some criticism that targeted emission savings are not ambitious enough. The regions, however, have taken up the baton by striving for higher standards, with the Scottish Government bringing in legislation that all new buildings from 2024 must "meet significantly higher energy efficiency standards, as well as explicit support for Passivhaus and equivalent standard". There are also similar commitments elsewhere with the Welsh Government requiring net zero carbon targets in operation with many Passivhaus-certified schools already built. Northern Ireland is also reaching to achieve zero carbon targets and boasts the world's largest Passivhaus building with the exemplar South West Collage Erne Campus. In England, local authorities have used their powers to pave the way by embracing Passivhaus with Exeter, to name but one, developing the UK's first Passivhaus leisure centre and public pool.

However, like any innovative concept, Passivhaus design has been accompanied by its fair share of myths and misconceptions. In this article, we delve into some of these myths and provide clarity on what Passivhaus design truly entails.

Myth 1: Passivhaus design is only for cold climates
One of the most persistent myths about Passivhaus design is that it is only suitable for cold climates. While it is true that the standard originated in Germany, where winters can be quite harsh and has been taken up extensively in the Nordic countries, Passivhaus principles can be adapted to various climatic conditions. The core idea behind Passivhaus design is to create an airtight and well-insulated building envelope, which is equally effective in both cold and warm climates. In fact, Passivhaus-certified buildings have been successfully constructed in regions with diverse climate profiles, including hot and humid climates. Passivhaus design pays particular attention to the thermal comfort balance all year round, keeping the heat out in the first place rather than trying to cool the air once it is inside. With the emphasis on good design using external shading, window placement and the mechanical ventilation design it becomes much more resilient during periods of hot weather than conventionally built buildings.

Myth 2: It is hermetically sealed and lacks fresh air
Some sceptics argue that Passivhaus buildings, due to their emphasis on airtightness, may suffer from poor indoor air quality. However, Passivhaus design considers the importance of proper ventilation. In reality, the design incorporates mechanical ventilation systems with heat recovery (MVHR) to ensure a constant supply of fresh, filtered air while recovering the heat from the exhaust air. This maintains a healthy indoor air quality and eliminates the need for excessive air leakage through cracks and gaps, which is common in conventional buildings. Many of current UK building stock suffers from poor and uncontrolled ventilation, with increased humidity resulting in mould, condensation, dust mites and cold zones causing ill health. MVHR systems continuously exchange stale indoor air with fresh outdoor air while recovering heat in the process, ensuring a constant supply of fresh air without compromising energy efficiency.

Myth 3: It is just about insulation
One of the most common misconceptions is that Passive House design is merely about adding extra insulation to a building. While insulation is undoubtedly a key component, particularly as quality insulation is a very affordable way of saving energy, it is far from being the sole focus.

The core principle of the standard is to achieve an exceptional level of airtightness and thermal performance by meticulously designing the entire building envelope, which includes walls, windows, doors, roofs and floors. This comprehensive approach ensures minimal thermal bridging and a controlled exchange of heat between the indoor and outdoor environments.

Myth 4: Passivhaus design is too expensive

Another common misconception is that Passivhaus construction is prohibitively expensive. While it is true that upfront costs for materials and systems may be slightly higher than conventional construction, the long-term benefits of Passivhaus design far outweigh the initial investment. Passivhaus buildings drastically reduce energy consumption and utility bills, leading to substantial savings over the building's lifespan. Long term studies of certified housing shows residents experiencing very low heating bills which is why the standard is being rolled out across many social housing associations. Additionally, as energy efficiency becomes a more critical factor in real estate valuation, Passivhaus-certified properties tend to command higher resale values.

Myth 5: Passivhaus design is restrictive in architectural freedom

Critics often suggest that adhering to Passivhaus standards limits architectural creativity and imposes rigid design constraints. However, Passivhaus design principles are flexible and can be integrated into various architectural styles. It involves careful analysis and modelling of each individual project to optimise its energy performance while adhering to the core principles. From single-family homes to office buildings and schools, the Passivhaus approach can be customised to meet the specific requirements of each project. The focus is on optimising the building envelope and energy performance, leaving ample room for innovative design solutions. Architects and designers can still exercise their creativity while achieving the core energy-efficiency objectives.

In conclusion, Passivhaus design has emerged as a groundbreaking approach to sustainable construction that challenges traditional norms. While misconceptions have occasionally clouded its reputation, a closer examination reveals that Passivhaus principles are adaptable, promote indoor comfort, and offer long-term financial and environmental benefits. As the construction industry continues to embrace eco-friendly practices, Passivhaus design stands as a beacon of innovation, dispelling myths and paving the way for a more sustainable future. ■

The Guide to Building Materials and the Environment

Words by Chris Halligan MCIAT, Chartered Architectural Technologist

In 2008, I was with Stephen George + Partners. SGP were commissioned to design a sustainable construction training and research centre for a consortium of bodies including North West Kent College. As well as providing a space for education, the building itself was to be designed as a teaching resource, providing examples of low energy design, utilising a wide range of sustainable materials to demonstrate their potential. My team's task would be to oversee the technical resolution of the design in accordance with sustainable principles. We set about investigating the sustainable credentials of every major element we wished to incorporate in the eventual design. Our research began to provide some interesting and often surprising results. Against expectations, we sometimes found that a material we initially considered as being one of the most environmentally friendly was not quite what it appeared. On the other hand, many widespread and commonly used materials turned out to have quite good environmental credentials by default.

What we did find was that, although a material may be undeniably sustainable, the way we procure and construct buildings rendered its use unviable. Higher degrees of risk, limited availability, increased costs, lack of site skills combined with an inherently conservative building industry all conspired to add increasingly burdensome constraints on our selection of materials.

Having acquired a large amount of data, some of which we felt was not commonly known within the architectural profession, we felt it a shame not to collate this in a form which would be of some practical use. My then colleague, Jo Denison and I, therefore (with the blessing of SGP's partners), decided to put together a guide which we would make freely available to help other professionals seeking to navigate the minefield of sustainable design. Hence in 2010, we published the *Stephen George & Partners Guide to Building Materials and the Environment*.

Thankfully our efforts seemed to be well received and as we had never intended the Guide to be a static work, after a relatively short period, published a second edition incorporating much information which had become easier to obtain thanks to our new-found fame! It was this work which, in 2011, was nominated for and won The RIBA Presidents Award for Outstanding Practice-Based Research.

It is now, of course over ten years since the original version of the Guide was first published.

Much has happened in the intervening period. After my highly fulfilling time at Stephen George + Partners, I moved to work in a different sphere of architecture for several years. With the social, political and economic upheavals of the past decade, sustainability seemed to take a backseat within the world's economy for a time in the face of more 'immediate' problems. However, the environment has a way of providing nasty reminders of how vital it is to our existence on this planet.

Then just a few years ago, I started receiving enquiries once again about sustainable design. Faced with a host of world-wide extreme weather events, a fuel crisis, pollution

and a realisation that the effects of climate change were indeed now upon us, attention has once again turned to focus on sustainable design to provide solutions. This upturn in interest prompted me to contact my former work colleagues at Stephen George + Partners and, between us, we agreed to produce a new, fully revised third edition as a collaborative project. The altruistic basis of the Guide as being free to all was to be maintained and to further cement its collaborative principle, we asked both CIAT and the GreenSpec website for help to promote our efforts. To complete the team, Norse Consulting, where I now professionally reside, came on board as supporters of the project. As a widely inclusive publication, the Guide no longer sits with just SGP but is intended to be promoted by the whole group for the wider good. We decided to therefore shorten the title to ***A Guide to Building Materials and the Environment***. It is in this form that the third edition of the Guide was launched in Summer 2023.

Recent geo-political and environmental events have spurred on a resurgence in the market for sustainable materials. However, this has not made selection of these easier – far from it. With the expansion of the 'green' market and manufacturers' attempts to capture a greater proportion of it, has arrived the concept of 'Greenwash'. Claims and counterclaims employing only a selective focus are widespread. When I began to revisit the last edition, I was shocked at how much had changed in a relatively short space of time. The increasing frequency of extreme floods, droughts, storms, heatwaves and forest fires seems to have begun to finally focus establishment attention on what we might have done to our planet and the consequences of this do not lie in some far-flung future but are becoming very real here and now. Added to this a fuel crisis and ongoing material shortages are creating a greater demand for low impact and sustainable solutions.

Developments in concrete technology (for example) have moved from the niche to the mainstream and the composition of insulation materials has come under intense scrutiny due to the tragic events of Grenfell. When we wrote in the first edition about the Great Pacific Plastic Sargasso, its existence was not widely known. Today it is relatively common knowledge — to the point where single use plastics are beginning to be banned in many countries. Some technologies though have fallen by the wayside. Touted as the 'next big thing', they failed to attract funding for further development. This unfortunately speaks volumes on our present economic system and the value attributed to sustainability.

What I think has become apparent, to those considering the problems of sustainability, is that issues cannot be addressed in isolation. For example, one may think that end-of-life options for a material may be a basic requirement. But this is often ignored - even in respected rating systems such as BREEAM. There is no point in stating something is 'recyclable', if no-one is recycling it! So 'who, how and where', are more important questions than 'can it'. The very term 'recycling' is a misnomer. Most materials are not actually used again in the same manner, but are really 'downcycled' via yet another industrial process, e.g. plastic bottles become clothing.

Consider that, 300 years ago, every material available would be a product of nature. There were no industrial processes available to produce synthetic materials such as plastics. Consequently, everything would be expected to eventually decay or be reused in either a new building or in another capacity. Today, life without artificially produced materials is almost unthinkable. However, the plastics we produce and use today will be in the environment forever. A vast area of the Pacific Ocean is now known as 'The Plastic Sargasso,' and has become choked with the discarded remnants of plastic consumer goods. Even the much-heralded introduction of biodegradable plastics should be viewed with some suspicion as the decay process for these is far from proven outside the laboratory. Construction is second only to the packaging industry as a producer of plastic waste and far from reducing the amount consumed, between 2019 and late 2021 actually increased its plastic waste output by almost 46%. This continued the trend for the four years up to 2018 when UK construction increased its plastic output by over 69%.

Transport of materials is also still a largely unresolved issue. As regards the contribution to the carbon footprint arising from transportation from abroad, again very little definitive information is available. The UK Environment Agency has produced a freely downloadable Carbon Calculator for assessing the embodied energy of both materials and the construction process. This allows one

to assess the emissions arising from transportation by road, rail or water. Generally speaking, waterborne options result in about a 90% reduction of the emissions arising from road transport with rail being between the two. Although shipping of materials in bulk would seem to

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imply an economy of scale which results in low emissions per unit, the scale of the shipping industry in our global economy has come under increasing scrutiny in recent years. Cargo vessels use the dirtiest and most polluting oil available for fuel in addition to which accidental spills of bulk goods and fuels contribute to increasingly polluted oceans. Greenpeace have estimated that the emissions associated with global shipping may be larger than those arising from the aviation industry. However, there is at present no real effort being made to assess, quantify and control carbon emissions from shipping, which remains largely immune to most international climate change agreements. In the Tyndall Centre's 2010 report entitled Shipping and Climate Change: Scope for Unilateral Action, it is pointed out that the method of calculating the carbon emissions from the UK's shipping traffic may be flawed and these may be up to six times the level currently stated. Transport of materials has minimal impact on environmental accreditation systems such as BREEAM or LEED. In some versions of LEED, points are available for materials sourced within 500 miles! Of course, in the context of North America, this may be considered relatively 'local'.

