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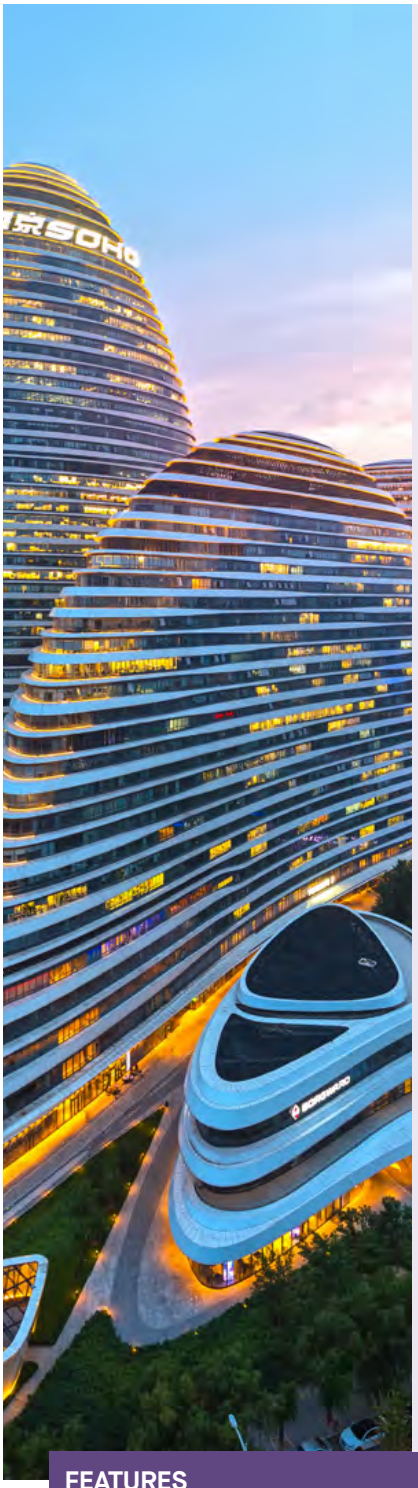

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Editor's welcome

Believe it or not, it's that time of year again. We had a glorious long summer, but as soon as the clocks went back the weather went 'yep, you'd better believe it's winter' and we were immediately bombarded by brisk winds, heavy showers, and grey days. But fret not, dear reader, because winter also means two things. One: it's only bloody Christmas (hurray!), and we at CIAT hope you're having a fabulous one, be that with family or friends or both. And two, and I would argue even better: it's the winter issue of *ATJ*! And after our jumbo autumn AT Awards special, we've got a lovely little issue chockful of cherry-picked think pieces, interviews, and articles, perfect for a cozy read by the fireplace with your slippers on.

Well, maybe I should have said three things, because the end of the year also brings the Institute's Annual Review, which you can read on our website now to find out everything the Institute has been up to this year and how we've been working to provide the best service possible for you and promote the AT discipline and profession far and wide.

With the new year comes a brand-new status quo, and at our AGM this November, Eddie Weir officially handed over the presidential reigns to the Institute's new president Usman Yaqub. Ahead of this, we caught up with him and asked him about his plans for CIAT over these next two years, as well as some even more essential questions such as his favourite ice cream flavour (real cutting-edge journalism on display here, I'm sure you'll agree). You can find that on page 12.

Good things come in pairs this issue, as we have two research projects on the potential of AI from Nottingham Trent University on pages 28 and 30. We also have two opinion articles from NBS' Dr Stephen Hamil, who has a lot to say about AI too (page 8), as well as on making data more accessible across the industry (page 40). While the argument in his first article, that across the sector AI is not replacing jobs but is rather our "liberator from the mundane", is compelling, I have to say that this humble journal editor with his English Lit degree and creative writing background is still a little worried for the future!

Well, I'm only scratching the surface of brilliant articles you've got ahead of you, but just enough to whet your appetite. We're really proud of this issue – hope you enjoy reading it as much as we did editing it. (Oh, and no AI was used in the writing of this editor's welcome. Promise.)

To all our members and affiliates, have a Merry Christmas and a Happy New Year! I'll see you in 2026. Looking forward to it.

Tim Fraser
Deputy Editor

The benefits of acoustic flooring

Words by Dave Ford, Specifications Manager – North, Altro

Reducing sound is more than just a 'nice to have'; it promotes the health of staff and service users, helping support stress-free environments.

Noise levels from people and noise pollution from equipment and devices reverberate over sound-reflecting hard surfaces, extend over distances and linger; consequently, they can have a serious impact on everyone's wellbeing.

A positive sound environment occurs naturally outdoors; our ears are tuned to the natural environment, and the sky absorbs noise. We need to create the same indoors, absorbing or diffusing noise to help support a stress-free environment. Designs that have good acoustics, along with natural light and ventilation, help create a positive, therapeutic atmosphere.

Acoustic flooring generally refers to flooring that helps provide sound insulation, thus dampening the effects of sound from within the room, be it airborne noise or impact noise. Acoustic flooring is different from soundproof underlay or flooring, which is designed to reduce sound coming through the floor from adjoining areas.

Where can acoustic floors be used to best effect? Here are some examples:

Commercial kitchens
Whether in a restaurant, hotel, hospital, university, school or care home, they have one thing in common: they are really noisy! Acoustic and impact sound reducing floors can help reduce noise significantly to enhance the wellbeing of all those who work here.

Hotels
Nothing disturbs a good night's sleep more than the sound of other guests moving about in the room above yours or wheeling their suitcase past your door at midnight. Acoustic flooring helps reduce sound transmission between storeys and adjacent rooms and increases sound absorption along corridors to keep your guests coming back for some peace and quiet.

Care homes
Improve the chances of residents sleeping well and not disturbing each other by incorporating sound reducing flooring into your corridors and bedrooms. They also enhance a sense of privacy in visitor lounges.

Education
Libraries, student accommodation, dining rooms, and playrooms; spaces that either demand quiet upfront or would benefit from minimising noise transmission to other areas. The right floor can reduce impact sound transmission, not just into adjoining rooms but also to other storeys.

Housing
Reduce tenant complaints about noisy neighbours next door, above or below them by installing appropriate sound absorbing floors.

Hospitals
Peace and quiet aid recovery and protect privacy, so surfaces that contribute to them are essential across of a hospital, including: intensive care or wards in which resting and sleep are vital for patients; corridors in which the sounds from trolleys and wheelchairs can be a constant source of distress; and consultation rooms in which private conversations should not be overheard.

Offices
Office equipment, people on the move and conversations can all make noise levels so loud as to make offices a stressful working environment. Not good when you spend the best part of your day there. Create a more positive working environment with less noise pollution in open plan spaces, communal areas, and meeting rooms.

Retail
No one like a noisy shop. Retail therapy by its very nature demands quiet for it to count as therapy and create the right atmosphere, thereby providing not only a more peaceful environment for staff, but also one in which shoppers will linger.

Most manufacturers have acoustic flooring options. Consider how each area is used and weigh-up sound reduction properties alongside those such as slip-resistance, durability, and aesthetics – you should be able to find options that deliver what you need. ■

Educating building owners on the misconceptions of fire safety in riser shafts needs to happen now

Words by Alex Bardett, Managing Director, Ambar Kelly

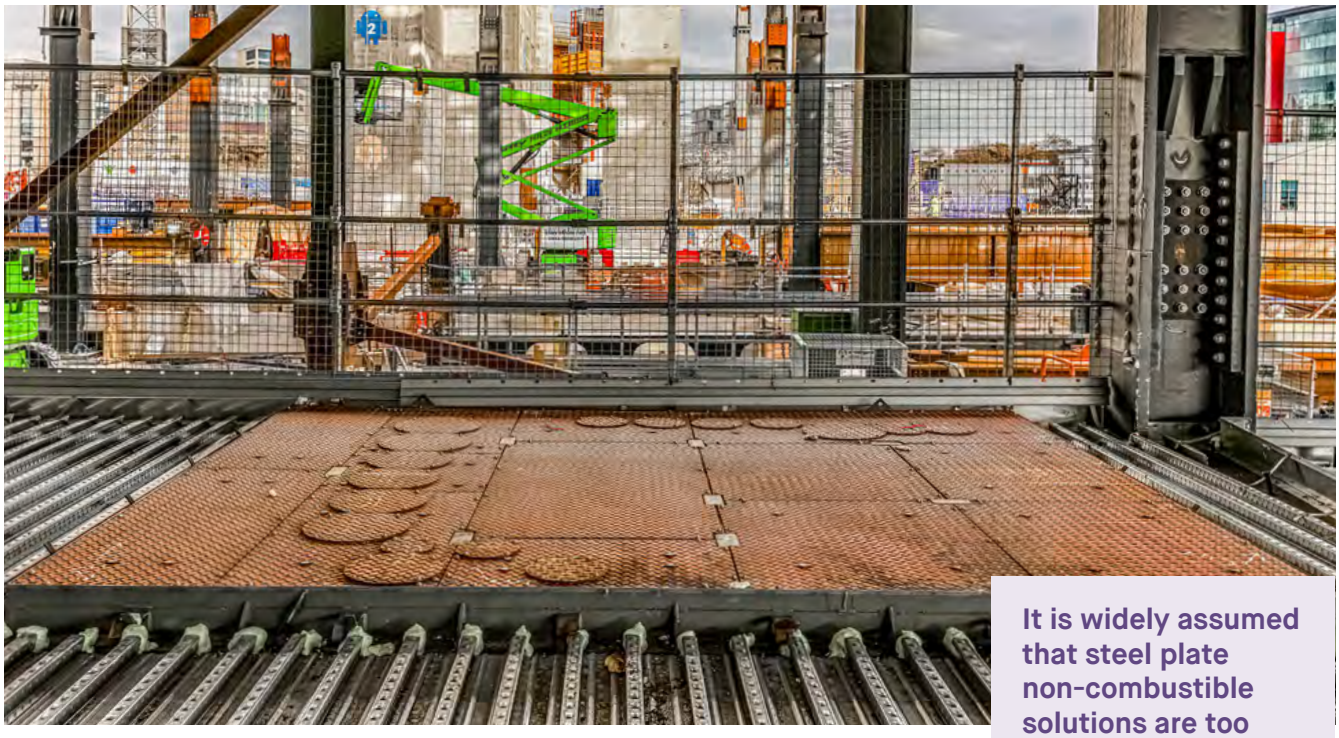
The Grenfell Tower inquiry has substantially changed the fire safety landscape in the UK, placing fire performance and material specification under intense scrutiny – especially in high-risk buildings (HRBs). As a vertical void linking all floors of a building which, if not protected, can become a fast lane for the spread of smoke and flame, the riser shaft is a hugely important but often overlooked area. Widespread misconceptions about riser shafts and the materials used to build them continue to expose projects to avoidable risks and underline why the industry needs to address this blind spot.

During the construction process, riser shafts can function as open chimneys. If poorly specified or left unprotected, they offer a direct route for smoke and fire to rise unchecked. This risk was tragically demonstrated in the Grenfell Tower fire and echoed in the King's Cross Underground fire of 1987, where super heating of the combustible material in the wooden escalator led to a 'shaft effect' and deadly flashover.

Despite legislative changes and a sharper focus on fire safety – especially in HRBs – many in the construction industry still confuse 'fire resistance' with 'non-combustible'. This misunderstanding can often lead to the specification and use of inappropriate or outdated materials, particularly in the riser shaft.

The need for better understanding of the risks of fire in HRBs and the necessity of using non-combustible materials is exacerbated by data from the Home Office's online Incident Recording System (IRS), which revealed there were 707 fires in high-rise buildings in England in the year ending September 2023 – a 17% decrease compared to a decade ago. While this drop is encouraging, the data highlights the risk fires still present, especially in HRBs, and why stricter regulation and better understanding is crucial.

Changes to Approved Document B and the Building Safety Act represent a much-needed shift. From March 2025, BS476 Parts 6 & 7, long used to measure surface spread of flame, were formally withdrawn and replaced by the EN13501-1 standard, which clearly classifies materials by combustibility. Only Euroclass A1 and A2 products will qualify as non-combustible. Conversely,



the commonly used glass-reinforced plastic (GRP) grating, meanwhile, is Euroclass B to E and therefore combustible.

However, the problem remains that many suppliers still promote GRP based on its old BS476 Part 6 & 7 classification – creating a false sense of compliance. If these materials are substituted post-specification and not recorded In the Change Control Plan, a project could fail Gateway Three approval by the Building Safety Regulator (BSR).

A major issue lies in the assumption that product choice is solely the subcontractor's responsibility. In fact, as riser flooring is a permanent works rather than a temporary protection, it should therefore be specified by the designer. Under CDM 2015 and the Building Safety Act, all duty holders, including contractors, architects, and quantity surveyors, are accountable.

If a non-combustible A1 riser flooring product is swapped for a combustible GRP option, this should be considered an unacceptable alternative. Furthermore, if that change isn't recorded and assessed, the risk may fall squarely on the principal contractor, whether they realise it or not.

This is further complicated by a major testing gap. There is currently no fire test specifically for a complete riser shaft. Individual elements are tested in isolation, but the combined 'chimney effect' – a key factor – is not accounted for. In real fires, materials interact differently when vertically installed in shafts, accelerating flame spread in ways isolated tests cannot predict.

It is widely assumed that steel plate non-combustible solutions are too expensive. While the upfront cost may be higher than GRP, total lifecycle costs often tell a different tale. In fact, combustible alternatives typically require multiple post-installation interventions. For instance, cutting service penetrations into GRP grating on site increases risk and labour costs. Temporary fire doors may also need to be fitted on every floor to prevent smoke and fire movement through the shaft during construction. These 'hidden' extras, combined with slower installation times, drive up overall cost.

It is widely assumed that steel plate non-combustible solutions are too expensive. While the upfront cost may be higher than GRP, total lifecycle costs often tell a different tale.

The introduction of the 'Golden Thread', a live, digital record of fire-critical information, is a major step forward. For it to be the most effective, those involved in specifying, procuring, and installing riser shaft systems must be better educated on the difference between fire-resistance and non-combustible.

Designers must therefore move away from referencing withdrawn standards, while contractors must be more rigorous in documenting substitutions, and suppliers must stop promoting outdated performance claims.

This is supported by the fact that one of the biggest challenges fire consultants face is cultural, rather than technical. In fact, people still assume that if something passes any fire test, it must therefore be suitable. This is simply not the case. Consequently, sharing knowledge and raising awareness across the entire supply chain is just as important as the technical solutions themselves.

While the number of fires in high-rise buildings is lower than it was a decade ago, this isn't the time for complacency. Every fire is a test of a building's systems, the built environment's understanding, and the industry's will to improve.

The legacy of Grenfell Tower must be a commitment to prioritise safety over convenience, and performance over price. Especially in HRBs, where the consequences of poor specification are most severe, the construction industry must insist on certified and tested non-combustible solutions. And must document them rigorously.

Quite simply, there is no room for ambiguity. The built environment must now align on clarity, compliance, and above all, responsibility. ■

AI in construction: Empowering humans, not replacing them

By Dr Stephen Hamil, Innovation Director, NBS

In the construction sector, the robots aren't coming for our jobs but, rather helpfully, they're coming for our paperwork.

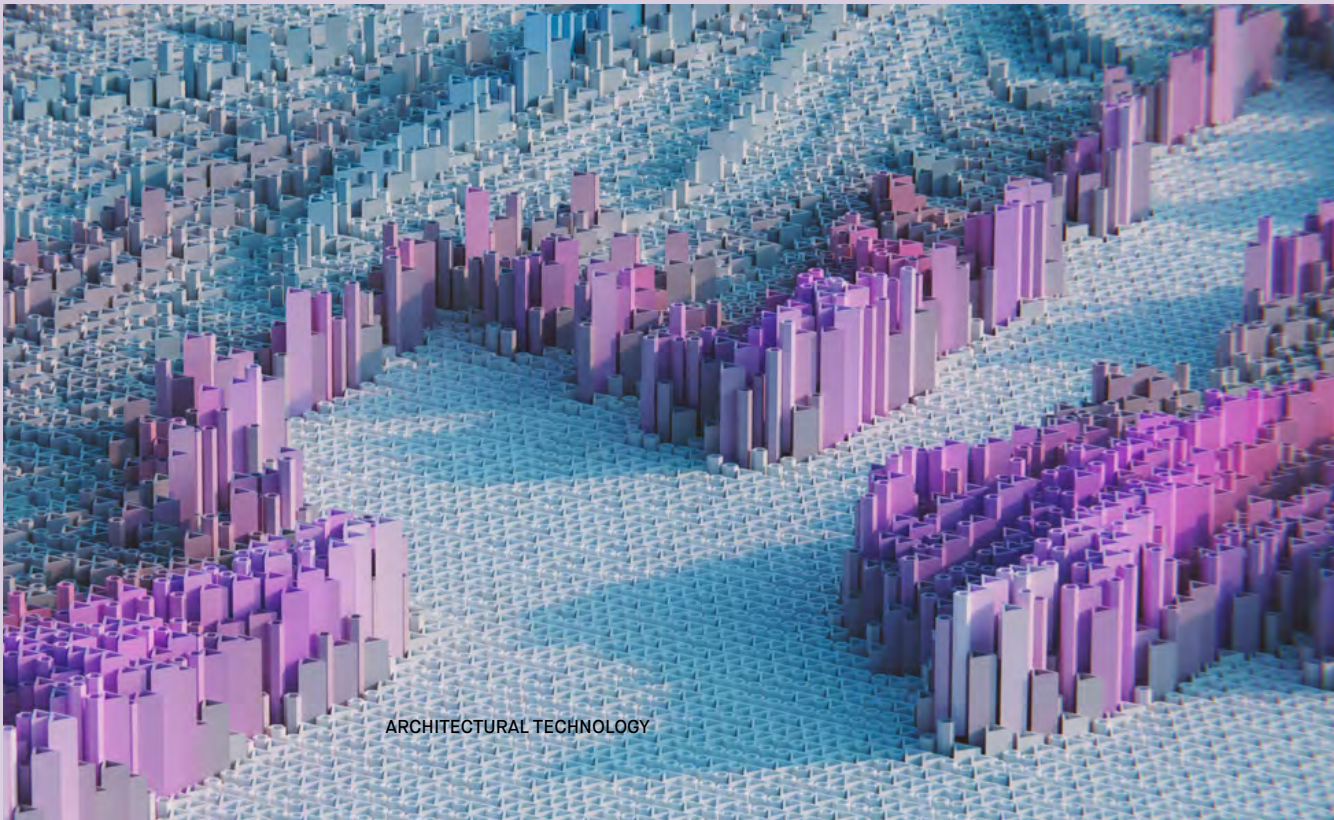
As generative Artificial Intelligence (AI) sweeps through construction like a digital tornado, the question isn't whether this transformative technology will change our industry, but whether we can exploit its power without diminishing the indispensable human brilliance that creates truly remarkable buildings.

