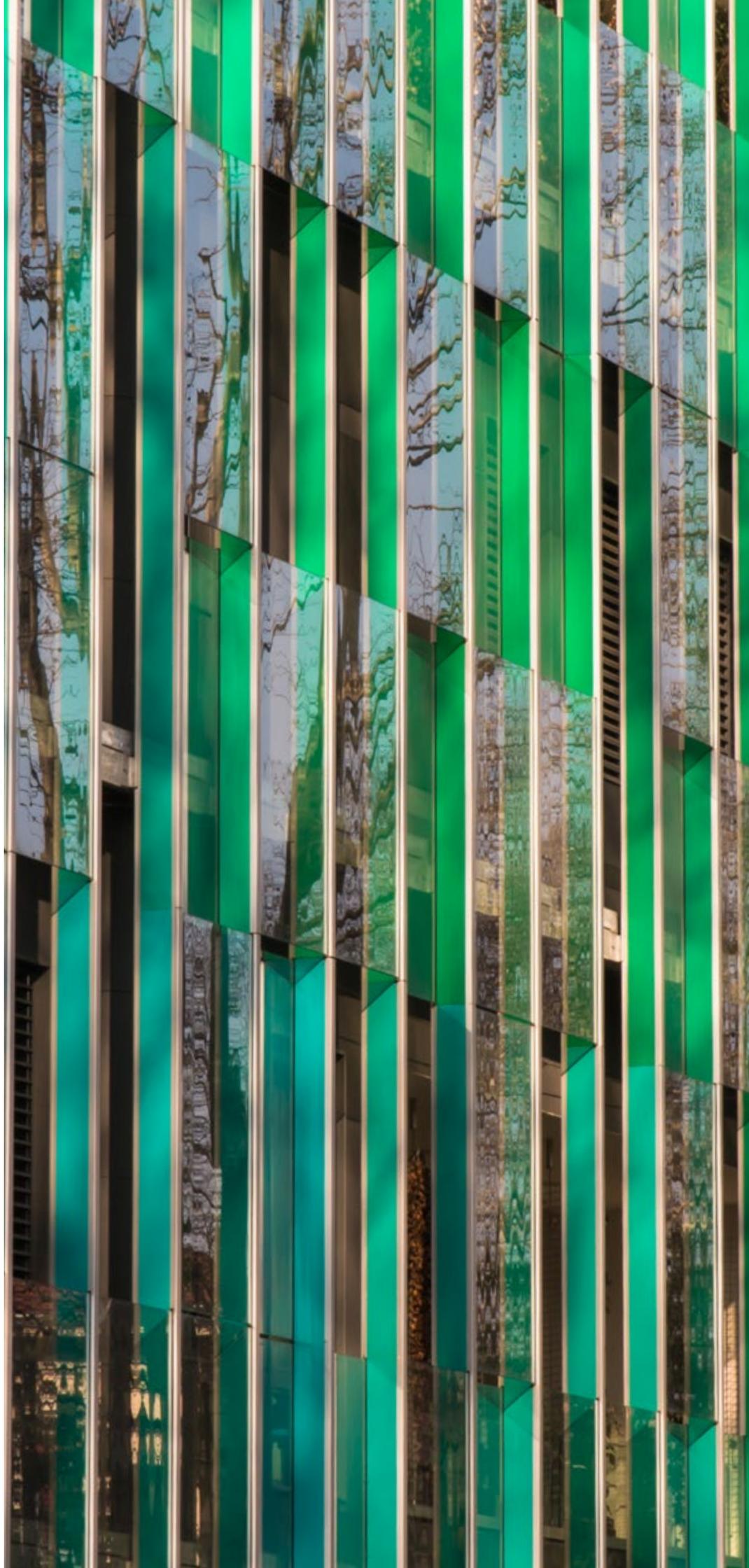




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- 04 Editor's welcome
- 05 Reduce the risk of COVID transmission: ventilate your buildings
- 06 Is turning office and retail to residential housing the future of the high street?
- 07 Villa Maria: Strängnäs, Sweden
- 11 Acoustic insulation offers non-intrusive barrier to noise disturbance in homes
- 12 Meeting the Future Homes Standard: Eliminating thermal bridging will be critical
- 14 Reaching new heights in the design of fire-safe tall buildings
- 16 Standardising structural elements: A platform for construction innovation
- 18 All eyes up to plastic rainwater systems
- 20 An algorithm in architecture
- 22 Brewer Smith Brewer Group London Office
- 23 Flexbury Church
- 24 Corstorphine & Wright
- 26 How BIM can cause needless early stage MEP design concerns
- 28 There's no BIM like home Part 11
- 31 European BIM Summit 2020
- 32 Architectural Technology research at Sheffield Hallam University
- 34 Changes to the IR35 rules explained
- 35 Just when business owners thought it could not get any worse...
- 36 Construction Client Buddy Scheme
- 37 Archidict

FEATURES

04-37



- 38 Honorary Officer elections 2021 nominees standing for election
- 42 CIAT Chartered Practices – launch of services to promote your CIAT Chartered Practice
- 44 Fellow Membership, FCIAT – launching 22 March 2021
- 46 CIAT-Accredited Conservationists are now eligible to undertake work as a Quinquennial Inspector
- 48 CPD...and how you can do it
- 50 AT CPD Register Directory

MEMBERSHIP

38-51





The song 'Spring, Spring, Spring' comes to mind at this time of year from the genius pen of Johnny Mercer for the musical *Seven Brides for Seven Brothers*. The main character, played by Howard Keel, was none other than Adam! Whilst I digress, it is good to often wallow in nostalgia and reflect on what has happened within our heritage. Whilst the film made in 1954 was eleven years before the Institute was founded, the 'draughtsman' or 'technician' were then working away behind the scenes and detailing works of art.

Fast forward almost 70 years and we now have the Fellow class of Membership which is the aspirational achievement for many Chartered Architectural Technologists. Fellow, FCIAT, complements the 'Chartered Architectural Technologist' professional qualification and is an acknowledgement of a Chartered Member's significant contribution to and/or excellence in Architectural Technology. To learn more about this and to consider applying then please turn to page 44.

Talking of progress, how many of you have often considered getting in touch about the Journal and its content? I am very pleased to announce that I am currently forming an Editorial Advisory Panel which will assist in steering, monitoring and reviewing content. If you are interested in becoming involved and would like to be considered to sit on the Panel then please do get in touch with me (editor@ciat.global) with a brief paragraph on why you feel you would be suitable to be a part of it. It will be a remote Panel with online meetings when required and all in a voluntary capacity. I think this will be an exciting addition for the Journal and continue to guide its development as the core information portal about Architectural Technology.

Whilst now is a difficult period for many things, if you are looking for employment or seeking a new position, then please do take a look at AT|jobs. This is the job board for all Architectural Technology related positions and can be found here: architecturaltechnology.com/jobs.html. The positions also feature regularly in *AT Weekly*.

Lockdown V.3 has been, and continues to be, a challenge and how we utilise our time effectively.

Something to consider as a distraction or a project is to enter the AT Awards which opened on 1 February. The staple categories remain with the addition of the Emerging Talent in the Technology of Architecture. This new annual Award is for excellence in the technology of architecture for those in the early stages of their career in Architectural Technology. You can find all the information you need at: architecturaltechnology.com/awards/atawards.html.

As I draw to a close for yet another issue, I'd like to draw your attention to our new practice services which are available for those on the Register of CIAT Chartered Practices. Exclusive items to assist promoting your practice visually whether it is a site signboard or a CIAT Chartered Practice certificate. Do familiarise yourself on page 42.

In my usual sign off, please do get in touch as I would love to hear from you regarding anything in this edition or if you have any ideas for future articles – this is your Journal and I welcome all ideas and feedback – email me at editor@ciat.global. Do not forget about the Editorial Advisory Panel also.

I hope you are able to enjoy a peaceful Easter until we meet again for summer.

Adam Endacott
Editor

AT Awards 2021 are now open

The AT Awards opened for submissions on 1 February 2021.
See back page for details.



COVID-19

Reduce the risk of COVID transmission: ventilate your buildings

Words by Milieu Engineering Consultancy

Recycle, refit, refurb, reuse and upcycle – often these are words seen around trendy topics like interiors, furniture and sustainability. Indeed, this has been a growing theme globally – reducing waste, making good of what we have got, and applying some reimagination and ingenuity.



Social distancing and mask wearing can only go so far in preventing transmission of COVID-19 indoors. They are not barriers to contaminated aerosols, which can build up in poorly ventilated buildings. Specialist building service engineers, Milieu, have brought together the latest research on COVID-19 transmission and share their expertise on how to use ventilation to reduce the risk of COVID transmission indoors.

It is generally agreed by the scientific and medical community that the main route of coronavirus transmission is by respiratory droplets (larger droplets and particles which are exhaled when people cough, sneeze, sing, talk or breathe), which are passed on through close contact with an infected individual. Transmission by these larger respiratory droplets is usually within six feet, hence the two metre social distancing rule.

More recently, it was discovered that COVID-19 can also be spread through exposure to virus-containing respiratory droplets that remain suspended in the air over longer distances. These smaller droplets are known as aerosols.

Outdoors, fresh air will dilute and disperse any virally charged particles; it is indoors where this mode of transmission puts us all at higher risk of contracting COVID-19. Therefore, unless clever ventilation systems are incorporated into buildings, transmission risk is even higher.

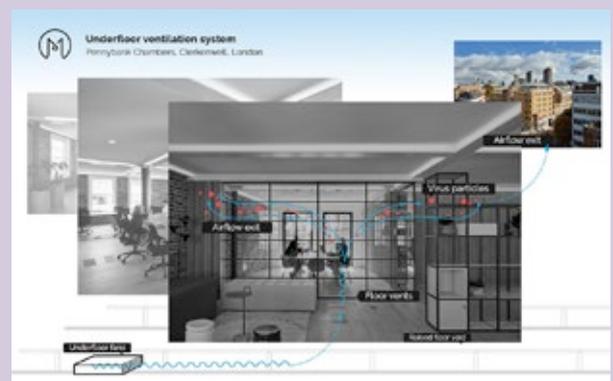
Aerosols tend to follow airflow. Opening windows and doors allows fresh air to enter indoor spaces, increases airflow and reduces the concentration of virally charged particles. In rooms where this is not possible, alternate methods of ventilation need to be used, such as air conditioning (AC). However, AC systems that recycle air, without an adequate supply of fresh air, could be responsible for recirculating and spreading airborne viral particles.

In traditional AC systems, where units are placed on the wall, airflow is horizontal, potentially delivering infectious respiratory droplets into the pathways of others.

In an underfloor ventilation system Milieu have recently installed at Pennybank, Clerkenwell, the airflow is vertical, streaming the air up past occupants to be expelled through cleverly concealed vents. This not only reduces the concentration of any virally charged particles, but it reduces mixing of air between people sharing a working space.

Milieu have recently developed an innovative *Ventilation Effectiveness Toolkit* (milieuconsult.com/ventilation-effectiveness-toolkit/) which assesses ventilation using computational modelling to analyse volume, occupancy, vocal activity and existing ventilation rates (natural and mechanical) of a building.

As the roll out of the coronavirus vaccine continues at a good rate, we can take steps to reduce its transmission and reduce the infection rate of any future strains of SARs or other viruses, such as flu and the common cold, all of which impact our health and productivity. An effective way of doing this is by improving the ventilation of our buildings. ■



COVID-19

Is turning office and retail to residential housing the future of the high street?

Words by RFM Group

rfmGROUP



RFM Group think that turning Office and Retail units into Residential Housing could rescue the high street and the UK economy.

The turmoil of the high street has been well documented, with the health crisis further heightening the challenges faced by retailers. Wary consumers are shifting online and office workers are continuing to work from home, leaving once bustling city centres virtual ghost towns.

Rising rents, falling profits, dwindling footfall and COVID-19 restrictions are combining to force difficult choices in the industry, with store closures and repurposing inevitable. Experience from RFM Group echoes the research of international real estate advisor Savills, that reveals that up to three quarters of landlords are undertaking or considering redevelopment of retail assets. Whilst the majority will look to continue in the retail sector, it is likely that no option will be off the table.

In a similar context, the office property market is also starting to see a decline as a result of the interruption to demand from tenants and the sharp fall in investment interest. Employers are thinking about how much central city office space they want in the future, and many are delaying commitment to new and bigger space whilst they see how recovery pans out.

It all leads to the same problem – empty space with no purpose. In conversation with some of the North

of England's largest commercial tenants, RFM Group have been advising on the best way forward for them to optimise their leases. Amongst the thinking is converting from retail to housing, and specifically social housing. It is a well-argued concept from town planners over the years who have long fought for a shift towards more community-focused city centres, combining places of work with retail, leisure, public service and residential buildings. Perhaps now, with change, comes opportunity.

Relaxed planning rules that came into force in 2013, in which permitted development rights have been given for office to residential conversion, means the concept is already being embraced to help tackle the UK's housing shortage. For those requiring social housing, it is not before time. Housing charity Shelter has reported that nearly 4 in 10 (38%) people who approached their local authority for help since the Homelessness Reduction Act (HRA) was introduced either remained homeless or became homeless because councils do not have enough genuinely affordable housing available.

The Government has recently announced a new £12bn affordable homes fund with councils, housing associations and private providers all able to submit a bid for a portion of the funds that were originally announced as part of the 2020 budget. It could be exactly what the struggling high street needs if it can get the blend of social and private housing right.

Government data shows that the number of retail properties approved for conversion to residential housing increased by just 2.8% to 404 last year, up from 393 the previous year. Recently announced changes to the UK's planning system proposed by the Government will be an important step in increasing the speed at which empty retail property can be converted into much-needed housing.

Developers will also be able to demolish and rebuild vacant residential and commercial buildings without planning permission, provided they are rebuilt as homes. An area of real potential is in the upper floors of commercial buildings. Whilst many are empty and unsightly, with a little vision and investment they could easily be converted into affordable homes, student lets or even hotels. With big windows and great locations, they hold appeal to a huge demographic.

Whether social or private housing, the repurposing of empty space will support more than just the creation of houses; it has the potential to spark a sense of community and the bringing together of people. As our behaviours change as a result of the global health pandemic, this feels like something that should be wholeheartedly encouraged. ■



Villa Maria: Strängnäs, Sweden

Words by Christopher Towers MCIAT, CRT Arkitektur AB

Självbygge (Self-build)

The decision to commit to a self-build project was encouraged by my postgraduate studies in Architecture: Advanced Environmental and Energy Studies at the Centre for Alternative Technology in Wales back in 2013. The programme content promoted innovation and experimentation with building materials and self-build was one way to put theory into practice.