Our aim in the third edition of ***A Guide to Building Materials and the Environment***, as it was originally, is to provide access to enough objective information to enable selection of materials with the least harmful impact. Again, we cannot provide answers – merely a starting point for enquiry.

Section 1 gives an overview of some of the issues associated with specifying sustainable materials, while an overview of individual materials will be found in Section 2 together with links to external sources of information. Section 3 comprises data sheets summarising advantages, disadvantages, considerations and sustainable alternatives for each material.

In Britain (and across much of the developed world) we have the initiative of 'net zero', and in Scotland, the Passivhaus standard has recently been adopted as the norm for new housing. However, despite all this, there is still no UK legislation covering the embodied carbon or general sustainability of materials. Most of the focus continues to be on operational energy. This does not mean it is a subject not being addressed – far from it. In fact, the often-spurious sustainable credentials of materials seem to be a prime vehicle for unscrupulous marketeers to employ in a quest for sales. This practice has become known as 'Greenwash', and is one of the main aspects for specifiers to be aware of. The only way to avoid this is knowledge. Hence, I believe, the continuing need for this work. Without truly understanding the impact of our actions, through an intelligent selection of materials which will not damage the environment, can we ever hope to leave our descendants a planet which will support their continuing survival?

Downloadable from the website of Stephen George + Partners, our aim is to make the Guide widely available as possible and so should, in the near future, be available from a number of sources such as GreenSpec and Norse Consulting also. As an ever-evolving source of information, we intend to produce regular (hopefully quarterly) updates and addenda covering any recent developments. The first of these is on the verge of being published as I write.

Finally, we always have encouraged feedback with reference to the Guide and would welcome any constructive comment or input to future editions. ■

stephengeorge.co.uk/a-guide-to-building-materials-and-the-environment/

Domestic ventilation systems: why quality counts

Words by Paul Williams, Domus Ventilation Product Manager

The word ‘quality’ gets bandied about all over the place. Lets face it, no sane company is going to say their products and services are not good quality. When it comes to ventilation, it is no different: everyone seemingly makes good quality ventilation products and systems. But how do you define quality and is it actually important?

Yes, quality matters

In the world of ventilation, quality really does matter. Using poor quality products will most likely result in a ventilation system that is unable to deliver the air flow required to comply with Building Regulations, and make for an uncomfortable environment in which to live. But that is not all; it could also make for a noisy system and one that leaks condensation onto walls and ceilings, leading to the formation of mould which is not only unsightly but can be hazardous to health.

Product: make or break

With whole house ventilation systems featuring Mechanical Extract Ventilation (MEV) and Mechanical Ventilation with Heat Recovery (MVHR) as the main means of meeting the revised Part F Ventilation of Building Regulations, the quality of these units can make or break a system.

A good quality unit will have a low Specific Fan Power (SFP), which reduces energy consumption and directly impacts on a property’s Dwelling Emission Rate (DER). In the case of MVHRs, the heat exchanger is a key component so be sure to check its proficiency. The heat exchangers featured within our Domus HRXE range of MVHRs enable up to 95% of waste heat to be recovered, making it highly efficient.

Important features to look for in MVHR units are a thermal bypass which automatically activates when the air temperature reaches a pre-set level, allowing in cooler, fresh filtered air without warming it through the heat exchanger; and integral humidity sensors which automatically changes the extract speed from background to boost as the level of humidity increases. The units must be listed on the SAP Product Characteristics Database (PCDB).

If MEV and MVHR units are seen as the heart of the ventilation system, they can only function efficiently if the arteries – the ducting – is of a similarly good standard. Unfortunately, this is where the majority of problems arise, as ducting quality is often forsaken for price. If you want your mechanical ventilation system to function correctly, it is imperative to invest in quality ducting that has been designed to work in harmony as part of a system and has been third party tested for end-to-end system

performance. A good quality ducting system will have exacting tolerances and push fits together for minimal air and moisture loss and maximum system efficiency. It is easy to spot poor quality ducting as the channel or pipe bows, or looks like it is concave, or the wall thickness appears uneven. And remember, never use flexible duct work in place of rigid ducting as it causes a lot more air resistance and can be crushed easily.

A quality ducting system will also come with a range of useful accessories to help you meet site circumstances, such as ducting silencers, aerodynamic bends and pollutant filters such as the Domus NOX-FILT. In addition, it should be accompanied by both dedicated ducting insulation and firestopping products. Ducting insulation is particularly important to use between a MVHR appliance and the external terminals, and in the unheated areas of a property such as loft spaces.

System design: start with the 'building blocks'

Of course, you can have the best ventilation products in the world, but if the system design is not up to scratch, then it will not lead to the results you expect. So quality matters here too.

Whilst some might think the ventilation unit should be the starting point, it is actually the ducting drawing that needs to come first; before unit specification and before the other services (gas, water pipes etc.) going in as otherwise you will need to add more duct work to get around these obstacles. Ducting drawings are not easy, but 'quality' manufacturers will be able to provide these for you, so be sure to take advantage of this service. Domus Ventilation provides individual system drawings free of charge, along with duct take-offs and estimations.

Installation: do not cut corners

An issue that was highlighted when reviewing the previous set of Building Regulations was the dearth of compliance. Many cited the complexity of the old Building Regulations being the issue, but deliberate changes on site to reduce costs and make for a quicker installation are also to blame.

Over the years we have witnessed just about all the mistakes that could be made on site, from installers trying to simplify duct runs to save time and money; using flexible duct work at final connections or around obstructions such as steel beams; using the wrong size air bricks and incorrect size air valves; not using ducting insulation, and a whole lot more.

With the revised Building Regulations 'Approved Document F, Volume 1: Dwellings' (ADF1), which came into effect in 2022, the ventilation rate calculations have been considerably simplified and reporting has been tightened up to drive compliance and, ultimately, system quality.

Opting for a quality product means you have the support of a quality manufacturer who can advise on all matters relating to specification, installation, commissioning and maintenance and, in more challenging cases, will even attend a site visit to ensure the ventilation system is not just fit for purpose but operates at its most efficient.

If you want your mechanical ventilation system to function correctly, it is imperative to invest in quality ducting that has been designed to work in harmony as part of a system and has been third party tested for end-to-end system performance.

A final word

Quality does come at a cost and there will always be a balance between these two factors. But if quality is being sacrificed to save money, then consider this: when it comes to a whole house mechanical ventilation system, a large amount of the cost is in the labour. Good quality ventilation products and systems may come at a higher price, but they are often designed with easy – and therefore quick - installation in mind. Opting for lower cost product may well end up being a false economy. ■

From misunderstood to meaningful: why EPCs should be redesigned

Words by Stuart Fairlie, Managing Director, Elmhurst

Across 2023, the Government has continued to turn up the intensity in net zero-related policy, placing greater emphasis on the need to quickly reduce UK carbon emissions and improve energy efficiency across our buildings. February saw the creation of the Department for Energy Security and Net Zero (DESNZ), with its *Powering Up Britain* report released in March.

As part of the goal to reach net zero by 2050, it also looks increasingly likely that Minimum Energy Efficiency Standards (MEES) Regulations will require all newly rented properties to have a minimum EPC band C rating by 2025, and all existing by 2028. Non-domestic MEES already call for band C by 2027, and band B by 2023. To meet these dates the pace of improvement will need to be swift.

The cost-of-living crisis adds context here. The energy crisis in 2022, permeating into 2023, has shown homeowners the importance of energy efficient retrofit of their property to both reduce carbon emissions and cut fuel bills. However, in their current format, EPCs only show how cheap or expensive a home is to run. They do not currently measure the right things to help us truly reduce carbon emissions in housing and properly tackle climate change.

As the UK's largest energy performance certificate (EPC) accreditation scheme provider for energy professionals, Elmhurst Energy is ideally placed to understand the challenges with the current system. It has long been calling for a reform of EPCs to improve the scope of what they measure to include the three Cs: energy consumption, energy cost, and carbon emissions.

The history of EPCs

The EPC is a legal requirement for all buildings in the UK that are constructed, sold, or leased.

They were first introduced for homes in England and Wales in 2007 as a cost metric, simply informing how cheap or expensive a home might be to run – and have not changed since.

Over time, the EPC has evolved to include additional requirements such as Display Energy Certificates (DECs) for public buildings and the Minimum Energy Efficiency Standards (MEES) Regulations. A lot has happened in the 15 years since EPCs were introduced and priorities have inevitably changed for house builders, homeowners, and the government.

However, the 2050 net zero targets and the cost-of-living crisis have developed a powerful argument for both government and the public as to why the argument for decarbonising our buildings goes much further than fuel costs. As such, the current design of EPCs is no longer fit for purpose.

They need to be redesigned so that building owners' have a better understanding on how to reduce their energy bills, lower their carbon emissions, and make informed decisions about their energy consumption.

Current EPC problems

Energy assessments and EPCs are based on an 'asset rating'. This measures standard occupancies, such as a family living in the property operating the home on set temperatures and running times. It predicts utility bills based on average use patterns and average weather conditions, but using a one-size-fits-all approach has led to misunderstanding.

For example, as fuel costs have continued to rise, occupants are likely to have significantly changed their energy consumption habits. They may have reduced heating usage, adjusted heating timers, or used alternative heat sources such as wood-burning stoves that are not metered. Metered data also includes non-regulated energy such as cooking and running appliances, which the EPC does not account for.

Recent data released from CarbonLaces also shows that properties with EPC rating F and G consume less energy than standard occupancy expectations, highlighting the importance of accurately measuring and understanding occupant behaviour in all properties. At the same time these more inefficient homes are the most expensive to run, meaning the financial impact on residents becomes complex. Thankfully, current flaws in the EPC are now gaining broader recognition. In February this year, Lord Deben, Chair of the Climate Change Committee wrote to Parliamentary Undersecretary of State, Lee Rowley MP, outlining recommendations for improvements to the metrics of EPCs.

The letter emphasised the following:

- EPC ratings are an important policy tool but are poorly suited to this at present.
- Current EPC metrics do not accurately incentivise the energy efficiency and heating solutions required to deliver net zero homes.
- EPC metrics should be improved so they are easier to understand and can be compared with actual performance – enabling policies to be better targeted.

- Domestic EPCs should include four primary metrics, using real-world units, and clear simple names:
  - 'Energy': total energy use intensity (kWh/m2/yr)
  - 'Fabric': space heating demand intensity (kWh/m2/yr)
  - 'Heating': heating system type (categories of heating system, ranked 1 to 6)
  - 'Cost': energy cost intensity (£/m2/yr).
- Reforms to EPCs should be applied alongside wider improvements to the EPC system to improve the quality of assessments and use of data.

EPC redesign

Elmhurst would like to see a more comprehensive and informative EPC, rather like food nutrition labelling, to include the 'three Cs': energy consumption (kWh), energy cost (£) and carbon emissions (CO2). Elmhurst also want to see 'The Golden Triangle' of information being used in building assessment:

Asset rating: the predicted energy cost and consumption of the building, based upon nominal or average occupancy patterns.

Occupancy rating: the predicted energy consumption of the building, based on the people using it.

Energy consumption: what energy the building actually uses to run, ideally based on data from smart meters.