As Innovation Director at NBS, I see first-hand how AI is already reshaping construction, not by replacing people, as many media commentators often fearfully predict (at least in our industry), but as our liberator from the mundane, freeing us to do what machines cannot. Construction needs the skills of architects, engineers and technologists working together harmoniously, and the industry needs those skills directed where they will bring the most value. And AI can help.

As we know, ATs sit at the heart of where design, engineering, science and innovation all meet. Chartered Architectural Technologists are uniquely skilled at bridging concept and realisation, with an indispensable skillset for ensuring newly built projects are sustainably constructed, and that existing ones are suitably retrofitted or efficiently maintained. ATs thrive on solving complex problems, collaborating with architects, engineers, manufacturers, and contractors to deliver better buildings. But let's be honest: a portion of an AT's daily schedule can involve technical, repetitive tasks; writing specifications, checking compliance, managing data, and documenting every detail. These duties are essential, but they can be time-consuming and, over time, demoralising. This is where AI comes into its own.

There's a misconception that AI is here to replace skilled individuals. In reality, the most successful applications in construction are collaborative, involving human plus machine. Used well, AI is a tool that supports, not supplants, the deep expertise of built environment professionals.

Think of AI as an industrious assistant: it never gets tired, it handles vast amounts of information, and it is excellent at spotting patterns or errors that might slip through even the most experienced human eye. But it



lacks the creative spark, the contextual understanding, ethical judgement and the genuine motivation that trained and seasoned professionals can bring.

The soon-to-be-released NBS 2025 Digital Construction Report found that 42.5% of respondents are already using AI tools and an additional 37.7% plan to implement them within the next five years. Looking at those planning implementation, nearly one in five respondents (19%) plan to begin using AI within the next year, while 14.8% anticipate adoption within three years and 3.9% within five years. It seems adoption is growing across the board, with this trend supported by last year's survey UK architects and students in the Architects' Journal which found that nearly two-thirds (64%) of respondents are already using AI in some form.

According to our recent survey, the most common AI-assisted applications are technical information search (71.1%), text drafting and review (63.8%) and data analysis (61.8%). Early adopters report clear gains in productivity and quality – fewer human errors, faster delivery, and better project outcomes. Crucially, they are not seeing jobs disappear, but seeing them evolve.

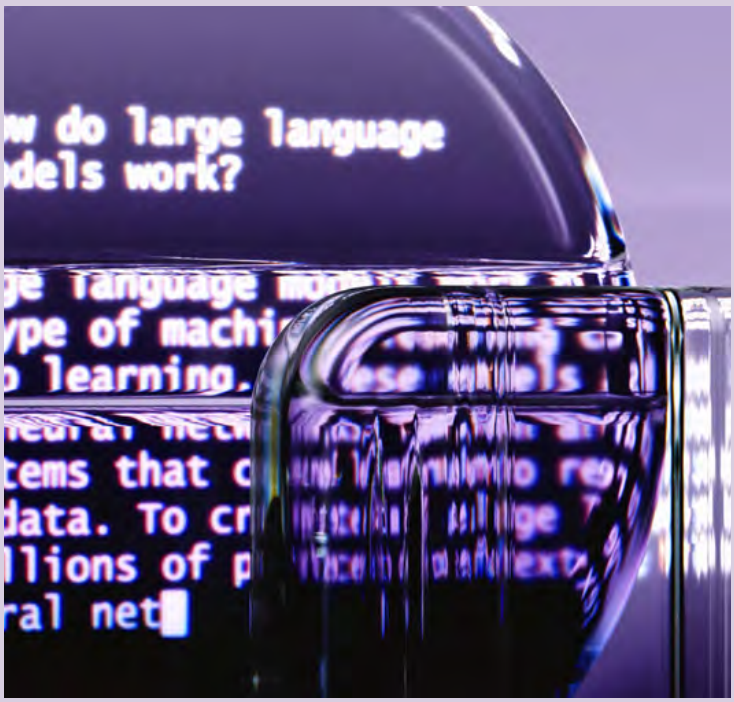
Let's look at the work we're doing at NBS with AI. Two key workflows are emerging. First, we rapidly process large volumes of technical information, such as manufacturer product data. We are looking to auto-classify and structure it according to our standardised schemas. Technical colleagues then apply their expertise to review and verify this content before publication. We will maintain our quality levels, but manage to process data much more efficiently. Second, our consultancy team are already using AI to quality-check specifications prior to publication, validating cross-references, overall quality, and editorial compliance with company guidelines to ensure more robust and accurate final outputs. Again, this reduces the manual repetitive tasks and allows our colleagues to focus on providing more value and being more efficient.

AI handles the admin-heavy groundwork, flagging compliance issues, suggesting improvements, and ensuring consistency. The professional remains firmly in control, making the critical decisions and tailoring the specification to the unique needs of each project. And the result? Fewer human errors, faster delivery, and more time for the work only humans can do: design thinking, creative problem-solving, and building relationships with clients and forging deepening creative partnerships.

Early adopters report clear gains in productivity and quality – fewer human errors, faster delivery, and better project outcomes. Crucially, they are not seeing jobs disappear, but seeing them evolve.

When AI takes care of the repetitive and the routine, it frees skilled professionals to focus on what really matters: creating buildings that are not only functional and beautiful, but sustainable and future-proof.

Sustainability and circularity are top priorities, as



the Green Building Council maintains that 25% of UK emissions are directly attributable to the built environment. AI can help ATs address these issues by rapidly analysing product data, checking for compliance with environmental standards, and even modelling the lifecycle impacts of different design choices. But it's the human professional who sets the vision, weighs up the trade-offs, and ensures that sustainability is embedded in a project from concept to completion.

It is natural to have concerns about any disruptive technology. Some worry that AI could commoditise design, or that automation might erode professional judgement. But the NBS 2025 Digital Construction Report finds that a significant majority of survey respondents (85%) agree that AI will have a positive impact on the construction industry, while 88.8% believe it will increase productivity. When asked about anticipated changes over the next two to three years, 88.8% of respondents expect AI will bring either significant or transformative change to their work.

Perhaps it's already a cliché, but it's important to see AI for what it really is. It's an enabler, a tool that can help us deliver better outcomes for clients, reduce errors and rework, and ultimately help our profession and industry raise the standard of the built environment. But it's not a substitute for the skills, values and experience that define our profession.

The future of construction is not human versus machine; it's human plus machine, working together. AI will continue to evolve, taking on more of the technical and administrative load, but the heart of our industry will always be human. Our creativity, our judgement, our commitment to quality and sustainability – these are irreplaceable.

As we continue to explore AI, let us do so with confidence and curiosity. Let us use it to amplify our strengths, streamline our processes, and create space for the work that truly matters. Ever-advancing technology will play its part in shaping the buildings of tomorrow, but those same buildings will always be defined by applying the vision and skills of dedicated people. ■

Futurebuild 2026: Connecting ambition and action for designers and specifiers

futurebuild
03 - 05 March 2026 | Excel, London

As the global conversation around climate change intensifies, Futurebuild 2026 is turning shared ambition into tangible action.

Offering both practical solutions and big picture provocations, a revised show format is set to reaffirm the established industry event's standing as a vital and inspirational platform for designers and specifiers alike. Taking place at Excel London 3-5 March, Futurebuild 2026, supported by CIAT, will bring together thousands of decision-makers, innovators and change agents to explore how the construction sector can drive sustainable change.

Inspiring collective action

By uniting the entire supply chain, Futurebuild is uniquely placed to engage representatives ranging from senior specifiers and designers through to major contractors and developers. Last year, organisers welcomed 9,179 unique specifier visitors, including over 600 VIPs and senior decision-makers - all actively looking for innovative solutions and ideas to shape their projects.

Under the headline theme of 'Connect', a new floorplan incorporates strategically placed features and a carefully curated conference and knowledge programme designed to amplify these meaningful engagements and help the industry move from ideas to impact.

Zeroing in on waste

Among the most anticipated additions is the Zero Waste area, highlighting the reuse and recycling momentum reshaping the sector. Facilitated by Futurebuild partners including the Circular Economy Task Force, The Engineers Reuse Collective, ACAN!, the Circular Economy Institute, Architects Declare and CIWM, the area will host keynotes and showcase real world examples of closed-loop innovation in action.

Shaped by the architect, academic and environmental activist, Duncan Baker-Brown, the Zero Waste initiative will showcase how building critical resilience requires taking a circular economy approach with reuse at its heart. This will also be a major focus of the discussions taking place in Futurebuild's central conference arena.

"Each year, Futurebuild explores the big themes shaping our future. In 2026, we're calling time on business as usual," says Futurebuild Event Director, Martin Hurn.

"Our industry doesn't just need new ideas. It needs to build resilience, prioritise reuse and embrace regenerative design. These 'three Rs' will define the conversations at Futurebuild as we explore - not only

important technological innovations - but a necessary, fundamental shift in mindset to drive circularity and support long-term systems change."

A twin-track conference programme
The overarching theme of resilience, reuse and regenerative design will be tackled through a powerful programme of keynote debates, panels and live demonstrations. From circular construction and nature-based design - to retrofit strategy and material reuse - the agenda will interrogate what a regenerative built environment really looks like and how to make it happen at scale.

In parallel, Futurebuild 2026 is also home to the National Retrofit Conference. Returning with the theme 'Warm Homes, Healthy Lives: Connecting Policy, Place and Innovation', this agenda-setting strand will explore how policy, funding and innovation can come together to accelerate retrofit delivery. With sessions led by national policymakers, combined authorities and regional leaders, the programme brings together the public sector's sharpest minds to accelerate climate and health outcomes through retrofit.

Squarely addressing housing challenges
While Net Zero and circular economy ambitions are high on the agenda across the board, Futurebuild 2026 introduces crossover initiatives to squarely address national housing concerns.

Offering further support for local authorities and partnering consultancies, the new Local Authority Collaboration Hub will provide space for representatives, housing associations, contractors and wider built environment professionals to address pertinent issues around Awaab's Law and the ever present challenge of providing healthier, more energy efficient homes.

Strategically housed alongside the National Retrofit Conference, here the focus will be on how to accelerate home decarbonisation, address damp and mould and share best practice on housing-led health outcomes.

Problem-solving in person
Similarly, reflecting the need for closer collaboration between the public and private sector, a revitalised 'Meet the Buyer' programme, hosted by Innovate UK, will facilitate direct engagement between innovators and procurement leads across multiple market segments.

At Futurebuild 2025, 67% of visitors were involved in purchasing decisions which led to exhibitors generating an average of 175 qualified leads. This underlines the event's value as a commercial platform, as well as a content powerhouse and the prominent 'Meet the Buyer' lounge will be a bustling space for productive networking and problem-solving in person.

Shaped by the industry, for the industry
Alongside these new features supporting the industry's shared commitments, fresh thinking is also shaping The Knowledge Programme.

Several industry bodies including UKGBC, The Sustainable Development Foundation and the Association of Sustainable Building Products (ASBP) have been invited to execute a series of 'stage takeovers' to elevate the discussion, with a particular emphasis on dissecting the role of innovation.

"As ever, innovation will be central to the discussion but we'll be flipping the script to explore how we can better use existing knowledge and the need for social transformation, rather than solely exploring novel technical solutions," says Martin Hurn.

"Futurebuild is where mission meets market. We're not just a conference or a showcase. We're a platform for delivery. We connect people, ideas and solutions in ways that accelerate the shift to a Net Zero, resilient and regenerative future."

Registration now open
Futurebuild 2026 will take place from 3-5 March 2026 at Excel London. Construction intelligence analyst, Barbour ABI, is the registration partner and visitors can access all exhibition areas, six content stages and two conference arenas for free. ■

Interview with the President

CIAT has a brand new President: Usman Yaqub PCIAT! This October, right before the peaceful transition of power from one Eddie Weir at the AGM, we sat down with Usman to get to know him a bit better and learn what members can expect over the next two years now the reigns are in his hands.

ATJ: Mr President Elect, hi! So, what do you hope to achieve over the next two years?

UY: Hello! I have been working behind the scenes to ensure that I can hit the ground running, implementing my manifesto's key parameters of Develop, Value and Retain from my very first quarter. I hope that the membership will see the positive outcomes of these initiatives as they are brought forward.

ATJ: I'm sure you're both nervous and excited to start your two-year term. Which emotion is winning right now?

UY: You are correct; there are a range of emotions that are not limited to the two highlighted. I am energised and thoroughly looking forward to assisting our amazing team at Central Office to really make our membership feel valued and show our worth to both the construction industry and wider afield.

ATJ: You joined the Institute in 2005. Can you give us a brief resume of your career?

UY: I started my professional career at Stride Treglown, where I have many fond memories. I worked on a wide range of projects during my time there; I oversaw a range of multi-million-pound projects, worked in Vietnam, and helped deliver The Station in the centre of Bristol. I then went onto establishing my own architectural practice, Studio Yaqub Architecture, and have been shortlisted and won a range of awards since. We really enjoy working on challenging schemes and have honed our ability to unlock potential. I also work at my local university, The University of The West of England, as an Associate Lecturer for the Architectural Technology & Design programme where there is always an interesting discussion happening with the students who are the future of the industry.

ATJ: When it comes to running your own practice, how do you intend to balance your Institute work with your practice work?

UY: I have the support of my team in the office, the team at Central Office, the Executive Board, and my family. I have also strictly allowed myself a maximum of two days per month to dedicate myself to the Institute with some flexibility if urgent matters arise.

ATJ: What will you bring to your Presidency as a practitioner?

UY: I will being a unique perspective to the Presidency as I have not only run my own architectural practice for more than ten years, but I also work at the local university and have held or currently hold a range of roles that have allowed me to have executive level impact in several organisations. Further to this, I have five years of experience in larger architectural practices and have worked with teams across time zones.

ATJ: As a former aspiration Chair and Regional Chair, do you feel this has helped shape your vision for the future and how your Presidency will unfold?

UY: Being involved in a formal capacity has helped me to grow and discover the numerous ways you can get involved with the Institute and industry. It has directly informed the way I intend to steer the institute.

ATJ: What has been the proudest moment of your time so far with the Institute?

UY: I am most proud to have been the 86th recipient of the Gold Award for the CPDin43 series, which has significantly impacted engagement within the Wessex Region on both a national and global scale. I have spent a lot of hours organising and curating this series and it is truly amazing to see the numbers of people showing their support and engaging during the live sessions and catching up when uploaded later.

ATJ: How do you plan to promote and develop the profession and the Institute?

UY: Following lengthy discussions with the team at Central Office, we are proud to now be supported by a Network and Engagement Coordinator that I feel will be pivotal in providing the much-needed support and link to all the membership. I am really looking forward to working with Jayne Thomas and can really see this becoming the start of substantial improvements in engagement.

ATJ: Looking at the longer term, where do you see the Institute in the next five years?

UY: I see the Institute as an expected friend in the halls of parliament, with a groundswell of support in the membership that is supported by a range of engaging events throughout the year. I see there being a range of opportunities for collaboration across educational institutions, into practice, and on an individual basis.

ATJ: Official job description aside, what, to you, is the President's most important job?

UY: I feel that the President's job is to hear the voice of the membership whilst maintaining a view on his manifesto and translating it to the top tables of the Institute and to the halls of industry and government.

ATJ: What life value/s are you integrating into your values as President?

UY: I am a very principled man and feel that I have found a great profession where I can not only feel free to be true to myself, but to self-reflect, continually improve, and look to a range of sources for inspiration for values. Particularly in implementing Kaizen, which is the process of small continual improvements in both my professional and personal life.

ATJ: When you are not involved with Architectural Technology, what are your hobbies?

UY: I love to jump onto my road bike; I really value the freedom and ability to switch off that it brings. I also love watching major football championship, like the Euros, Champions League, and the World Cup, as well as F1.

ATJ: If you were stranded on a desert island, what would you choose as your favourite book, film and song?

UY: I hope that I never end up stranded on a desert island, but... I would bring a notebook, along with a pen, pencil and sharpener, so I can draw and take notes. I would have to take Die Hard – Nakatomi Towers! – as I can't go long without watching that and, yes, it is, a Christmas movie. I would need a song that would keep me motivated when exercising so would go with The Script – 'Hall of Fame'.

ATJ: What's your favourite flavour of ice cream?

UY: I do love a great gelato and would either opt for a pistachio or bacio (chocolate with hazelnut). If you visit, I can take you to my favourite spot in Bristol.

ATJ: Finally, what are you most looking forward to about being President?

UY: I am very much looking forward to the entire experience; I have spent years developing my skills and am excited to implement them in a position where I can effect change on a such a large scale.

	1 Stakeholder Consultation & Curriculum Audit	2 Framework Familiarization & Customization	3 Curriculum Integration Design	4 Staff Development & Upskilling	5 Pilot Implementation & Feedback Loop	6 Full Curriculum Roll-Out & Accreditation Alignment
Input	• CIAT accreditation requirements • Existing module specifications • Staff digital capability audit • Industry partner feedback	• AT BIM Education Framework v1.0 (21 competencies: Knowledge & Application) • Programme Learning Outcomes (PLOs) • QAA / QQI / CIAT descriptors	• Validated framework map • Curriculum design team and module leaders	• Identified training needs from audit • Available CPD resources or internal training	• Revised modules and assessments (Stage 3 output) • Trained staff (Stage 4) • Baseline student capability data (if available)	• Revised and piloted framework-in-action • Stakeholder evaluation reports • Accreditation mapping documentation
Process	• Conduct structured stakeholder consultations (workshops/interviews) • Map existing curriculum content against BIM competencies • Survey staff digital skills and institutional BIM capacity • Identify delivery gaps and overlaps	• Map competencies to programme outcomes and existing modules • Prioritise based on level (e.g., L4–L6) • Identify redundancies or coverage gaps	• Embed BIM competencies into appropriate modules • Develop cross-module assessments aligned to digital tasks • Scaffold digital progression across levels (e.g., theory → application → integration)	• Deliver staff workshops, peer support, and BIM tool sessions	• Trial implementation in selected modules or year groups • Collect feedback from students, staff, and employers • Monitor student attainment vs. expected BIM competencies	• Implement BIM-integrated curriculum across all relevant years • Submit curriculum updates for CIAT, QAA, or QQI validation • Maintain alignment through annual monitoring and enhancement reviews
Output	• BIM competency gap analysis • Institutional readiness baseline	• Customised framework for the institution • Draft curriculum alignment map	• Revised module specifications • Updated assessment briefs	• Digital-capable teaching staff • Enhanced delivery consistency	• Iterative refinements to content and delivery • Framework feedback for future iterations	• Graduates with validated BIM capabilities • Accredited, digitally progressive AT curriculum

Advancing BIM competency: Transforming Architectural Technology education

Written by Dr Dai Evans BSc (Hons) MSc EngD MCIAT

Information Management (IM) and Building Information Modelling (BIM) has evolved far beyond software tools — it now underpins collaboration, compliance, and accountability in the built environment.