My objective was to immerse myself in the Swedish building process by physically building something with the help of my father-in-law and a friend, only using external consultants/subcontractors where deemed necessary.

The initial plan was to purchase a small plot and build a relatively low risk speculative summer house designed to less stringent building standards (in comparison to permanent domestic dwellings). However, our ambitions turned to a permanent family home when we found a hillside plot with lake view connected to municipal water and sewerage for under the equivalent of £50k!





Byggmaterial (Building materials)

In addition to performance and environmental attributes, building materials were considered in terms of practicality and whether we could physically carry and install by hand, thus minimising the need for plant hire and subcontractor services that can be very expensive in Sweden.

The self-designated brief for the house was to build a relatively low maintenance house with a focus on hygroscopic and thermally responsive materials, orientated to maximise views and utilise passive heat gain.

Sprängning! (Blasting)

The local geology was glacial moraine and the geotechnical survey penetration tests refused at depths between 0.4m–1.6m but it was inconclusive as to whether this was granite bedrock or just large boulders. As a split-level house was a stipulation of the local councils 'detail plan', it seemed a sensible option to minimise the excavation requirements by making the ground floor approximately half of the upper floor area, floating the remaining floor area on concrete pillars.

Once digging commenced the granite bedrock was reached before the excavation datum level, thus dynamite was required to blast the granite to the required depth. Investing in a laser based total station enabled me to single-handedly carry out all necessary checks (setting out, depth, verticality etc.), it proved, without doubt, the most helpful tool throughout the project.

The blasting process in Sweden requires a licensed contractor with a track-based drilling rig to bore multiple holes to the required depth in which small charges are dropped before being covered with large rubber blast mats. The police are notified and neighbouring properties are to be surveyed for any structural damage (if they fall within a certain distance of the blasting site) – a nerve-racking yet exciting stage in the building process!

Betongplatta (Raft foundation)

A very common foundation solution in Sweden is the insulated concrete raft of which there are varying alternative perimeter details. The concept is to create a fully insulated slab using a combination of rigid EPS L shaped perimeter sections, combined with multiple layers of rigid EPS boards of varying compressive strength. The secondary and tertiary insulation boards are cut and positioned to form a mould to house the reinforced steel cages to the perimeter and internal load bearing areas. The base insulation board is of a higher compressive strength to those above as these support the reinforced ground beams. The underfloor heating cable is then positioned above the insulation, followed by the steel mesh.

Betong Pelare (Concrete pillars)

The upper floor is supported on glulam beams that rest half on the ground floor blockwork and half on steel reinforced concrete pillars, anchored with 25mm reinforcing steel bars, drilled and fixed directly into the granite bedrock and cast in situ. Maintaining the granite outcrop below the house (rather than blasting flat) was a real bonus that proved aesthetically rewarding.

Lättklinker Mursystem (Aerated clay block wall system) The ground floor walls consisted of 600(l) x 350(d) x 197(h) blocks. The blocks comprised of graphite EPS insulation (170mm thickness) sandwiched between two 90mm aerated clay blocks. Blending with graphite is said to increase the insulating properties of the rigid foam by as much as 20%. The blockwork was reinforced with 3m lengths of steel within each course below ground and intermittent courses above. I chose aerated clay for the insulating and hygroscopic qualities as the internal finish would be 50% lime render (unpainted).

The insulated blockwork alone was not to passive house standard and would require additional layers of

internal or external insulation which I was not willing to commit to, as I was striving to keep the build as raw as possible, in an effort to moderate the complexity and costs. However, additional insulation was introduced externally in the form of 100mm interlocking corrugated EPS boards that formed part of the basement drainage system.

Trästomme (Timber frame)

The upper floor was of a timber-based construction, comprised of 18mm vertical interlocking cedar panels, battens, wind membrane, 45mm external horizontal batten, 220mm insulated timber frame, breathable vapour barrier, 45mm horizontal battens, OSB and inner finishing boards.

Isolering (Insulation)

The insulation was a blown cellulose (old newspapers) blended with some additives to enhance fire and rot protection. The cellulose was chosen for its environmental credentials coming from recycled materials and claimed to be compostable at the end of life. The densely packed insulation minimises convective heat loss and creates a certain level of thermal mass, helping to regulate heat within the building. As with the aerated clay blocks, the cellulose also has hygroscopic properties that absorb and release moisture which I thought would help stabilise moisture levels around the timber frame.

Cederträ Fasad (Cedar façade)

Western red cedar (PEFC sourced), was an expensive choice but a choice made with maintenance and workability in mind. In comparison to larch, cedar was more stable and less likely to require maintenance treatment with time. Being inexperienced in terms of my carpentry skills, I felt that choosing a well-behaved timber would be prudent. However, cedar does come with compatibility issues due to its acidic nature, stainless

steel was the obvious choice (where affordable) or coated aluminium which is not without risk of staining, especially on any exposed edges.

The counter batten system supporting the cedar panels functioned to support the panels and prevent 'bellying' of the wind membrane from the cellulose insulation when blown into the wall cavities.

Fönster (Windows)

The house was orientated to synchronise the benefits of passive heat gain and the view over Lake Mälaren. The height of the sliding doors was maximised to 2.6m, creating an airy feel to the lounge/kitchen space. The glazing to the TV room and kitchen provides a measure of transparency through to the large sliding doors out to the terrace. The airing hatches to the large windows provide a level of versatility, namely, back up ventilation in the event of MVHR shut down and a great way to allow sound to penetrate into the house, whether its trees blowing in the wind or your children playing outside.

The window frames are aluminium clad softwood with triple glazing to give a u-value of 1.2. Predicting that solar gain was going to be excessive through the south west orientated windows and doors, I considered the benefits of introducing a brise soleil, but I had reservations with regard to the aesthetics, especially if self-built! I opted for automated vertical external solar shading. The fabric of the external blinds are advertised as reducing solar gain by up to 87% whilst retaining high levels of translucency. The benefit of the solar shading was greatly appreciated after being exposed to the relentless heat wave during the sanding and staining phase of the upper floor! The solar shades also function well as an insect screen and offer a measure of privacy (providing the dominant light source is external).





Tak (Roof)

The initial design of the roof was to be non-ventilated to allow slim line eaves details. The non-ventilated detail required a two-way permeable internal vapour membrane. The two-way membrane would permit moisture ingress into the cellulose insulation in between the I-joists during winter, whilst exposure to summer sun would drive the

vapour back into the internal space and dissipate via the ventilation system. However, there was doubt as to whether tree canopy coverage would hinder sufficient levels of solar heating to the roof, so a more traditional ventilated construction detail was decided upon. I chose an untreated titanium zinc for the covering as it is in keeping with the local standing seam roof details and as with the cedar façade, I wanted natural patination to occur throughout the whole building envelope.

I am very pleased with the final product, but like any construction project there are lessons learnt which feed a desire to build again.



Ljus (Lighting)

An element of the project in which technology changed significantly was with the proliferation of 'smart lighting'. We went from visiting a furniture and light expo, discussing dimmer switches and three stage dimmable bulbs, to installing smart lighting with literally millions of programmable shades which really enhance the internal living environment and the external façade.



Interiors

In terms of interior finishes and details I needed to find an aesthetic that was forgiving of my level of carpentry skills. Plywood and concrete figured significantly, as I experimented with kitchen worktops and wall copings and even dabbled in bespoke furniture!

Lessons learnt

I am very pleased with the final product, but like any construction project there are lessons learnt which feed a desire to build again. This project occupied my time for six years, from locating the plot, designing, planning and building (with two phases of paternity leave interspersed). Originating from a family business in design and build and having some practical experience gave me the self-belief that I could execute the task, but the gravity of the physical work involved was under estimated. Almost every product on site was assessed, questioned and deliberated over by me, which can take its toll on site progress, not to mention adverse weather conditions and being low on subcontractors' priority list, but the depth of knowledge gained and the sense of relief/satisfaction at final completion was undeniable. ■

Project notes

Project: Villa Maria
 Location: Strängnäs, Sweden
 Designed by: Christopher Towers MCIAT (CRT Arkitektur AB)
 Built by: Self-build
 Size (ext): 224m² 4 bedroom domestic house
 Upper floor: 129m²
 Lower floor: 95m²
 Heating: Ground source heat pump (approx. 150m deep borehole)
 Ventilation: MVHR
 Energy consumption: 11 000 kWh/yr (estimate for 2020 incl. heating)
 Average Swedish detached house: 20 000 kWh/yr
 Build time: Phase 1: March 2015–July 2018 (Partial sign off, family moved in)
 Phase 2: August 2018–March 2020 (Completion: lower floor and externals)
 Plot cost: £50,000
 Build cost: TBC

Acoustic insulation offers non-intrusive barrier to noise disturbance in homes

Words by Simon Blackham, Technical Manager, Recticel Insulation

As housing schemes become denser looking to optimise evermore scarce building space, it has led to questions about the quality of life for residents occupying them. Noise pollution is a very modern menace, but it is not only confined to issues relating to air and road traffic.



Disturbances caused by neighbours can affect the overall health and wellbeing of the persons on the receiving end. It can also lead to disputes and ill-feeling and upset the equilibrium among the wider community. Internal noise can also be a disrupter to a harmonious and productive atmosphere, particularly with the UK experiencing a third national lockdown and millions of households being forced to learn and work at home. High-performance acoustic insulation provides an effective barrier to internal and external noise without disturbing the aesthetics of a property's interior design. How does it work and which systems offer the best protection?

There is no doubt that building design, particularly in relation to largescale developments, is increasingly being influenced by the need to minimise a property's footprint. If not insulated sufficiently, individual living space can become intolerable due to unfiltered noise emanating from different rooms of the same house.

Sound affects

Although an invisible menace, persistent exposure to invasive noise can have serious consequences. According to a European Environment Agency (EEA) report, one in five people in Europe are subjected to levels of sound considered harmful to health. It estimates that long-term exposure to noise such as busy traffic, railways and aircraft causes 12,000 premature deaths per year in Europe alone. Mental health and wellbeing are also found to be negatively impacted by 'environmental turbulence',

whilst the Oxford University reported a correlation between increased levels of traffic noise over long periods of time and obesity.

Insulation solution

Having highlighted the real issues noise pollution presents, how can householders protect themselves against its unabating interference? If we want to enjoy our music or TV as loud as we can stand, how is this possible without upsetting the neighbours or other members of the household? Insulation presents a viable and trusted solution to this common domestic conundrum by preventing exterior noise infiltrating a building whilst providing a barrier to sound transmitting between rooms within the property.

Acoustic insulation panels comprising a combination of fibres and recycled polyurethane foam are proven to be particularly effective in reducing sound transmission between walls, up to 87% in some cases, a truly stunning performance which does much to increase the comfort and wellbeing of occupants closeted from incessant, everyday noise pollution.

Recticel has developed a range of products which address the issue of acoustics. Its Intasoft® panels, for example, not only dampen excessive sound transmission, they offer a cleaner, easy-to-apply, reliable alternative to more traditional acoustic solutions such as mineral wool; material that needs to be applied with significantly greater density in order to attain a similar level of noise reduction. The bonding process involved with Intasoft® panels is crucial to their acoustic performance, as it eliminates vibration between the two surfaces to reduce noise transmission.

Future approach

In terms of what lies ahead for the development of acoustic insulation, its wider use within retrofit applications will likely depend on the adoption of thermal technology as part of its package. This 'best of both worlds' approach would seem the most logical progression.

Homeowners in large communities shouldn't feel entitled to live in a noiseless vacuum, but relative peace and quiet ought not to be too much to ask for either. Choosing quality acoustic insulation is a first step to creating an effective sound barrier.

Noise is a fact of life and for the most part, provides a positive soundtrack to our day. For every person who is content to write-off a baby's cry, a loud TV or music as a trivial inconvenience in the grand scheme of things, to many others – particularly those living on the other side of the wall – regular disturbances of this nature will be intolerable. With modern housing needs requiring residents to live more closely together than ever before, good quality acoustic insulation represents a sound investment for those looking to keep the peace. ■

Meeting the Future Homes Standard: Eliminating thermal bridging will be critical

Words by Keystone Lintels Limited

The Government has recently responded to the Future Homes Standard Part L consultation and new standards and compliance metrics to be adopted have been confirmed. There is now a need for the industry to step up to ensure we meet this new performance measure. Being delivered as part of the new Future Homes Standard, the proposals are ambitious – but they need to be if we are to hit our net zero emissions target by 2050. Whilst new targets and regulations seem onerous, the ability for us to create thermally efficient homes is not something new. Ensuring the fabric of our homes is well designed is a critical first step and by paying careful attention to detailing we can eliminate some of the issues that create poorly performing homes – one culprit being thermal bridging.

Following a consultation on proposed changes to Part L (Conservation of fuel and power) and Part F (Ventilation) for new homes, proposed changes have now been confirmed and will be the first step in achieving the ambitious new Future Homes Standard – the second stage of this consultation, known as the *Future Buildings Standard*, will set out energy and ventilation standards for non-domestic buildings, existing homes and include proposals to mitigate against overheating in residential buildings. The October 2019 Part L consultation proposed two potential carbon reduction targets for the interim 2020 date – a reduction of 20% or 31% in carbon emissions compared with 2013 Part L. The Government has chosen to introduce its preferred 31% option. The finalised detail of Part L is set to be published in December 2021 and come into force from June 2022, this gives the industry around 18 months to prepare for the changes.

All homes will have to meet tightened new energy efficiency standards to lower energy consumption and bills, helping to protect the environment. The 31% target will provide a meaningful and achievable increase to the energy efficiency of new homes compared to current levels. This will mean developers have to upgrade their current specifications through a combination of more thermally efficient materials and introducing low carbon

technologies. Designers will retain the flexibility they need to use the materials and technologies that suit the circumstances of a site and their business (e.g. PV and gas boilers or air source heat pumps).

These changes are essential if we are to meet Government's plans to radically improve the energy performance of new homes, with all new homes to be highly energy efficient, with low carbon heating and be zero carbon ready by 2025.