All three pieces of information will inform the property owner where to focus the improvements, based on their priorities and how the occupier uses the home. They would support homeowners' understanding around their energy consumption, enabling better decisions about energy consumption and which energy efficiency measures to introduce.

Fortunately, the national calculation methodology – SAP (standard assessment procedure) for homes – can present all three metrics.

Elmhurst believes all three can and should be neatly illustrated in the EPC. Every environmental policy and regulatory campaign can then align to one or more of those metrics, and we can measure progress more easily. As a further improvement, EPCs should also reflect the current state of a property.

Typically updated every 10 years, many are now outdated and require reassessments and reissue. Any EPC should never be older than three years to maintain the relevance of estimates and recommendations.

The magic number

Elmhurst has long-advocated for the EPC to give equal prominence to cost, carbon and consumption. The good news is that the change to the EPC format is in the pipeline, which would deliver the right data to ground government policy on energy efficiency of buildings.

It would also enable our homes and non-domestic buildings to contribute to net zero by telling the full energy efficiency story of a building and encourage long-term energy efficient retrofit. Including the three sources of data would also give homeowners more accurate information about how to improve their homes to lower carbon emissions and reduce bills in the long-term. ■

They need to be redesigned so that building owners' have a better understanding on how to reduce their energy bills, lower their carbon emissions, and make informed decisions about their energy consumption.

Scratching beneath the surface: the definitive guide to choosing the most suitable engineered surface for your next refurbishment project

Words by George Emms, Sales Leader UK & Ireland – Specification, Polyrey

The impact of interior aesthetics and comfort on customer experience is often the driving force behind hotel refurbishment projects led by designers and building specifiers. Wall coverings, doors and surfaces play a key role in delivering the intended aesthetic, but with so many engineered surfaces to choose from, how can specifiers assess suitability for the project?

Navigating the surface scene

When it comes to refurbishments and new projects, surfaces can be a minefield for interior designers and designers alike with so many different options. The need for speed, ease of maintenance and installation, and desire for full design flexibility has led to engineered surfaces becoming the material of choice for many building specifiers. But with so many options to choose from and important industry regulations to be met, it can be hard to navigate the vast number of choices available.

From wall coverings to doors and worktops, each individual surface plays a significant part in the overall aesthetic of a hotel's ambiance or décor, not to mention its durability and ease of maintenance. The importance of correct specification is imperative when it comes to major refurbs, with little room for remedial work or error. To assess which engineered surface is right for your project, the specific demands of the environment must be considered. Once these have been clarified, the chosen surface needs to be up to date with the key UK and EU regulations and standards for use in hospitality settings.

Which surfaces can I choose from?

Choosing the right surface for any given application is key, not least because getting it right first time avoids disappointing customers, incurring costs and disenfranchising installation teams. Choosing the right surface is not just about the look and feel, however, it is also about longevity, durability, compliance and maintenance. The engineered surface choices available

are brilliant products for the hospitality industry, offering more than just an alternative to more traditional materials.

For example, for a high traffic application like a reception desk, options include Melamine Faced Boards (MFB), High Pressure Laminate (HPL) bonded to a substrate or compact laminate. MFB may be stylish, cost-effective and quick to source and fit product, but its low-pressure manufacturing process, which typically sees one sheet of paper fixed to a choice of substrate, generally means it struggles to stand up to the rigours of frequent use. HPL bonded boards however, use a high-pressure process which combines the decorative paper with six sheets of kraft paper and a protective overlay which results in a higher surface performance. In turn, this will also, in some instances features an antibacterial coating – perfect for food prep areas or regularly used surfaces in health and hygiene conscious markets.

Compact laminate is another alternative; the ultimate in hard wearing solutions. Boasting increased impact resistance compared to HPL bonded boards, plus the sort of premium finish capable of creating a cohesive and stylish décor from room to room, compact laminate tends to be a popular choice for customer-facing spaces where there's an opportunity to wow visitors. Due to its solid compact core, compact laminate does not require edging, saving labour and removing any potential damage caused by high traffic areas.

Other examples include considering vanity tops for bathrooms, HPL bonded boards could be a good option here, however usage considerations are important. Whilst this would be the most cost-effective option, it is important to be aware that any water ingress could render the vanity unusable in a few years. Quartz is another option, offering a surface solution but at a considerably higher cost. Compact Laminate here would be the recommendation, hard wearing and waterproof perfect for this scenario, without the costly templating associated with quartz.

With an almost endless list of possible surface types for various situations, navigating the surface scene can at first glance seem complex, which is why experts such as the Polyrey technical and sales supports teams offer assistance with surface specification.

Which standards do I need to ensure compliance with?

Once a surface has been selected, it is imperative that standards and regulations are complied with. In some instances, this will be a case of best practice, while others will be mandatory. Getting to know the applicable standards and regulations is therefore a crucial part of understanding which engineered surface will be the best to specify.

Ultimately, with commercial buildings within the hospitality sector requiring such a wide variety of amenities, surfaces, settings and furnishings, the list of potential regulatory requirements will often be vast so it is always worth checking which specific requirements are in play for a given project.

With that said, some of the most frequently encountered regulations include:

- ***Furniture Industry Research Association (FIRA) standards***
  The FIRA Gold standard includes assessment and testing of structural performance, safety and stability; ergonomics; finish performance; the effects of moisture, humidity and temperature; flammability; workmanship; even the quality of assembly instructions and installation procedures; plus an initial inspection of the manufacturing premises followed by periodic re-inspections. This product testing standard is accredited by the UK Accreditation Service (UKAS).
- ***UL Greenguard Certification***
  Greenguard certification indicates that a product has been tested and certified to meet stringent emissions standards for over 360 volatile organic compounds (VOCs) and chemical emissions. The highest standard of HPL panels are Greenguard Gold rated. All Polyrey HPL panels and compact high pressure laminate worktops are A-rated in this category.
- ***BREEAM (Building Research Establishment Environmental Assessment Method)***
  Common across many other product categories, this is the leading built environment sustainability assessment method, undertaken by independent licensed assessors using scientifically-based metrics and indices covering a range of environmental issues.
- ***Building Regulations***
  It is extremely important that European building regulations are comprehensively understood by industry professionals to ensure safety standards are complied with. As specific requirements vary between different surface types, a thorough and broad understanding is essential.

The perfect fit

Having the knowledge of standards and product specification makes the decision process easier. Whether you want surfaces to adorn doors or walls, choosing the right supplier makes all the difference.

Regardless of your surface needs, Polyrey has a complementary suite of products to match décor and meet multiple criteria for a co-ordinated approach.

At Polyrey, we can help answer all your surface questions, whether it is navigating regulations and standards or matching your next project with the right surface. ■

Biophilic design: embracing nature's light

Words by Paul Trace, Stella Rooflight

In an era marked by technological advancements and urbanisation, the longing for a connection with nature has never been stronger. Biophilic design, a concept rooted in the idea of incorporating natural elements into built environments, offers a promising solution to bridge this gap. One key element of biophilic design that holds immense potential for enhancing wellbeing, health and productivity is natural daylight. As the trend of home working gains popularity, the significance of natural daylight in home design becomes even more pronounced.

The rise of biophilic design

Biophilic design is an innovative approach that draws inspiration from nature and aims to create spaces that foster a sense of harmony and balance between the built environment and the natural world. This design philosophy recognises the innate human inclination to connect with nature and seeks to harness its benefits for individuals' physical, emotional and mental well-being.

The notion that access to green outdoor spaces and naturally bright indoor environments, improves wellbeing and productivity is not a new concept. During the 19th Century industrial era, wealthy factory and mill owners would create parks to ensure their workforce had access to clean fresh air and places to relax when not working.

This idea has evolved into the post-industrial age: today, this relationship between humans and nature, and understanding of the essential human need to connect to a natural environment in the workplace is being taken increasingly seriously by designers, developers and house builders, and is described by the phrase 'biophilic design' or 'biophilia' – the practice of incorporating nature into the built environment.

The influence of natural daylight

Among the various biophilic design elements, natural daylight is arguably one of the most influential. The introduction of natural light into a living or working space has far-reaching effects on occupants' overall health,

productivity, and mood. Researchers have found several compelling reasons to prioritise natural daylight in home design:

- **Improved wellbeing**: Exposure to natural light has been linked to enhanced mood and reduced feelings of stress and anxiety. Sunlight triggers the release of serotonin in the brain, which contributes to feelings of happiness and well-being. Homes that receive ample natural daylight offer a healthier and more uplifting environment for their inhabitants.
- **Enhanced health:** Natural daylight exposure plays a crucial role in regulating the body's circadian rhythm, which governs our sleep-wake cycle. A well-regulated circadian rhythm is associated with better sleep quality, increased energy levels, and improved immune function. By incorporating natural daylight into home design, occupants can enjoy a more balanced and healthier lifestyle.
- **Boosted productivity:** For individuals working from home, the impact of natural daylight on productivity cannot be underestimated. Research indicates that exposure to daylight in workspaces can result in higher productivity levels, increased focus, and reduced instances of eye strain and headaches. A well-lit home office that embraces natural light can create a more conducive environment for efficient and creative work.

The rise of home working

The concept of working from home has undergone a seismic shift in recent years. The global pandemic significantly accelerated this trend, compelling countless individuals to transform their living spaces into productive work environments. With home offices becoming more common, the importance of optimising these spaces for health and productivity has never been greater.

Designing home workspaces with natural daylight

Integrating natural daylight into home workspaces requires thoughtful planning and design. Here are some practical tips for maximising the benefits of natural light in your home office:

- **Positioning:** Choose a workspace that allows ample natural light to flow in throughout the day. Position your desk near the brightest part of the room to make the most of the available daylight.
- **Solar control:** Opt for glazing treatments, such as solar controlled glass, that control the amount of sunlight entering the room. This way, you can avoid glare on screens while still enjoying the benefits of natural light.
- **Reflective surfaces:** Incorporate reflective surfaces, such as light-coloured walls and furniture, to help distribute and amplify natural light within the workspace.
- **Biophilic elements:** In addition to natural light, consider adding other biophilic elements to your home office, such as indoor plants and natural materials. These elements further enhance the connection to nature and promote a calming and inspiring atmosphere.

The role of the rooflight

Rooflights can help to provide natural light with qualities appropriate to the use of the building. Rooflights let in light from the brightest part of the sky and are not generally affected by external obstructions, such as trees or other buildings. They also provide a more even pattern of light than vertical windows.

Rooflights can form part of an effective technical lighting scheme, particularly in conjunction with efficiently

controlled artificial lighting, to produce specified illumination levels for particular tasks. According to leading consultants, horizontal rooflights provide three times more light than vertical windows (the equivalent of 10,000 candles on a sunny day), which is more than 200 times the light needed for most educational or work-related tasks.

In addition, rooflights can also add to the more subjective qualities of spaces as an integral part of the building's architecture. They can provide views of the sky and promote a sense of well-being and connection with the outside without the distractions encountered with views through vertical glass windows.

These facts are well understood by most people involved in building design. However, the huge potential of rooflights to provide exactly the amount, type and distribution of natural light required to meet any given specification is not always appreciated.

Conclusion

As our lives become increasingly urbanised and technology-driven, biophilic design emerges as a powerful tool to reintegrate nature into our built environments. Natural daylight, a fundamental aspect of biophilic design, has a profound impact on wellbeing, health and productivity.