Yet IM & BIM education remains inconsistent across Architectural Technology programmes. This article summarises doctoral research that identifies key gaps, defines the attributes of a BIM-ready graduate, and introduces the Architectural Technology BIM Competency Framework — a roadmap to align academia and industry.

The challenge: teaching BIM as strategy, not software

Over the past decade, the architecture, engineering, and construction (AEC) industry has undergone a digital revolution. Clients demand smarter buildings, governments require data-driven compliance through the Building Safety Act and the Golden Thread, and the path to net zero depends on managing information efficiently across a building's lifecycle.

Despite this, BIM is still taught in many universities as a software skill, often confined to a single module. My doctoral research examined Architectural Technology programmes across the UK and Ireland and surveyed educators, practitioners, and recent graduates. The findings revealed an urgent need for reform through four findings. One, BIM is treated as an add-on rather than embedded across curricula. Two, teaching methods vary widely, producing inconsistent graduate competencies. Three, many academics lack formal BIM training, limiting

effective delivery. And finally, no subject-specific BIM competency framework exists for Architectural Technologists.

The result? Graduates who can model in 3D, but struggle to collaborate, manage data, or comply with ISO 19650 — the real core of Information Management.

Defining the BIM-ready graduate

Through consultations, case studies, and a national CIAT member survey, a consistent expectation emerged from employers: BIM-ready graduates should possess both technical proficiency and digital fluency.

A BIM-ready Architectural Technologist should be able to:

- Operate confidently within a Common Data Environment (CDE).
- Apply ISO 19650 principles across project stages.
- Collaborate seamlessly across disciplines.
- Understand the legal, ethical, and sustainability implications of information management.
- Contribute to the Golden Thread of building information from design through operation.

These are not specialist add-ons — they are fundamental skills for 21st Century practice. Yet, too often, they are missing from current education models. As one industry respondent noted: "We don't need people who can just draw in 3D. We need people who can think in data."

The Architectural Technology BIM Competency Framework

To bridge this gap, my research produced the Architectural Technology BIM Competency Framework — a validated, flexible structure comprising 21 competencies across two core dimensions:

1. **Knowledge** – understanding theory, standards, and digital processes.

2. **Application** – demonstrating BIM in practice through real-world tasks.

Unlike generic BIM frameworks, this model was designed specifically for Architectural Technology. It aligns with the QAA Subject Benchmark Statement, QQI Standards, and CIAT accreditation criteria, ensuring national and professional relevance.

Crucially, it's not prescriptive. Instead, it provides a flexible roadmap that can be tailored to fit different course structures and specialisms. Whether embedded in design studios, technical documentation, or professional practice modules, it encourages consistent and meaningful integration.

From education to empowerment

This research extends beyond academia. The framework supports three key audiences:

- **Educators**: A practical structure to embed BIM learning outcomes without overwhelming existing curricula.
- **Practitioners**: A benchmark for CPD, helping professionals assess and expand their digital competencies.
- **Industry**: A means to ensure graduates are truly workplace-ready, able to collaborate effectively in digital project environments.

Ultimately, the framework aims to create a more connected ecosystem — one where education and practice reinforce each other, and where Architectural Technologists are positioned as the digital leaders of tomorrow.

A call to action

The Building Safety Act and the UK's sustainability agenda demand digital competence as a professional standard, not an elective skill. Architectural Technology must respond.

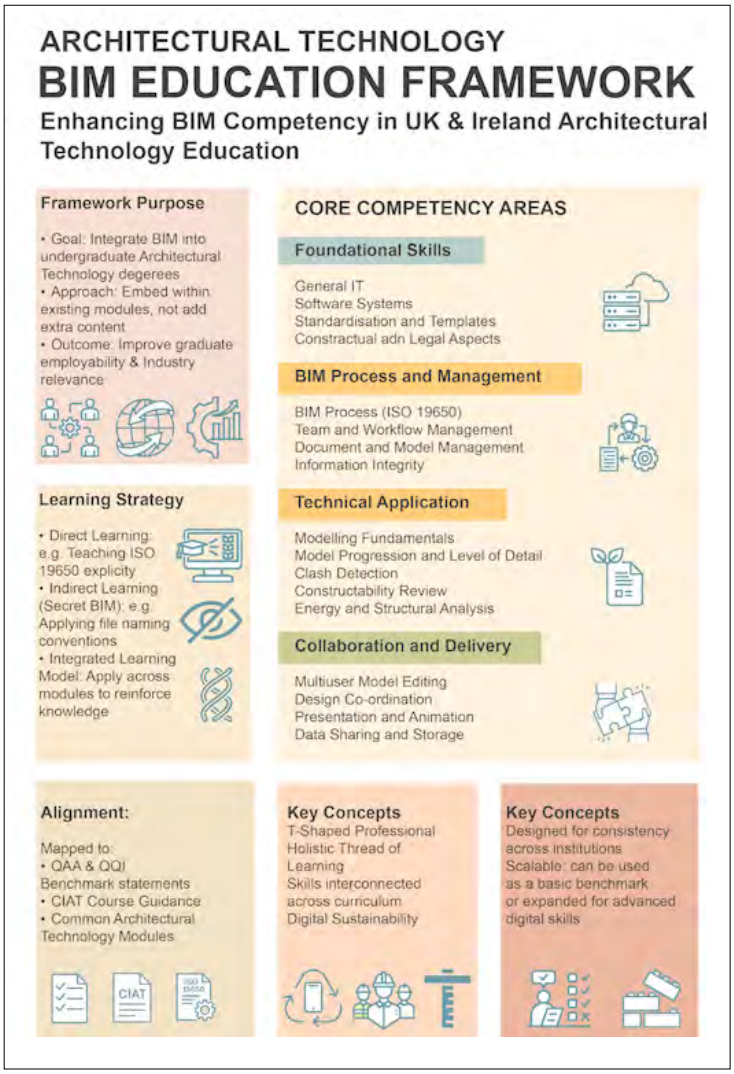
We need to move from teaching tools to developing digital thinkers, shift from isolated modules to interdisciplinary collaboration, and replace short-term training with embedded learning and reflection.

The Architectural Technology BIM Competency Framework is not the end of the conversation — it is the foundation for continuous improvement and dialogue between educators, professionals, and institutions.

As the sector embraces digital transformation, it's time to ensure our graduates can do more than operate technology — they must lead with it.

BIM represents a fundamental evolution in professional practice. It is the language of collaboration, compliance, and sustainable delivery.

If Architectural Technologists are to remain at the forefront of innovation, our universities and professional bodies must help the next generation master and apply it with confidence. ■



How neural technologies could transform the future of design

Words by Mike Haley, Senior Vice President of Research, Autodesk

In the early stages of a design project during ideation and conceptualisation, tools should accommodate the broadest methods of expression. Early specifications, outlines, rough-sketches, and photos, among others, are all essential in expressing ideas.

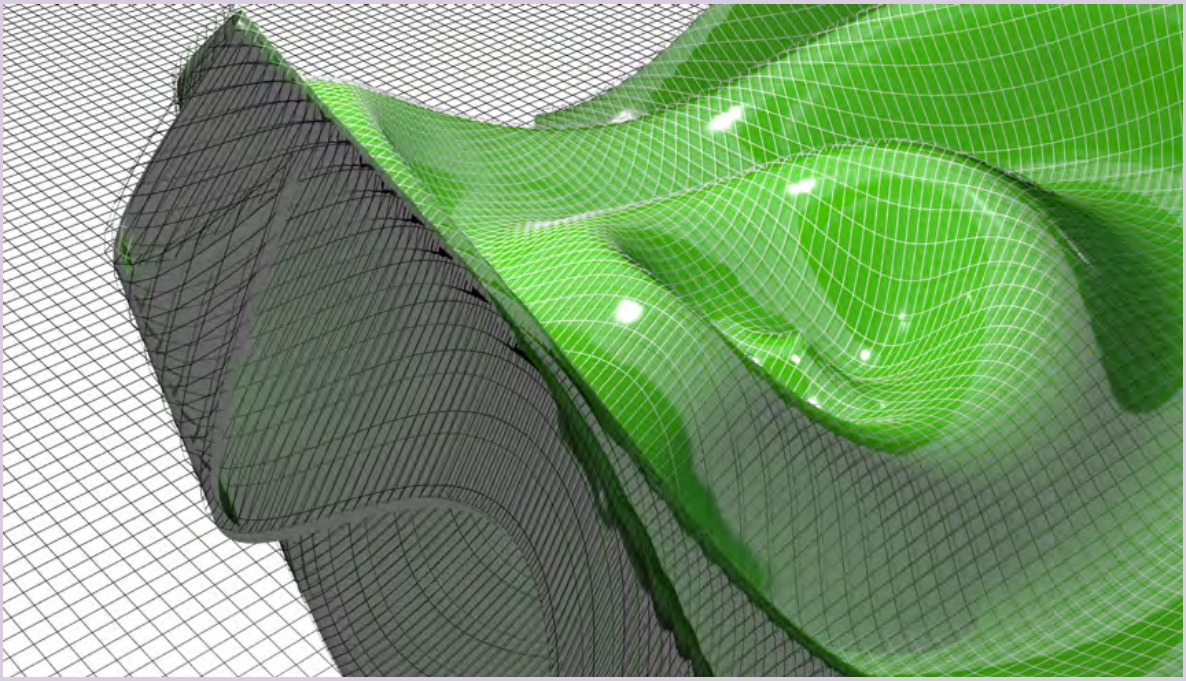
Yet, the core paradigm of CAD software, parametric CAD, has remained largely unchanged for 40 years. These engines, built using traditional software technology, rely on a keyboard, mouse and typical user interface. Creators must explicitly define the parameters like the dimensions of an object, which can restrict creativity.

Creators need technology that does not obstruct their creative flow. Instead, tools should enable rapid and iterative exploration of ideas, regardless of how detailed or approximate those ideas might be. Over the past decade, research has underscored that such early-stage explorations significantly enhance project metrics like cost, sustainability, and suitability. That is why recent advancements in neural technology are generating such excitement - and here is why.

The new era of design and make technology

Today, we are entering a transformative era in design and make technology. Picture a scenario where a computer comprehends spoken language, sketches, three-dimensional design data and industry-specific workflows. Now, enrich this scenario with decades of the teams' project knowledge. That is the work of pioneering neural AI foundation models that are focussed on design and make problems.

Neural CAD engines enhance legacy parametric engines, offering novel ways to explore solutions and generate geometry. They still honour the traditional precision and control designers require, but most importantly, they introduce entirely new and richer ways to express and interact with ideas.



Unlike parametric CAD, they are learning and improving, so that they constantly align better to creators' needs and ways of working. Meanwhile, they can reliably reason about the three-dimension and physical world.

Ultimately, these advancements are aimed at making creators faster, smarter and more competitive. The quicker they can turn around designs, the faster they can move products to markets – but the impact goes beyond speed. AI-powered design tools can directly reason about the immense complexity within design creation. It is this that sets the stage for vast improvements across the entire design and make category.

New modes of human-machine interaction

Imagine you are a product designer exploring some early-stage product concepts. While it is well known that AI image generators can quickly create conceptual images, now consider that instead of just an image, you can generate a highly detailed CAD model just as easily. Simply by entering text prompts or sketches, the neural CAD engine will start to produce options instantly.

The deep neural networks behind this technology are directly reasoning through the surfaces, the edges, and the topology that would satisfy any request. And it does not just produce one model but multiple, allowing users to quickly explore the trade-offs between the different options. The result is first-class editable CAD geometry, so that the design can be immediately usable.

What this looks like in reality

Buildings are a great example of the transformation these systems can provide, given their interrelated levels of details, representations and components. Changing something in one place invariably means creating or updating associated representations and structures. Much of this work is laborious, like placing grid lines, columns, floor layouts or building codes. It slows down creators' ability to explore alternatives and rapidly implement changes.

Consider an architectural massing model that outlines the proposed shape for a new building. As the designer directly manipulates the shape, the neural CAD engine responds to these changes, auto-generating floor plan layouts. Generative AI creates a simple floor plan instantly, but for this to be truly useful, a designer needs to control the generation.

Leveraging the multi-modal interaction enabled by neural CAD, they can lock down certain elements, such as a specific stairwell, hallway or room, and then use natural language prompts to instruct the software to make changes to the structural material.

Combining the power of the large language models, the software can recompute the locations and sizes of the columns and create an entirely new floor layout, all while honouring the constraints the designer specified.

Generative AI creates a simple floor plan instantly, but for this to be truly useful, a designer needs to control the generation.

Empowering more intuitive, collaborative and accessible design

In the future, these neural CAD foundation models will be customisable, allowing them to be tuned to an organisation's proprietary data and processes. The integration of these models will transcend the capabilities of today's tools, transform the creative process and make it more intuitive, collaborative and abundant.

The convergence of these technologies is not just about enhancing productivity: it is about making design and creation processes more intuitive, collaborative and accessible for all. ■

Front Elevation

Holme Gardens: a case study and a warning to would-be developers

Words by Tony Keller FCIAT, Director and Owner, Building Tectonics Ltd

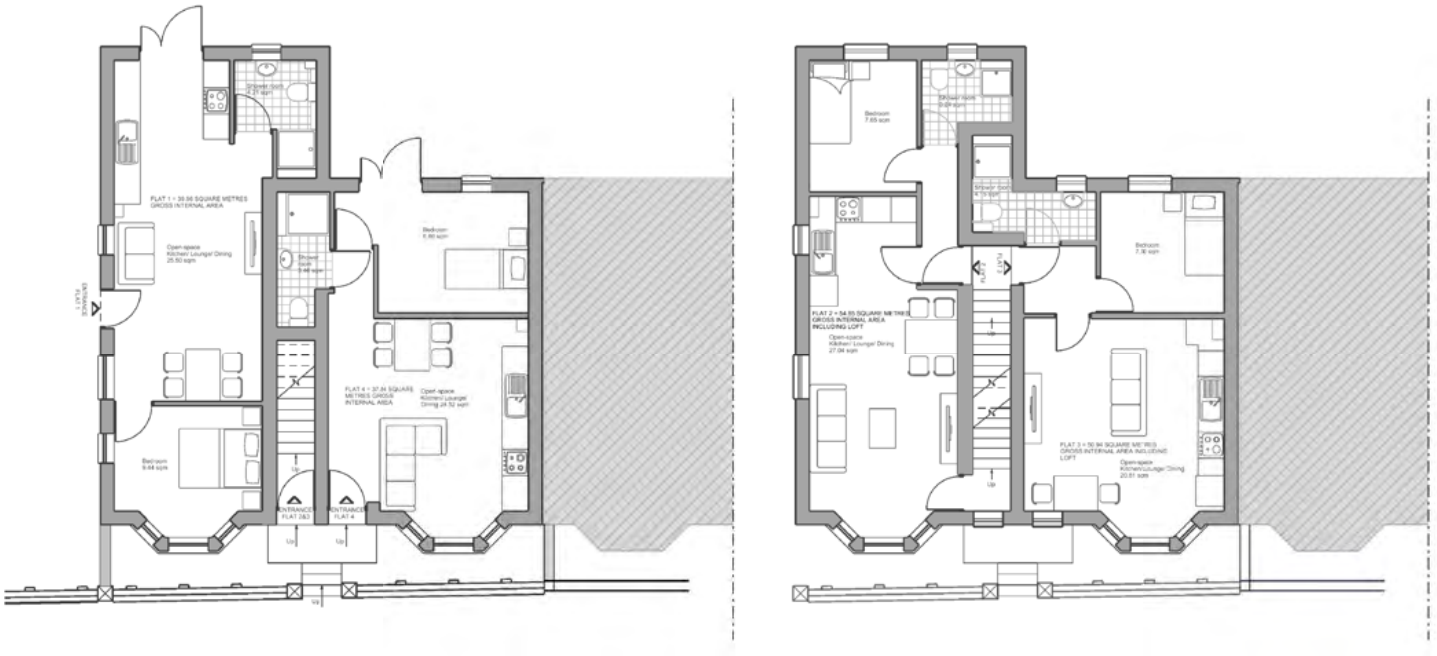
Our client owned a piece of waste ground at the rear of a commercial building, which for 30 years plus had served no purpose to anyone, except fly tippers

Back in 2004, we tried to get planning permission for additional parking, which was refused because of concerns over additional traffic. In 2005, we applied for planning permission for two houses, which were refused because of a shortage of parking. Following several consultations with the planning department, we applied for and received planning permission for four flats in 2017.

The reasons for the earlier refusals were never aesthetic but always traffic generation, lack of parking, or the removal of a tree (the Planning Department had put a preservation order on a silver birch soon after the car park refusal). Funding now was the next issue, and it took three years to get the land ownership legally split and then funding in place. This now took us up to the COVID pandemic, which was helpful in that we could make use of the extended time given beyond the stipulated three years to commence building.

The next aspect was to ask the Planning Department to approve the intended bricks. The planners made full use, and beyond, of the two months to give the approval of the bricks, leaving us three days for the builder to get the foundations in the ground, or we would default on the planning condition and so lose the planning approval that was so hard won.

In the meantime, we dealt with the contaminated soil that had to be removed, the Party Wall Notice, getting electricity and the internet connected, and all items that



The four flats that make up Holme Gardens were completed in 2023, and if by now you might be thinking, was it worth it? Well, yes, it was.

had to be organised and paid for prior to commencement. We were lucky in that the more recent onerous requirements regarding flooding and net diversity had not yet come into effect.

Our client asked us at this point to get a modified planning approval, separating it from the existing Victorian terrace, to simplify the foundation design – fat chance! The planners refused the modification. Never mind; we found a technical solution to the foundation issue, and work on site commenced.

The project took 18 months to build; quite long for such a project. Apparently, the builder trusted only one bricklayer, and this bricklayer laid every single brick; meticulously, though, I might add. So, it took an inordinate amount of time to get up to plate level. By now, the builder had taken on other jobs to work on in the meantime, so the following activities were pretty slow. On reflection, we should have set a completion date backed up by financial implications for the builder. Still, after waiting so many years to get the project out of the ground, a few extra months to guarantee a good quality build and good client/ builder relations didn't seem important. Sadly, the workmanship and this relationship weren't that good either, in the end.

The four flats that make up Holme Gardens were completed in 2023, and if by now you might be thinking, was it worth it? Well, yes, it was.

The project sum was £370k, with extras, demolition (including asbestos removal) and landscaping costs of £25k (amounting to 7%), bringing the total build cost to £395k without professional and statutory fees. Building Tectonics fees are not going to be disclosed here, but when you think of the effort we put in to getting this project built, it was never enough. But that is what we do, and if we were not so diligent, steadfast, and enduring, the development may not have been built. Or it may not have received so many accolades from locals on how the development fits in with the street scene (it fits in so well that many passersby assume they have always been there). We are not the type of practice that wants to set the world on fire with some egotistical design; we are perfectly happy to design four flats that look like two Victorian terrace houses (although it is a bit galling to an architectural practice when many passersby assume that this building has always been there. New flats? What new flats?).