Getting the fabric right

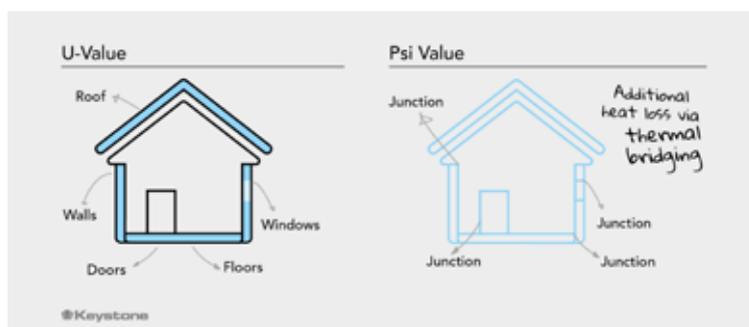
How are we going to achieve this standard? One key area will be addressing the thermal performance of a building envelope through a fabric first approach to building design. The secret to thermally-efficient building envelopes, fabric first focuses on materials and components that make up the building fabric before considering costly renewable technologies. It is an approach that will enable specifiers to meet and even exceed regulatory performance criteria, whether it is for large scale social housing or a much smaller residential property.

Whilst a reduction in CO₂ emissions is one consideration when designing thermally-efficient housing, an improvement in thermal comfort can also have a positive impact on occupants – adding to their thermal comfort, productivity and wellbeing.

Thermal bridging

A critical element of the fabric first approach will be addressing the issue of thermal bridging, which can be responsible for up to 30% of a home's heat loss. Eliminating thermal bridging through good design and correct product specification will be essential if we are to ensure we meet these ambitious new regulations.

A localised area in the thermal envelope of a building, a thermal bridge is where there is increased heat loss compared to the surrounding area. For example, a thermal bridge is created when a traditional steel lintel spans





between the inner and outer leaf of a cavity wall, providing a clear path for heat to bypass the insulation and escape to the outside environment. Weak spots in the continuity of insulation, such as this, can have a significant impact on a buildings heat loss and have a detrimental affect on the overall fabric efficiency of the external wall.

We need to first define the two different types of thermal bridges in a building envelope: repeating thermal bridges and non-repeating thermal bridges. Repeating thermal bridges are accounted for in the calculation of a buildings U-values (U-values measure how effective a material is as an insulator). Any material that penetrates the insulation layer repeatedly and predictably is classed as a repeating thermal bridge. For example, this could be where timber studs bridge a layer of insulation in a wall or wall ties between skins in traditional construction. The heat loss from these elements are accounted for in the overall U-value calculation for the element they sit within, i.e. external wall in this example.

Non-repeating thermal bridges occur where building elements meet, such as where walls join with floors, or walls join with the roof and also around openings such as windows and doors. Psi values are the thermal unit used to measure the amount of heat loss from these junctions and each junction must be assessed independently in the SAP calculation. Specifying materials and products with lower psi values will ensure an efficient, cost effective fabric is achieved for the building. It is important for designers to obtain independently calculated psi values from manufacturers or energy assessors to ensure they are accurate.

Thermally-efficient lintel

Traditional steel lintels can create a significant thermal bridge in homes due to the high thermal conductivity of steel and because they span over long lengths in a typical build. In addition to considering the wall construction, the length of the lintel and the load supported by the lintel, a lintel design which incorporates a thermal break will outperform and be more thermally efficient than a standard lintel.



For instance, hi-therm+ lintels use a patented combination of a polymer isolater and galvanised steel. The polymer section provides a powerful thermal break in the lintel and significantly reduces its conductivity value, with a psi value of between 0.03 and 0.06 W/m.k. As a result hi-therm+ lintels are up to five times more thermally efficient and are also available in the same lengths, sizes and loading capacities as the standard range of lintels.

The importance of lintels should not be understated. The hi-therm lintel has an impressively low thermal conductivity performance which contributes towards its psi value of between 0.03 and 0.06 W/m.k., making it the ideal low cost and sustainable solution for specifiers aiming to achieve building regulations with the fabric first approach. When you consider the BRE has found that thermal bridging can account for up to 30% of heat loss from buildings, then paying close attention to the details and structural elements such as lintels can have a huge impact on the overall thermal performance of a building.

In both theory and reality, the 'fabric first' approach will ultimately bring us closer to the carbon reduction targets proposed under Building Regulations Part L and the 2025 Future Homes Standard. If a buildings fabric is designed and built as efficiently as possible in the first instance it will continue to perform as intended and save energy for years to come. ■

Reaching new heights in the design of fire-safe tall buildings

Words by Scott Denham, Sales Director, IG Masonry Support

The need to create resilient buildings using non-combustible materials has seen traditional products in the form of brickwork increasingly replace rainscreen cladding in buildings more than 18m-high. It remains essential, however, that these materials meet industry safety regulations. This article looks at a brick on soffit system that has been designed to create deep reveals and brick soffits on tall masonry structures, and which meets the need for non-combustible materials thus enabling designers to realise their designs without compromise.

Although the origins of brickwork date back thousands of years – including the UK's much loved red brick – brickwork as we know it today became popular around the time of the Industrial Revolution, where the mechanised production of brick increased availability and demand for this building material.

Brick has been used and specified by designers across many generations, mainly because of its consistent shape, compressive strength and ability to absorb water. Houses or residential buildings made from brick can cost less in the long-run, as lower amounts of energy are required for heating. It is no surprise that some of the world's greatest structures are made from brick; in fact, the

Empire State Building in New York is reported to have been made from around 10 million of these small but mighty building materials.

Architecturally, the intricate detailing that brickwork enables is like no other. Depending on the type of project, different bond patterns can be used. Brick detail in the form of brick soffits, deep reveals and flying beams continually make for stunning exteriors, enabling designers to create truly unique façades.

Brick has been around for centuries and whilst trends towards other materials come and go, our love affair with it continues. Over the past decade, brick has been competing with other solutions including rainscreen cladding. However, it is seeing something of a resurgence, partly due to the realisation that bricks offer a more robust and fire-resistant solution than some other forms of façade material. With this comes the need to adapt to changes in regulations, to ensure that brick is still the choice for buildings of all shapes, sizes and heights.

A change of direction

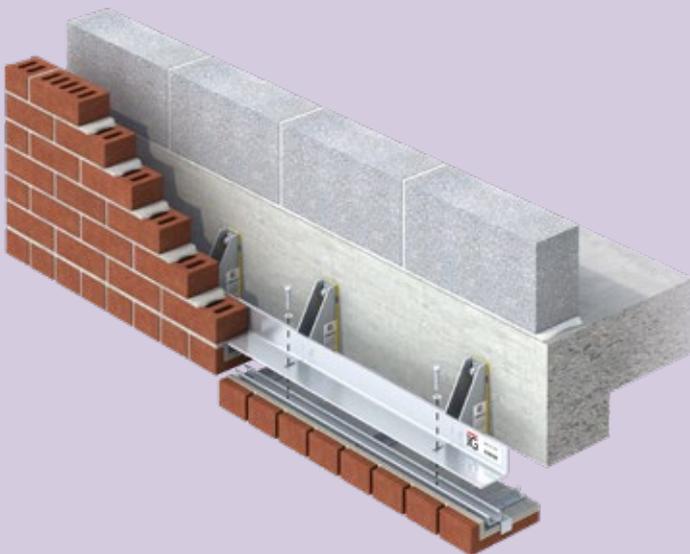
Recent changes to Building Regulations Approved Document B restricted the usage of non-combustible materials in buildings over 18m-high and this has led to the exclusion of certain products. This was largely driven by the need to ensure rainscreen cladding façades on tall buildings are resistant to fire so there will not be a repeat of the tragic Grenfell fire.

The questions and concerns over a number of rainscreen cladding façades therefore, have seen designers move back to more traditional, tried-and-tested materials such as brick. Designers are experiencing for themselves waves of clients wanting to emulate modern interpretations of classic architecture. Brick has long been the go-to material in the UK, but the modern cladding system became a quick and cost-effective way to create bright and modern looking buildings. However, it came at a cost; with many buildings now seeing cladding systems replaced due to non-conformity to regulations and issues around fire performance.

This cost is further compounded by the ailing appearance of various modern cladding systems; they can look tired and dated over time. There can be no denying however, that many brick façades look equally as impressive today as they did when they were created decades ago.

New innovations

There has been much debate within the construction sector as to how the industry could respond to regulatory changes and have an A1-fire rated (non-combustible) or an A2-fire rated (limited combustibility) solution to provide to the market.



IG Masonry Support was challenged to develop a solution for their brick on soffit system. To fulfil this challenge, the company developed its own 'A1' fire-rated adhesive to meet its specific requirements. It was then independently tested. This non-combustible adhesive could be used both as a bedding compound, as well as a bonding agent.

This development enabled IG Masonry Support to engineer B.O.S.S.+ , an A2 fire-rated system suitable for use on projects that require Building Regulations Document B compliance. The second generation of IG Masonry Support's B.O.S.S. system, B.O.S.S.+ comprises a stainless-steel framework with a cement particle board backing element to which the brick slips are adhesively bonded and mechanically fixed. In short, the solution ticked the boxes in all the required areas and was available to the market in 2019.

The next step was to create a fully non-combustible and carbon neutral product. The BBA Certified B.O.S.S. A1 system is 'A1' fire rated and has been subjected to hygrothermal testing, the product passed the rigorous examination with ease. As well as meeting current fire regulations regardless of the building's height or purpose, the manufacturing process and environmental impacts will be significantly reduced.

Like the rest of the B.O.S.S. range it is factory produced to ensure quality and once onsite it is fixed to IG's Welded Masonry Support (WMS). Thanks to its ingenious design, it can be adjusted onsite to ensure a perfect fit, providing brickwork contractors with a safe and efficient way of creating detailing. Installation can be reduced by up to 90% and as it is on average 70% lighter than concrete, it negates the need for mechanical lifting in many instances.

Its impressive credentials, all of which are BBA certified, offer a technically advanced solution that meets even the boldest aesthetics, by hiding structural steelwork to give the illusion of unsupported brickwork. To further ensure a quality installation, the brick slips are created using a consignment of bricks from site, to guarantee a perfect match. The unit is pointed onsite to provide a seamless integration with the surrounding brickwork.

B.O.S.S. is an established and successful product with a proven track record of success. The A1 solution is the third generation of its type within the range. Its latest incarnation provides further evidence of IG Masonry Support's commitment to enhance and offer solutions which are tested above what is expected in the industry, whilst taking a responsible approach to climate change.

As designers know all too well some trends come and go, yet brickwork design has always been a constant. It goes without saying that brickwork gives designers great possibility in terms of design and visual aesthetics. The legislative changes that the industry witnessed last year has inspired construction supply chains to be better, and perhaps serves as a reminder of the quality and assurance traditional materials offer. ■

Brick detail in the form of brick soffits, deep reveals and flying beams continually make for stunning exteriors, enabling designers to create truly unique façades.



Standardising structural elements: A platform for construction innovation

Words by SFS and the Construction Innovation Hub

Building envelope manufacturers SFS and the Construction Innovation Hub discuss how they are using 'platforms' to bring about construction innovation. Utilising learnings from other manufacturing sectors is the key to making this a reality.



The challenges facing the construction industry are well documented and age-old. First there is the wastage of both time and resources – more often than not front-line workers are waiting for materials to be delivered, while stock already at site gets lost, stolen or damaged.

Then there is the fragmentation. With different stakeholders getting involved at every level, decision-making is slow, and more often than not, projects boil down to costs. And this slowness is not just limited to project progress either – the traditional construction model is cumbersome, and real change is hard to implement.

All the while, skills are disappearing faster than ever. An ageing workforce and not enough young people joining construction is signalling a challenging time ahead for our industry.

Yet, building and infrastructure is vital to our economy and our recovery from this pandemic, which the Government recognises and is investing in. We are two years into a ten-year programme where over £600 billion of government investment is expected.

There appears to be no slowdown expected either, despite the COVID-19 pandemic. If anything, resolve is now stronger than ever before, with 'building back better' the slogan on everybody's lips. In the June 2020

Analysis of the National Infrastructure and Construction Procurement Pipeline, it sets out that up to £37 billion of planned procurement is expected between 2020/21, with 340 procurements across 260 projects and programmes.

To deliver on this expectation, the industry knows it has to change, and change fast. To this end, SFS is one of the key partners involved in the Construction Innovation Hub's Platform Design Programme, designed to deliver revolutionary change in the coming years.

Platforms for success

Today, carmakers can freely share sub-assemblies like the floor pan, drivetrain, suspension and axles between each other. This greatly reduces cost and complexity, allowing more flexibility to scale and 'chop and change' options based on this method. So why cannot the construction industry adopt a similar philosophy?

The Construction Innovation Hub is now making this a reality through its 'Platform Design Programme'. Looking at digital tools and modern methods of construction (MMC), the Hub is blending expertise from a range of organisations. These include the Manufacturing Technology Centre (MTC), the Centre for Digital Built Britain (CDBB) and the Building Research Establishment (BRE), along with government partners and industry specialists like SFS.

Elements of buildings will be broken down into sub-assemblies, which include:

- Active roof
- Building control system
- Ceiling cassette
- Cores (including vertical circulation)
- External walls
- Foundation system
- Ground floors
- Incoming services
- Internal walls
- Plant room
- Risers
- Structural frame
- Volumetric pods

Sitting on the structural frame, active roof and external wall groups, SFS is already using its long heritage in partnering with organisations to advance technology to the benefit of the industry, and indeed our brand stands for 'inventing success together'.

Andy Stolworthy Director of Product and Market

Development for SFS commented, “The Platform Design Programme will drive transformation in the construction industry, it is the kind of project that fits SFS’s DNA perfectly. We are working with like-minded partners in the industry, developing new tools and methods of construction. Knowing you are part of something that will shape the future is exciting, not only are we looking forward to the outcome but what we will learn on the journey.”

Trudi Sully, Impact Director – Manufacturing at the Construction Innovation Hub adds, “The Construction Innovation Hub’s mission is to act as a catalyst for transformation in the sector. The only way we can do that successfully is with the involvement and engagement of our vital delivery partners such as SFS.

“These pioneering companies have recognised the benefits of collaboration to drive innovation and are grabbing the bull by the horns on the Platform Design Programme. SFS’s forward thinking approach is truly reflective of the culture we have in the Hub and will play an integral

role in our mission to deliver true value driven change in how we deliver our social infrastructure needs.”

The Construction Innovation Hub’s mission is to act as a catalyst for transformation in the sector.