For those embracing the trend of home working, the incorporation of natural daylight into home design is an essential step towards creating a nurturing and productive workspace. By prioritising the inclusion of natural light via rooflights, we can foster a more balanced and harmonious living environment that promotes our overall happiness and performance. ■

Hybrid flat roofs – when flat roof specification becomes compromised?

Words by Rob Firman, Technical and Specification Manager, PolyFoam XPS

Warm roofs – whether a 'conventional' or inverted build-up – should be the specification of choice for new-build flat roofs that need to be insulated. However, mistakes in specification, or height issues on site, can necessitate considering installing insulation to the underside of the deck. Is the subsequent result – known as a 'hybrid' roof – ever an appropriate solution?

The type of insulation added to the warm roof arrangement, and the way it's installed, depends on the roof deck.

- **Timber deck:** Rigid foam insulation or batts of mineral wool insulation are likely to be friction-fitted between the roof joists, and a ceiling finish fixed to the underside of the joists.
- **Concrete and metal decks:** The chosen insulation type must be capable of being fixed securely to the underside of the deck, with the question of how a ceiling is then provided.

Do existing standards and guidance support hybrid flat roofs?

We are not aware of any formal guidance that specifically forbids or rules out hybrid roof arrangements.

Two main British Standards are relevant here. Both are codes of practice, so their contents constitute 'guidance and recommendations', rather than formal requirements/specifications.

BS 6229:2018 *Flat roofs with continuously supported flexible waterproof coverings* – Code of practice acknowledges that hybrid roof build-ups occur, such as where thermal insulation is added to an existing roof. It says there is "an increased risk of interstitial condensation with a hybrid roof", but stops short of saying they are bad practice.

Nevertheless, designers "should select the type of flat roof most suitable for the intended building", which means ensuring that any condensation risk present is fully assessed and evaluated.

BS 5250:2021 *Management of moisture in buildings – Code of practice* represented a substantial revision to the previous version of BS 5250. It features a table summarising the condensation risk analysis methods appropriate for warm flat roofs, and the 2021 update included a new footnote.

Footnote B to Table 4 says that condensation risk analysis calculations are required for warm flat roofs "if thermal insulation is split both above and below the deck or AVCL although typically no more than one-third of the thermal resistance should be on the warm side of the AVCL."

The term 'hybrid flat roof' is not used in the standard, only this description of one. The 'one-third rule' described here has been a rule of thumb in the industry for years. Again, though, we are not aware of it being something ever previously formalised.

Where the under-deck insulation is the same material, and has the same thermal conductivity, as the insulation on the deck, then a 'one-third calculation' is simple. If the two insulation layers have different performance characteristics then the calculation is much less straightforward.

In addition, any thermal bridges through the insulation layer – timber joists, air gaps, fixings – change the effective R-value of the layer. Have they been taken into account? Does BS 5250 intend for them to be taken account? This is where hybrid roofs become a minefield.

Do hybrid flat roofs contribute to the performance gap?

The 2021 edition of BS 5250 therefore appears to lend some legitimacy to hybrid roofs as a concept, having not included such a statement in the 2016 edition. Despite this, there are strong arguments for approaching hybrid roofs with a good deal of caution, and even avoiding them entirely, as BS 6229 seems to lean towards.

The translation of design intent to as-built performance is a fundamental issue for the construction industry as a whole. No form of construction or installation is immune from potential performance gap issues.

In the case of hybrid flat roofs, however, there are clear reasons why a performance gap is more likely to occur – and equally clear practical consequences if installation is not carried out to the highest standard.

By installing insulation not just on the warm side of the roof deck, but also on the warm side of the air and vapour control layer (AVCL), potential issues with condensation are being invited where they are very much not welcome.

Analysing condensation risk in hybrid roofs

BS 5250:2021 describes appropriate condensation risk analysis tools for different flat roof build-ups. These tools are only ever models and site practice needs to at least try and match what was assumed in the analysis – something that is by no means guaranteed in any aspect of construction.

The dewpoint charts produced when analysing hybrid flat roofs can be hard to read. The temperature and dewpoint lines might be very close, and even touching – regardless of whether the calculation predicts any condensation.

The Polyfoam XPS technical helpdesk has dealt with plenty of project enquiries where the proposed insulation arrangements result in a prediction of condensation risk. We are then asked to adjust a proposed hybrid roof specification by a matter of degrees at a time, reducing the thickness of under-deck insulation until the calculation no longer predicts condensation.

Such 'massaging' of input data is extremely questionable. If the difference between predicting condensation and not predicting condensation is decreasing the insulation thickness by just 5mm, are you really confident that the latter build-up will perform in reality?

Ultimately, you are relying on near-flawless installation of the 'safe' or 'acceptable' arrangement to make sure the as-built roof performs as intended.

What are the potential installation issues in hybrid flat roofs?

- **Air gaps:** Insulation installed between roof joists must be tightly fitting to avoid warm air potentially circulating around it. The potential for moisture transport is exacerbated if the insulation material itself is vapour open.
- **Fixings:** Where insulation has to be fixed to the underside of the deck, what type and frequency of mechanical fixings will be used? How will the ceiling be fixed through the insulation and into the deck? Can a continuous layer of insulation sensibly be achieved?

On the subject of fixings, suspended ceilings are a particular cause for concern. We frequently see U-values calculation that assume either no suspended ceiling fixings through the under-deck insulation layer, or minimal impact on the insulation layer.

What if a ceiling system needs more supports when it is being installed than the calculation assumed? What if the penetrations made through the insulation are done untidily, and leave large holes in the insulation rather than being kept neat and tidy?

In summary

If they are not exactly desirable, then it is at least easy to see why hybrid flat roofs get built. Dealing with tight upstand heights on the roof? Need a lower U-value without taking up the waterproofing? Then insulation below the deck is an obvious route to explore.

Unfortunately, the convenient solution is often too good to be true.

A worrying development we have seen in hybrid roof calculations is a highly vapour resistant insulation layer shown to the underside of the roof deck. This layer is significantly thicker than the insulation above the roof deck, going far beyond the bounds of the 'one-third rule'.

The calculation 'works' because the below-deck insulation is assumed to be continuous and offering perfect vapour resistance. However, we have seen examples of such calculations where a suspended ceiling system is present. How does the system fix through the insulation without compromising the perfect vapour resistance that is being relied upon?

It is concerning to see a hybrid solution, which already is not considered best practice, being deviated from even further to address what good design and specification should avoid in the first place.

In theory, hybrid flat roofs can work – but can they be trusted to work in the majority of cases where they are adopted? At Polyfoam XPS, we therefore maintain the stance that hybrid roofs should be a design choice of last resort, to avoid compromising the performance of a major building element. ■

A guide to conservation rooflights

Words by Paul Trace, Stella Rooflight

What is a conservation rooflight?

Although rooflights, or skylights as they are sometimes known as, have been around for centuries they became more prominent during the Victorian era as technology and building aspirations were stretched and roof glazing boomed. One of the most famous Victorian building projects was the Crystal Palace, which in 1851 used glazing on an unprecedented scale to showcase just what could be achieved.

Mass-produced Victorian rooflights for residential use tended to be made from cast iron and the earliest examples would have smaller, lighter panes of glass. This was partially down to limits of glass technology at the time but also because of excise duties, which were imposed on glass by weight in the mid-18th Century. These slim, single glazed rooflights with multiple panels of glass were unobtrusive in design and sat flush in the roof. Today it is this minimalist appearance that many people are seeking to achieve in their glazing designs.

As a result of their popularity, there are lots of conservation roof windows on the market, which can make choosing the right one difficult unless one can identify what the differentiations are. An effective way to make this distinction is to look closer at the attributes of a true replica of a Victorian conservation rooflight.

What material is a conservation rooflight manufactured from?

If a conservation rooflight is all frame, then there is little point in having one. Genuine conservation designs should be manufactured with slim clean lines and a low-profile to match the roofline. A number of skylight companies try to produce conservation rooflights using modern bulky aluminium profiles, which sit proud of the roofline, particularly slate. It is widely accepted that the most authentic conservation rooflights are manufactured from steel because it provides great strength while offering a slim profile and excellent glass to frame ratios. There are many types of steel conservation rooflights and for unrivalled protection and lifespan, it is best to opt for a rooflight manufactured from a marine grade 316L stainless steel.

Considering the inside of the rooflight is also important, and again, it will come as no surprise that there are various options available. Nowadays most rooflight suppliers tend to use cheaper soft wood or plastic, which is painted white as an internal finish and these liners can result in deeper frame profiles or reduced viewable areas. While a white internal frame can be sold as ‘clean’ or ‘neat’, these can sometimes feel a little soulless and is a finish more often associated with modern flat rooflights than traditional conservation products.

High end conservation rooflight products will be finished with hard wood, which gives a neat, warm appearance to the internal element of your conservation rooflight. Some rooflight manufacturers even offer a choice of your timber preference, so that you can match other materials in your home or simply create the exact look you are trying to achieve.

Considering the inside of the rooflight is also important, and again, it will come as no surprise that there are various options available.

Single or double glazed?
Victorian rooflights would have been single glazed, however, today's modern building standards are much higher and so single glazing does not meet the minimum requirements for thermal efficiency (Part L). Double glazing is now the most popular option for genuine conservation rooflights because glazing technology is such that a modern double-glazed unit can provide a number of benefits while remaining reasonably slender. While offering much improved thermal performance, modern glazing units can offer a variety of practical choices, such as self-clean, solar control UV light protection.

Some conservation rooflight suppliers are keen to boast about offering triple glazing in their products, however, while this does offer a slightly improved thermal performance it comes at the expense of appearance. The optimal spacer bar thickness is 16mm so any decent triple glazed unit is going to be almost 50% thicker than a double glazed version. Now with a flush fitting profile being one of the main requirements of a conservation rooflight, the introduction of triple glazing makes that almost impossible on some roof types. It is also important to consider that triple glazing will add significant weight to the rooflight, so consideration must be given to the load bearing structure of the roof and how you will position the rooflight for installation.

Should conservation rooflights have glazing bars?
It is often a stipulation from the Conservation Officer that a conservation rooflight should have a glazing bar to replicate that original Victorian appearance. It is not always the case, but it is definitely worth checking whether you need them before purchasing any conservation rooflight.

If your conservation rooflight does require a glazing bar, then it should be a genuine one. This is an area that separates those producing close replicas to the original

Victorian rooflights and those who are trying to pass off modern skylights as something more traditional. A genuine glazing bar should be something which not only divides the glazing but also provides additional strength to the casement. So many conservation rooflights have something simply stuck or glued onto the outside of the glass which neither looks good nor provides any benefit to the rooflight. In addition, these stuck on bars (usually plastic) often attract dirt and mould and the lifespan of anything which is simply held on by tape or glue is unlikely to compare with a genuine steel glazing bar. A stuck on glazing bar is one step up from a felt pen but certainly should not be seen as a way to make a modern bulky framed profile meet the criteria of a conservation rooflight.

Top hung or centre pivot?
Once again, if you are looking for a close replica of a Victorian rooflight then a top hung profile will be the one you should opt for. Not only does a top hung design offer a more authentic appearance, it maximises the space below because the casement does not stick into the room. Smaller top hung rooflights also utilise beautiful brass ironmongery to operate the casement whereas centre pivot designs tend to rely on modern plastic handles, which are out of reach and offer nothing to enhance the internal aesthetics.