Even with the stonework detailing on the façade, the triple glazing, the passive stack ventilation system, and other energy saving technology, in a building that looks over a century old, the cost works out at just over £2,000 per square metre. For those not in the know, the norm for flats would be at least £2,400 in this location, at this time, and for a small development.

More important perhaps than the monetary numbers to us is the knowledge that we have produced four dwellings for people to come home to. What I did not understand and still do not understand, after half a century of doing this job, is why, oh why, is it so difficult? ■

The massive challenge for construction as PFI agreements come to an end

Words by Ryan Donoghue, AJ Digital

As public sector organisations prepare to inherit assets built under long-term contracts such as PFI agreements, they face a massive challenge - fragmented and inconsistent maintenance records that can complicate the transition and increase the risk of costly surprises - but there is a solution!

For decades, maintenance and replacement data in the construction industry have been collected in an ad hoc, fragmented manner. Under PFI contracts, different contractors and maintenance teams have kept records using varied methods and formats, often resulting in incomplete or inconsistent documentation. As buildings age and contracts come to an end, these scattered records become a critical liability. As a result, facility managers, who will inherit these assets, will likely be forced to piece together a building's history from a mishmash of paper files, legacy databases and incomplete digital records.

This disjointed approach has the potential to lead to several serious issues. Without a unified record, it is difficult to determine the true state of an asset, which could lead to unexpected maintenance costs or safety risks. Fragmented data also makes it challenging to identify trends where it is possible to schedule preventative maintenance or plan for necessary replacements.

Furthermore, regulatory requirements for safety, energy efficiency and accessibility demand accurate, up-to-date documentation - a goal that is nearly impossible to achieve with inconsistent records. In short, the lack of a standardised system not only hampers efficient asset management, but also undermines trust in the quality and reliability of public infrastructure.

While the buzz around digital twins has captured attention in recent years, the real challenge for many construction projects - and especially for public asset handovers - is not just about having a real-time, interactive model of a building. Rather, it is about ensuring that every piece of maintenance and replacement data is recorded accurately, consistently and comprehensively. This is why we need accurate digital O&M records.

Unlike digital twins, which focus on creating a virtual replica of a building integrated with live data, a robust digital O&M record system is all about standardisation. It involves using a uniform template and consistent terminology to capture every detail of a building's lifecycle - from initial construction and installation to ongoing maintenance and eventual upgrades. This approach ensures that, regardless of who collected the data or when it was recorded, the information is coherent, accessible and actionable.

The power of standardisation

Standardisation is at the heart of producing effective digital O&M records. By adopting a standardised template, every maintenance activity - from routine inspections to major repairs - is documented in a consistent format. When every record is entered in the same format, facility managers can easily navigate the data, compare historical information and identify trends. This clarity reduces the risk of errors and misinterpretations, ensuring that everyone - from maintenance teams to decision-makers - speaks the same language.

Standardised data collection minimises gaps and omissions. Every detail, from the type of product installed to the specifics of a repair job, is captured in a comprehensive manner. This leads to a complete and accurate maintenance history that can be relied upon for future planning.

With all maintenance information stored in a centralised, standardised system, facility managers can quickly access the data they need to make informed decisions. Whether it is scheduling preventative maintenance, budgeting for future repairs or planning for renovations, having reliable data at hand is invaluable.

Regulatory bodies also require detailed documentation of maintenance activities to ensure that buildings meet safety, energy and accessibility standards. A digital O&M system that employs standardised templates makes it simple to produce compliance reports, reducing the administrative burden and ensuring that no critical detail is overlooked.

At AJ Digital, we understand the unique challenges that come with managing public assets inherited from PFI contracts. Our range of digital services is designed to transform fragmented, inconsistent records into a powerful, unified database that drives efficiency and enhances asset performance.

The process begins with a thorough audit of all existing maintenance records. Companies like ours work to gather data from various sources - be it paper documents, legacy digital files or scattered databases - and convert them into a standardised digital format. Using proven templates and industry-standard terminology, ensures that every piece of information is accurately captured. These initial steps lay a solid foundation for the entire digital O&M system.

Future ready systems

Once the data is standardised, it is possible to implement a digital O&M record system and make it bespoke to each specific need. However, the true value of a digital O&M system is realised through its continuous use. This is because a digital O&M system must not be static, but designed to grow with individual needs. As new technologies emerge and assets evolve, systems must be flexible enough to be easily updated to incorporate additional features such as laser scanning for accurate condition surveys or predictive maintenance analytics. This scalability ensures that maintenance records remain a valuable asset, supporting long-term planning and strategic decision-making.

Implementing a standardised digital O&M record system offers transformative benefits that extend far beyond basic record-keeping. It means no more piecing together fragmented records from multiple sources - everything is available in a single, unified database. This comprehensive visibility allows FM Managers to assess the asset's current condition quickly, identify areas for improvement and make informed decisions about future maintenance needs.

A standardised digital O&M system also enables proactive maintenance. By analysing historical data, it is possible to predict when components are likely to fail and schedule preventative measures accordingly. This proactive approach extends the life of assets and also leads to significant cost savings over time by preventing expensive emergency repairs.

Regulatory compliance is also a major concern for public sector asset managers. Detailed, standardised records simplify the process of meeting safety, energy efficiency and accessibility standards. With all compliance-related data stored in one central location, generating reports for audits becomes a straightforward task, reducing administrative burdens and ensuring that assets remain in full compliance with regulatory requirements.

In the long run, a digital O&M system is not just about managing today's assets - it's about preparing for the future. By maintaining a living, evolving record of every maintenance activity, public entities can create a solid foundation for future upgrades, renovations and technology integrations. This forward-thinking approach ensures that assets remain efficient, safe and sustainable well into the future.

In short, the handover of PFI assets to the public sector presents a unique opportunity to reimagine how we manage our built environment. With the adoption of a standardised digital O&M record system, public entities can overcome the challenges of fragmented data and create a comprehensive, reliable record of every maintenance activity. This transformation is critical for reducing operational costs, enhancing compliance and ultimately ensuring the longevity and efficiency of our public infrastructure. ■

> **Implementing a standardised digital O&M record system offers transformative benefits that extend far beyond basic record-keeping.**

Delayed, derailed and devalued: how the UK's planning crisis is undermining British manufacturing

Words by Paul Trace, Director, Stella Rooflight

A recent Freedom of Information request to Cornwall Council has revealed an extraordinary case of planning delay - a single residential application that took 1,114 days to gain approval. That is not a typo; that is three full years! While this is an extreme example, it is far from unique.

Planning delays are nothing new, but they are getting worse. Across the country, developers and contractors are being forced to sit tight while local authorities work through backlogs, staff shortages and ever-growing red tape. While we wait, the world moves on. Material and labour costs rise, client budgets shrink, and value engineering takes centre stage.

The result? The steady erosion of specification quality, the abandonment of British-made products, and the growing dominance of cheaper, imported materials that often compromise on durability, sustainability, and long-term performance.

According to local reports, the Cornwall case represents one of the most egregious examples of planning inefficiency in the UK. But it is not a one-off. Across England, statutory targets of 8 to 13 weeks are now more often missed than met. Some councils have average wait times of 40–50 weeks for major applications.

When planning approvals drag on for years, a project's commercial viability is often the first thing to suffer. Prices calculated at feasibility stage no longer hold water by the time shovels are in the ground. According to BCIS, construction costs are expected to rise a further 12–18% by 2030. Labour shortages, inflation and fuel costs are driving prices higher every quarter. That is bad news for clients, and it is even worse news for the UK's manufacturing sector.

With protracted planning delays inflating project costs, contractors and specifiers are increasingly being asked

to revisit materials and systems. Every line item is now a target. That premium rooflight? That solid oak floor? That UK-made heritage brick? All are up for replacement.

British manufacturers, once the default choice for quality-conscious clients, are being swapped out for lower-cost and often overseas alternatives that promise 'the same look' at a fraction of the price. But as many contractors will attest, these substitutions often come with hidden costs: which can include reduced lifespan, increased warranty claims or contravening planning approval.

The pressures facing UK manufacturers can be seen in the conservation rooflight market. Specialist producers, who manufacture bespoke rooflights in the UK using durable materials such as 316L stainless steel and sustainably sourced hardwood, design their products specifically to meet the strict requirements of heritage projects and to blend seamlessly with traditional architecture. Yet these high-quality solutions are increasingly being replaced at build stage by imported plastic or aluminium products that fall short on appearance and longevity.

Worryingly, such changes are being approved or overlooked more often, even under the supervision of conservation officers. The result is a gradual erosion of the very principles that conservation policy is meant to uphold: ensuring heritage buildings are restored or maintained with materials that protect their integrity, character, and long-term resilience.

The long-term consequences of this shift are manifold. For one, heritage projects risk being compromised by inappropriate materials that have less resistance to corrosion - especially in coastal locations where 316L stainless steel would have offered decades of resilience.

Secondly, the loss of specification quality is impacting the UK manufacturing sector at scale. Every time a British-made product is swapped for an imported one, it chips away at jobs, skills, and investment in domestic capability. Companies who make the effort to design, manufacture, and assemble entirely in the UK are often being priced out not because the system is forcing clients to make impossible choices.

Finally, these changes are undermining sustainability goals. British-made products travel fewer miles, often use more responsibly sourced materials, and can be supported and serviced locally. Yet, in the scramble to save money and meet tight deadlines, these benefits are too often overlooked.

At the heart of the issue is a planning system that simply is not fit for purpose. Local authorities lack the resources to process applications in good time.

Developers are forced into multiple design iterations to meet shifting guidance. And even when permission is granted, it may come too late for a project to proceed under its original budget.

Earlier this year, the Government announced an increase in planning fees - ostensibly to help councils recruit and train more planning officers. But the benefits of that investment are still years away, while contractors are left trying to reconcile spiralling costs with clients who are out of cash and out of patience.

Supporting British manufacturing should be a priority for all parties involved in the planning and building process.

If we are to avoid long-term damage to our built environment and to British industry, the system needs reform, and fast. Starting with streamlining and digitising planning applications, particularly for smaller or heritage-sensitive projects, would ease pressure on already overstretched planning authorities and significantly reduce the time taken to gain approval. This would not only benefit applicants but also free up resources within local authorities to focus on more complex cases.

Clearer and more consistent national guidance on materials is also essential. Where conservation rules apply, traditional or like-for-like materials should be enforced without compromise. Allowing clients to switch to inappropriate alternatives undermines the very purpose of conservation policy, risking the loss of heritage character and setting poor precedents for future developments.

Supporting British manufacturing should be a priority for all parties involved in the planning and building process. Encouraging, or even requiring, local authorities, designers and clients to specify British-made products wherever practical not only safeguards jobs but also ensures higher standards of compliance and quality. It also helps to protect the long-term integrity and sustainability of buildings.

Finally, better education for both clients and builders is vital. Many substitutions are made with the best of intentions but without full understanding of the consequences. Providing clearer information on the long-term implications of cutting corners could help avoid expensive remedial works, regulatory breaches, and the gradual erosion of our built heritage.

Quality should not be the first casualty

When planning takes years, and budgets balloon by the month, it is tempting to slash specifications to make the numbers work. But in doing so, we risk building homes and public spaces that fall short of both their potential and their obligations, architecturally, environmentally and economically.

British manufacturers do not just make products - they contribute to our heritage, our economy, and our reputation for excellence. If we want to preserve those values, we must tackle the systemic delays that are driving the industry toward the lowest common denominator. Because once you lose a manufacturer, you rarely get them back.

If you are a developer, builder or designer grappling with rising costs and material substitutions, consider the long view. The cheapest option today may not be the best investment for tomorrow. ■

Choosing the Right **Skirting**

GRADUS

Aesthetics

Gradus skirtings & cappings are available in a range of colours and finishes to complement most interior environments.

In addition, the use of a skirting that contrasts in colour and luminance with the floorcovering can assist visually impaired people to determine the borders of the room. As a guide, skirtings should either match the wall colour, or provide a complete contrast with both the wall and floor.

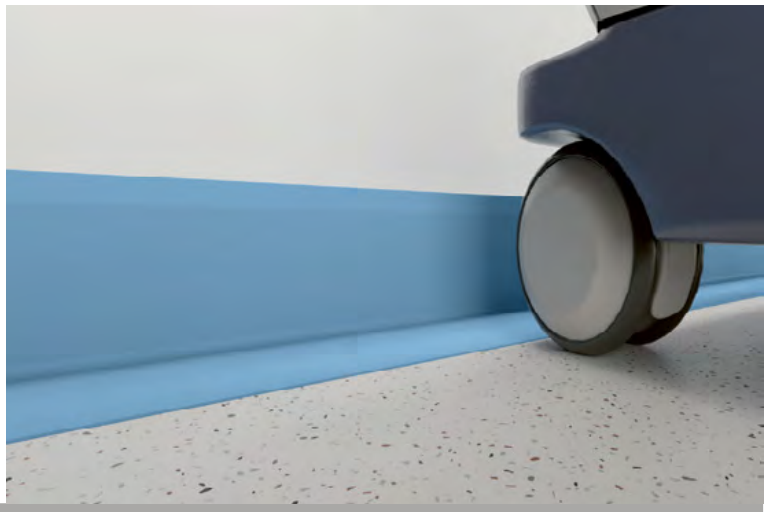
dsdc
Dementia Services Development Centre

Pvc Skirting FS 100 B profile is rated as Class 1a. Finishes within these ratings can be used throughout dementia applications. We recommend a minimum contrast of 30 points LRV for critical surfaces. For further visit www.gradus.com

Types of skirting

Set-In

Provides an impervious seal when welded to the floorcovering



Set-In Pvc Skirtings

Sit-On

Fitted over most hard floorcoverings for a neat finish

Sit-on Pvc Skirtings

Metal Skirtings

Profiles are available in a range of finishes including stainless steel and aluminium.

Metal Skirtings

Insulation solutions for less waste as part of a circular economy

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

The most sustainable building is the one that does not need to be built. This idea is based on making use of assets that already exist and preventing the creation of more waste. This article looks at insulation solutions that can support the adoption of principles outlined in the waste hierarchy.

The waste hierarchy outlines methods of dealing with waste in order of desirability. A briefing paper by the Construction Products Association (CPA) shows the preferred option is to prevent waste altogether. This is followed by preparing for reuse, recycling and 'other recovery'.

The worst option, according to the hierarchy, is disposing of waste – which is the most common outcome in the linear economy.

Designing buildings with a 60-100 year lifespan, demolishing them and creating waste, then building again from scratch is the linear economy in action. It is incompatible with a sustainable, net zero future that prioritises efficient use of the limited resources available to us and minimises negative biodiversity impacts.

What is the circular economy?

In the linear economy, a product is used once and then disposed of, requiring new resources to be extracted and new products to be manufactured.

As the global population grows and the demand for raw materials and construction products continues to increase, maintaining the linear economy approach will only put further pressure on already-limited resources. Instead, we must look to the circular economy.

The UK Green Building Council (UKGBC) describes the circular economy as follows: "At its simplest, the circular economy prioritises the reuse of materials, preventing the over-extraction of natural resources and the number of usable materials that end up in landfill."

To support greater adoption of the circular economy, the UKGBC provides guidance on five circular economy principles for construction, in order of priority. Below, we discuss three of the five, and how extruded polystyrene (XPS) insulation products can contribute to them.

1: Maximise reuse

In the first instance, this means reusing buildings themselves.

For example, you might still specify a traditional concrete slab ground floor, but featuring XPS insulation instead of an alternative rigid board. With its higher

compressive strength, XPS would be capable of bearing a greater range of loads from unknown future uses.

Leaving the entire ground floor build-up in place during future conversion/adaptation works would leave the insulation undisturbed, ensuring it continues to deliver its performance.

Second, it means recovering materials from a site to be used on the same site or a different site.

Here, a good option might be a loose laid inverted roof build-up. As the insulation is neither mechanically fixed nor adhered, should the building be disassembled in future, the roof layers, including the XPS insulation layer, could be taken up. Assuming good installation at the outset, the insulation boards should be in virtually the same condition as when first used.

2: Design for optimisation

There are four aspects to designing for optimisation:

- Longevity
- Flexibility
- Adaptability
- Assembly, disassembly and recoverability

XPS's proven durability can contribute to the longevity of building design lives. And we have covered how it might support adaptability and assembly/disassembly/recoverability.

The example of an inverted roof also plays into designing with flexibility in mind. A roof constructed today to achieve a certain level of thermal performance might require an increased insulation thickness in future. The loose laid nature of an inverted roof could play into this, allowing the roof finish and ballast layers to be lifted temporarily and an extra insulation layer added, prior to reinstating the layers above.

Issues like thresholds and their heights would need to be considered during the initial design. Overall, however, such flexibility is a realistic possibility.

3: Minimise impact and waste

Three of the four aspects named by the UKGBC in this area are: use low impact new materials; use recycled content; and reduce construction impacts.

As a plastic-based material, it is hard to argue that XPS is a genuinely **low impact material**.

However, given the importance of thermal insulation in buildings generally, plus XPS's characteristics and potential for adaptability/flexibility/reuse, there are justifiable trade-offs against that impact.

It is incumbent upon product manufacturers to be open and transparent about their processes, and the way they are striving to improve them – such as through better waste management or the use of **recycled content** in manufacturing.

Another way product manufacturers can demonstrate a **responsible attitude to the impact** of their activities is by making improvements to the sourcing of materials. The BES 6001 responsible sourcing standard is a form of third-party certification for construction products.

Can XPS insulation be recycled?

If embedding circular economy principles around reuse is not currently possible, then the next best option is to specify products that can be recycled at the end of a building's life.

A leading recycling company has told us that extruded polystyrene can be recovered from existing buildings and recycled, even if it is contaminated (such as with adhesive or concrete).

We have recently put two sites in contact with the recycling company, who have been able to recycle insulation removed from existing roofs. One of those projects had some 40,000m2 of existing insulation stripped from the roof, which would otherwise have gone to landfill.

Neither site had our material installed, so we didn't know anything about the age of the insulation, or how it had been installed. That did not prevent the recycling company being able to receive and process the material.

A few years ago, we first engaged with the recycling industry to better understand what was possible with XPS material. Unlike other rigid foam insulation boards, XPS has no integral foil facing. We were therefore confident that XPS products in buildings had inherent recycling potential, but we needed expert confirmation.

Now, we are encouraged that we will see a time when XPS products are routinely recovered from buildings and recycled when not being reused.

Summary

Extruded polystyrene insulation can play a role in the construction industry's transition from the linear economy to the circular economy. XPS's combination of performance characteristics mean it has the potential to be retained or reused across multiple building life cycles.

A significant barrier to reuse and recycling is that design and installation rarely takes into account the end of a building's life. This is hardly surprising. As buildings can stand for 50, 60 or 100 years, or more, how can you ensure that someone follows through on intent so many years later?