The next steps to construction innovation

The Hub’s Platform Design Programme is already on the road to delivering a construction system which will use a standardised kit of parts to form the next wave of public sector building programmes. This will be done by determining the needs for these buildings and incorporating them in the Platform specification and development of the designs.

Progress has been fast, with research conducted with Government departments and industry partners already showing initially, the best type of building for a platform-based approach has:

- Floor to ceiling heights of up to 3m
- Floor spans of no more than 9 or 12m
- Up to 4 storeys with scope to fulfil higher rise requirements
- Flexible usage

In terms of next steps, the specification requirements are finalised, which enables the participants to move from the conceptual stage to the actual design stage. Alongside this, tools are being developed to facilitate platform use in wider construction, such as the Construction Quality Planning (CQP) guide which is key to delivering one of the core themes ‘assurance’. The ultimate goal will be for these tools to be available and validated along with the proof of concept platform building in Q4 2022.

A roadmap to construction success

The UK’s construction industry is at a crucial, defining point in its history. With hundreds of billions of pounds to be spent on infrastructure in the next ten years, it is vital that this money is not wasted, and that our buildings deliver better experiences where our people, and our economy, can thrive.

As the Construction Innovation Hub put it, the benefits to a platform-based approach are varied and include:

- Improved assurance of buildings
- Increase whole life value
- Improved health and safety
- Reduction in delivery time
- Reduced greenhouse gas emissions
- Higher level of lifetime build performance

For more about the Construction Innovation Hub visit constructioninnovationhub.org.uk/ ■

Platform Construction System

What is the Platform Design Hypothesis?
We are developing a platform construction system, consisting of a standardised kit of parts, (sub-assemblies), that we believe will be able to deliver a large proportion of social infrastructure buildings procured by government departments. It will offer significant benefits in quality, cost, delivery time and whole life value.

As part of the Construction Innovation Hub Platform project, we’re working in partnership with government departments, industry and end-users to determine the needs for these buildings and feeding these into the Platform specification and design development. As part of this requirements capture phase of the project, we’d love to hear your opinions on this hypothesis, or where you think any gaps exist.

Please feel free to comment on the assumptions listed or email your feedback and comments to construction@the-mtc.org so we can consider them in our analysis.

Platform system sub-assemblies may include:

- Active Roof
- Building Control System
- Ceiling Cassette
- Cores Incl. Vertical Circulation
- External Walls
- Foundation System
- Ground Floors
- Incoming Services
- Internal Walls
- Plant Room
- Risers
- Structural Frame
- Volumetric Pods

Greenfield / Brownfield Compatibility
Flat Site Only

Up to 4 Storeys

Platform Construction System

Variable Room Length

Working Layout

Public Spaces

Max. Span 9-12m

Floor to ceiling heights up to 3m
Not suitable for wide single span areas e.g. Warehouses and Sports Halls

Suitable for Schools, Offices, Apartments And many more...

Benefits

- ✓ Improved assurance of buildings
- ✓ Reduced whole life costs
- ✓ Improved Health and Safety
- ✓ Reduction in delivery time
- ✓ Reduced greenhouse gas emissions
- ✓ Higher level of lifetime build performance

Illustrations designed using elements from FreePress.com



All eyes up to plastic rainwater systems

Words by Brett Martin Plumbing and Drainage

With price such a key factor for all building products, it is vital that all options are carefully considered against criteria such as performance, life cycle, environmental impact, maintenance and cost. For projects requiring a heritage style, there are numerous rainwater systems available, including cast iron, aluminium and plastic. When specified correctly, each has its own advantages but it is plastic, cast-iron style that is helping designers, developers and housebuilders meet the requirements of aesthetics, performance and cost, without compromising architectural intent.

It is crucial that every UK building includes a high quality rainwater system that will provide it with the maximum protection from days of heavy and intense rainfall, which are becoming more frequent in our changing climate. When specified correctly, this vital building component will prevent rainwater from pooling around the base of the property, saturating the foundations and causing damage to the building fabric, as condensation and damp will severely compromise its strength, durability and longevity.

A necessary part of any building's operability, guttering and drainage are required to efficiently carry away rainwater from the roof without over-spilling under Part H of the Building Regulations. The specifier or contractor should consider local weather conditions, the potential impact on the underground drainage layout, the catchment area of the roof, gutter capacity, expansion allowance and fall calculations in any efficient rainwater system design.

Location, location, location

It is important to consider the geographic location of the building as some areas of the UK can experience higher volumes of rain and snow than others. Armed with the knowledge of the frequency of heavy downpours related to a geographic location, specifiers will then be able to figure out what capacity of gutter will be required. A useful guide to rainfall intensities for the specification of gutter and downpipes can be found within Building Regulations approved document H: Drainage and Waste Disposal.

Roof insulation regulations indirectly play their part in rainwater design in areas of heavy snow. Better insulation has resulted in less heat loss which in turn means that snow does not melt as quickly. The accumulation of snow can build to a critical point, so rainwater systems need to accommodate the higher load with appropriate gutter spacings and incorporation of snowboards as required.

Hotter temperatures also influence guttering design as

they need to be installed to allow for thermal expansion. The rate of expansion will depend on what material the rainwater system is manufactured from and it is recommended to refer to the manufacturer's guidance on this before installing. For example, a 2m length of uPVC gutter or downpipe will expand by 2.4mm for a 20°C temperature rise. This expansion must be accommodated when installing any system.

The importance of specifying the correct gutter and downpipe size should not be understated. The catchment area of the roof should also be considered as an inadequately planned system could lead to overflow and saturation at ground level. However, costs can escalate on a build if there are too many outlets and downpipes which in turn can result in too many underground connections.

Optimum performance

The flow and volume of water into a gutter depends on the area of the surface being drained and the angle of the roof's pitch. Ascertaining the roof size in terms of the drained area is the next step to designing a successful and cost effective rainwater system.

Information on calculating the area of a complex roof can be found in BS EN 12056-3: 2000: Roof drainage layout and calculations. After calculating the effective area of the roof, this must relate to the draining capabilities of the rainwater systems specified to ensure the right size and number of components are purchased to achieve the optimum performance.

Gutter systems come in all shapes and sizes, so specifying the right size of gutter and adequate number of outlets will lead to an optimal balance between cost and performance of the system.

Another important factor is gutter support spacing which should normally not exceed 900mm however in the case of roofs with a pitch exceeding 35°, smooth surfaces, or those which may be subject to heavy snow loading due to geographical location, support spacings should not exceed 600mm. In these areas and circumstances, the installation of snowboards offers the client a precaution against sliding snow.

Regardless of the rainwater system selected, it is critical to check it has been tested to the relevant industry standards as this will ensure it is capable of withstanding the most rigorous performance assessments. A rainwater system's long term performance capabilities are tested through assessments of impact and tensile strength, load bearing capacity, watertightness, deformation resistance and the impact of accelerated ageing and any reputable manufacturer will ensure rainwater systems perform as such. For example, Brett Martin's uPVC rainwater systems undergo testing in accordance with BS EN 607:2004 and BS EN 1462:2004.

Good looks

Aesthetics should also not be an afterthought, and when specified correctly, should complement the building's style. Whether choosing PVC, aluminium or cast iron, there are a wide variety of colour options and gutter styles. Specifiers should also be aware of the true cost of the rainwater system – in terms of materials, labour and maintenance over the lifetime of the building. For example, cast iron is good to look at but much more expensive in actual material and installation costs and requires a lot of maintenance to keep it looking good. Plastic alternatives such as Brett Martin's Cascade Cast Iron Style Rainwater System replicates the detail of a cast iron rainwater system and is a much more cost effective option.

Simple-to-fit

With significant additional weight, cast iron drainage systems can be heavy and difficult to install. Builders must also be extra vigilant regarding health and safety and will require more time to lift and fix the system – leading to increased costs and potential delays in the installation process.

Almost every job will require both gutter and pipe lengths to be cut onsite using specialist tools and, to ensure long-lasting durability; they need to be fully finished on site, using a primer, undercoat and topcoat, to ward off corrosion. Even if the system used is delivered pre-painted, any cut lengths, or site damage to the finished surface, must be protected to the same level, by the installer. It should be noted that, in some cases, if the level of protection applied on site is deemed insufficient, any guarantee offered may be, quite rightly, invalidated, leaving the installer liable.

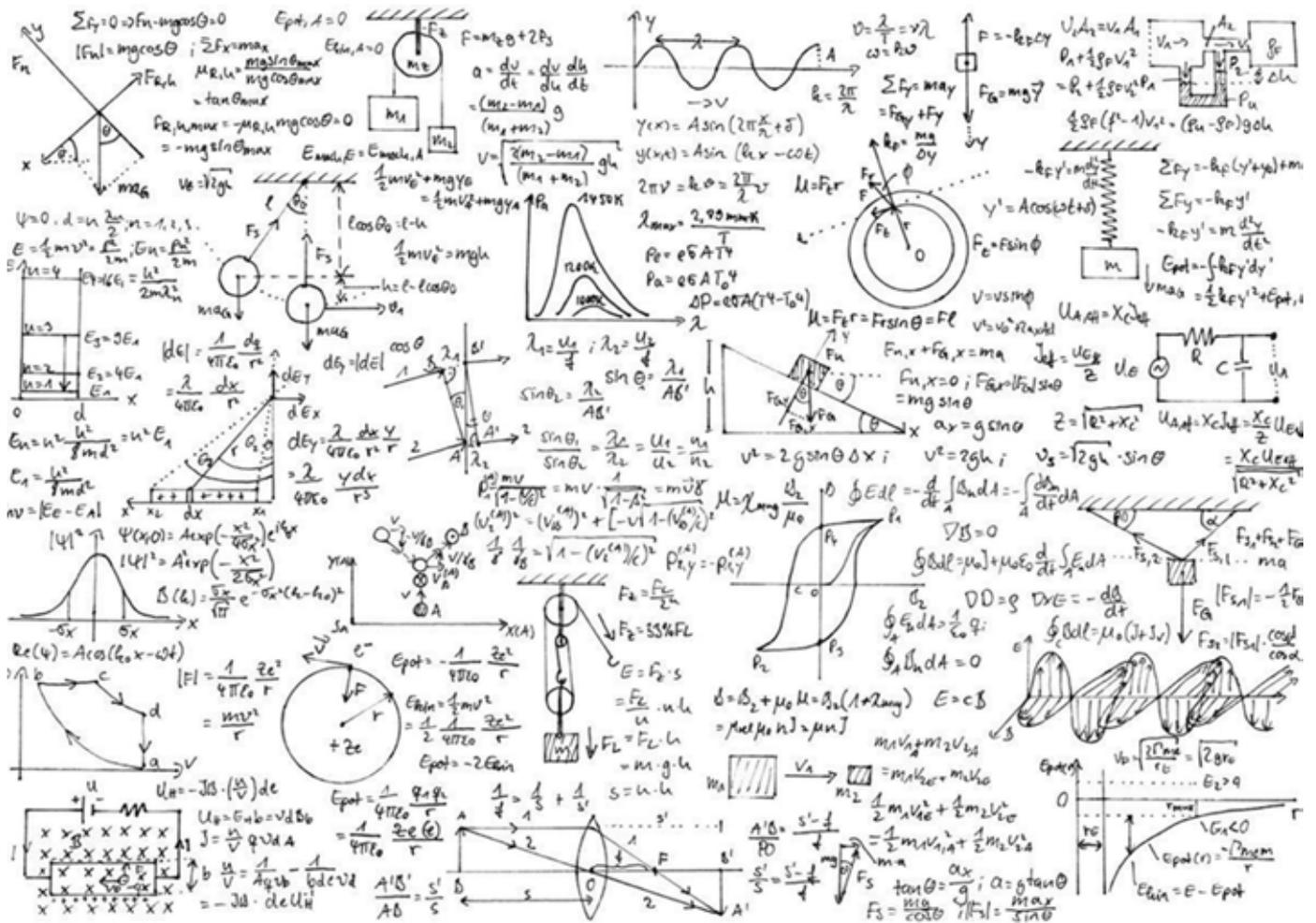
The plastic ranges are so much lighter than cast iron, installation at height is less hazardous, being effortless to lift, easy to manoeuvre, simple to cut and quick to fit. The systems also benefit from external fixing lugs, enabling easy power tool access, which further speeds up installation. All gutter fitting joints have integral seals and flexible retaining clips, allowing the gutter lengths to simply click into place. No extra-cost fixing kits or nuts and bolts are required to make gutter joints, as with most traditional systems.

Adaptability

To ensure each rainwater system can be designed to meet every client's demands, there are an expansive choice of options and gutter profiles available for domestic builds and refurbishments to suit most requirements. From the domestic style of gutter to high capacity systems for larger scale commercial projects, plastic rainwater systems are also compatible with existing cast iron systems and have been carefully designed to replicate original features, dimensions and detailing.

Integral to the overall aesthetics and the performance of the building itself, rainwater systems should be considered as a key part of the design process. As budgets are increasingly stretched and tight deadlines dictate product specification, it is critical specifiers are aware of every product's cost – in both materials and labour. By following these simple steps, the specifier will be able to determine the best solution for the roof and building in question. ■





An algorithm in architecture

Words by Dr Omar Faeg ACIAT

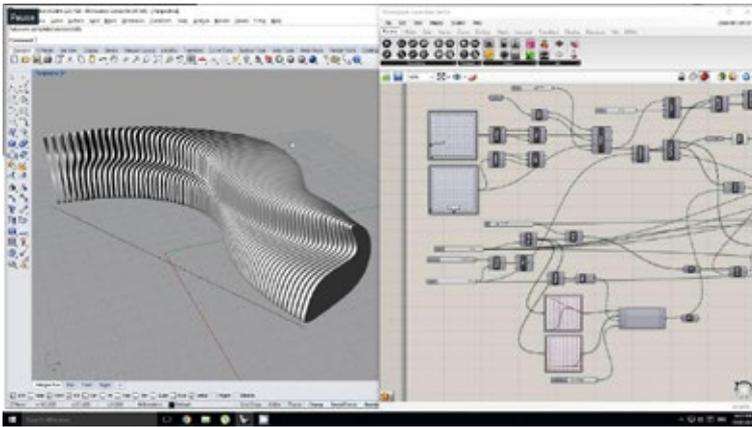
An algorithm is defined as a set of rules which are a limited series of correlated operations used in design and including a performance of numerical calculations. The algorithm contains an accurate list of instructions and steps specified in specific software, which is extremely important to perform the algorithm correctly. Many architectural based software contains algorithms to create instructions that help in architectural design.