Is any old conservation rooflight suitable for my project?
Just because something is sold as a conservation rooflight, that does not automatically make it suitable for all building types. If your building is listed or in a conservation area then the criteria for using conservation rooflights are much stricter and you should always gain approval, not only for their use but also the manufacturer that you would want to use.

There are only a handful of companies that specifically make conservation rooflights and even fewer who design, manufacture and assemble in the UK. Many conservation rooflights available online are simply other products which have been spruced up to look like they meet the requirements of that type of product. If you ask a supplier what the main difference is between their conservation rooflight and those used on modern buildings and the answer is a stuck-on glazing bar, then you should avoid at all costs. Likewise, there are many elements which go into a genuine conservation design and price is always a reflection on quality.

Is there anything else I should consider when choosing my conservation rooflight?
With the UK Government pursuing a carbon neutral environment it is imperative that every action is taken to reduce energy consumption. Rooflights are energy efficient as they let in large amounts of natural light thus reducing the need for artificial lighting. Bringing natural daylight into your home is about much more than creating a bright, welcoming environment, it is about protecting your health and wellbeing and achieving a more positive way of life.

One way to ensure that you maximise the amount of available light is to increase the size of your rooflights... or is it? Just because you have a large rooflight this does not always guarantee lots of light and you should always check what the finished viewable (often referred to as clear viewable) area of the rooflight will be. You might think that a conservation rooflight with a whole frame size of 900mm (w) x 1200mm (h) would have a similar clear viewable area regardless of the manufacturer, but you would be wrong and bulky framed modern types or the flat rooflights posing as pitched conservation styles will let in considerably less light than a genuine steel framed version.

With so many choices available, choosing the right conservation rooflight can be a bit of a minefield but with the right guidance and advice it need not be a stressful experience. ■

Just because you have a large rooflight this does not always guarantee lots of light and you should always check what the finished viewable (often referred to as clear viewable) area of the rooflight will be.

The hidden subtleties of U-Value calculations

Words by Joan Ferrer, Commercial Director UK & I RE, Ravago Building Solutions

Calculating prospective U-Values is a routine part of the building design process, so routine that you could be forgiven for not giving all that much thought to the intricacies of each and every calculation.

However, the slightest of changes to certain variables can have a significant impact on the final result and mistakes made in the design stages can come back to haunt us.

The impact of ground types

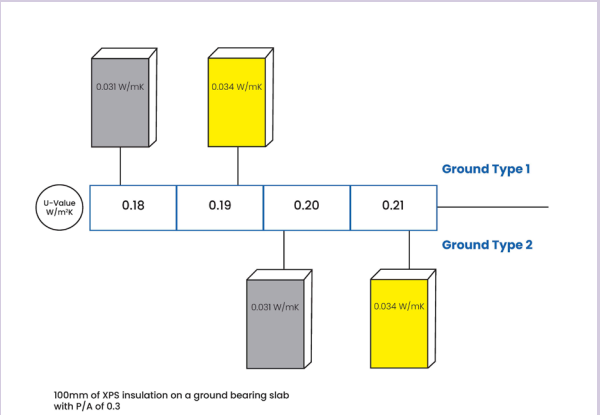
Let us consider the case of ground-bearing floors – the thermal properties of the underlying ground can have a notable impact on the overall thermal performance of a buildup. It is therefore important to ensure that the U-Value calculations for competing insulation products have been compiled using the same ground type to allow you to make an informed decision. To this end, you should always provide the ground type (if known) when requesting a calculation to ensure that the resulting U-Value is most accurate.

BS EN ISO 13370:2017 states that there are three categories of ground type:

Category	Description	Thermal conductivity
1	clay or silt	1.5 W/mK
2	sand or gravel	2.0 W/mK
3	homogenous rock	3.5 W/mK

The standard is clear that when the ground type is unknown it should be assumed to be category 2. While there is a swathe of fantastic tools on the market to help produce U-Value calculations, some of them actually default to using category 1, so those performing the calculation need to make sure that this is changed when a prospective customer has not specified a ground type.

To demonstrate the importance of using a consistent ground type across calculations, lets look at an example buildup involving 100mm of XPS insulation on a ground bearing slab with a P/A of 0.3. In this scenario, using an XPS board with thermal conductivity of 0.031 W/mK results in a U-Value of 0.20 W/m2K when calculating for ground type 2, meanwhile a board with thermal conductivity of 0.034 W/mK can achieve a U-Value of 0.19 W/m2K if we instead use ground type 1; unless you were checking for the difference in ground type you would think that the board with higher thermal conductivity was the superior solution!



100mm of XPS insulation on a ground bearing slab with P/A of 0.3

What elements should be included in the calculation?

BS EN ISO 13370:2017 is also somewhat ambiguous on how to account for the thermal properties of some elements of a ground bearing floor. While it is explicit that the hardcore below a concrete slab should not be included, it states the "thermal resistance of a dense concrete slab may be neglected", leaving it to the individual performing the calculation to decide. This decision is quite a significant one, as typically the inclusion or exclusion of the concrete slab's thermal resistance will cause a variance of 0.01 to 0.02 W/m2K in the final U-Value.

The 2019 edition of Conventions for U-Value Calculations (BRE BR443) provides best practice advice to complement the standard. At first it is quite definitive, stating that "It is recommended for most calculations that dense floor slabs ($\rho \geq 1800$ kg/m^3) and floor coverings such as vinyl or carpets are not included in the calculation", but frustratingly, it then immediately reintroduces the ambiguity of the standard by saying "but it is permissible to include them if their properties are adequately defined." It is therefore important to check exactly what elements have been included in individual U-Value calculations before trying to compare them.

The need for a common standard

These are just a couple of examples demonstrating how difficult it can be to compare U-Value calculations when trying to specify insulation. We need to start calculating U-Values with a consistent and transparent methodology that will allow specifiers to compare the performance of different insulation products quickly and easily. ■

A balancing act: designing sustainability and performance into our buildings

Words by Justin Peckham, Regional Head of Sales (UK and Nordics) for Accoya

Timber has been a critical building component for thousands of years and it continues to be one of the most widely used materials in construction.

However, timber is a natural product sourced from a huge variety of different species grown in different conditions, resulting in a myriad of different performance and sustainability attributes. This means that, when it comes to specifying timber for a project, it can be a challenge to ensure the optimum combination of performance, sustainability and cost effectiveness for the job in hand.

On top of this, with the sector under increasing pressure to ensure building safety, it is critical that designers also consider how the timber will interact with other building materials specified within a project to ensure the optimal outcome.

A clever selection

Specifying the right type of timber for a project involves an assessment of a multitude of factors. These include; the intended use of the building, relevant standards and codes, service life expectations, sustainability, aesthetics, capital costs and maintenance costs. In short - there are many different elements that must be considered.

When it comes to choosing between timbers; performance disparities arise from their inherent characteristics. The different characteristics mean that some timbers perform better than others for certain applications. In outdoor environments, for example, its vital to choose a timber species that is highly durable, i.e. resistant to rot and decay. These could be very different characteristics to what you would need for an indoor flooring or a structural beam.

It may also be important to consider how easy the timber is to source, to work with and its density. The more durable hardwoods for example can be difficult to work with and very heavy, making them unsuitable for certain applications, such as bulky facades. In some cases, material health can also be an issue, with unsafe wood dust to manage.

Thankfully, innovative processes and ways of modifying timber can enhance its performance. For example, at Accsys, we have developed a pioneering modification process to turn fast-growing softwood into a material with class 1 durability according to EN standard 350-1. This innovative modification process boosts the already naturally occurring acetyl content of wood. The resulting product, Accoya, interacts differently with water,

leading to improved dimensional stability and resistance against decay. This also means that the wood doesn't need to be treated with toxic chemicals.

The sustainability question

In addition to innovative modification processes that avoid the need for toxic chemicals, wood – at its source - has the inherent potential to be a sustainable material. This is due to its renewable nature. Trees can be replanted and harvested, allowing for a continuous cycle of growth and use.

However, not all wood has the same social and environmental credentials.

When wood is sourced from well-managed forests that are renewable, adhere to legal regulations, and implement practices like selective harvesting and reforestation, it can be considered truly sustainable. However, with about one-fifth of EU timber imports coming from illegal sources, according to the European Commission, it is essential to consider how and where the wood is sourced from.

Certifications from organisations such as the Forest Stewardship Council (FSC®) provide assurance that wood products meet specific environmental and social standards. Trees in FSC® certified forests are grown and harvested according to a strict set of guidelines that benefit the environment. Looking out for this certification gives designers, specifiers, and consumers the confidence that the timber has been verified through a Chain of Custody system. This means that checks have taken place at every stage of process to ensure that the wood is sourced from well-managed forests that protect the environment – both at a local level, and on a global stage. This is something that can be guaranteed with a modified wood product, such as Accoya, where there are rigorous processes in place to ensure the sustainable sourcing of FSC® certified wood.

Building resilience

While sustainability must increasingly be front and centre, it should not mean that performance is compromised. With extreme weather becoming more frequent, it is critical to consider the location and climate of a build when specifying for a project. For example, in coastal areas, buildings can be exposed to saltwater, harsh weather conditions, high humidity, and the risk of erosion and flooding. Therefore, it is absolutely essential that the materials specified are sufficiently resilient.

For this reason, in the past, some may have steered clear of using timber on coastal buildings due to the possibility that it could rot or swell and quickly require replacement, affecting performance. However, innovations in the timber industry – such as the modification process used to make Accoya - mean that timber is now a long-lasting option.

An illustrative example of this was the recent conservation project at Caernarfon Castle. The castle, which is located on the North West coast of Wales, is a World Heritage Site that required conservation works. The designers wanted to select materials that would complement the castle's existing structure whilst also providing world class performance that could withstand the erosion that can occur when building on the coast.

Accoya was selected because of its durability credentials, as well as its low maintenance qualities and the look and feel after it has been weathered. The durability of the wood works perfectly at a busy heritage site such as this one, as not only does it perform well in harsh conditions, this also minimises the amount of restoration later down the line.

For designers, where to specify timber and which timber to specify goes back to the careful consideration of performance qualities. It is critical to look out for the provision of warranties and product performance data that prove the timber will remain weather resistant and stand the test of time. The acetylation process, as an example, strengthens Accoya wood to such an extent that it is the only wood in the world to offer a 50-year warranty.

Certifications from organisations such as the Forest Stewardship Council (FSC®) provide assurance that wood products meet specific environmental and social standards.

Thinking ahead

Choosing materials that last is an innately sustainable choice. When products are designed to be durable, they inherently contribute to decreasing impact on the environment. Extending the lifespan of a product, and reducing the need for replacements simultaneously decreases the need for constant production and resource extraction, curbing energy consumption and greenhouse gas emissions.

While investing in materials that are functional, durable, and sustainable may have higher initial costs, it ensures longevity and resistance to wear and tear. This means that, in addition to supporting sustainability efforts, the need for frequent repairs and replacements is reduced which cuts long-term costs, ensures the safety of the end user and helps to avoid the risk of liability issues later down the line.

Timber has always been a popular building material. However, with increasing pressure on the industry to prioritise performance, safety, and the environment, clever product selection is key. ■

Get collaborating: how real-time file synchronisation could help you work more closely with your team and clients

Words by Jimmy Tam, Chief Executive, Peer Software

Design aesthetics, multiple test standards and changing construction materials - all can pose challenges to designers when it comes to choosing the right fall protection system.