Specifiers, installers and demolition contractors first need to know that reuse and recycling are possible, and then they need the incentive to make it happen.

Sustainability goals have to be agreed at the beginning of a project, ensuring design and specification decisions align with those goals. Contractual performance for contractors and installers should prioritise the goals being met and be measured accordingly.

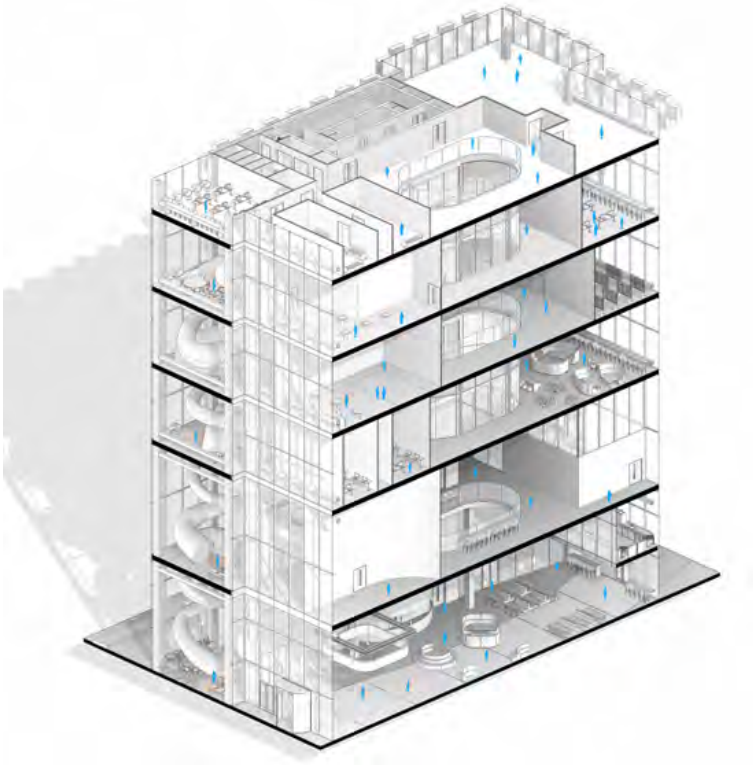
A golden thread of information can also record such decisions being made and help carry that information through the life of the building so it is available to whoever makes end-of-life stage decisions in the future. ■

If embedding circular economy principles around reuse is not currently possible, then the next best option is to specify products that can be recycled at the end of a building's life.

AI-Driven automation in architectural design: Reducing time, enhancing compliance

Words by Kieran Patel, Nottingham Trent University

Sustainability in construction isn't just about compliance; it's about rethinking the way buildings are designed, the materials selected, and the supply chains that support them.



The challenge: repetition and regulation

Architectural design processes remain burdened by repetitive compliance tasks such as drawing checks, annotation and regulatory reviews. These activities consume valuable time, limit creative focus and can inflate project costs. Despite the widespread adoption of digital tools and Building Information Modelling (BIM), inefficiencies persist in the early and technical stages of design.

This research explores whether Artificial Intelligence (AI) automation tools can help alleviate these pressures by streamlining workflows, supporting regulatory compliance and improving design quality. Three advanced AI platforms were evaluated: ChatGPT-4o, Grok and DeepSeek. Their performance was tested against drawings from the author's Major Study Project (MSP), the design of an AI Research Centre. The study provides evidence of how AI can reduce time and cost while enhancing efficiency and offers guidance for Architectural Technology professionals considering the adoption of such tools.

The study followed a three-phase mixed methods approach.

Phase 1: Literature review

A review of earlier AI tools such as Pix2PixHD, BIM2XML and GPT-4 showed they could automate elements of layout and data conversion but were restricted by limited datasets and poor scalability. More recent research, including work by Chen et al. (2024) and Chaillou (2019), highlights the growing potential of Large Language Models (LLMs), particularly when integrated with BIM and ontologies. These insights guided the decision to focus practical testing on three advanced platforms: ChatGPT-4o, Grok and DeepSeek.

Phase 2: Industry survey

A questionnaire was distributed to 23 industry professionals, primarily early career Architectural Technologists. Key findings included:

- Nearly 48% spend more than two hours each day on repetitive tasks.
- 56% identified drawing checks as the most frequently repeated activity.
- Major barriers to adopting automation included limited software capability (56%) and lack of knowledge of available tools (43%).

These insights highlighted compliance checks and drawing reviews as the most promising tasks for AI automation.

Phase 3: Practical testing

The selected AI tools were applied to three technical drawings from the MSP: a **Fire Strategy Plan**, a **Sanitaryware Layout** and an **Atrium Balustrade Detail**. Each tool was asked to check compliance against UK Building Regulations (Approved Documents B, M and K) and relevant British Standards such as BS 8300 and BS 6180. Outputs were assessed for accuracy, regulatory relevance, clarity, speed and usability.

The practical testing revealed distinct strengths and limitations across the tools. ChatGPT-4o delivered the

fastest responses and produced concise and clear summaries, which were particularly effective for early-stage validation of the Fire Strategy Plan. However, its outputs were sometimes general, with limited depth and fewer references to UK-specific regulations. Grok produced highly structured and detailed compliance feedback, identifying specific issues such as dimensional conflicts in the Sanitaryware Layout. It consistently referenced Approved Documents and British Standards, though it was slower in generating results and occasionally produced overly detailed outputs that required careful interpretation. DeepSeek excelled in user-centred and accessibility analysis, providing insights into fixture placement, signage visibility, and compliance with Part M and BS 8300. It was particularly effective when reviewing the Atrium Balustrade Detail, though it was less comprehensive for broader compliance summaries. Nonetheless, it added value in specialist areas such as ergonomics and safety.

The AI tools were directly applied to the AI Research Centre Major Study Project (MSP), with tangible impacts on design outcomes. Grok's regulatory checks prompted refinement of escape routes and compartmentation in the fire strategy. DeepSeek highlighted accessibility concerns in the sanitary layouts, leading to revisions that improved compliance with Part M. ChatGPT-4o's rapid summaries supported faster iteration and early validation before detailed reviews during early-stage design. This integration demonstrated that AI can save time, improve accuracy, and enhance design outcomes by addressing compliance earlier in the process.

Implications for practice

The research highlights both opportunities and cautions for the profession, offering several clear implications for practice. Tools such as ChatGPT-4o can highlight potential issues quickly, freeing time for higher-value design tasks, making it useful for early checks. The evaluation showed differing capabilities across the tools: Grok provided highly detailed, regulation-referenced compliance checks, while DeepSeek was particularly effective in reviewing accessibility and user-focused details aligned with Approved Document M and BS 8300. ChatGPT-4o proved most useful in the early design stages, offering fast, high-level summaries to guide iteration. A recurring limitation was the lack of UK-specific training within these AI tools, resulting in occasional inaccuracies and "hallucinated" outputs. This reinforces the need for robust human review, particularly in compliance-critical areas such as fire safety and accessibility. Survey participants identified limited software capability and lack of tool knowledge as key barriers. Investment in upskilling, training, and tailored prompt strategies will be essential for practitioners to make full use of AI while ensuring regulatory accuracy

Several limitations were identified. Current AI models are not trained on UK Building Regulations, creating a risk of inaccuracies or "hallucinated" outputs. Results were also highly dependent on prompt wording, highlighting the need for adaptive prompt strategies.

Future research should explore premium AI platforms that may offer improved accuracy and better integration with BIM. There is also potential to extend AI application beyond compliance checking into areas such as site analysis, spatial planning and design optimisation. Dual-verification frameworks, combining AI with rule-based systems, could further improve trust and reliability.

The results of this study highlight the growing role of AI-driven automation in tackling inefficiencies within the architectural design process. Practical testing demonstrated that tools such as ChatGPT-4o, Grok and DeepSeek can significantly reduce the manual effort required for compliance checking and drawing reviews. Grok proved particularly strong in delivering detailed, regulation-referenced assessments, while DeepSeek offered valuable insights into accessibility and human-centred considerations, supporting compliance with Approved Document M and BS 8300. ChatGPT-4o stood out for its speed and clarity, providing concise summaries that were especially useful in the early design stages.

Despite these benefits, the study also identified clear limitations. None of the tested platforms were trained on UK-specific Building Regulations, leading to occasional inaccuracies and instances of fabricated references, highlighting the continuing need for human oversight. The reliance on standardised prompts also limited the depth of output, suggesting that more tailored prompt strategies and dual-verification frameworks would improve reliability. Future research should focus on exploring premium AI platforms with enhanced integration capabilities, as well as testing applications across a wider range of design stages such as site analysis and spatial planning.

In summary, this study confirms that AI-driven automation can substantially improve efficiency and cost-effectiveness in architectural workflows, particularly by addressing repetitive tasks such as compliance checks and drawing reviews. The application of advanced AI tools within the AI Research Centre MSP informed design refinements in areas including fire strategy and sanitary layouts, demonstrating the practical value of AI in supporting productivity, regulatory accuracy and user-focused design within Architectural Technology practice. However, future research is needed. Could AI eventually become a standard tool in architectural compliance and design validation? How might the integration of AI evolve as regulatory frameworks and technologies advance? ■

Beyond the render: embedding AI tools into architectural education

Words by Thomas M Job, Nottingham Trent University

How student-led research is shaping the future of visualisation workflows

Artificial Intelligence (AI) is changing the way technologists and architects design, visualise, and share ideas. From quick concept sketches to near-photorealistic renders, new tools are reshaping workflows across the built environment. For graduates preparing to step into practice, architectural education must adapt quickly to ensure the next generation is confident in using these technologies. This student-staff research project at Nottingham Trent University was conducted as a desktop study, focused specifically on how AI tools might be integrated into architectural visualisation within education. Using workshop data, literature analysis, and a critical review of teaching practices, the project explored how AI could support creativity, accelerate workflows, and improve student engagement, while also raising questions about authorship, ethics, and accuracy. By blending academic research with practical insight, the study begins to outline strategies for embedding AI into curriculum design, helping students navigate the opportunities and challenges of an AI-assisted future.

This project was a collaboration between students, lecturers, and researchers at Nottingham Trent University, aimed at exploring the educational potential of AI in architectural visualisation. Conducted as a desktop study, all evaluations were carried out through literature analysis, digital testing, and structured workshops, rather than live projects or studio teaching. The study had three main goals: (1) to assess the creative and technical potential of AI in an educational context across RIBA Stages 0 to 4, (2) to enhance student coursework using a carefully selected range of tools, and (3) to develop practical guidance for lecturers to support ethical and effective integration of AI into workflows. Tools were shortlisted from academic and industry sources reviewed during the literature phase, with a further filter to ensure alignment with NTU's IT policies. All selected platforms were web-based, allowing easier implementation in institutional settings. Aligned with the RIBA Plan of Work and learning outcomes, the project highlights how student-led research can drive innovation in architectural education while responding to rapid industry change.

Our methodology focused on evaluating AI within architectural education. We began by reviewing 15 sources, including academic publications and industry articles, to understand the current landscape of AI in architecture. This informed our tool selection criteria, which considered RIBA stage relevance, educational accessibility, visual output quality, and alignment with NTU's browser-based IT policies. Ten AI platforms were taken forward to a student workshop for testing, using standardised prompts and baseline visuals for direct comparison. Ten students from the Architectural Technology programme, including Master's students from the Digital Architecture and Construction

programme, evaluated each tool based on usability, output quality, and how well results aligned with original design intent. A parallel staff workshop gathered academic perspectives on AI integration, addressing themes such as authorship, assessment, prompt writing, and its wider educational role. Participants included staff from the Architectural Technology, Architecture and Interior Architecture programmes at NTU.

This combination of literature review, structured tool evaluation, and collaborative feedback allowed the research to capture both student experience and teaching priorities within a controlled academic setting. Students consistently highlighted the advantages of AI-assisted visualisation during design development. The ability to iterate quickly meant ideas could be tested and refined in less time, improving both creative flow and visual communication. Many students reported increased confidence in presenting their work and appreciated the ability to explore design variations with ease. However, issues also emerged. Some AI tools introduced unintended changes to elements such as furniture or structure, which led to a loss of design accuracy. Output quality also varied depending on how prompts were written. One student reflected that "tools are only as good as the prompt," reinforcing the importance of developing prompt-writing skills as part of digital literacy. These insights highlight that while AI can enhance design workflows, its value depends on thoughtful use and a strong grasp on design intent.

Lecturers recognised its potential but raised concerns around academic integrity and authorship. How can originality be assessed if much of the visual output is AI-generated? The answer, perhaps, lies in shifting the focus of assessment towards process and intent rather than just final visuals – a key principle within the draft lecturers' guidelines. By valuing how students develop and articulate their ideas, AI becomes a support tool, not a shortcut.

Key findings include: (1) Tool performance varied depending on the design stage, with some platforms better suited to early conceptual development and others more effective for refined visualisation. This reinforced the need for strategic integration of AI tools in line with RIBA Stage intentions. (2) Prompt-writing proved critical. Students who developed clear and spatially descriptive inputs consistently produced stronger results, supporting the introduction of prompt-writing workshops within design modules. (3) Questions around ethics and authorship emerged throughout. Issues of originality, intellectual property, and student ownership require clear academic guidance and structured assessment frameworks. Ultimately, AI did not replace design thinking, it supported it. Students remained the authors of their work, with AI acting as a creative support that encouraged iteration and improved visual communication, though careful consideration of tool selection and clear authorship must remain a central part of the process.

A key outcome of the project was the development of draft Lecturers' guidelines. Rather than setting strict rules, these were designed to prompt discussion and adapt over time in line with developments in teaching methods and curriculum delivery. Their purpose is to support the responsible and effective integration of AI into architectural education while encouraging students to reflect critically on its role. The guidelines highlight four focus areas: (1) Delivering prompt-writing workshops to help students develop clarity, creativity, and visual literacy. (2) Embedding ethics-based teaching around authorship, academic integrity, and originality. (3) Encouraging strategic AI use at early design stages for idea generation, while prioritising manual methods in later phases. (4) Framing assessment to value process and design intent as much as the final visual outcome.

AI tools are evolving faster than most areas of design technology, and some explored during this project may already be outdated.

These guidelines offer a starting point for ongoing discussion around the role of AI in architectural education. They are intended to be revisited regularly as tools develop, and new challenges arise. Crucially, they reinforce the principle that AI should support, not replace, the core design skills that underpin architectural technology education.

AI tools are evolving faster than most areas of design technology, and some explored during this project may already be outdated. This rapid pace highlights the need for adaptable teaching, with ongoing research embedded into curriculum delivery. Future work could include: (1) Expanding tool evaluations to reflect emerging capabilities, (2) Exploring AI's role in areas like environmental analysis or visual communication, and (3) Strengthening collaboration across academic teams to improve teaching practice. By treating the curriculum as a flexible framework, architectural education can stay responsive to technological change while equipping students with the critical skills needed in an AI-enhanced design environment.

This project gave us the opportunity to combine research with practical testing, using AI to generate meaningful insights into architectural education. I would like to thank Dr Nacer Bezai, Dr Moulay Chalal and the TILT team for their guidance and support. Funding from TILT enabled access to premium AI tools and delivery of structured workshops. Special thanks also to Jessica Hakes for her valuable contribution throughout the early stages of the project, including the literature review and collaboration in the delivery of workshops. We hope this work encourages further student-led inquiry and sparks continued reflection on the role of AI in architectural learning.

AI is moving quickly, often faster than education can adapt. This raises a new question for architectural schools and beyond: how might the strategies explored in this project be adapted across other design disciplines, and what role should ongoing research play in shaping AI integration across the wider university curriculum? ■

Case study: retrofitting for resilience with the Leicester Resilience Hub

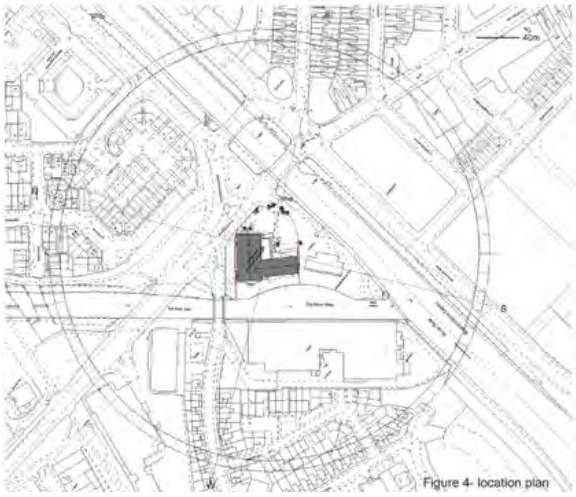
Words by Steven Thornton, De Montfort University

The Resilience Hub initiative forms part of a growing international network proposed by the UN, advancing the principles first developed by the Urban Sustainability Directors Network (USDN) in North America.

These hubs represent community-serving facilities enhanced to support residents and coordinate essential services before, during, and after climate-related disruptions, particularly floods, heatwaves, and energy shortages. In the context of the UN's Resilience Hub initiative, such facilities act as local anchors for climate adaptation, equity, and social cohesion. They embody the United Nations' call to accelerate locally led resilience by empowering communities to anticipate, absorb, and recover from shocks, while advancing the Sustainable Development Goals (SDGs), particularly SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action), and SDG 7 (Affordable and Clean Energy). According to the USDN Resilience Hub Guidance (2018, 2021), successful hubs are built on trusted community sites that operate year-round as centres of education, wellbeing, and resource exchange, and that can rapidly shift into emergency-response mode when disasters strike. They combine physical retrofitting for hazard resistance with social and economic programming that enhances everyday quality of life. This model emphasises co-development with local residents and community-based organisations, ensuring that resilience is both equitable and locally relevant.

Context and site background

The *Watershed*, located on Bede Island (LE2 7AU), sits between the Old River Soar and the Grand Union Canal in Leicester, placing it firmly within *Flood Zone 3*. The building was first constructed in 1999 by Leicester City Council as a youth centre and later renovated by De Montfort University in 2015 for student sports and societies. In the past few years, the Old River Soar burst its banks, submerging nearby structures, a defining moment that exposed the site's vulnerability and became the catalyst for change.