An algorithm is a word taken from the name of the mathematician Muhammad ibn Musa al-Khwarizmi who invented the science of algorithms. al-Khwarizmi who lived between (780-850) was a mathematician, astronomer and geographer. He wrote a thesis in Arabic about the system of Arabic numerals, which was translated into Latin during the twelfth century under the

title *Algorithmi de numero indorum* and he wrote another book about algebra science. al-Khwarizmi's books are among the most widely read in Europe in the late Middle Ages, the term algorithm was increasingly used in the nineteenth century.

Algorithms allow designers to define information input and the way of processing during design, this process creates forms that consist of one or thousands of components depending on design requirements. The process will not be producing a default form but will set rules to arrange and organise an algorithm, based on this process, the form of architecture is generated. The designer will be allowed to control and produce different options by changing different elements of algorithm until an ideal option is chosen.

Designers have started to reconsider algorithms in the last few years to generate complicated forms but with more control to create parametric design and to fulfill needs rather than generating form only. This led in developing computer software to create parametric form. These types of software are distinguished by ability and simplicity of design especially in designing smooth, digitally rendered surfaces, complex curvilinear forms, blob-like objects, shells and skins stretched over wire-frame structures.



Today, most designers use computers in architectural design, and this is a combination between the initial design making by manual design method and then design is developed and expanded by computer software. Designers seek to use a mathematical method to allow them the possibility of creating their own creative concepts and lead to more dynamism to the design process. The repeatable mathematical equations which provide the possibility of interference to set up a complicated form which consists of a group of repeatable shapes.

An algorithm is a set of instructions which receive information as input, processes them and provides the answer as the output and this process helps to make parameters. In addition, this contains a set of variables and a set of formula that determines a form, which can be manipulated by changing particular parameters and information that effect on the physical shape of the building and provide the ability to change and reform during design stages. This process of continuous analysis of building helps to find the problems that might occur. In addition, the power that algorithm is to solve multiple problems such as operation associated with the information configuration, and the ability to solve combinatorial and numerical problems, such as producing random numbers and measurable geometry. Algorithm allows designers to create the complicated geometric designs and provide methods to develop and solve the difficult and complicated geometric architectural masses.

There are many types of algorithms such as genetic algorithms, L-System, triangulation, cellular automata and diagrams.

Genetic algorithms is one of an algorithm type that creates using software, and distinguished by effective and ability to create complex shapes, integration in mathematical equations that generate complex design

shapes with the ability to evaluate problems and develop alternative solutions and obtain the required shape.

The basis of the genetic algorithms work is the codes that rely mainly on converting codes into geometric shapes and conducting the process of linking between them to create a number of similar shapes. This leads to create a genetic pattern and obtain new complex shapes because the genetic algorithms are working on motivating designers to take their freedom in developing designs.

L-System or Linden Mayer System is a method of reformulating complex elements by dispensing them by simple parts by using a set of rules and starting this system as a mathematical theory about the growth of multicellular organisms. Then it began to be used as a basis for mathematical science, but soon it was reformulated and developed to use in the design of architectural forms.

It is characterised by having no ending where the idea of formation is based on dividing the line into three equal parts, then creating an equilateral triangle without specifying which side is the base; this process is repeated without stopping. It can be used in different geometry forms such as the square shape instead of a triangle using the DOL system. Software is used to produce an endless series of ideas that depend on dividing in this way.

Many designers use this system in their designs, such as the architect Karl Shaw and his method based on the digital system based on the generation system of Lindenmayer system.

Triangulation was produced by recent advances in software processing, the triangulation may be computed efficiently. Furthermore, this implementation will allow for better performance and allow for less problems that serial designers can work with.

The development of an initial parallel algorithm using multi-process. By implementing an approach based on the divide and conquer algorithm, the problem set into a number of subsets equal to the number of processes to be used in an execution. The triangulation is then performed on each individual subset, whereafter all triangulations are combined to generate the final triangulation.

The algorithm is used to design some of the architecture types such as fluid architecture and topological architecture. Fluid architecture is a modern design concept that resulted from the merger of architecture with digital technologies that were used by many architects such as Frank Gehry, Zaha Hadid and Marcos Novak. Through the use of modern technologies such as algorithm and applied in their design and the introduction of computer technologies, as a supporter in the design process, it has become a method that helps the designer come up with an idea. This help to create a fluid architecture inspired by nature and liberated from traditional design and construction constraints, it is seen as a way to link technology and dynamism.

Topological architecture relies on contemporary modelling with the help of new software design such as algorithm technology to provide freedom when designing complex shapes, and to provide more effective and dynamic internal space, instead of the traditional static space. The topological design is divided into engineering and natural.

Topological architecture is concerned with shapes that are not affected by changes in size and shape, remain constant during the process of continuous transformation such as tensile, torsional, change in size and pressure, the possibility of modifying the geometric shape through special equations using three-dimensional programs such as 3D Max and Rhino whether it is a curve shape or straight shape. ■



PROFILE

Brewer Smith Brewer Group London Office

Words by James Evans, Communications & Digital Administrator

Brewer Smith Brewer Group (BSBG) is an international architectural practice founded in 1976, with offices in Dubai, Vietnam and a recently established office in London, made up in no small part by those with a passion for Architectural Technology. I spoke with two of the staff about the vision, day-to-day and future of the London office.

Shaham Ahmed, BSBG Head of Studio London, explains that when the firm entered the UK market (originally in 2017), it brought with it a new level of expertise in project delivery, and a depth of understanding of how to realise design intent. There was a gap that existed in London and they were keen to fill it. He says: “BSBG is known internationally for strength in delivery of very complex buildings, and we saw a real need for this in London.”

BSBG’s delivery solution is achieved in no small part with the help of Chartered Architectural Technologists. Shaham tells me that they are vital to the success of the practice. “From day one, we know how the structure is going to work,” he says. “That puts us in quite a strong position in the market.”

Collaboration between Chartered Architectural Technologists and architects is important – they work side by side at the practice – and this allows them to deliver some eye-catching projects.

James Spitzer ACIAT, a Senior Architectural Technologist at the firm tells me about one he has been working on – a five-star hotel in Mayfair not far from the Ritz. It is a conversion of 15 joint townhouses which has no doubt seen his skills as an AT come into their own. “I’d say compared to the other places I’ve worked, BSBG definitely has more of a technical delivery focus, which is where our strength is,” he tells me.

Chartered Architectural Technologists at the firm are often involved in the drawing work, technical reviews, QAQC reviews and make visits to site. Their work

is interesting and varied.

I am keen to know how the COVID-19 pandemic has affected the office’s operations.

When I speak to Shaham and James in October, employees are splitting their time between working from home and going into the office. Shaham tells me that it has “its challenges and advantages” and James fleshes this out. He points to the benefits of “more flexibility” and “less distractions” and talks about how MS Teams calls can be a more efficient way to communicate than meetings but misses “get[ting] together around a table” where you can “put your heads together”.

James points out that both the Dubai and Vietnam



offices had been collaborating with London on projects for some time prior pre-COVID-19. This meant the practice was well prepared for a seamless shift to more remote working when the pandemic hit.

James points out that both their Dubai and Vietnam offices have collaborated with them on projects for some time. James tells me: “It is very easy at the moment because you have BIM 360... you have Revit... you just log on to your computer, open Revit, open the model... you can open it from home. Dubai can access it. It is a very straightforward process.”

Like many businesses they are likely to opt for a hybrid approach after the pandemic.

Shaham points out that one thing that it is harder to provide remotely is training. Mentoring less experienced employees is much more difficult. He says: “If you have more junior staff, talking to them, teaching them, providing guidance and support – that’s something you can’t do online.”

Training is something that is important to the office. Processes are still being developed but one thing that is already vital is finding out from staff what they need and where they see themselves going. Staff sit down regularly with their managers and discuss which kinds of work and software packages they want or need to learn more about. The practice then tries to accommodate this as they are assigned to projects.

The practice and office are holding up well through COVID-19. As Shaham looks to the future, he tells me that the office is keen to be involved in both the design and delivery of many more exciting projects. Given what they have achieved in just a few years in the UK market, BSBG are surely a practice to watch. ■

I’d say compared to the other places I’ve worked, BSBG definitely has more of a technical delivery focus, which is where our strength is





Flexbury Church

Words by Gareth Short MCIAT, Chartered Architectural Technologist

This 20th Century Grade II listed church is situated within the Northern Flexbury area of Bude, Cornwall; redundant from its former ecclesiastical use and lain in a dilapidated state for in excess of ten years and at substantial risk of further decay to the structural and historical fabric of the building. R.A Rowe were commissioned to prepare design concepts, spatial strategy, building analysis and a feasibility study to explore a potential new use for this magnificent historical and important building to Bude.



As part of the above works, a concise and detailed pre-application enquiry was made with Cornwall Council development control involving the historic environment department. We prepared a comprehensive, commercially sensitive pre application enquiry to Cornwall Council, in order to hold dialogue and meetings with the planning and listed building officers about the likelihood of re-using this building for a residential scheme. Our pre application enquiry included a comprehensive written report, feasibility study and detailed plans to illustrate how this amazing building can be converted to form ten individual and unique flats/apartments.

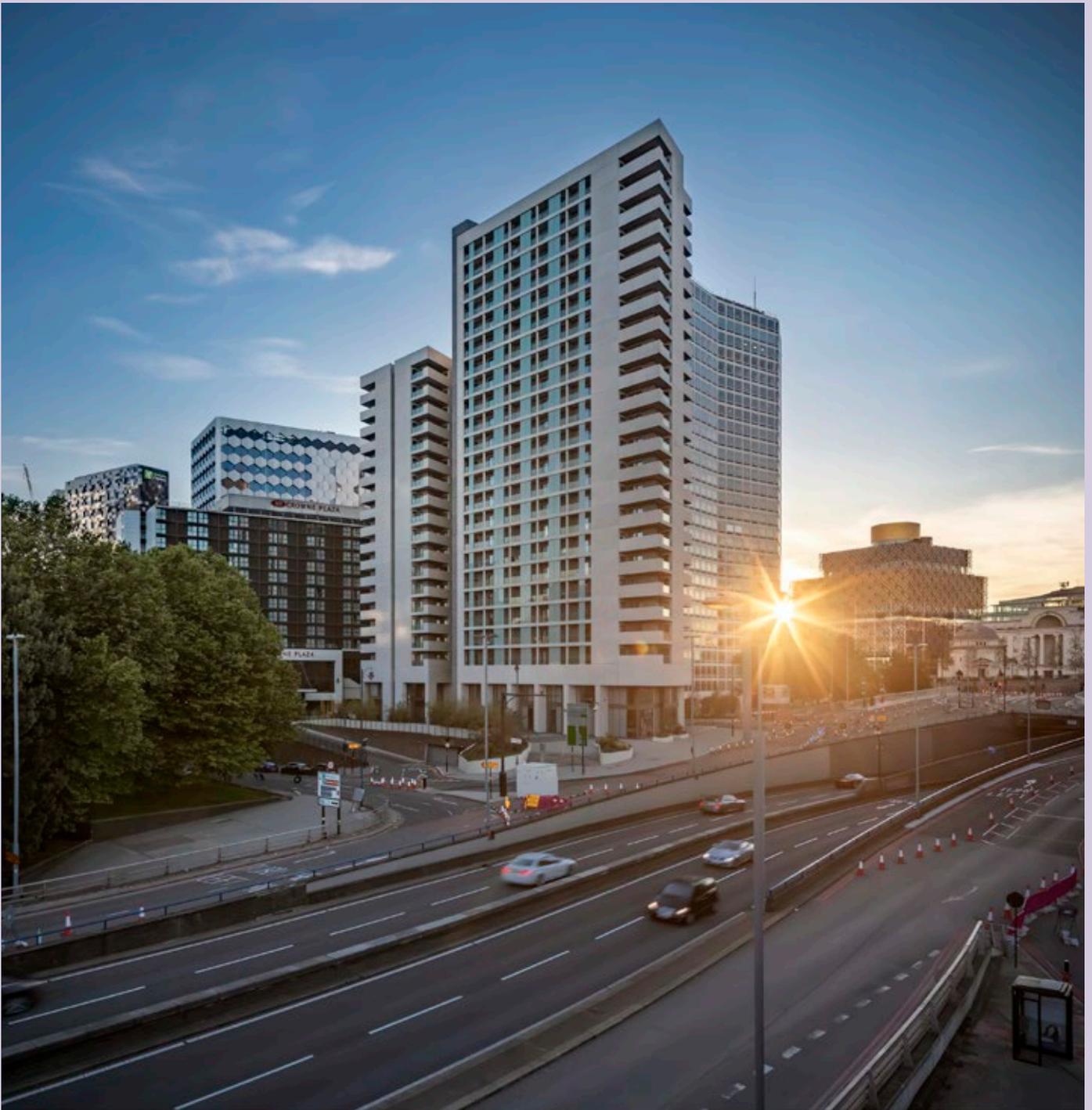
The feasibility study focused around an innovative and sustainable residential reuse for the building. After extensive engagement with Cornwall Council regarding historical fabric, and key elements of the ecclesiastical building, the resulting response to the pre-application enquiry was one of support for a residential reuse of this building, thereby, securing the longevity and safeguarding of this historical landmark. The designs for securing a residential reuse centred around the striking and impressive pulpit, which is constructed from timberwork and heavily sculpted. The solution looked to retain this important feature and design communal access areas to corresponding dwellings around the pulpit. By having the retained ecclesiastical feature within communal spaces opened up opportunity for persons to visit the former church and view the impressive and striking pulpit, together with the retained original organ piping. We wanted to utilise the impressive amount of existing openings within the corresponding dwellings and looked to design habitable spaces around these. It was important from a design and conservation perspective for the buildings character to remain unaltered from the external aspect, to preserve the buildings former use a place of worship. After extensive works, including designs and discussion with the conservation officer, it was agreed for the existing windows to be replaced, albeit in the same style to include the detailed lead lattice work, but crucially to incorporate an opening element within the frames to

ensure dwellings had the requisite means of ventilation, as a requirement under Part F of the Building Regulations.

The building collectively involved very careful consideration to the wider aspects of the Building Regulations, not only Part F but also importantly Part B to ensure the proposed conversion could provide a scheme which accords with the relevant aspects for access and means of escape. Whilst a challenge, it is a project the team are very proud of having been involved in, particularly with regard to the building's importance within the wider town.