Project failure. No matter what sector you are in, one of the main contributors is often a lack of effective collaboration. And on large-scale architecture projects, working efficiently with your team and your clients becomes an even more crucial factor. Whether it is developing CAD drawings with your distributed team, sharing designs with clients and local planning teams, or providing details to manufacturers, you need to be able to share ideas, be responsive and make changes quickly.

But all too often, the systems used to store and share files have not been designed for real-time collaboration for distributed project teams. As a result, many of us waste time waiting for files to download, worry about sending files securely, and risk version control issues if you are unsure if the file you have is the most current version.

As a file sharing expert, I am not here to share tips on how to collaborate, I will leave that to the team building gurus. Instead, I am going to offer some insight into how to get the conditions right. So that tech is not what's getting in the way of you and your team creating amazing designs.

Better file sharing = improved collaboration

Getting file sharing right is a simple step towards better collaboration on your projects. It does not just eliminate frustration and worry. The knock-on effect could see you freeing up time to take on more ambitious work, be more innovative in your designs and strengthen relationships with your clients. All of which have an impact on your bottom line.

Instead of getting stuck working on and sharing files by email, uploading and downloading from a cloud solution, or with an FTP solution, consider the alternatives. Over the 30 years I have been helping to develop file sharing solutions, there are three things I always encourage users to focus on:

1. **Make it real-time**
   This is number one for me, and for a reason. Opting for a real-time file synchronisation solution with version control capabilities, where remote teams always have fast local access to the most current global project files, improves productivity and eliminates the need for unnecessary back-and-forth communication. Wherever you and your team are, you can work on content together as if you are in the same room.

   Also check that the solution you choose has robust versioning and backup features, so that you can easily restore files if they are accidentally deleted, overwritten, or corrupted with malware/ransomware.

2. **Prioritise continuous availability**
   Not all real-time file sync solutions are made equal. For the best experience, make sure that you can access your files at all times, without planned or unplanned interruptions. The best enterprise file sharing and collaboration solutions incorporate a resilient storage infrastructure design across sites that can gracefully handle outages of a storage node in the distributed environment. As well as ensuring business continuity, you will also receive the benefits of balancing the workload across the distributed always on, always available systems.

3. **Consider flexibility**
   Many real-time file sync solutions only work with particular vendor's hardware. By selecting a solution that can create a file system that works across a heterogeneous mix of storage, you avoid vendor lock-in and are freer to choose the technology that fits your project goals and your budget.

   Look for a distributed file sharing and collaboration system that is designed to be compatible with different types of storage systems and consider the level of vendor or community support you need. Opt for well-established solutions for ongoing support, updates and compatibility with future storage technologies.

Collaboration is not just a buzzword. Working together, whether it is with your colleagues or your clients, is essential for the success of any project. And being able to do that seamlessly and in real time, gets you to a place where you can focus on creating and developing more of the very best and innovative designs. Without tech slowing you down. ■

New podcast for architectural professionals

Words by Jon Clayton MCIAT, Chartered Architectural Technologist

A Chartered Architectural Technologist has launched a podcast for architectural professionals to help them grow their businesses. Jon Clayton's main area of expertise is designing home extensions but as the owner of his own architecture practice he has always had a keen interest in the business side of architecture.

He said: "When you go to college or university to study architecture, you learn how to design buildings, but they do not teach you all the skills you need to run and grow an architecture business." As a Chartered Architectural Technologist, Jon has found that most of the resources to help architecture practices were aimed squarely at architects which proved quite frustrating for him.

He said: "I want to ensure my podcast is an inclusive place for all architecture practice owners, whatever their professional title, as there is so much we can learn from each other".

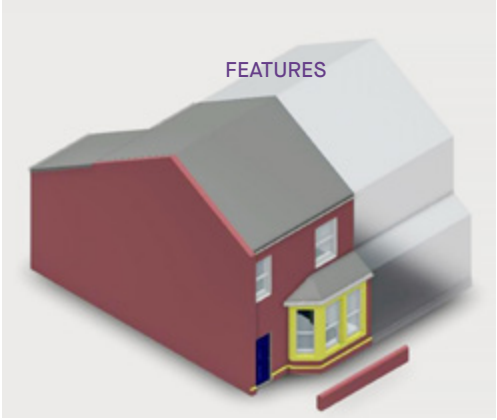
Each week Jon interviews inspiring people from the world of architecture and business who share actionable tips to help you improve how you work, save time, or make more money.

Jon also shares his own experiences running an architecture business in occasional solo episodes. And he has discovered there is a lot more to podcasting than just hitting the record button. "I really had no idea how much goes into creating and launching a podcast" said Jon.

"It's a lot of work but it's been a really fun experience, especially learning how to host an interview. I've had several exciting opportunities come my way since telling people about it so I cannot wait to see what happens after the launch." ■

Jon's podcast, Architecture Business Club launched on 16 November 2023 and it is available on Apple, Spotify, Google Podcasts, Amazon, and more. Or you can subscribe to the show at https://mrjonclayton.co.uk/listen

To contact Jon to ask about being a guest on the show, email jon@mrjonclayton.co.uk.



There's no BIM like home Part 19 – the final

Words by Dan Rossiter FCIAT, Chartered Architectural Technologist

AT Journal concludes its exclusive access to serialise Dan's blog on how he used BIM to produce an information model of his home.

It is time for me to release both my mechanical model and electrical model; completing the set of deliverables I aim to produce for my home from my Information model.

In accordance with my employer's information requirements, and BIM Execution Plan I intend to issue the following information:

Graphical Models

- 7001-BBH-ZZ-ZZ-M3-M-0001, *Mechanical Native Model;*
- 7001-BBH-ZZ-ZZ-M3-M-0002, *Mechanical FM Handover IFC Model;*
- 7001-BBH-ZZ-ZZ-M3-E-0001, *Electrical Native Model; and*
- 7001-BBH-ZZ-ZZ-M3-E-0002, *Electrical FM Handover IFC Model*

Non-Graphical Data

- 7001-BBH-ZZ-ZZ-IE-M-0001, *Mechanical COBie; and*
- 7001-BBH-ZZ-ZZ-IE-E-0001, *Electrical COBie*

Documentation

- *None*

For context, from the native models I have produced the drawings listed above as well as my FM handover IFC model which was then used to generate my COBie deliverables. What is important is the quality of the deliverables.

I have now completed the deliverables associated to my mechanical model and electrical model. This means that once these items have been approved and authorised, I will have completed PLQ2.5 for my all of my information!

Email	Created by	Created on	Category
Redacted	Redacted	2016-05-11 T12:00:00	PM_10_20_30: Client
SupportServices@Cardiff.gov.uk	Redacted	2016-12-09 T16:45:00	PM_10_60_86: Supplier
canton@allenandjones.co.uk	Redacted	2016-12-09 T16:45:00	PM_10_20_55: Employer's Agent
Rhian.Jones@evansandjones.co.uk	Redacted	2016-12-09 T16:45:00	PM_10_20_55: Employer's Agent
sales@clsl.co.uk	Redacted	2016-12-09 T16:45:00	PM_10_20_55: Employer's Agent
heldesk@tmgroup.co.uk	Redacted	2016-12-09 T16:45:00	PM_10_20_55: Employer's Agent
helpdesk@landmark.co.uk	Redacted	2016-12-09 T16:45:00	PM_10_20_55: Employer's Agent
info@howdens.com	Redacted	2016-12-09 T16:45:00	PM_10_60_55: Manufacturer
info@ikea.co.uk	Redacted	2016-12-09 T16:45:00	PM_10_60_55:Manufacturer

COBie contacts
I was told that my COBie contact sheet should include all of the suppliers, installers, and other contacts related to my home; not just the project design team. I agree, and have now revised my COBie contact sheet to include all of the applicable contacts.

I was told that my COBie documents sheet should be populated with my other outputs such as my drawings. As Revit cannot hold this information have used my COBie post-process sheet to record all of the applicable outputs. I was also told that my COBie documents sheet should include other documents such as my property condition survey and any designer risk assessments. I agree, however, there are no designer risk assessments as I haven't done any design on this project. Similar to the above I have used my COBie post-process sheet to record all of the applicable documents as well as my outputs.

After much consideration, now that my information model is complete, I cannot keep the same pace going without it affecting the quality of what is produced. I just need to complete my remaining operational plain language questions, as well as following the installation of any new smart products and minor works that trigger an update to the information model as per my employer's information requirements. ■

With this part, we now conclude our exclusive reproduction of Dan's blog. If you would like to visit the blog for any further updates then please visit https://bimblog.house/

We would like to thank Dan for allowing us to reproduce his blog for the Journal and since then, he is now Vice-President Technical and dedicating his time further to the Architectural Technology community.

@DRossiter87

End of Year Architectural Technology Shows — a retrospective

Four of our Programme Leaders report on their 2023 End of Year Shows, revealing a wealth of talent and an inspiring new generation of Architectural Technology professionals from Accredited Honours degree programmes.

Anglia Ruskin University

The slow recovery from what has been a difficult time, as a repercussion of the pandemic, was unprecedented. As with any problem, the pandemic has challenged us to rethink of what we have been doing and how, learning from it, we could do things differently and better. Our teaching team on Architectural Technology has handled this recovery with dedication and commitment. We have managed to deliver a high-quality programme and generously offer support to all our students. In the current academic year, it was with great pleasure that we could announce the return of the Regional aspirATion Group.

Our programme's three stages introduce students to the multidisciplinary nature of the industry and contextualise the role of the Architectural Technologist within this domain focusing on small domestic scale buildings that create awareness around the core skills, and knowledge of the discipline. Students acquire general construction knowledge and practical skills required to evaluate and technically draw UK domestic scale buildings. They explore the theory and practice of appraising the design and production of buildings and constituent components in an integrated way, through research and detailed technical drawing. Sustainable design studios offer the opportunity to investigate architectural space and form, structure, sustainable and with low environmental impact material, construction and technology. The issue of ethical sourcing and deployment in relation to sustainability and environmental performance (life cycle analysis) are key.

We further develop these skills and knowledge by introducing more comprehension, critical analysis and problem-solving skills whilst providing professional advice backed up with sound reasoning. With design procedures we get students to work in groups on a live brief with professional presentations to a live client(s). We work on design technology, which provides students with an understanding of the relationship between sustainable design, building technology and environmental performance when designing and adapting both historic and modern buildings. They learn to model sustainable architecture and gain insights into issues and design processes associated with sustainable architecture. In parallel, we help our students develop digital skills to gain an appreciation of the growing importance of advanced three-dimensional CAD and BIM. Finally, our students can further explore sustainable building technology and environmental performance strategically as individuals and within groups developing detailed solutions that are

applied and can be tested methodically against given criteria. The degree culminates with a comprehensive dissertation that increases the tempo on previous learning and experience with more integration of skills and knowledge around a student-developed major design project that sees the final-year students develop their own design methodically. This involves a comprehensive research project around a chosen well-defined industry problem which theoretically underpins the design project. Running in tandem with the individual technical design development, students systematically analyse the technology and professional processes and draw them to test and enhance critical thinking in preparation for their own final technical design where a range of professional criteria are applied and assessed.