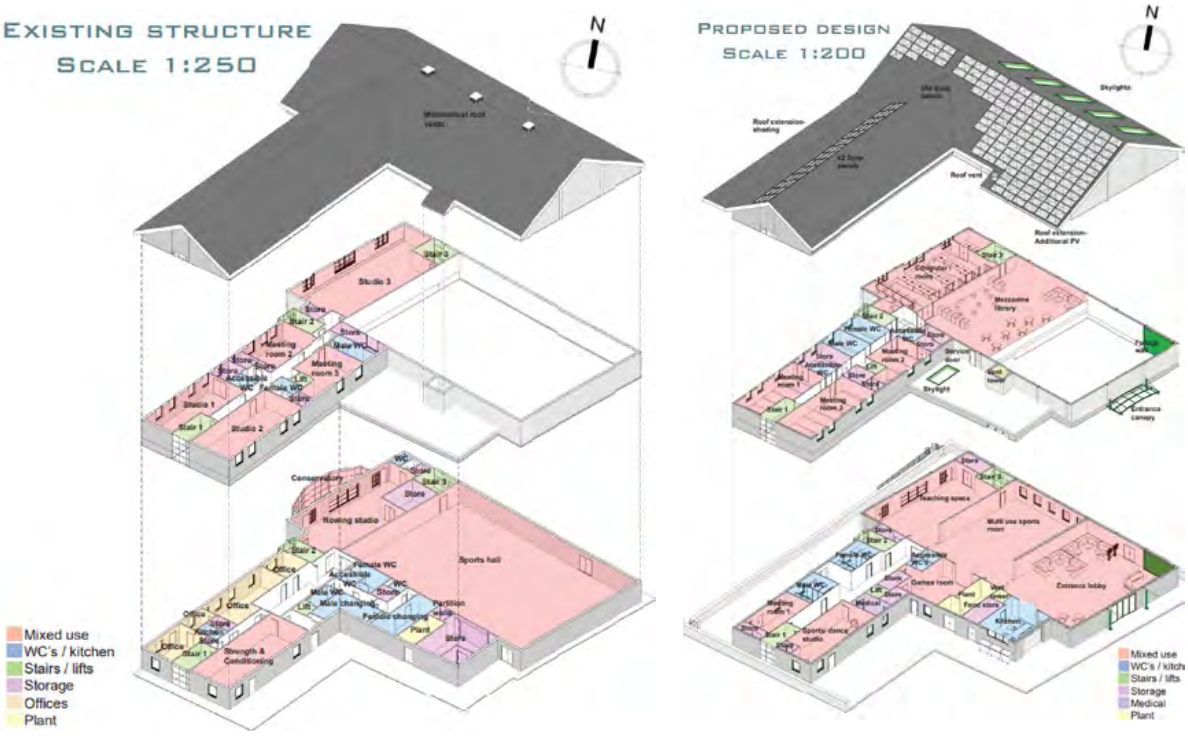


The Watershed site showing proximity to the Old River Soar.

Design brief and vision

The retrofit brief was to re-envision the *Watershed* as a net-zero community hub and flood-resilient refuge, delivering both everyday social benefit and emergency-response capability.

The key design goals were to: achieve full flood protection and continuity of operation during extreme weather events; generate 100 per cent of the building's energy on-site through renewables; reduce embodied and operational carbon via material reuse and circular design principles, and provide inclusive, adaptable community spaces for education, recreation, and support.

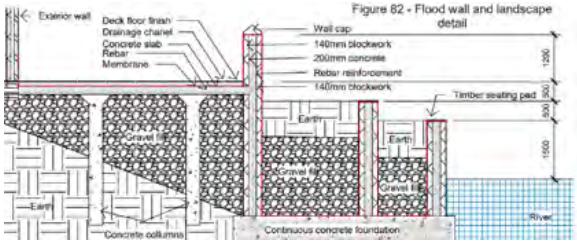


Axonometric exploded view of the watershed building before and after the transformation to Leicester Resilience Hub

Day-to-day, the hub offers workshops, skill training, food redistribution, and leisure facilities. In a crisis, it can accommodate up to 200 people for one week, supplying food, shelter, and power independent of external utilities.

Flood-resilience strategy

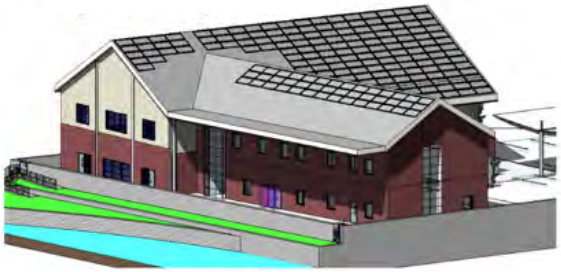
Given the severity of local flood risk, a *multi-layered approach* was adopted, combining protection, adaptation, and recovery. A 1.2m reinforced concrete flood wall is proposed surrounds the site on three sides, adding 1.7m of defence above the recoded water levels. Controlled flood gates and tiered landscaping allow access to outdoor areas while maintaining security during floods. Surface-water management is addressed through permeable paving, a soakaway pond, and rainwater harvesting systems capable of collecting over one million litres annually. Internally, ground-floor finishes were replaced with moisture-resistant materials — vinyl flooring, PVC skirting, and cementitious boards up to 1.2m — ensuring rapid recovery after flood exposure. Electrical outlets and HVAC units were elevated above predicted flood levels, while flood-proof doors with outward opening provide additional safety.



Section through flood-wall detail.

Envelope and environmental design

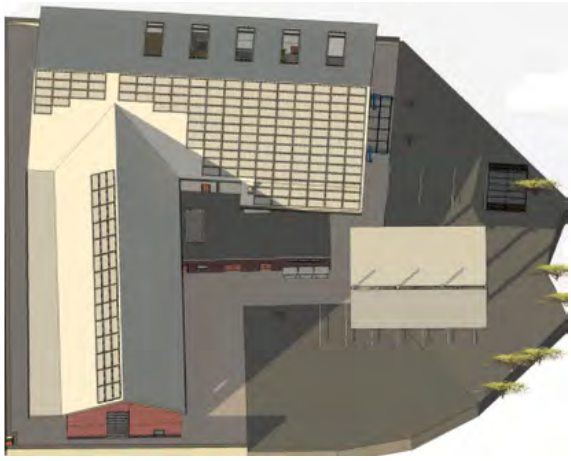
Thermal performance and airtightness improvements enhanced energy efficiency and comfort. Five large north-facing skylights were inserted above the double-height sports hall, introducing diffuse natural light with a daylight factor (DF) of 3.9%. Glazing on the west façade was reduced to mitigate solar gain, and photochromatic coatings plus roof overhangs ensure compliance with *Approved Document O*. Combined with a smart, motion-activated LED system, these measures significantly cut electricity demand while improving visual comfort.



Summer shading strategy.

Energy generation and autonomy

The hub now operates as a fully self-sufficient, net-zero building. A total of 196 monocrystalline photovoltaic panels (400 W each) are distributed across the south and west-facing roofs, generating approximately 392 kWh per day, exceeding the 300 kWh average daily demand. Battery storage within an expanded plant room guarantees resilience during power cuts. All systems are monitored via an intelligent control network that adjusts lighting, heating, and ventilation in real time to optimise efficiency and indoor air quality.



Solar-PV roof plan showing south and west array distribution.

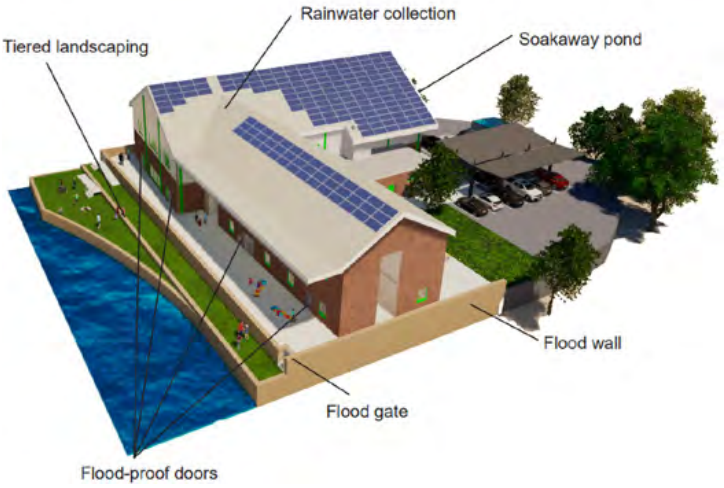
Heating, ventilation and water strategy
A new ventilation tower introduces filtered, tempered fresh air into all rooms, while a heat-recovery system captures waste energy from exhaust air to reduce heating loads. The building's extensive roof area (1,450m^2) enables an integrated rainwater-harvesting and greywater-recycling system, supplying toilets, irrigation, and, after treatment, potable water. An underground tank beneath the car park, safely above flood levels, stores enough water to sustain the 200-person emergency population for a full week.

Social retrofit and spatial adaptability
The retrofit reinforces the hub's social role within Leicester's diverse Westcotes ward. The former sports hall became a flexible, divisible multipurpose area for sports, study, or temporary accommodation. A new mezzanine library (216m^2) provides quiet workspace, bookable pods, and a computer suite for digital literacy training. Meanwhile, a recording studio and games room foster creativity and youth engagement, supporting mental wellbeing and community cohesion, and the expanded kitchen doubles as a café and emergency food bank, operated by volunteers and supplied via the flood-proof delivery bay.

During flood or heatwave scenarios, these adaptable spaces convert swiftly into dormitories, medical wards, or communication centres.

Accessibility and fire safety
Universal accessibility was fundamental to the redesign. All doors now include hydraulic openers (< 30 N resistance), while the main pedestrian route maintains a 1:26 gradient — below the threshold for a ramp under *Part M*. Additional accessible WCs and refuge areas, compliant with *Approved Document T*, ensure inclusivity across both floors. Fire strategy upgrades reclassified the building under *Purpose Group 2a (Residential – Institution)*, introducing an L1 detection system with heat, smoke, and aspirating detectors throughout. Sixty-minute fire compartments protect high-risk zones, and automatic smoke vents secure clear escape routes.

Impact and lessons learned
The *Leicester Resilience Hub* demonstrates how retrofitting, rather than rebuilding, can deliver high-performance resilience with reduced embodied carbon. Its layered flood-defence system, renewable-energy autonomy, and flexible spatial design show that community buildings can become climate refuges without sacrificing functionality or aesthetics. This project also illustrates the importance of collaboration — between university, local authority, engineers, and community stakeholders — in shaping inclusive adaptation strategies.



Through careful integration of environmental technologies and user-centred design, the *Leicester Resilience Hub* transforms an at-risk youth centre into a model for flood-resilient urban regeneration. It stands as evidence that sustainable retrofitting can simultaneously address climate adaptation, social resilience, and community empowerment, essential components of a just transition to a low-carbon future.

Author's note
Steven Thornton completed this project as part of the BENV 1304 Building Project 1 module at the Architectural Technology BSc, De Montfort University. Supervised by Dr Sahar Abdelwahab, Amit Chhatralia and Daniel Ikemiyashiro, his design demonstrates how emerging practitioners can apply Architectural Technology to tackle real-world climate challenges in the built environment. ■

How change of use legislation is breathing new life into previously used buildings

Words by Nigel Booen, Director of Design, Boyer

When the Government widened permitted development rights last year, it signalled more than just another technical tweak to the planning system. The February 2024 amendments to Class MA of the General Permitted Development Order (GPDO) have the potential to transform the way our towns and cities evolve and the fortunes of many older buildings.

By removing both the three-year vacancy requirement and the cap on the size of buildings eligible for conversion, ministers have opened the door to a much wider range of commercial properties being repurposed for housing. In doing so, they have created new opportunities for investors and design professionals alike, and new life for buildings that might otherwise have stood redundant.

Successive revisions to the National Planning Policy Framework have called for greater use of brownfield land and higher densities in urban areas. For property investors, the appeal of Class MA conversions is that they can often be delivered more quickly than new build schemes, and at lower cost. That time advantage alone is critical in a market where financing costs remain elevated and exit strategies depend on speed of delivery.

Older buildings often leak air and resist high thermal performance, while thin walls and outdated windows can compromise acoustic insulation.

But, for every legislative green light there are practical amber ones. Buildings originally designed for retail, office or industrial use rarely lend themselves seamlessly to residential life. The most persistent challenges are architectural: ensuring access to natural light and ventilation, upgrading thermal and acoustic performance, providing private and communal amenity space, and creating a sense of security and privacy in environments that were never meant to be homes.

For design professionals, the detail is everything. Deep floorplates can create gloomy, single-aspect apartments unless mitigated by courtyards or shallow layouts. Older buildings often leak air and resist high thermal performance, while thin walls and outdated windows can compromise acoustic insulation. Few local authorities will welcome schemes that produce cramped or awkwardly shaped units that fail to meet national space standards.

Even when the fundamentals can be solved, the solutions often fall outside permitted development. New windows, rooflights, balconies or boundary treatments may all require separate planning applications. The irony is that a process billed as simpler can be just as complex as a conventional application.

The key, then, is not to view Class MA as a universal remedy but as a filter for opportunity. Experienced designers know that the most successful projects begin with the right building. Properties that were once residential often convert most smoothly: they tend to have smaller, more frequent windows, shallower plans, and layouts that naturally support privacy and security.

For projects in which the existing shell is more problematic, a hybrid approach can work. Secondary applications can authorise additional alterations that make units more marketable – be it extra glazing for ventilation or communal gardens that lift the scheme's appeal. Where contamination or structural integrity present insurmountable challenges, however, investors may be better served by demolition and rebuild.

What unites both the priorities for designers and investors is the value of early collaboration. Engaging designers and planning consultants from the outset allows investors to test viability against design constraints before committing capital. That collaboration also helps ensure that schemes meet both the spirit and the letter of Class MA: not simply delivering more homes but delivering good homes in sustainable and desirable locations.

The expansion of Class MA rights is best understood not as a silver bullet, but as an enabler. It has widened the field of potential projects, but whether those opportunities deliver will depend on intelligent building selection, thoughtful design, and careful financial appraisal.

Handled well, conversions can breathe new life into the historic fabric of our cities, provide much-needed housing, and demonstrate that adaptation is often smarter – economically and environmentally – than starting from scratch. Handled poorly, they risk producing units that are unsatisfactory for residents and underwhelming for investors.

The challenge, and the opportunity, is to see beyond the legislative headline and make conversions a genuine instrument of urban regeneration. ■

Why vitrified clay pipes are reclaiming their place in modern infrastructure

Words by Leon Woods, Country Manager UK, Steinzeug-Keramo Group

The construction industry is undergoing a shift as more specifiers and their clients move back to time-tested materials. Vitrified clay pipes demonstrate this process in action.

Independent Life Cycle Assessment data demonstrates that when evaluated across the complete operational lifespan of infrastructure projects — typically spanning 50 to 100 years — vitrified clay pipes emerge as the superior economic choice.

The assessment methodology considers multiple cost factors often overlooked in traditional procurement decisions: maintenance frequency, replacement cycles, energy consumption during manufacturing, transportation impacts and end-of-life disposal costs.

Vitrified clay pipes consistently outperform when these metrics are applied, delivering substantial long-term savings. These economic advantages become even more pronounced in challenging environments such as wastewater and industrial projects where chemical resistance and structural integrity of vitrified clay make all the difference.

The methodology of Life Cycle Costing (LCC), which evaluates the total costs associated with a product or system over its entire lifecycle, is gaining momentum as the industry looks for future-proofed systems.

A recent study by Project Hub 360 mapped the full lifecycle costs of vitrified clay pipes compared to thermoplastic alternatives for drainage and wastewater applications over a 150-year horizon.

Based on a completed project in Val Tinella, Italy, the analysis revealed that while the initial investment for vitrified clay pipes was €3,317,882 compared to €3,188,377 for polypropylene (+4%), the long-term savings achieved through reduced maintenance and replacement costs make vitrified clay the superior choice for utility companies looking to future-proof their sewer investments.

The independent LCC research also confirmed that if the operational lifespan exceeds 40 years, which is the case with the vast majority of sewer systems, vitrified clay pipes are the best investment from an economic standpoint. They offer cost savings of up to 65% in the long run compared to alternative materials. As the UK water industry looks for better lifetime value, adopting an LCC approach to product choice will help avoid future costs and enhance the sustainability of sewer infrastructure.

The sustainability credentials of vitrified clay pipes are another reason why specifiers are returning to the material. These are founded on its simple composition — just three natural materials are used to make them: clay, chamotte and water; all of which are available in virtually unlimited abundance.

Locally sourced clay is the primary component, dramatically reducing transportation-related carbon emissions. The second element, chamotte, improves the material's properties by adding a skeleton-like structure to the clay, which helps prevent shrinkage and cracking during firing. When fired at high temperatures, the clay vitrifies, resulting in a dense, chemically resistant and long-lasting pipe. These three ingredients eliminate the need for synthetic polymers, plasticisers and chemical stabilisers, making the manufactured product completely inert.

Strength is also a characteristic to consider; our pipes offer longitudinal compression resistance as high as 100N/mm2, which makes them an excellent choice when ground loading has to be factored in. In terms of stability of the product, the material is suitable for use in either alkaline or acidic soils making them suitable for brownfield sites and reclaimed land.

When specifying the product, the relevant standard is EN 295. This standard specifies requirements for vitrified clay pipes, fittings, and flexible joints.

The circular economy principles are naturally embedded in clay pipe production. At the end of their exceptionally long service life of well over 150 years, they can be crushed and recycled as aggregate for construction applications or returned to ceramic manufacturing processes, creating a truly sustainable material cycle.

Steinzeug-Keramo's vitrified clay pipes contain at least 30% recycled content, supporting the circular economy by minimising waste, extending product life cycles and promoting the reuse of valuable resources.

Since vitrified clay pipes do not contain any plastics or harmful substances, they can be left in the ground without leaching chemicals or microplastics into the surrounding soil or water. This makes them a safe and environmentally responsible choice for long-term underground use.

Lange Street in Detmold, one of Germany's most beautiful shopping streets, recently underwent a comprehensive redesign and wastewater system upgrade, including new combined sewer and stormwater drainage systems.

We supplied vitrified clay pipes for the construction of the underground wastewater infrastructure. They were specified due to the natural composition of the pipes: they do not lose strength or degrade over time when exposed to chemicals often found in sewer systems, such as hydrogen sulphide and are ideally suited for gravity-fed networks.

The three-phase construction began with a 155-metre section, using open-cut trenching with a gravel foundation to ensure stable pipe installation. Despite the road being only 15 metres wide, half remained in use to maintain access to shops and outdoor dining.

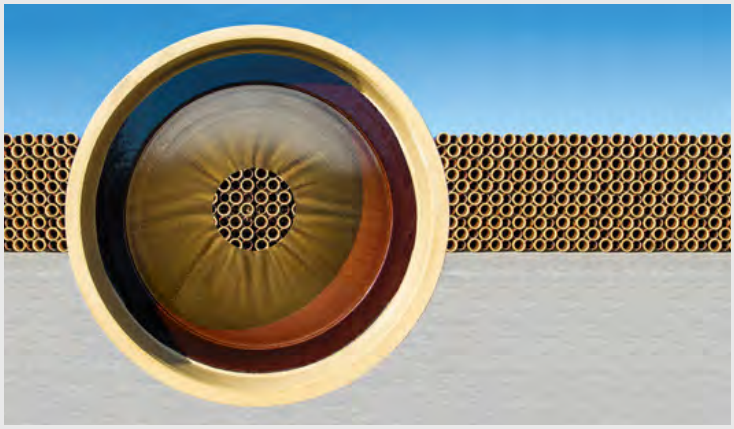
Due to limited space and deep trenches, logistics required precise coordination. We proposed dual infrastructure for stormwater and combined sewage to improve efficient water management and reduce overflow risks. The vitrified clay pipes met the project's high demands, particularly in load-bearing capacity and durability.