Our role involved engagement and extensive conversations with local relevant interested parties to obtain local opinion on the potential re use of such an important building within the town. Churches are landmark structures, appreciated by local people, and the extensive preliminary works and formal engagement carried out with the planning and listed building departments will ultimately allow people to see that this structure which was derelict and falling into a substantial state of disrepair, will be once again brought back to a viable use as an attractive feature of the town for future generations to enjoy.

R A Rowe are extremely proud to have undertaken the role attributed to us by our clients in obtaining a successful and supportive response from Cornwall Council, to the possibility of bringing this superb and important building back to a sustainable and viable reuse. The innovative design concept centered around respecting the buildings important and historical features, to design a residential scheme that did not compromise the historical and former ecclesiastical features of the building. The works undertaken and the response drawn from Cornwall Council have secured a strong foundation from which to proceed from in obtaining detailed planning and listed building consents, to ultimately convert and preserve this striking listed building. It has secured its longevity and safeguarded an important historical asset and building within the town, regenerating the area for 21st Century expectation whilst retaining all the original fabric and character of the existing church. ■

**PROFILE**

Corstorphine + Wright Architects

Words by James Evans, Communications & Digital Administrator

Corstorphine + Wright Architects was originally established in 1978 by John Corstorphine and Tom Wright. Today the practice is ranked #24 in the AJ top 100 with a 170+ strong team working from ten studios across the UK.



I spoke with Technical Director, Michael Turner MCIAT and Associate Director, Daniel Crann MCIAT about the practice and its invested commitment in support of Chartered Membership progression for Architectural Technologists.

This award-winning practice has a unique reputation, known both for creative excellence and a strong commercial edge. Using an insight-led approach and drawing on experience from a diverse and highly skilled team, Corstorphine + Wright helps to invigorate communities and maximise their long-term value.

The team spans the length and breadth of the UK and the practice is currently working on over 450 live projects across a wide range of sectors including residential, industrial, bluelight, commercial, education, retail and leisure.

Michael told me that Corstorphine + Wright design spaces that translate requirements, constraints and opportunities into places that are more than the sum of their parts. Best known for sector depth and breadth, this enables Corstorphine + Wright to give its clients the very best in insight, sector knowledge and guarantees quality of work.

This architectural powerhouse is currently delivering stand-out spaces for student living, redefining custodial buildings, regenerating British landmarks, and changing the face of motorway service station design to allow nature reserves to live in harmony with tarmacked car parks!

This diversity of projects mapped with design innovation is most certainly impressive and is the reason Corstorphine + Wright has grown into a leading UK practice with plans for continued growth.

The practice has a well-established balance of Chartered Architectural Technologists, Chartered Architects, Architectural Technicians and designers, this ensures its clients benefits from not just design excellence but successful delivery and buildability. Michael says “We are proud that our schemes actually get built!

“One of the core values that we put across at Corstorphine + Wright is we will deliver from inception to completion. Having a strong set of Chartered Architectural Technologists in our studios to work with our designers means our clients get the mix of brilliant design with the science behind its construction. Many practices are very good at design but not all have the ability to secure planning and transition to a finished built asset.”

I am keen to learn about the roles Chartered Architectural Technologists take on at the practice as there are indeed so many of them.



Both Michael and Daniel are Chartered Architectural Technologists. Michael tells me that he is “passionate” that Chartered Architectural Technologists are recognised within the industry and this is “really important to us as a practice.”

At a practice of this size, I am always keen to hear about the interplay between Chartered Architectural Technologists and architects. At Corstorphine + Wright, each project is assigned a project architect and a director, both of which stay on as a point of reference throughout, plus there is a technical lead, most often a Chartered Architectural Technologist.

The practice is keen to bridge the gap between the two groups of professionals as part of their training programme. Daniel works on the Corstorphine + Wright programme that supports Chartered Members. The practice actively recruits graduates or those a few years out of university who have completed a CIAT Accredited degree programme. Daniel then works with them to develop the skills each individual needs.

Daniel is very much in a coaching position and holds regular meetings with those keen to become Chartered Architectural Technologists. He sets out a list of people who meet the criteria, what they need to achieve, and sometimes this highlights an area that an individual is lacking. This will enable Daniel to move them from one team to another, and to projects that could actually give them that experience that they need.

Daniel added: “The original intention was to support recent graduates with this scheme, but we have also supported experienced technicians who were keen to progress.”

In an unprecedented time, in terms of the work available and the way the practice works, Corstorphine + Wright has been able to adapt, thanks to its agile business model and a dynamic team. Its ground-breaking architecture is a result of its people, their expertise, passion and drive to create not only beautiful buildings but powerful spaces for can positively affect their occupiers daily experiences. ■

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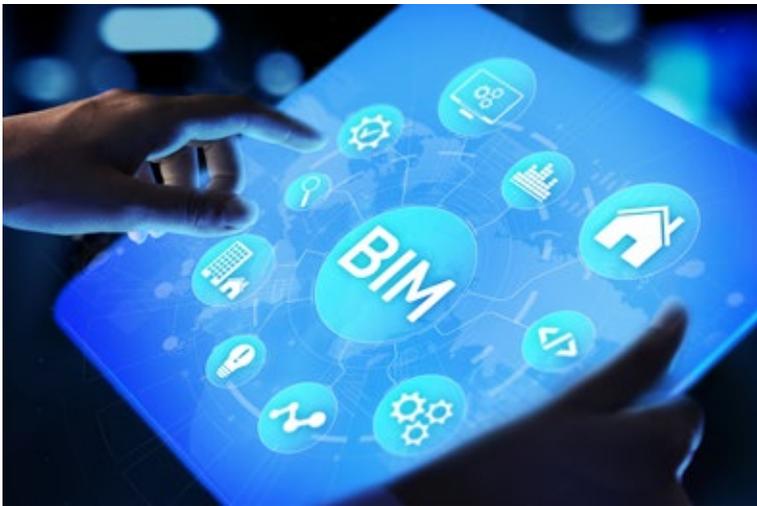


How BIM can cause needless early stage MEP design concerns



Words by Paul Hargreaves, Group BIM Manager, TÜV SÜD

Whilst there are a variety of different software applications on the market for delivering mechanical, electrical and public health (MEP) models, there are similarly a variety of different techniques that can be adopted and multiple reasons for using each of these techniques, which ultimately result in the same outcome. What is more crucial, is that the delivery team is organised in a manner, whereby all members are aware of the project requirements and how best to deliver them.



Building Information Modelling (BIM) enables the whole design team to collaborate on one single source of truth. The ISO 19650 standard represents the latest international industry best practice for managing information over the whole life cycle of a built asset using BIM. It contains all the principles and high-level requirements for BIM Level 2, which is mandated by the UK Government for construction projects over £50m.

ISO19650 not only outlines the typical team structure, but also the documented processes that must be put into place to ensure the delivery team remain informed of changes and what information must be delivered, when, in what format and by whom. This helps to ensure that the team delivers projects as one collaborative effort, using current information to avoid abortive time.

Two key documents that ensure this happens are

the Exchange Information Requirements (EIR) and the BIM Execution Plan (BEP). The EIR is a scope of services provided by the client and the BEP forms a technical response to these client requirements, providing instructions to the delivery team as to how the project must be fulfilled.

New challenges

Whilst architectural practices have been utilising BIM for quite some time, the concept has more recently been introduced to the MEP sector. This means that consultancies and contractors find themselves chasing the curve to adapt to a relatively new method of working. Therefore, it should come as no surprise that the majority of BIM information managers are usually from an architectural background due to their longer-term experience in model and data management.

This means that often the information manager's instinct is to be concerned about the number of clashes that are identified during federation. However, the design will be subject to changes a number of times before it becomes finalised and whilst services co-ordination can be quite tricky and involved, it is pointless to carry out detailed co-ordination until the time at which the layouts become frozen and the design fixed. It is therefore important that the information manager understands how MEP modelling progresses and why these issues may occur.

RIBA stages

As all delivery team models follow the RIBA stages, it is important to document the modelling responsibility and "level of information NEED" required at each stage, so that all team members have a crystal clear understanding of what information is required from them. A model responsibility matrix does exactly this, breaking down the tasks and assigning them to a responsible party. The RIBA Plan of work handles this well for architectural elements, but it is not definitive enough for the MEP elements, so the MEP industry supplements this with BSRIA BG6 to break down the MEP into specific tasks.

The sole purpose of the MEP Concept model produced at RIBA Stage 2 – 'Concept Design' is to confirm plant space requirements, riser space allocation, and to determine adequate space for the primary distribution routes of the MEP services. Whilst modelling at this stage appears relatively simple and uses placeholders to allocate space, an enormous amount of engineering work goes on behind the scenes to ensure that adequate space has been allocated so the design team do not run into complications at later stages. Failing to carry out detailed engineering checks at this stage can have significant implications for the future success of the project. Also, at this stage, structural elements are considered but may be encapsulated in the distribution routes.



At RIBA Stage 3 – ‘Developed Design’, the initial design intentions are laid out along the primary distribution routes established at Stage 2. This is to validate and confirm that proposed routes are acceptable, with sufficient space to provide an achievable solution capable of being installed within the building. Physical elements replace placeholder information and primary structural elements must be taken into consideration. Ultimately, there should be no issues with spatial requirements at this stage and these secondary checks use physical elements to provide confirmation. Any issues that may have been overlooked at Stage 2 are captured, whilst there is still time to develop a workable solution.

At the completion of this stage, all primary routes will be fully co-ordinated and pinch points along the way identified, where any element of risk exists. Where services installation is not achievable, workshops should be held to find a solution, which may involve changes to the architectural and structural elements.

Clash concerns

Early Stage 4 is usually where information managers become increasingly concerned as the design develops into the technical design stage and a significant number of clashes exist within the model. Although the developed design has been completed, there are often ongoing changes within the architectural and structural models. This is often due to design development, which may seem insignificant but has major implications for the MEP delivery team.

Typical contributing factors to these clashes include the re-allocation of rooms, changes to ceiling heights, increased depth of structural elements, and client variations. These changes may not only have implications in the immediate area but all the way back to the primary plant equipment.

The final co-ordination of MEP services is quite involved and takes considerable time, as it is vital to not only ensure that adequate space is available but also that installation is achievable. This is achieved by using best practices,

realistic tolerances and ensuring that provision has been made for access, maintenance and plant replacement.

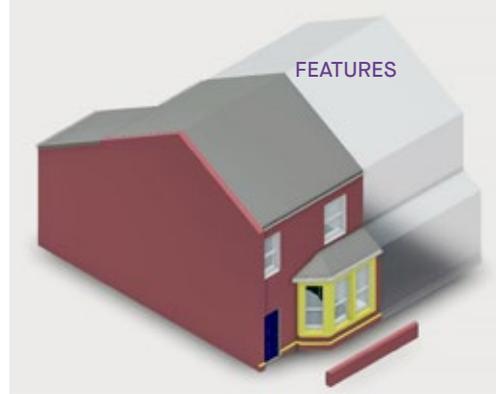
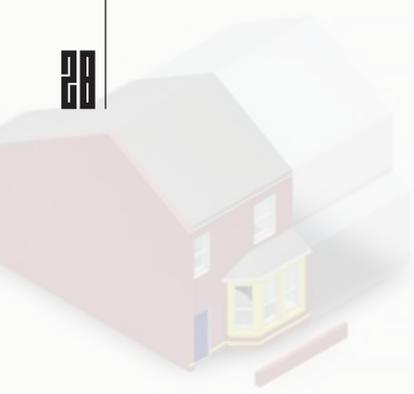
The initial focus must be to ensure that the fundamental design is finalised so that it provides the desired conditions for the building. It is not uncommon to then produce a tender package of information in 2D, to allow the lead appointed party to go out to market for pricing. Once the design is fixed, the co-ordination can commence. As this can be a time-consuming exercise, it makes sense to carry out this work only once to avoid abortive work.

The MEP modelling may simply be carried out at a set of pre-determined heights in order to produce the required information. In this circumstance, the primary focus is on the design and not project co-ordination. Once this package of information has been submitted, the co-ordination takes precedence and clash detection is carried out to resolve any co-ordination issues. As a result, the model may contain many clashes until the design is finalised.

In summary, the MEP services design is subject to considerable change, due to factors that are outside of the designer’s control. It is therefore important to ensure that the MEP design is fundamentally correct before commencing with co-ordination work, as small changes can have a big impact and result in a large amount of abortive time. During the design stage, MEP models will inevitably contain clashes. However, provided that adequate space and distribution routes for the services have been established at the concept design stage, co-ordination should not be too much of a concern until the fundamental design is finalised. It is therefore important to be selective about which issues require the design team’s immediate attention. ■

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There's no BIM like home Part 11

Words by Dan Rossiter BSC (Hons) MCIAT, Chartered Architectural Technologist

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

After population of my mechanical model; I have populated the assets within my electrical model, but before that a quick update on last issue's COBie issues. I mentioned that no matter what I tried I could not get my classification to exchange correctly. It turns out that I had not defined the classification system in the exporter, now that I have there are no issues. So with that out of the way, lets talk about mindful modelling; ensuring that you produce your information in a suitable way to satisfy others' needs.

How you model can have a big impact on the amount of data that can be recorded against an object and depending on what information is needed, it can dictate how something should be modelled. For example, take my living room light:

It is simple enough, I have:

- Rodd, a free standing floor lamp from Ikea;
- Hue, a smart LED bulb from Philips; and
- Nymo, a lamp shade also from Ikea.

While this may look simple, but getting the right data about these objects is tricky.

To start with, if I modelled them as a single object how would I deal with the fact that they have two different manufacturers, the cost of each item is different, and many aspects like their expected service life, colour, material, are different? Also, as I have used a fancy smart bulb, it is the most expensive item here (and therefore the one I care about retaining information on the most). Here is a breakdown:



With this in mind, I have opted to model each item separately and create an 'assembly'. If you are not sure what an assembly is, it is a method of grouping objects into a schedule-able component made up of a number of individual components, if you will components within components. Once set up it allows each assembly to be recorded when I export my information into COBie.

These items are also broken down into their components too within the 'components' tab. Now that they each have their own row I can collect all of the relevant information I need about each object, so this method has worked perfectly for my needs as the end user.