All our intentions and student outputs are exhibited at the end-of-year show, not only to celebrate success with friends, families and peers, but to also meet people from the industry and discuss employability opportunities and prospects. We are thankful that CIAT is always present and well represented. Our intentions to meet contemporary challenges in the built environment by educating and preparing competent, ethical, relevant, and topical Architectural Technologists can only be reaffirmed in the words of one of our recent alumni, he characteristically said:

"During my tenure at ARU, I acquired invaluable insights into construction technology and honed essential skills. The comprehensive curriculum provided a solid learning foundation and efficiently trained me in the relevant industry software. ARU's teaching methods instilled confidence and deepened my subject knowledge, effectively preparing me for the professional realm. This enhanced skill set has significantly heightened my employability prospects and nurtured my aspirations within the field. Today, I approach the Architectural Technology industry with the confidence and competence essentials for success, all thanks to ARU's exceptional educational experience."

Ben Wright, ARU Architectural Technology Alumnus (2022-23)

While we fight off the difficulties that the construction industry encounters, here at ARU, we strive to come up with new ways to reinvent ourselves, be it with the use of VR or by conducting perpetual self-exploration. Hopefully, with the introduction of a Design and Construction Management degree apprenticeship, we will continue to strengthen our relationship with industry and offer to our students the best possible learning experience.

Graham Terry, Programme Leader

Leeds Beckett University

At Leeds Beckett University, displaying and critiquing student work is an integral part of the Architectural Technology programme throughout the academic year. This culminates in an annual exhibition that allows graduating students to showcase their best and most innovative designs to their peers and local industry representatives, to celebrate their achievements as they embark on their careers.

Over the three years of the BSc (Hons) Architectural Technology degree, students develop expertise in areas such as sustainable architecture, inclusive design, building information modelling, and construction technologies. Through this process the school provides opportunities for students to obtain feedback from academics within the school, peers and industry professionals to help refine and improve their work.

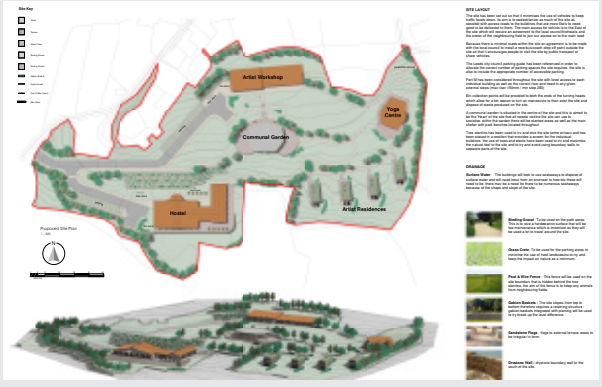
Exhibitions within the school of Built Environment, Engineering & Computing are carried out throughout the year, which gives students a chance to present their assignments and projects to others gaining insights for growth. The school opens these displays to local architecture and construction companies, where industry experts are invited to assess the work and provide critiques.

This culminates in the annual exhibition held each year, which serves as a celebration of the students' achievements across all three years of the programme. It features an array of innovative and thoughtful architectural designs that blend technical excellence with aesthetics. This year, it incorporated cutting-edge trends such as modular construction, adaptive reuse, augmented reality, and the early use of AI.

"The Crits were useful to engage with external guests and gauge feedback from industry professionals. Physical exhibitions allowed us to talk through our designs and justify our thought process while been provided with useful comments." *Ben Hardwick, 2023 Graduate*

The university has hosted both physical and virtual exhibitions to accommodate both changing circumstances and widening participation. Having both in-person and digital exhibition formats provides important learning experiences for students. Physical displays allow them to practice presenting and discussing their work face-to-face, while online platforms help enhance technology and remote communication skills. The blend of exhibit types gives graduates well-rounded abilities to share their designs and collaborate professionally after university.

Moving forward, Leeds Beckett intends to expand the exhibits to feature work from the MSc (Hons Aarchitectural Technology and Design students. The university takes great pride in the talents of their architectural technology



students and are committed to providing platforms for them to share their accomplishments.

"Participating in both physical and digital exhibition platforms has been a transformative experience for me as a student. The physical exhibitions allowed me to engage with a tangible, real-world audience, receive immediate feedback, and showcase my work in a traditional, hands-on manner. It helped me develop essential presentation skills, build confidence in explaining my projects, and connect with people who shared a genuine interest in my field of study. The digital space encouraged me to think creatively about how to present my projects, utilise technology, and adapt to the evolving trends in the modern age.

Combining both physical and digital platforms provided me with a well-rounded learning experience. It allowed me to explore the best of both worlds, honing my interpersonal and presentation skills while also embracing the advantages of the online realm. Overall, this approach has enhanced my educational journey, making me a more versatile, adaptable, and confident student." *Kashish Kalwadiya, 2023 Graduate*

The annual exhibition has become a hallmark of the university's Architectural Technology programme. By critiquing and publicly exhibiting designs, Leeds Beckett equips graduates not just with technical skills but also the ability to confidently present ideas and contribute as leaders in their field.

Tahira Hamid MCIAT, Programme Leader

Middlesex University

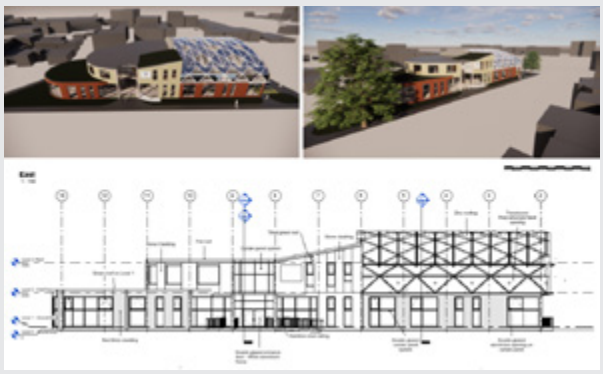
This year's end of year show started with the final evaluation session of the works of all year groups of BSc(Hons) Architectural Technology at Middlesex University. For this session, we invited industry professionals from PRP (Marco Wip) and Cat Dowd and BPR (Paul Beaty-Pownall) as the assessment panel. Having Marco as Architectural Technologist and Paul as an architect provided just the right balance. Cat Dowd from HR also did a round table discussion with all students about employability. She said "PRP Architects attended the Crits Presentations in May 2023. As well as being impressed with the quality of the projects we were inspired by the passion for design that the students displayed as they were presenting their projects. The faculty team were also kind enough to allow me to host a roundtable discussion with all students to gain their thoughts into what attracts them to future employers. It was an extremely engaging session, and I came away with valuable insights and has had an impact on the way we promote our employer brand."

At Middlesex we run weekly vertical studio sessions where all year groups work together with their tutors in our studio which proved to be very effective in creating a community of learners for students. The students found the whole experience very supportive and rewarding.

Paul Beaty-Pownall, Managing Director of BPR Architects said: "It was great to see the progress the students had made during their time at Middlesex. I looked at some very strong and professionally presented design proposals. One student had even explored the use of AI tools to present their scheme in an open and honest way. Having seen their end of year presentations, I feel confident that employers will be quick to offer them all good jobs."

Furthermore, this year Architectural Technology programme exhibited for the first time together with other programmes such as part of the Creative Industries Degree Show. It started on 8 June with a private view of alumni and industry partners, and the exhibition was further open to all public and prospective students.

Dr Homeira Shayesteh, Programme Leader



University of West London

The University of West London, Ealing, provides a CIAT Accredited programme BSc Architectural Design Technology which has been recently growing in student numbers and quality.

The three-year degree programme covers the common modules for the fundamental knowledge and skills of building construction technologies, regulations, materials, project processes, BIM, sustainability and so on. The second and third years offer more focused modules on Architectural Technology, which all culminate in a yearlong module 'Final year ADT Project'. This is an industry-focused module which includes a design project and a technical research report.

Students design a mixed-use university building which includes a basketball sports hall, a gym, student services and a public fine dining restaurant. The design process simulates a real-life project following RIBA Plan of Works stages 0 to 5 and there is a strong focus on creating buildable/realistic solutions presented clearly by using BIM software and showing a good understanding of Building Regulations and sustainable practices.

Projects are developed through weekly crits in the studio with the teaching team, supported by Architectural Technology professionals, who this year were Niall Healy MCIAT (Healy Cornelius Design) and Paul Turpin ACIAT (Arcadis Group). They both offered one industry talk each per semester, paired with feedback on student progress. Their input was much valued and contributed to deeper discussions and improvements of student outputs.

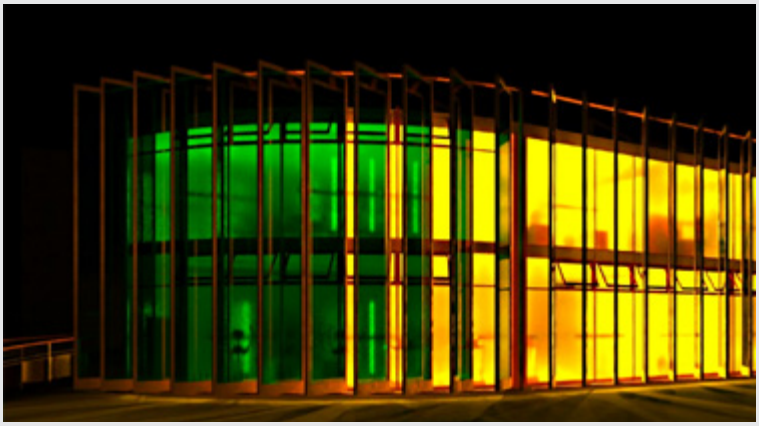
The main challenges presented by this project included the sensitive location of the site in an Ealing conservation and green area, the size and irregular shape of the site, complex massing of the different functions and large spans. Students had to ensure that the building produced was coherent, accessible, complying with the Building Regulations and relevant design principles, and fulfilling the brief.

All our intentions and student outputs are exhibited at the end-of-year show, not only to celebrate success with friends, families and peers, but to also meet people from the industry and discuss employability opportunities and prospects. We are thankful that CIAT is always present and well represented.

This year's (2022-23) final year cohort was overall very inquisitive and looked at investigating alternative solutions. They also showed a positive attitude to knowledge sharing and developing IT skills and BIM practices. This led to overall well-resolved schemes with high-quality detailing and presentation. Over the final year, the students were also keen to participate in and visit construction exhibitions such as Future Build, London Build and Architect At Work and showing a strong interest in learning about their future professional roles, new materials and building technologies.

As a result of all the student's hard work and staff's focus on improving standards and employability, this year, more than half the class found employment in architecture, design or construction related posts in less than three months after graduation. This demonstrates that graduates have acquired good industry skills and confidence valued by employers. We would like to wish everyone a successful and exciting career in Architectural Technology and hope they keep enthusiasm for creating innovative and sustainable buildings.

Dr Charlie Fu FCIAT, Associate Professor in Architectural Technology and Dr Efcharis (Haroula) Balodimou, Senior Lecturer in Built Environment ■



2023 AGM

The AGM took place in Birmingham on 11 November 2023 as a hybrid event with delegates in person and attending via Zoom.

The Institute's 18th Annual General Meeting, held at Birmingham's Park Regis Hotel, included the approval of the accounts as well as the authorisation to Council to appoint the auditors These were all voted on by the Voting Delegates, made up of representatives from the Regions and Centres. There were no Resolutions.

At the close of the AGM, Eddie Weir PPCIAT MCIAT was inaugurated as President for a second time – an Institute first.