One distinctive feature of Detmold's wastewater system is that the existing combined sewer, constructed in brickwork, was four metres below the surface, while the stormwater sewer was located at a depth of two metres.

The open-cut trench was both narrow and deep, making it impossible for construction vehicles to access. Therefore, the gravel bed was created first, followed by the precise installation of the vitrified clay pipes.

The pipes will provide a long-term sustainable solution for the city, as they won't corrode, degrade or lose strength over time. Since they contain no harmful substances, they can remain in the ground without risk of polluting the surroundings and even outlive the surrounding infrastructure with lifespans exceeding 150 years.

As the construction sector looks for better long-term value, adopting an LCC approach to product choice will help avoid unexpected expenses and enhance the sustainability of sewer infrastructure. By integrating LCC methodology into decision-making processes, developers, specifiers and their clients can make informed choices that ensure maximum value from their investments. ■



Beyond the Warm Homes Plan

Words by Jack Fleming, Policy and Public Affairs Executive

In November, the Labour Government formally announced its Warm Homes Plan. Underpinned by £13.2 billion of Government funding, the Warm Homes Plan will have a profound impact on the UK's housing, and the built environment sector more broadly, giving businesses the confidence to invest in the green skills we urgently need as we transition to a low carbon economy.

As the leading global membership qualifying body for Architectural Technology, the Chartered Institute of Architectural Technologists (CIAT) is passionate about ensuring everyone has the foundation for life provided by a healthy, high-quality home. Nobody should face fuel bills so high that they have to choose between heating and eating, so it's welcome to see a government committed to delivering warm homes with lower energy needs and reduced winter fuel bills.

But by focusing on warmth and heating costs in isolation, the Warm Homes Plan risks storing up problems for the future.

In 2024, for the first time ever, average global temperatures were *more than 1.5 degrees warmer than the pre-industrial baseline*. An optimistic view of current global commitments to reduce greenhouse gas emissions puts us on course for *2.6 degrees of warming within a century*. In other words, a warmer world, with more extreme weather, is now baked in. Our built environment needs to rapidly adjust to this reality.

In practical terms, that means we need homes which contribute to both climate change mitigation (through lower emissions) and crucially, climate adaptation, with improved ventilation and passive or active cooling measures to ensure homes stay cool through heatwaves. Ventilation must also go hand-in-hand with insulation improvements, if we do not want homes plagued with damp and potential structural defects.

Then there are issues like greenhouse gas emissions air pollution, including from gas cookers and boilers,

surface water flood risks which are exacerbated by the design of our urban fabric, and noise and light pollution which disrupt healthy sleep cycles.

The implications of these housing issues are profound. Unhealthy housing has been estimated to cost the NHS as much as £2.5 billion per year. The broader social and economic costs of poor housing (such as lower productivity and poor educational outcomes) may be far greater.

The solution to all this is clear. Rather than focusing on just the "low hanging fruit" of warm homes, we need a bold, holistic approach which ensures that our homes can cope with extremes of cold and heat, flash floods and droughts. Homes which are safe, user-friendly and easily maintained. Homes which utilise sustainable, healthy materials. In short, homes that are fit for the future.

And because every home in unique in its context, design, materials, construction and usage patterns, a simplistic, one-size-fits-all approach will fall short. A Georgian terrace in a coastal town will need different interventions to a 1950s social housing block, or a detached house completed in the 2000s.

Ultimately, the only way to achieve these outcomes is with design-led home upgrades, drawing on the expertise and experience of professionals such as Chartered Architectural Technologists.

CIAT's new report, *Beyond the Warm Homes Plan*, lays out a vision to deliver this, moving from the current patchwork of short term, hard-to-access, funding programmes, to a holistic, long-term programme which enables broad based access to design-led retrofits for all households, regardless of tenure.

We propose a model which combines grants and low-interest loans, so that the high up-front costs of home upgrades do not act as a barrier for households.

We argue that a long-term commitment from government, backed up by the creation of a dedicated unit to deliver the National Retrofit Programme with clear ministerial accountability, is vital to ensure to give confidence to the market and drive skills improvement.

We call for financial incentives, including the removal of VAT on retrofit measures, and a reduction in stamp duty for the best performing homes, to ensure that investing in housing quality is worthwhile for households.

And we advocate for post-occupancy evaluation and the provision of "home instruction manuals", so that everyone can make the most of a high-quality home.

This approach will deliver homes which are comfortable and healthy now, and resilient to what might come next.

The Government is right that we need to tackle the problem of cold homes in Winter, but every home that is insulated without consideration of the wider needs of the residents, community and the planet is another home that will need further upgrades in the coming decades.

The UK can ill afford such a missed opportunity.

CIAT's recent report, ***Beyond the Warm Homes Plan: A National Retrofit Programme for people and planet***, can be found at https://architecturaltechnology.com/beyond-the-warm-homes-plan.html ■

Ultimately, the only way to achieve these outcomes is with design-led home upgrades, drawing on the expertise and experience of professionals such as Chartered Architectural Technologists.

Why structured product data is construction's competitive advantage

Words by Dr Stephen Hamil, Innovation Director, NBS

Construction has a data problem. It's not so much a data shortage, we've plenty of that; the issue is *accessibility*. Too often, vital information is scattered across our industry; sitting within locked PDFs, secured in proprietary databases or tucked away in rusty file cabinets. This fragmentation and disconnection can lead to project delays, costly mistakes and missed opportunities.

But the solution to connecting these data siloes doesn't lie in waiting around for new regulations to force change. The answer is already here, in the form of structured, accessible product data that works across digital systems. The firms adopting this technological approach now aren't just preparing for future compliance; they're gearing up for competitive advantage.

The NBS Digital Construction Report 2025 reveals that whilst 72% of the industry has embraced BIM and 86% are using cloud computing, we're still struggling with basic product data management. Only 29% of suppliers use Product Information Management systems, and communication about their implementation remains poor.

The data silo problem manifests in familiar ways. Designers can't quickly verify if a specified product meets sustainability requirements. Contractors struggle to access accurate installation guidance on site. Building managers lack the information needed for efficient maintenance. At each handover point, critical data is often lost or simply not provided.

Platforms such as NBS Source already provide the infrastructure for solving this problem. These have been developed following industry initiatives such as Uniclass, the Code for Construction Product Information (CCPI) and in partnership with certification bodies. By encouraging manufacturers to structure their data for digital use, these platforms make product information accessible, accurate and actionable across the entire project lifecycle.

This structured approach delivers immediate benefits. Designers gain instant access to verified environmental data, helping them make informed decisions about embodied carbon and lifecycle impacts. Contractors can access accurate installation guidance exactly when needed. Building managers can plan maintenance based on actual product specifications rather than relying on incomplete records.

The efficiency gains are significant. When teams aren't busy hunting for information, projects move faster. When everyone works from the same trusted data source, mistakes become less frequent. And the industry as a whole becomes more sustainable when environmental performance features can be measured and verified, rather than simply 'claimed'.

Various regulatory developments are reinforcing the need for this structured approach. Under the EU's Construction Products Regulation 2024, Digital Product Passports (DPPs) will become mandatory and initially rolled out for product categories such as concrete, steel and insulation. These DPPs are structured digital datasets that follow a product throughout its lifecycle, containing manufacturer details, technical specifications, performance data, standards compliance, and environmental impact information.

For the UK, the Construction Products Reform Green Paper and the subsequent White Paper due in the Spring of 2026 will determine how closely we'll align with European standards. Our strong trade links with Europe mean that alignment with these standards is crucial for market access and competitiveness.

The good news? Those manufacturers already working with structured product data are well-positioned for these changes. By structuring their data for digital use now, NBS Source makes it easier to move towards creating and maintaining DPPs when regulatory compliance requires it.

Standardised product identifiers are essential for making structured data work in practice. That's why NBS has partnered with GS1 UK to integrate Global Trade Item Numbers (GTINs) into NBS Source. GTINs create a unique digital identity for every product, enabling consistent data flow from manufacturers' systems through specification platforms to procurement, installation, and asset management.

Early adopters – including Knauf Insulation, Aico, Devi, and Ibstock – are already using GTINs on NBS Source. Clearly, GTINs have a tangible purpose; helping to remove ambiguity when referencing a product and ensuring trusted product data is available at every stage of the product's lifecycle.

Access to this kind of consistent, reliable data offers the potential for greater competitive advantage. The potential benefits are multiple.

When product information follows standardised formats with unique identifiers, it can move seamlessly across different digital systems. This interoperability is what turns fragmented data into a connected, usable resource.

Perhaps most importantly, high-quality, well-structured data is essential for AI adoption. NBS research shows that two in five industry professionals are already using AI, with another 38% of practitioners planning its adoption within five years. This rapid acceleration is being driven by productivity gains in efficiency, safety, and sustainability.

But AI systems are only as good as the data they're given. Fragmented, inconsistent product information limits what these technologies can achieve. Structured, standardised product data provides a necessary foundation for AI to deliver value.

We have all the essential infrastructure; what's needed now is a wider cultural shift towards openness, collaboration, and continuous improvement in how we manage product data.

The construction industry can continue struggling with fragmented data siloes, or we can welcome the structured, collaborative approach that modern tools enable. The choice isn't just about complying with future regulations. It's about building a more efficient, sustainable and innovative industry.

Recent research from NBS shows that 46% of the industry is now aware of DPPs, and among those, 83% support UK adoption. For manufacturers, that means digitising your product data now. Easier discoverability across search engines, procurement systems, and marketplaces helps open new routes to market. Digital transformation creates competitive differentiation. Industry professionals should demand GTINs and high-quality, structured information.

The call for improved digital data should come from everyone in construction; clients, building designers, contractors and operators. The firms making these moves today won't just be prepared for the coming regulatory changes, they'll thrive in the newly digitised marketplace.

The infrastructure is ready. The standards work. What is needed now is action. ■

When product information follows standardised formats with unique identifiers, it can move seamlessly across different digital systems. This interoperability is what turns fragmented data into a connected, usable resource.

Modernising heat networks: why HIUs hold the key to efficiency upgrades

Words by Charlie Mowbray, Senior Product Manager, Ideal Heating - Commercial

Heat networks are becoming a vital part of the UK's low-carbon heating strategy. By distributing thermal energy from a central plant to multiple buildings, they offer an efficient, scalable alternative to individual gas boilers or heat pumps. When operating optimally, they reduce emissions, enhance resilience and lower energy costs. However, many systems installed over a decade ago are now underperforming due to aging infrastructure and inefficiencies that were not anticipated at the time of design.

To support the upgrade of these underperforming systems, the UK government launched the Heat Network Efficiency Scheme (HNES). With £32 million available through 2025, HNES provides grant funding to public, private, and third-sector organisations for refurbishments. While most attention tends to focus on modernising energy centres, the performance of Heat Interface Units (HIUs) must also be scrutinised, as they are crucial to how heat is delivered and used at the point of use.

In many cases, poor network performance is not solely down to outdated boilers or plant equipment. A significant portion of the inefficiency arises from older HIUs that were installed before any formal test regime was in place. Without performance standards like the BESA HIU Test Regime, many of these early units were installed without clear expectations around their operational effectiveness.

These legacy HIUs often struggle to manage temperature control, offer limited adjustability, and are difficult to maintain. In addition, some manufacturers are no longer in business, meaning support and spares are either unavailable or not cost-effective. The consequence is high return temperatures, which reduce the efficiency of the entire system. Even when the core plant is upgraded, these return temperatures can undermine overall performance.

One increasingly popular approach is the replacement of HIUs on a distressed basis – replacing individual units as they fail, rather than undertaking a full-scale retrofit. This can be an efficient use of resources if new HIUs are compatible with the network's design parameters, including flow and return temperatures and differential pressure.

Modern HIUs are engineered to control return temperatures more effectively, which has a direct impact on system efficiency. They also provide better user control, improved hot water responsiveness, and

are often designed for easier installation and ongoing maintenance. While laboratory testing can highlight small performance differences between units, in real-world applications, ease of installation, commissioning and serviceability can be just as critical as technical specifications. Poor commissioning or inaccessible components can negate the benefits of even the most technically capable equipment. Therefore, decisions around HIU selection should consider not only energy performance but also operational usability and long-term support from the manufacturer.

The upfront cost of replacing HIUs – particularly across large estates – can be significant. But many network operators are finding that the long-term benefits justify the investment. Poor-performing HIUs can cause excessive energy use and service callouts. If replacing these units leads to measurable efficiency improvements, the return on investment can often be realised in as little as 18 to 24 months.

Once this initial payback period is passed, the savings continue throughout the lifespan of the equipment, which typically ranges from 15 to 25 years. With funding support from HNES, organisations may be able to reduce the capital burden and justify upgrades based on data-driven projections. Housing associations, Energy service companies (ESCOs), and social landlords, in particular, are well positioned to benefit – especially where poor efficiency directly impacts operating costs and tenant comfort.

Refurbishing heat networks isn't just about fixing short-term problems. It's about futureproofing infrastructure for a low-carbon future. While new heat networks will undoubtedly play a role in decarbonisation, there is a vast stock of existing systems that must be brought up to modern standards if the UK is to meet its emissions targets.

HIUs are fundamental to how a heat network performs. An inefficient HIU can undermine even the most advanced energy centre, leading to poor user experience and escalating operational costs. By investing in modern, test-certified, and serviceable units – supported by government funding where available – organisations can unlock substantial performance gains.

Ultimately, HIU upgrades should be seen not as an expense, but as an investment in long-term efficiency and reliability. When done strategically, with the right products and installation approach, they offer a practical path to restoring underperforming heat networks and preparing them for the demands of tomorrow's low-carbon economy. ■

How plumbing and heating can elevate sustainability in new build properties

Words by Andy Lea, Technical Sales Engineer, RWC

Modern homes are required to be more efficient than ever before, so when it comes to the selection of materials and solutions, specifiers need to prioritise efficiency, durability and reliability.

By the end of this government's term, the UK is aiming to deliver a total of 1.5 million new homes. These will represent around 5% of the country's total housing stock by 2029, making them an important marker on the route towards net zero by reflecting how sustainability can be prioritised through the construction of modern homes.

Regulations such as the Future Homes Standard, which is due to come into effect this year, are helping to re-shape the industry and ensure every new home maximises efficiency in every aspect, from construction through to everyday operation. As one of the biggest contributors to household emissions, plumbing and heating has a key role to play in creating better homes for the future.

By introducing energy-efficient plumbing and heating systems from the initial stages of a home's design and construction and carefully selecting product solutions, specifiers can boost the longevity of installations, help drive progress towards the government's net zero targets, and even cut costs for homeowners.

Plumbing and heating is an integral part of housing and collectively accounts for around a fifth of the UK's total greenhouse gas emissions, so it is easy to see the positive effect that evolution in product specification can have. The Home Builders Federation suggests that 85% of new build properties achieving A or B EPC ratings are emitting 61% less carbon per year and making energy bills up to 55% cheaper than the average older home.

In recent years, we have seen heat pumps making a significant impact as an alternative to gas systems.

With an energy efficiency rating that is three to five times higher than natural gas boilers, heat pumps present a greener alternative, helping to cut emissions in homes drastically, as well as operating costs for occupants.

Underfloor heating (UFH) is a second innovation which drives down energy consumption while keeping homes warm, efficiently. Crucially, UFH's operational efficiency puts less pressure on the home's heat source and reduces the amount of energy required to keep homes warm. It is important to remember that lower operating temperatures mean lower running costs for users. Also, with regular maintenance, UFH will outlive many radiator systems.

With looming housing targets, plastic pipes and fittings offer quick and straightforward installation, with no specialist tooling and no need for a hot works permit.

With more reliable individual connections through push-fit technology, non-corrosive materials, and longer pipe runs due to its flexible properties, all of this results in less potential for leaks or corrosion. With more reliable operation comes a longer lifespan, ensuring that products do not require replacement as frequently.

Solutions, including plastic manifolds, also make it possible to centralise and distribute water feeds to maximise system efficiency. By establishing a centralised pipework junction, the system can optimise consumption and further minimise the potential for leaks.

Unlike copper, plastic will not corrode or oxidise, which guarantees long-term performance and ensures the system is less likely to be affected by factors such as the type of water the system is receiving, the quality of installation, or the frequency of use. Installers will also prefer to choose plastic for its flexibility, which makes cabling through joists and partitions much simpler.

It is also less susceptible to pitting and presents a more economical choice than copper and stainless steel. Five-layer barrier systems insulate the water so that expansion and contraction – due to natural temperature changes throughout the day – will only affect any metal fittings attached to the pipe, not the pipe itself. This reduces any potential risk of air ingress into the system, whilst reducing the noise that the system makes too.

Aside from the specifics of plumbing materials and heating systems, which form the foundation of sustainable plumbing and heating, specifiers should also consider the potential of water control valves. By controlling the flow of water throughout a property, valves can directly impact the efficient operation of plumbing and heating systems.

Pressure Reducing Valves (PRVs) help to optimise system performance, safety, and efficiency. PRVs manage pressure, giving the installers the option of managing the flow of water to appliances across the home. PRVs can also help to reduce consumption, supplying only what is required for the efficient operation of appliances and fixtures.

Where maintenance is concerned, service valves also enable the swift isolation of water to appliances and fixtures, optimising efficiency and making future maintenance works more straightforward.

By utilising plastic plumbing, underfloor heating and water control valves, you can use plumbing and heating to elevate sustainability in new build properties and futureproof newly built housing stock. ■

With looming housing targets, plastic pipes and fittings offer quick and straightforward installation, with no specialist tooling and no need for a hot works permit.

Unlocking homes, unlocking lives: how Later Living housing can help solve the UK's housing crisis

Words by Alex Naraian PPCIAT FCIAT, Group Head of Technical Churchill Living

In 2022, I made a bold career shift. After years immersed in progressive classical architecture within the super-prime residential sector, I stepped away from consultancy and joined Churchill Living, a leading UK developer of Later Living homes as Group Head of Technical.

It was a move that challenged me professionally and resonated deeply on a personal level. Now, closer to 60 than 50, I find myself more attuned to the realities of ageing. I think more empathetically about Later Living housing, not just as a Chartered Architectural Technologist, but as someone who sees their own future reflected in the spaces we create; spaces that can liberate and empower people to lead fulfilling lives in older age.

Later Living is not a niche; it is a vital, yet often overlooked, part of our housing ecosystem. While the UK grapples with a housing crisis and an aging population, the national conversation remains narrowly focused on first-time buyers and their affordability challenges. Meanwhile, the needs of older adults, particularly those looking to downsize on a fixed income and affordability, are frequently ignored.