After considering how I want my data to be exchanged, I have created a number of assemblies to allow me to capture the information I need in a form I am comfortable with. At the same time, I have also produced my other electrical objects so that I have a full electrical asset register consisting of lighting, fire detection, sockets and switches.

This means that subject to ensuring that the correct property data is attached, I have now fully populated my electrical model; therefore once I have amended my architectural model plain language question PLQ2.4 will be complete!

Having assembled my light fixture using mindful modelling got me thinking about soft landings and the importance of involving others in how information is developed.

What do I mean by soft landings? Well as defined within PAS1192-2, a soft landing requires graduated handover and aftercare based on stakeholder requirements developed from the project outset. Doing so allows those who operate an asset to get involved in the design process; impacting on how the asset will meet their operational needs.

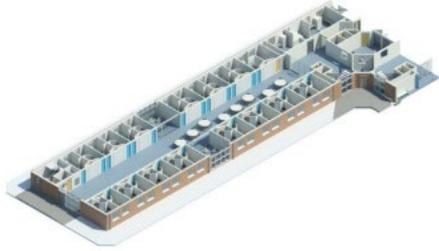
The case for soft landings is clear. Design and construction actually plays a very small part in an assets life. This is colloquially referred to within industry as the 1:5:200 rule with:

- 1: cost of construction
- x5: cost of operation
- x200: cost of business operations

Now imagine if you could influence the design, to help streamline the operation and business costs? Well, in short, that is what soft landings does.



Cookham Wood Prison is a good example of this. In short, consultation with prison governors challenged the design to improve the transfer of sound from the wings into the central core, meaning that less staff were needed to monitor the wind; saving a significant amount of money.

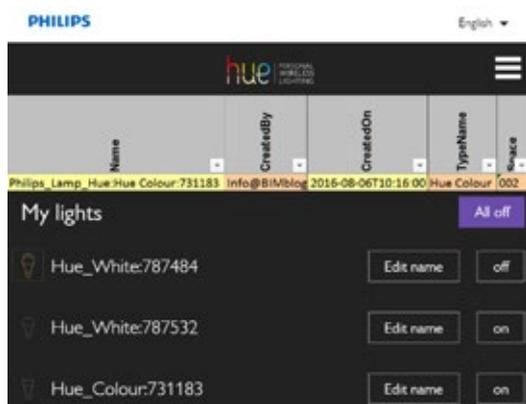


Soft landings help improve the efficiency of an asset, as a result of this they have been included as part of the UK BIM Level 2 suite of standards through the inclusion of BS8536-1; Briefing for design and construction. BS8536-1 was developed in line with the principles of soft landings and includes a number of activities and deliverables that could be considered during each work stage; some of which I have incorporated into this project.

When developing my plain language questions, I used BS8536-1, and the MoJ example PLQs to consider what information I wanted to know as the operator and end user of my house. This has led me to ask questions like: “What assets are contained within?” so that I know assets require consideration; “3.2 What assets are in a poor condition?” and “3.3 What costs can be attributed to my assets?” to allow me to draft a planned maintenance schedule; and “3.4 What are the most cost-effective thermal improvements that could be undertaken?” to allow me to look at the feasibility of some retrofit work.

This mindset has also allowed me to challenge how information is being produced on the project such as creating light fixture assemblies to ensure that I can capture the information I need to manage my assets.

Because of this decision, I have opened up now possibilities on how to use this information. For instance, I tweeted an image of my Philips hue dashboard showing how the names of my objects correspond with what was produced within my information model.



And this is really all BIM is trying to achieve. In its simplest form, BIM is:

‘Getting the right information: to the right people, at the right time, in the right format’ – Me (now)

Soft landings and BS8536-1 is a core part of this, and has allowed me to put on my operational hat to consider my future needs. Resulting in a model with enhanced information; meaning that when I begin to use this data to operate my house I will be able to hit the ground running thanks to this much softer landing...

After a short diversion to consider the importance of soft landings; it is time to finish populating my

architectural model to answer our currently plain language question, PLQ2.4.

Now as you would expect, even without any equipment or loose furniture, my architectural model has the most component (individual objects) out of my three models. However, it is important to understand that just because it is in my model and I want to capture information about it does not mean that I plan to manage it, so much of it will not be appearing on my COBie sheets.

As stated by NIBS, COBie is :

COBie is an information exchange specification for the life-cycle capture and delivery of information needed by facility managers. COBie can be viewed in design, construction, and maintenance software as well as in simple spreadsheets. This versatility allows COBie to be used all projects regardless of size and technological sophistication.

What is important here is that the information is for ‘facility management’, this means that I need to consider which of these components that I (as the facility manager) need to manage my home.

Currently between my three graphical models I have hundreds of components (including the kitchen sink!). These graphical models are intended to hold *all* of my components, but my COBie sheet is meant to exchange those components I maintain.

For a component to be considered ‘maintained’ is quite subjective, and to be honest can often depend on the component itself. Luckily as a starter for ten the National Institute of Building Sciences (NIBS) in the USA have provided a schedule of components typically to be excluded from COBie within their Information Exchange standard under table 102. When compared against my architectural model a number of components are on the exclusion list such as: roofs (3), slabs (5), stairs (1) and walls (59). That is over two thirds of my components that I do not need to include as they are not maintained.

To be honest, that is a pretty good fit. If I replaced my carpet in the living room, I have not maintained the floor, I have maintained a finish I have placed onto the floor; the floor itself has not been modified. The same can be said for wallpapering my walls or painting my ceilings. Which means that now only have to consider a third of my architectural model when it comes to answering my next PLQ. This makes the process of creating and managing this information leaner meaning a much more manageable data set being exchanged.

This being said, these elements still need to be modelled and filled with the correct data as while they might not appear in my COBie, they will be needed when any works are undertaken at the house. So for now, I have made sure that even if they appear within the NIBS exclusion table, I have included them within my information model, but in a future post I will need to ensure any information exchanges exclude the right content.

Out of interest, in federating my models together I am very pleased with how well it represents the physical assets, and how the geometry has been kept to a minimum. At the time of writing, my architectural model is just over twelve megabytes; the equivalent of two or three MP3 songs; yet has enough information to represent all of the fixed components within my house.

Fantastic, this means that I have now fully populated my architectural, electrical and mechanical models; therefore plain language question PLQ2.4 is now complete!

Now that I have my components, it is time to make sure the right data is included within each of them so lets see what data is currently being exchanged and work out where the effort is required... ■

To be continued in the next issue.

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European BIM Summit 2020

Words by Amina Khanum, Assistant International Director and Nick Marriott MCIAT, Design & Engineering Standards Lead/BIM Manager

The Institute has supported the European BIM Summit (EBS) since its inauguration in 2015. The EBS is an international conference that takes place annually in Barcelona and organised by the Association of Surveyors, Technical Architects and Building Engineers of Barcelona. The Summit shares good practice in the use of BIM and its methodologies and promotes international alignment.

As a consequence of the COVID-19 pandemic, the 2020 conference was postponed from May to November as a virtual event. Renamed EBS+, the event attracted over 600 attendees.

Attendees had access to a range of presentations such as 'BIM Deployment Across Europe and the Role of the EU BIM Task Group', 'Understanding BIM Object Requirements' and 'The Future of BIM and Digital Transformations'. You can watch these online at <https://europeanbimsummit.com/en/ebs-finished/>

Nick Marriot MCIAT, a specialist in BIM development with more than thirty years of experience in the built environment sector, represented Architectural Technology and here he explains more:

"I work for the modular building company Portakabin as a Design & Engineering Standards Lead and BIM Manager. My career in the built environment sector spans 30+ years, in which time I have gained a broad range of experience within the industry and utilised Building Information Modelling (BIM) as a working process since 2013.

I was invited to co-author a collaborative document produced for issue at the EBS+ alongside giving a presentation at the summit. Not one to turn down such an opportunity I agreed, electing to write on the topic of 'Industry Foundation Classes (IFC) in the Construction Process'.

Authoring the content for the EBS+ document was at times challenging, with each deadline arriving sooner than I felt prepared for! With the support of the organisers and my fellow contributors I was able to complete my submission, and I cannot thank everyone involved enough for their experience and patience in helping me reach that end point!

The three added-value documents produced for EBS+ were as follows:

- IFC in the construction Process – Nick Marriott MCIAT/ Pilar Jimenez/PlanBIM
- Towards a Unique CDE for IPD – Jennifer McDonald/ Cristina Niculescu/Manuel Bouzas
- How to Implement ISO 19650 – Frederic Grand/Sergio Munoz/M Elena Pla

The completed documents were made accessible for comment to the participants in attendance at the online-based BIM summit, creating an internationally reviewed collaborative working document.

For the presentation itself, I prepared a piece on the use of IFC and BIM, considering the opening question 'Have we addressed the lifecycle of the data?' I continued



Fig 1.1



Fig 1.2

with a brief review of the over-complicated world of the CDE, reflecting on the new office of 2020 for many being the kitchen table (Fig 1.1). I concluded with my thoughts on how I see BIM being utilised over the next five years and the role the UK can play in this, noting the significant adopters to this being the Hackitt Report, The Building Act and ISO 19650 combining with accessible technology and the required level of human skill via the appropriate training and education of those involved in the processes. (Fig 1.2)

Despite the video-based nature of the summit, and not normally feeling the pressure of public speaking, I did feel nervous waiting for my moment to speak. I am not sure how well the audience understood my Yorkshire accent, nor how it translated to Spanish, I did however feel a sense of accomplishment when my five minutes had finished!

Although I was also in attendance at a round table discussion following the presentation, a Spanish to English translation service was unavailable which unfortunately left me unable to answer any questions, an issue also faced by the other non-Spanish speaking delegates. Thankfully, this was rectified for later discussions.

I did however follow the rest of the day and speakers with great interest, and would highly recommend looking up Randy Deutsch from the University of Illinois, USA, author of *Super Users* and *Data Driven Design and Construction*.

My involvement with the EBS in 2020 was a thoroughly enjoyable experience on both a personal and professional level, and I would recommend the European BIM Summit in April 2021 to anyone wanting to hear some of the world's brightest minds in and around the world of BIM discuss the latest insights and advancements in BIM. ■

Gerald Lockard MCIAT, currently working in Australia for Laing O'Rourke as a BIM Manager/Digital Engineering Lead, delivered a presentation on a case study explaining his experience on developing BIM projects in infrastructures. Gerald has over fifteen years of experience in the design and delivery of construction projects using BIM in Australia and within the UK. More information on Gerald's presentation will be featured in the summer issue.

Architectural Technology research at Sheffield Hallam University

Words by Dr Gabriel Tang and Dr Karam M Al-Obaidi, Senior Lecturers in Architecture, Sheffield Hallam University

The Institute, as part of its Accreditation procedures, recognises educational establishments as Centres of Excellence for demonstrating a robust research culture, which has a direct and significant impact to the discipline of Architectural Technology. Not only do educational establishments prepare future professionals, they are also responsible for some of the innovation which is being adopted by industry. The research institutes within our four Centres of Excellence are highlighted in *AT Journal* this year and we begin with Sheffield Hallam University.

At Sheffield Hallam University, Architectural Technology research is described by four main themes of inquiry:

1. Practice and Management
2. Building Performance and Energy Efficiency
3. Construction and Materials and
4. Digital Technology



1. Practice and Management

The role of the Architectural Technologist in the 21st Century is changing. The way by which Architectural Technologists adapt to new architectural service environments drives our research. The theme concerns methods and ways of conducting commercial Architectural Technology practice. Our research looks into how Architectural Technologists could increase effectiveness and productivity in the industry. External factors of policy and regulation also shape our research. Broadly, we are interested in areas of construction management, business economics and professional practice.

2. Building Performance and Energy Efficiency

In a world facing climate change, to achieve environmental comfort, the scientific and measurable understanding of how buildings perform is important. This understanding improves how Architectural Technologists create sustainable buildings which are fit for purpose and are environmentally appropriate. Our research is covered by two key areas- firstly, investigating indoor/outdoor environmental conditions including thermal analysis, daylight and artificial lighting, ventilation and air quality; secondly, developing sustainable building technologies, including passive, active and hybrid systems.

3. Construction and Materials

The notion of building correctly in the 21st Century intrigues our research in the area of construction and materials. We invent new building methods and materials to solve past, present and future challenges facing our built environments. As well as being provocative, futuristic and speculative, our researchers examine historic methods and materials developed over centuries, to understand and apply ancient wisdom to construction problems today. Our specialism spans different materials, from stone, masonry, concrete, thin shells, lightweight construction and hybrid framed systems to timber materials such as CLT. We are interested in construction methods innovations and have developed expertise in concrete formwork, specifically fabric formwork. Our university has conducted material research and laboratory testing commissioned by private and government bodies such as English Heritage and BRE in the past.

4. Digital Technology

Our research focuses on the application of digital technologies for problem-solving and/or allowing us to see and understand problems better. We research in computational design using computer softwares such as *Dynamo* and *Grasshopper*. We conduct research in virtual reality (VR) specifically on digital LiDAR scanning and digital fabrication. We are also developing research interests in information management and big data, as well as interactive environment using hardware (microcontrollers) and software (computer programming). Additionally, we have expertise in environmental analysis tools such as IES-VE (heating/ cooling), CFD (ventilation) and radiance (daylighting/ lighting).

Architectural Technology research at Sheffield Hallam University is often cross-disciplinary and aimed at being impactful and practical. Working at the cutting edge of technology, our research often informs our teaching practices.



Case Study 1

Construction and technology of lightweight structures

Dr Gabriel Tang

Over the years, Sheffield Hallam University has developed an international reputation for combining technology research with life-scale construction of shells and lightweight structures.



In 2016, to mark the Festival of Making in Sheffield, UK, a lightweight gridshell was designed and built. In collaboration with Swiss and Dutch engineers and architects based then at ETH Zurich, the 10m x 10m double-curved structure was constructed by students

using glass-fibre reinforced polymer tubes. The structure was form-found and analysed digitally.

This event coincided with the release of the Routledge book *Timber Gridshells* co-authored by Dr Gabriel Tang. A series of public lectures on the design and construction of related structures was organised. Accompanying this was an exhibition based on the book that charts the development and evolution of timber gridshells in the last five decades.