He began by taking the opportunity to officially thank Council and the Regions and Centres for supporting and electing him as President once again as he undertakes the position of President for a second time, and only the third President from Northern Ireland (even though two of them has been him). Eddie said it really was an honour and a privilege to be the 31st President of this incredible and wonderful Institute, which he holds so very close to his heart. In addition to this, he continues his term as President for the Architects' Benevolent Society – you could say that it is a great time to be Eddie Weir!

A presentation was made to Kevin to thank him for his time as President with the Past President's medal. Eddie then presented on the 'focus points' from his manifesto: inspire, promote and support. Paul Laycock MCIAT began his term as Vice-President Education.

The remainder of the day saw a conference which presented on the Region and Centre Review and Events Review and Professor Sam Allwinkle PPBIAT FCIAT gave an update on the Professional Standards Framework review and the Building Safety Act (see page 5). ■

Republic of Ireland Centre | Centre Business Meeting report

Words by Michael O'Keeffe FCIAT, Centre Chair

In accordance with Institute Regulations, the Republic of Ireland Centre Business Meeting took place in May 2023 in the Horse & Jockey Hotel, Thurles, Co. Tipperary. As the previous Business Meeting in 2019 took place virtually, and to build upon the strong attendances we have experienced at recent in-person professional and social events, the Centre Committee decided to organise a full-day event for members and affiliates. This included a tradeshow, CPD presentations and a networking dinner in the evening.

We were delighted to secure valuable sponsorship and attendance by HiTechniques/Matterport and Ecological Building Systems who met with members in the exhibition lobby during the day.

We also welcomed Eddie Weir PPCIAT MCIAT, President Elect, and James Banks, Membership Director and ATR Registrar, to the days events.

It was great to see a strong attendance of members and affiliates at the Business Meeting and exhibition to discuss the activities of the Centre over the last two years. Chair, Michael O'Keeffe FCIAT, opened proceedings a little after 12:00 noon, which included an address from Eddie Weir, where he highlighted the importance of the ATR and his aims for his second term as President. Reports from the Centre Committee were received and the Committee for the term 2023-25 was elected. It was encouraging to witness renewed interest from the membership to attend the AGM 2023 in Birmingham as Voting Delegates – we were delighted that Mel McGerr FCIAT, Emmett Tolan MCIAT and Roger Bell MCIAT would attend on behalf of the Centre, together with new Councillor, Patricia Mulvey FCIAT. (postscript, Roger fell ill with COVID so the role was taken over by Michael).

The highlight of the day was the Architectural Technologist Register (ATR) presentation with James Banks. This generated great discussion and offered clarity to Chartered Members on the streamlined process to apply to join the shadow register, to demonstrate the demand and viability of the register to the Minister and Department of Housing, Local Government & Heritage. The Register has been open for applications since 1

May 2023, with regular meetings of the Assessment & Admissions Board, and we are counting on the support of the membership as well as practicing and/or unaffiliated Architectural Technologists to join and help us achieve parity with architects, engineers and surveyors through establishment of a statutory register for Architectural Technologists.

Following a hearty lunch, the CPD portion of the day started with an insightful presentation from Cronan Kennedy of Ecological Building Systems. Within, he covered the establishment of the company and the importance of specifying and installing appropriate materials based on their application to traditional buildings to avoid adverse impacts to the building fabric and internal environment. Oliver Murray from HiTechniques/Matterport followed with an interesting presentation on the development of surveying technologies in recent years and the benefits they offer on projects of all scales. Both presentations generated queries and discussion.

Later that evening, we enjoyed a three-course meal in Silks Restaurant and were joined by partners for a sociable networking evening which extended into the small hours. Keep an eye out for future events which we are planning across the country to meet more members and affiliates in both professional and social capacities. ■

North West Region | Day conference in Liverpool

Words by Dr Colin Stuhlfelder FCIAT, Regional Chair

The North West Region hosted a one-day conference on 27 October at Spaces at the Spine in Liverpool, a venue at The Spine, the new northern base of The Royal College of Physicians' to celebrate regional projects, practices and practitioners.

The Spine, designed from the Manchester office of AHR is described as "...a groundbreaking, world-leading example of biophilic architecture, and was designed to meet the principles established in the WELL Standard, supporting mental and physical wellbeing for staff and visitors." (RPC, 2023)

For these reasons The Spine was selected as the location for the conference as a leading regional project with national renown designed by a regional practice. Sitting at the top of the city, in the Knowledge Quarter formed by two of the city's universities and both its cathedrals ,this 13-storey tower offers breath taking views out to the hills of Wales and the Pennines, the miles of historic docks along the Mersey and of Anfield, Goodison and the new stadium emerging at the river's side.

Or, at least that was the plan, however a thick fog on a cold Liverpool morning had other ideas and the building as well as its views were shrouded from us as some 70 members, students, affiliates and other professionals gathered to engage with presentations relating to the themes of sustainability, adaptation and wellbeing. While we could argue this prevented attendees from being distracted by the views, the content of the morning presentation would surely have kept their attention far more than the birds-eye views.

Opened by, with enthusiasm and insight, by the President, Kevin Crawford PCIAT, Robert Hopkins, Director of AHR delivered the first project presentation detailing the efforts necessary to meet the brief for The Spine and the expectations of creating a building able to meet the platinum rating of the International WELL Building Institute's WELL Standard. This was followed by Cathy Hardman, Workplace Manager of the Royal College of Physicians sharing the lived experience and management of The Spine.

Closing the opening session, Nooshin Akrami MCIAT and outgoing Councillor for the North West Region, provided a valuable insight into the sustainability of all our lives, as well as the sometimes arbitrary reasons why some of us succeed in the goals we set and the lives we envisage.

The second session brought three major regional practices together to discuss projects undertaken around the wider region, opening with Colin Savage FCIAT, Director of AEW Architects demonstrating how The Spindles, Oldham, a 1980s complex of buildings is being given new life as part of the wider regeneration of a town centre, including the adaptive reuse of a shopping centre into a modern workspace for the local authority.

Quentin Keohane, Director of Falconer Chester Hall and Associate Architect Alexandra Harrison delved into the complexities of ensuring inclusive design expectations

are met in the refurbishment of the 1930s Grade II* listed structure, the India Building, Liverpool on behalf of HM Revenue & Customs, including ensuring all entrances are accessible to avoid staff with mobility challenges having to use a single means of access.

Senior Architect, Lucy Ashcroft and Associate Technologist, Alex Scrimshaw MCIAT CIAT-Accredited Conservationist of Buttress closed the session evidencing how the sensitive interventions at the Grade I Listed and Scheduled Monument, Caernarfon Castle can make the King's Gate, designed to prevent access to a fortress, a modern entrance and structure for allowing everyone to the castle and experiencing the adjoining battlements regardless of the physical challenges they live with. Their interventions, designed to be entirely removable preserve the integrity of a site of national importance to Wales and as a UNESCO World Heritage Site by working with the forms and shapes designed and built several centuries ago.

It will come as no surprise to those who attended, the Chair of the Region may have been a somewhat over excited about the Buttress project, coming as they do from Caernarfon, however what should be noted and celebrated about the three projects is they all featured the adaptation of existing structures and buildings to meet new expectations and bring new life to them. They each demonstrated a commitment to working with the existing built fabric of our built environment at a time where global climate challenges are engaging the construction sector in the need to be less wasteful and to work with what we have where we can.

Neatly continuing these themes, the first of the afternoon sessions was opened by the Chair, DrColin Stuhlfelder FCIAT, Programme Leader for Architectural Design & Technology programme at the University of Salford who examined Liverpool examples of adaptive reuse where heritage and listing (and indeed aesthetics) are not the driver for reusing building stock to meet carbon reduction targets.

Ann Vanner FCIAT of Habitat Architects, and Councillor-elect for the North West Region, delivered a robust exploration of how we should be design better houses and living better in our homes, extending to them the holistic approach other professions try to bring to health and wellbeing. From this perspective, the final presentation by Priti Gadani of Radii Planet Group struck a deeply personal, and as felt by the audience, a starkly insightful evaluation of the liveability of a cancer ward her family are dealing with as a space designed for health and wellbeing but not necessarily succeeding on either count.

By the time we welcomed President of the Architects Benevolent Society and President Elect, Eddie Weir, to close the Conference, the City had emerged from the fog and with clear views and minds full of a range of presentations on schemes from small interventions through to multi-million pound redesigns, Eddie ended the day with aplomb reminding us all that we are a community here to support each other.

The North West Regional Committee would like to thank everyone who attended and participated, will make the presentations available in due course, and would welcome the engagement of Regional members and affiliates in planning another event in the next 18 months. ■

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Membership news

Chartered Architectural Technologists

We would like to congratulate the following who successfully attended their Professional Interview and are now Chartered Architectural Technologists, MCIAT:

026650	Jonathan Etchells	Yorkshire, 02
025574	Liam Crowther	Yorkshire, 02
025914	Admire Chiguma	North West, 03
037653	Joseph Nelson	North West, 03
030918	Stephen Elsey	East Midlands, 04
019461	Tabraiz Sajawal	West Midlands, 05
037524	Hazel Momberg	Wessex, 06
031114	Diego Sanz-Burgos	Greater London, 09
031119	Calum Boyce	Greater London, 09
028425	Stephanie Gilbert	South East, 10
029398	Joao Virtudes	South East, 10
036221	Ryan Holcombe	South East, 10
030525	Kieran Clark	Western, 12
033651	Daniel Huxtable	Western, 12
028138	Taylor Davison	Scotland East, 14
023734	Wezley Morgan	Wales, 16
033861	Yeu Ng	Republic of Ireland, C2

Welcome back

We would like to welcome back the following Chartered Architectural Technologist:

027447	Michal Slawek	Central, 08
017142	Ian Crockard	Northern Ireland, 15
008671	Paul Redmond	Republic of Ireland, C2
027040	Raymond O'Reilly	Republic of Ireland, C2
018994	Christopher Lambert	Middle East & Africa, C7

Fellow Members

We would like to congratulate the following Chartered Architectural Technologist who successfully completed their application and is now a Fellow Member, FCIAT:

019073	Tanja Smith	Northern, 01

In memoriam

We regret to announce the death of the following Member:

025744	Adam Kelly	Scotland East, 14

Chartered Architectural Technologist is new Champion of CIC 2050 Group

Ray Ockenden MCIAT has been appointed Champion of the CIC 2050 Group.

The CIC 2050 Group represents those in the industry who are at the start of their career to ensure the link between young professionals and the leadership of the industry.

The Group comprises members from a range of discipline across the built environment, giving their time on behalf of the different Professional Institution members of CIC they represent.

The Group's vision is to provide a collaborative forum and platform for all members of all disciplines and professional bodies to develop ideas, share knowledge and promote advancement of sustainable industry initiatives with a view to achieving a carbon neutral industry by the year 2050.

The 2050 Group Champion is the principal representative of young members within the CIC, encouraging and leading an active forum that offers unique perspectives and thought leadership to promote more sustainable strategies and practices within the industry.

Ray Ockenden MCIAT said of his appointment: "I am pleased to have been appointed the Champion of the CIC 2050 Group, a group that aims to help forge links between the current generation of industry leaders and the future generation, to promote sustainable strategies and practices within the industry, leading to better principles of design and construction.

"The construction industry is at a critical point and needs to reduce its damaging contribution to the greenhouse gases being produced. Hopefully, the coming years of construction will bring a positive change and I would like to do my part to help."

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