In a society that prides itself on inclusivity, ageism is still all too common. Later Living is too often misunderstood, marginalised, and excluded from the mainstream housing narrative. It's time for that to change.

But this key demographic of last-time movers holds the potential to unlock the entire property chain and transform lives.

Later Living is not just about accommodation. It is about dignity, independence, and wellbeing. It is about

creating communities and a sense of place. It is an opportunity to reimagine aging not as a period of decline, but as a new chapter full of possibility.

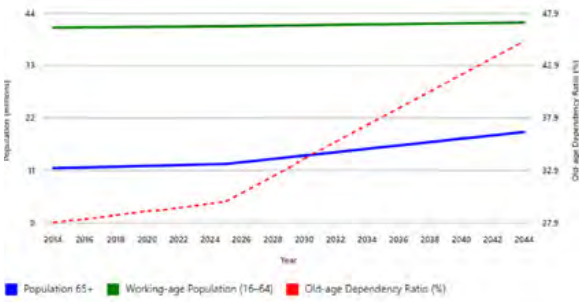
This sector offers a powerful, underutilised solution: one that can revitalise communities, ease pressure on the NHS, release under-occupied homes, and help us all live longer, healthier, more connected lives as we age.

The demographic shift: a design challenge of national significance

By 2044, the UK's population aged 65 and over is projected to double, marking a profound demographic transformation. This shift carries significant implications for social care, healthcare, and housing, and presents a critical opportunity for innovation.

Currently, the housing market is disproportionately focused on younger buyers, leaving a growing gap in the availability of accessible, age-appropriate living environments. This shortage is not just a market inefficiency, it's a national challenge that demands urgent attention.

Architectural Technologists are uniquely positioned to lead the way in designing inclusive, future-ready housing solutions. By anticipating demographic needs and embedding accessibility into the fabric of our built environment, we can shape a more resilient and equitable future.



Forecast UK growth in its over 65 population between 2014 and 2044

Unlocking the potential of sustainable Later Living communities

Developments like Clinton Lodge in Lymington showcase how thoughtful design can seamlessly blend environmental responsibility with vibrant community living. These pioneering schemes prove that later living housing can foster both ecological sustainability and meaningful social connections.

During recent visits, experts from the Future Homes Hub and the Housebuilder's Federation praised Clinton Lodge for its innovative approach to green building practices and resident engagement, reinforcing its role as a model for future developments.

The formation of a Later Living Liaison Group, in partnership with organisations like the Future Homes Hub, signals a growing recognition of the sector's importance in the sustainability conversation.

Purpose-built independent Later Living accommodation has a far-reaching impact: A single 45-unit development can catalyse up to sixty additional house moves, effectively freeing up family homes and supporting first-time buyer entry into the market. These developments also reduce strain on public health services by fostering autonomy, reducing isolation, and lowering the risk of emergency admissions.

From a technical perspective, our schemes demand precise integration of accessibility, energy efficiency, and communal functionality, each contributing to social resilience and environmental sustainability.

Barriers to uptake: unpacking planning and perception

Despite clear benefits, progress in this sector is plagued by multiple challenges, of which some of the major ones are as follows:

- **Planning ambivalence/ambiguity** There is a notable absence of proactive planning policy for Later Living housing at both national and local levels. This is compounded by a failure to recognise the social and economic benefits such housing brings to communities. Further confusion around use class designations (C2 vs C3) contributes to unnecessary delays and inconsistent decision-making.

- **Build economics** Higher build costs for accessibility features and communal spaces can deter investment under conventional development metrics.

- **Cultural resistance** A widespread reluctance to downsize, releasing under occupied properties onto the market, coupled with limited awareness of available housing options, curtails demand.

- **Regulatory constraints** Outdated guidelines often fail to accommodate the evolving needs of independent Later Living design.

Future Homes Hub's Visit to Clinton Lodge, from left to right Edward Lockhart-Mummery (Chief Executive, FHH), Alex Naraian PPCIAT FCIAT (Group Head of Technical, Churchill Living), Richard Lankshear (Director, FHH).

These barriers point to a pressing need for clearer policy, targeted incentives, and improved consumer education. These are areas where Architectural Technology professionals can influence outcomes through advocacy and informed design.

One of the greatest obstacles to effective development isn't just red tape, however: it is fragmented thinking. Increasingly, Local Planning Authorities impose technical standards on energy, accessibility, and space that exceed national Building Regulations. Though well-meaning, this inconsistent approach breeds confusion, inflates costs, and disrupts the predictability developers depend on.

Planning should shape places, not override technical codes. When local policies substitute for regulation, they blur responsibilities and weaken accountability.

This issue reflects a broader cultural problem. The Hackitt Report, following the Grenfell tragedy, revealed how siloed practices across the built environment led to poor communication and safety risks. It called for a more integrated, transparent system with clearly defined roles.

To bridge this gap, planning must become a formal stakeholder in shaping Building Regulations. This would curb the trend of local policies overreaching and restore clarity.

For sectors like Later Living, where innovation and quality are vital, regulatory consistency isn't optional, it is essential. It enables confident, scalable design and ensures homes meet real needs. Reform here could unlock national cohesion, empower innovation, and give professionals the certainty they need to deliver at scale.

A vision for the future

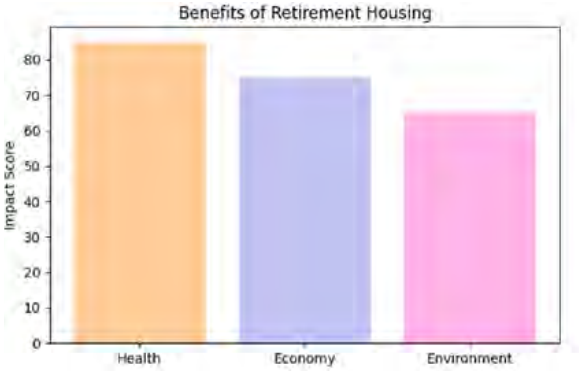
The Older People's Housing Taskforce has set out a bold and necessary vision: to create age-friendly, inclusive, and sustainable communities that promote independence, wellbeing, and intergenerational connection.

To unlock the full potential of this sector while ensuring affordability for a predominantly fixed-income population, targeted policy reform is essential. This includes planning reform, stamp duty relief for downsizers, exemptions from Section 106 and Community Infrastructure Levy (CIL) obligations, a planning presumption in favour of later living developments, and clear targets for local plan inclusion. Additionally, updated guidance in the Approved Documents should support Independent Later Living design standards and not confuse these with the more onerous (and expensive) requirements of care homes.

Later Living communities are not simply dwellings. They are environments engineered to support quality of life.

What is needed now is decisive government leadership. Legislative action must be prioritised to enable the sector to contribute meaningfully to the national target of 1.5 million new homes, while also helping to reduce long-term pressure on public services.

Later Living communities are not simply dwellings. They are environments engineered to support quality of life. Residents frequently report enhanced wellbeing, reduced loneliness, and improved social engagement. These benefits are in large part thanks to due to thoughtful architectural provision. Well-designed schemes integrate spatial generosity, intuitive layouts, natural light, acoustics, biophilic elements, and communal connectivity with each technical choice reinforcing emotional, cognitive, and physical wellness. This design ethos challenges traditional perceptions of aging, positioning the later stages of life as vibrant, autonomous, and socially enriched.



The UK housing market's historic fixation on property value and capital appreciation must give way to a broader understanding of lifestyle value, particularly in later life. Architectural Technologists are ideally placed to help drive this change, by designing spaces that facilitate dignity, ease, and personal fulfilment.

From left to right — Alex Naraian (Group Head of Technical, Churchill Living), Rhodri Williams MCIOB (Technical & Sustainability Director, Home Builders Federation).

Wellbeing, connection, and utility must replace square footage and asset growth as primary metrics for success in later living design. Doing so allows the sector to redefine 'home' in a way that honours both individual aspirations and societal benefit.

To meaningfully address the UK's housing crisis, we must broaden our perspective. Later Living housing holds immense latent power to ease pressure across the housing spectrum, reduce costs in health and social care, and improve lives at every stage.

As Architectural Technologists, we have both the skillsets and the responsibility to shape inclusive environments that serve not only today's older population but our own futures as well. Unlocking homes unlocks lives. It is time to design for longevity and avert a crisis, with intelligence, empathy, and purpose. ■

ATJ Policy & External Affairs Update Winter 2025

Words by Jack Fleming, Policy and Public Affairs Executive

CIAT at Political Party Conferences

The latter part of the year is a special time in the UK's political calendar. Throughout September and October, the major UK political parties hold their annual conferences in conference centres in towns and cities across the UK.

The exact purpose of these political jamborees varies from party to party, with some serving primarily to generate funds for the party, and others define policy and strategy. But what they have in common is that they bring together MPs and Peers, political staffers and activists, and corporate lobbyists and pressure groups to hear from ministers and party officials, network, and discuss the big issues facing the country.

And this year, for the first time in a long time (perhaps ever), CIAT was a part of the action, getting a feel for future policy direction, building connections and promoting the Institute's new report *Beyond the Warm Homes Plan: A national retrofit strategy for people and planet*.

Lib Dem Conference – Putting quality at the heart of construction

The Liberal Democrats are often seen as the "warmup act" for conference season. Bournemouth in late September is often still sunny, and the conference vibe is generally relaxed and collegiate. This year was no exception, with the party still riding high after its strong performance at the 2024 general election.

One thing the Lib Dems do well is policy discussion, with their conference being the key vehicle for setting party policy, drawing on member-led working groups. This conference reflected that strength.

Throughout the event, Lib Dem MPs, Councillors and sector leaders emphasised the importance of quality in the built environment. Of ensuring homes are warm in winter but also cool in summer. Of ensuring that new homes are accompanied by the essential infrastructure to create liveable places.

Achieving these goals requires design expertise, so it was great to be able to fly the flag for CIAT, making the case for Architectural Technology as the discipline which can deliver the resilient, healthy homes and communities which people want right across the country.

Labour Conference – BUILD BABY BUILD

If the Lib Dems offer the season's warmup act, Labour conference is very much the main event. Lobbyists and pressure groups all compete to secure five minutes with even the most junior backbench MP. And with any number of crises besetting Number 10, the leadership needed the conference to be a success.

From a built environment perspective, the conference could hardly have gone smoother. Following the 2024 general election, there's a large cohort of Labour MPs for whom housing is a key issue, and this was reflected in the focus on housing and the built environment at conference, with more housing and planning fringes than you can shake a stick at. Where discussions at Lib Dem conference focused more on what quality looks like, Labour were (as you would hope from the party of government), more concerned with delivery (albeit with a continuing focus on building safety). Over just two days at the conference, CIAT heard a dozen different MPs, including four different Ministers, speaking about the steps they are taking to tackle the housing crisis.

One standout from the conference was the "Rally for the Builders" organised by the Labour YIMBY group, at which the new Housing Secretary, Steve Reed MP, donned a red baseball cap bearing the slogan 'BUILD BABY BUILD', and recommitted to delivering 1.5 million new homes over the parliament.

Indeed, Chris Curtis MP, who represents Milton Keynes North, went so far as to describe it as a "built environment conference with some politics on the side".

Of course, it will take time to see if the many steps Labour insiders were talking up at conference will actually deliver more homes, but it is certainly clear that they see this as make or break for both their electoral prospects and the country.

Conservatives and Reform – targeting resources

This year, CIAT took the decision not to attend Reform or Conservative conferences. It's important to stress that this does not reflect any partisan preferences, but rather a conscious decision to target CIAT's resources, both human and financial. The Conservative conference often delivers lower levels of access to parliamentarians, and tends to focus primarily on party fundraising, while Reform currently lacks significant parliamentary presence. Additionally, both parties are in phases where policy development is not a primary focus. This will change as the UK approaches the next general election, and it is likely that CIAT may attend other party conferences in coming years. In the meantime, CIAT continues to engage with parliamentarians from across the political spectrum.

Final thoughts – looking ahead

Some conference seasons act as the catalyst for major political upheavals. Others pass less eventfully but give more space for MPs to take a step back and consider what needs to change to meet the challenges of the day. Despite recent pressures on Kier Starmer's leadership operation, this season appears to be the latter.

What remains to be seen is whether this time for reflection will simply leave the country looking at more of the same, or whether new ideas and new energy can deliver new solutions. Either way, CIAT will continue to advocate for innovation, quality and diversity in the built environment. ■

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:

0034814	Peter Goldthorpe	Northern, 01
019901	Christopher Atkinson	Yorkshire, 02
038554	Thomas Powell	Yorkshire, 02
036215	Nathan West	Yorkshire, 02
037803	Gavin Batty	North West, 03
033885	James Eachus	North West, 03
038546	Tyrone Jackson	North West, 03
031393	David Innes	East Midlands, 04
035696	Liam Riggall	East Midlands, 04
038842	Marwan Satti	East Midlands, 04
032224	Theophilus Shittu	East Midlands, 04
037084	Michael Walkling	East Midlands, 04
036350	Jordan Allen	West Midlands, 05
031593	Paul Cadogan	West Midlands, 05
024150	Daniel Rawlings	West Midlands, 05
033623	Lily Smith	West Midlands, 05
021352	Craig Sutton	West Midlands, 05
025086	Raymond Wynne	West Midlands, 05
033701	Joseph Clarke	Wessex, 06
029257	James Cooper	Wessex, 06
034319	Peter Fenton	Wessex, 06
034254	Jordan Cribb	East Anglia, 07
036646	Harry Parker	East Anglia, 07
037868	Charles Plunkett	East Anglia, 07
031098	Thomas Felix	Central, 08
039478	Stephen Mitchamson	Central, 08
029430	Luke Thomas	Central, 08
039365	Mohamed Albassel	Greater London, 09
029449	Jessica Smits	Channel Islands, 11
039172	Imogen Vermeulen	Channel Islands, 11
030025	Ian Jenkin	Western, 12
038820	Alexander Spooner	Western, 12
035238	Hannah Peebles	Scotland West, 13
032347	Isabel Stobie	Scotland East, 14
027997	Daniel Bees	Wales, 16
027736	Dean Summers	Wales, 16
037648	Stuart Bell	Republic of Ireland, C2
021995	Brian Curtin	Republic of Ireland, C2
027425	Gerard Nicholson	Republic of Ireland, C2
039549	Tracey Sludds	Republic of Ireland, C2
038731	Alex Tyrrell	Republic of Ireland, C2
037450	Adam Drawl	Middle East & Africa, C7
030526	Harvey Hale	Middle East & Africa, C7
031053	Aaron McAlernon	Middle East & Africa, C7

Welcome back

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

032510	Rachel Keir	Yorkshire, 02
021945	Nicholas Day	Western, 12
019171	Steven Gray	Scotland East, 14
032737	Catriona Slane	Northern Ireland, 15
027773	Robin Stubbs	Republic of Ireland, C2

Fellow Members

We would like to congratulate the following Members who have successfully completed their application and are now a Fellow Member, FCIAT:

016215	Eddie Weir	Northern Ireland, 15
026120	William Holland	Northern Ireland, 15

CIAT-Accredited Conservationist

We would like to congratulate the following Member who have successfully been reaccredited for their CIAT-Accredited Conservationist qualification:

032272	Alexandros Michalitsianos	East Anglia, 07

Registered Principal Designer

We would like to congratulate the following Members who successfully attained their Registered Principal Designer non-HRBs qualification:

022371	Luke Flint	East Midlands, 04
037008	Niina Grinsted	South East, 10

We would like to congratulate the following Member who successfully attained their Registered Principal Designer for HRB and non-HRBs qualification:

019747	Hassan Ahmed	North West, 03

In memoriam

We regret to announce the death of the following members and affiliates:

002031	Jack Curl	East Anglia, 07
019089	Rex Adams	South East, 10

Conduct Hearings | Disciplinary Sanctions

Member 021377, Mkhululi Blose:

Conduct Hearing
Mkhululi Blose was found in breach of A1b) and A8c) from the Code of Conduct 1 January 2022:

Clause A1: Professional Conduct
The members shall at all times:
A1b) act faithfully and honourably in their professional responsibilities.

Clause A8: Breaches of the Code
The members shall:

A8c) when subject to an investigation by the Institute of an alleged breach of the Code, use their best endeavours to assist in that investigation at their own cost.

Disciplinary action
In accordance with the Conduct & Disciplinary Procedures Item 20b), Schedule of Disciplinary Sanctions, Mkhululi Blose has been **Reprimanded** from the Institute in respect of the breach of Clause A1b).

In accordance with the Conduct & Disciplinary Procedures Item 20b), Schedule of Disciplinary Sanctions, Mkhululi Blose has been **Reprimanded** from the Institute in respect of the breach of Clause A8c).

Exclusive Insurance Scheme For Chartered Architectural Technologists

CIAT INSURANCE SERVICES

MFL have been providing bespoke insurance solutions for Members of CIAT for over 25 years.

Key Benefits:

- Competitive premiums
- Bespoke cover tailored to you
- In- house claims service
- Free contract vetting service
- Free legal helpline
- Run off cover

Who are CIAT Insurance Services?

MFL Insurance Group Ltd have worked with the Chartered Institute of Architectural Technologists for over 25 years to provide the Members with bespoke insurance solutions specific to the work they carry out.

What types of policies and services can you assist with?

We offer a full range of insurance products covering all aspects of the Members business, including a bespoke Professional Indemnity Insurance scheme as an exclusive membership benefit to Chartered Architectural Technologists.

What differentiates CIAT Insurance Services from other insurance brokers or insurers?

Whilst it may be easy to find an "off-the-shelf" insurance policy, these may not accommodate the risks and challenges faced by CIAT Members and could leave gaps in the cover provided.

As a trusted partner of CIAT, we understand your profession and assist CIAT Members on a daily basis. This enables us to maintain a comprehensive understanding of the profession and its unique requirements and provides us with a wider view of the risks, challenges, trends and new developments that may impact you and your business.

Our CIAT facility policies have been developed exclusively for CIAT Members with tailored coverage to cover their needs at competitive premiums.

As there are also a number of pitfalls that could impact on the CIAT Members, new and old, which could prove costly in the event of a claim, it is also important you receive suitable advice. Our experienced insurance advisors are on hand to assist you in ensuring that the most appropriate cover is in place.

What other benefits and services do you offer to Members of CIAT?

Beyond the experienced insurance advisers, we also have an experienced in-house claims team, many of whom have a legal background, who are on hand to support and advise you throughout the claims process. We regularly receive referrals from clients who have had a claim and have appreciated the high standard of service provided by our claims team.

We also offer a free contract vetting service where we can review your contracts in relation to whether they impose obligations which may not be covered by your professional indemnity insurance.

Another benefit provide to CIAT Members is a free legal helpline provided by a high-profile law firm for one-off queries relating to the conduct of your business.

CONTACT US

www.ciat-insurance.co.uk **0161 233 4497**

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