This experimental construction builds on previous investigative workshops on the design and construction of lightweight structures made from bio-based materials such as pine timber and bamboos. In previous years,

construction workshops involving the design and construction of lightweight structures had also been organised successfully:

- 2014 Reciprocal Frame
- 2013 Concrete Canvas
- 2011 Timber gridshells
- 2008 Bamboo gridshells

Our research is driven by the need to use materials economically to produce sustainable technology solutions in a resource sensitive world. These blue-sky investigative research harnesses technical creativity within a specific time-frame. Further exploration in lightweight construction is being conducted at Sheffield Hallam University. Results of this research are disseminated at international conferences and technical papers in journal articles.

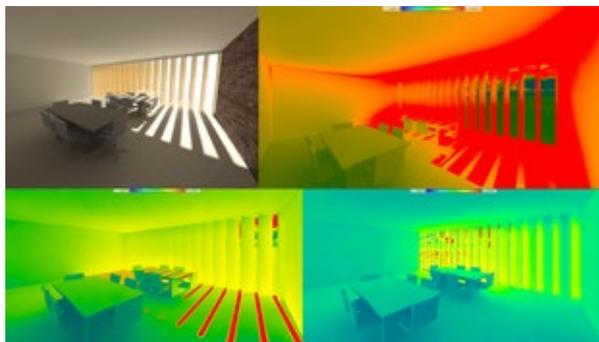
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Case Study 2



Design Optimisation of Responsive Shading Systems

Dr Karam M. Al-Obaidi

The advancement in software and hardware technology offer new opportunities for architectural technologists to create responsive systems. This development has provided innovative solutions to improve shading systems and a new paradigm to respond effectively to environmental factors. Technological systems in buildings are diverse based on preferences to meet user comfort, energy efficiency and building standards. However, Hi-Tech systems are commonly perceived as a technological trend rather than architectural systems. Furthermore, most simple dynamic shading systems were assessed against energy demand, whilst the complex models were frequently evaluated based on daylight performance. On the other hand, assessments of thermal performance criteria are limited and occasionally considered, whilst energy generation, ventilation and view are rarely addressed. These technical and environmental aspects of system development present a challenge for architectural technologists.

Cutting-edge research in the area of responsive architecture is being conducted at Sheffield Hallam

University in collaboration with researchers in Malaysia to advance the system performance based on integrated design objectives in tropical and temperate climates. The research examines geometries, motions, mechanisms and control strategies of different dynamic models. The research distinguished two levels in responsive design: (i) macro-scale level, which focuses on the composition of units, elements and movements and (ii) micro-scale level, which focuses on the geometric shape, sizes and motion layout at the level of the shading unit. In addition, this research engages with essential aspects related to automation and control systems, which include sensors, actuators, controllers and software. This engagement considers important to simplify controller technologies in architectural designs that resulted in distinguishing two paradigms, namely, responsive/reactive and interactive systems. The research is in the development stage and managed to establish a classification model and a systematic framework for designers. Finally, to gain more insight into the research, further details about research progress have been published in the journals of *Automation in Construction* and *Solar Energy*.

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Changes to the IR35 rules explained

Words by Claire Halle-Smith, Partner, Wright Hassall

With new IR35 rules governing the use of contractors and freelancers expected to come into force in April, this article explains how businesses should go about ensuring compliance.



It is not uncommon for businesses across a range of sectors to use the services of self-employed contractors and freelancers to complement their permanent workforce, especially during busy periods when the extra help is needed.

If you are a contractor, or a client company with contractors on your books, you will know the IR35 rules will be changing from 6 April 2021 which will impact the way services of such contractors are purchased.

It is crucial that steps are taken to ensure compliance once the rules are changed – it is best to act early to avoid any issues later down the line.

How we arrived at this point

Previously, contractors and the client companies using them could enjoy significant tax advantages by providing their services via an intermediary, such as a personal service company (PSC).

It did not take long for HMRC to clamp down on PSCs, ruling that they were being used as tax avoidance vehicles. This led to the implementation of the off payroll working rules (IR35), designed to address 'disguised' employees.

In 2017, the IR35 rules were amended. Public sector organisations were made responsible for determining the employment status of those they contracted via PSCs and for paying the income tax and NIC for those deemed to have employee, rather than self-employed status.

From 6 April, this requirement is being extended to large and medium-sized businesses in the private sector.

What now for employers?

All client companies in the private sector will have to comply unless exempted by meeting at least two of the following criteria:

- An annual turnover of less than £10.2m
- Balance sheet total of less than £5.1m
- Fewer than 50 employees

Non-exempt organisations must determine the nature of the employment relationship they have with their contractors. This has proved key in a number of recent challenges brought by HMRC and the four main principles on which the relationship will typically be judged are:

1. **Control:** what control do you have over the contractor (e.g. what, how, when and where they work)?
2. **Substitution:** can the contractor substitute a suitably qualified person to act in their place?
3. **Financial risk:** how much financial risk is borne by the contractor?
4. **Mutuality of obligation:** are you obliged to give the contractor work and are they obliged to accept any work you give them? (The HMRC online test to check employment status, CEST, does not consider Mutuality of Obligation, assuming that it exists in every contractor engagement).

Having assessed the employment status of their contractors, the organisation must issue them a 'Status Determination Statement' (SDS) which confirms whether the contractor is genuinely self-employed or now considered an employee, giving reasons for the determination.

HMRC will deem the client company liable for tax and NI contributions until the contractor (and agency or other organisation that contracts with the client company) is told of the status determination and reasons for it.

When the contractor is deemed to have employee status, subject to tax and NI contributions, both parties will need to consider how to deal with the additional tax cost.

Companies must ensure their systems are structured appropriately for IR35 and create a system for addressing any challenges raised by contractors in terms of the employment status determination, with legal advice a helpful step in getting things right.

Drawing the right conclusion

The first step for organisations that actively employ the services of contractors and freelancers is to review the terms of their engagement thoroughly, even if these services have been sourced through a PSC.

Until the contractor and the person the contractor contracts is given a determination and reason for it, then client companies are liable for tax and NI contributions.

HMRC shows no sign of softening its stance towards those it suspects of tax avoidance and it will be learning from experience to improve its future success rate in court.

Attempts to bypass IR35 and the implementation of tax avoidance schemes should be treated with considerable caution, as most will not go undetected and do not have approval from HMRC. ■

Just when business owners thought it could not get any worse...

Words by Simon Hughes, Partner, Taylor Walton

As the economy creaks under the strain of a third lockdown, along comes the Office of Tax Simplification (OTS) report to add to the bad news.



The report, the first to consider Capital Gains Tax (CGT) specifically, was undertaken in response to the Chancellor's request 'to identify opportunities relating to administrative and technical issues as well as areas where the present rules can distort behaviour or do not meet their policy intent.'

Simply put, the Government is looking for new sources of tax revenue to replace the billions spent on addressing the coronavirus pandemic. In the current climate, it looks like targeting wealth creators will be the likely route, so business owners should expect some impact.

Tax grab to pay the COVID bill?

The OTS report makes suggestions that will fundamentally change the capital gains tax rules in the UK if adopted and any outcry proves no deterrent. One suggestion is to align CGT rates with income tax rates, which will significantly increase the tax paid when a business is sold.

There have already been mutterings from within Government that the money to pay the COVID-19 bill will have to come from somewhere and it is unlikely to be another round of austerity, so we have to accept CGT rates will probably increase in the new year.

The news is another blow to those business owners considering a sale, having only just recovered from the reduction in March of the entrepreneurs' relief (now Business Asset Disposal Relief) limit from £10 million to £1 million,

with any balance of CGT payable at a rate of 20%.

If as suggested in the OTS report the rates are aligned in the Budget, this 20% rate would be increased to 45% and owners will pay a huge increase in tax following the sale of their business.

Keep calm and sell wisely?

Whilst the economic impact of the pandemic is expected to extend into 2021 and beyond, it may not be the easiest time to sell a business, but for those ready to sell, there remains a window for still extracting maximum personal reward from any deal.

If you are already in discussions with a potential buyer, it is crucial that at the earliest possible opportunity you require them to execute a Non-disclosure Agreement and only then proceed to full legal documents once the prospective transaction is well-described in a 'heads of terms' agreement.

If you are trying to sell now before any changes to the CGT rules it is critical to get the advice of experienced corporate lawyers who will ensure that as the seller you do not make easy or unnecessary concessions early on in the 'heads of terms', before the deal becomes binding.

With the right advice at an early stage, there is more likelihood of being able to get the buyer to commit to key points crucial in maximising the value you can generate, which might include:

- **Cash at Completion:** this maximises the up-front payment made to you and minimises any extended earn-out;
- **Security for deferred payments:** if any payments are to be deferred, it is important to establish what security the buyer can offer;
- **Clarifying what the price really means:** it is also crucial from the outset to properly describe the interdependence of price i.e., whether it assumes a cash-free, debt-free asset and whether a target level of working capital is required;
- **Locked box vs completion accounts:** proposing a locked box structure instead of completion accounts. This generally favours the seller by accelerating any asset-value disputes to a point, before signing the share purchase agreement, when you have more bargaining power, rather than after completion when the buyer arguably has greater leverage;
- **Liability limitations:** establishing the level of financial-based and the duration of time-based limits on the seller's warranty liability;
- **Buyer's ability to fund:** establishing whether the buyer requires third-party financing to complete the deal and whether that introduces greater uncertainty to the prospect of a deal;
- **Timetable:** setting timetable expectations and limits on any exclusivity period

These are just a few considerations and a conversation with an experienced corporate law team, will undoubtedly throw up a lot more pertinent ones, but the key thing is to seek advice early in the process, long before you talk to anyone, even close associates, about selling your business.

If you hope to sell your business, any corporate lawyer will be happy to talk you through the process and explain what is possible in the time available to ensure you extract the maximum value from the sale, whilst making the process as painless as possible. But do not wait too long. ■

... we have to accept CGT rates will probably increase in the new year



Construction Client Buddy Scheme

Words by Gren Tipper, Director, Construction Clients' Leadership Group (CCLG)

The Client Buddy Scheme was developed by experienced clients in collaboration with the Health and Safety Executive's industry group Supporting Small Employers. An industry-wide group working together to reach and influence occasional clients.

The overall aim is to help ensure the best possible value is derived when investing in construction, and importantly that clients understand their obligations and duties as a 'construction client' under the Construction (Design and Management) Regulations 2015 (CDM 2015). These clients and their suppliers are often small business owners who are least familiar with their duties under CDM 2015.

There is extensive good quality guidance material available to business owners that find themselves becoming construction clients, but it is not always easy to find what they need.

Guidance is written from many viewpoints including design, procurement, contractual, health and safety and numerous others. The Buddy Scheme addresses this by providing a website linking to trusted guidance material:

- Guidance for new clients including common pitfalls to which they need be aware.
- Best practice examples in the form of case studies and standards on a range of topics.
- Where to find professional support.

The buddy scheme is live and CCLG hopes that through industry collaboration it will eventually become a sustainable national scheme.



the scope of a project is uncertain and the risks not fully understood.

Research shows us that a disproportionate number of incidents, injuries and fatalities occur within small businesses. It is reasonable to assume that a similar picture exists in relation to time, cost and quality outcomes. Poor outcomes predominantly being the result of getting the early stages of engagement wrong and leading to the worst possible client, designer and contractor relationships.

One of the biggest challenges faced by less experienced clients is around procurement and understanding what construction should cost when delivered properly. Many opt for fixed price arrangements, even when



This can encourage the wrong behaviours when the full time and cost implications do come to light, having a negative impact on quality, health and safety, and frequently disrupting clients' businesses.

There is a wealth of information and guidance available to inexperienced SME clients, but this assumes they know where to look, and how best to apply the information in a measured manner. The Client Buddy scheme will help ensure the SME clients are directed to the right information and give them the opportunity to ask questions if they need clarification on any points.

We are building case studies on various types of work which people can go onto the website and view. The hope is that by looking at what other business owners have done, new clients will pick up most of the answers to questions they will want to ask. If they have any more questions after that, they are able to fill in a form online and we will arrange a call to discuss things in more detail.

The buddy scheme is live and CCLG hopes that through industry collaboration it will eventually become a sustainable national scheme and be able to be extended to include domestic clients.

This free to access scheme is sponsored and supported by:
Construction Clients' Leadership Group
Health and Safety Executive, Construction Industry Advisory Committee
Department for Business, Energy & Industrial Strategy
Chartered Institute of Building

For further information please visit cclg.co.uk/clientbuddy ■

Honorary Officer elections 2021 nominees standing for election

Following the call for nominations in the last issue of *AT Journal*, each candidate now takes the opportunity to explain why they should be elected and present their manifesto.

Honorary Secretary

Nominated candidate: Gordon J Souter MCIAT

I am delighted and honoured to have been nominated again for the position of Honorary Secretary. If elected, I will continue to serve the Institute with immense pride, passion and dedication.

I have been working in the construction sector for over 30 years. During this time, I have worked mainly in the house building sector holding a number of positions from Architectural Technician to Technical Director and I am presently Design Manager for Persimmon Homes North Scotland. My experience within the house building industry has provided me with the skills, I believe, are required to be Honorary Secretary of our vibrant and evolving institute.

I have been a member of CIAT since 1993, involved at Regional level for around 20 years – Chair, Secretary, Councillor and CPD Officer; at national level for the last sixteen years – Council, Executive Board, Conduct Committee and Documents Taskforce. I served on the Building Standards Advisory Committee for a number of years until it was disbanded, Chairing the working party on compliance. During this time, I have gained a sound knowledge of the workings of the Institute and it is this acquired knowledge which I would utilise to maintain the reputation and stature of CIAT.

I am passionate about the Institute and I believe I have shown this by my commitment to the committees I have served on and the positions I have held. As our Institute is run by the members for the members, it is important that members give their time to continue the growth and enhance the recognition of CIAT. I will always encourage members to get involved, especially the youth, as they will shape the Institute's future.

Whilst the position of Honorary Secretary is not as high profile as that of President or other offices it is nonetheless an important position. At this time, the Institute is functioning well and as Honorary Secretary I would maintain this by dealing with potential issues swiftly and efficiently, as well as providing support to my fellow Officers and the staff at City Road. I am not afraid to make the tough decisions when/if required.

It is my belief that the position of Honorary Secretary requires a steady and level-headed approach, with good analytical and mediation skills to ensure the smooth operation of the Institute and the correct application of its policies and procedures. I possess the necessary attributes to ensure this process is maintained.

Over the last few years, CIAT has moved forward in



stature and recognition both nationally and internationally and I would endeavour to ensure any new policies and procedures put in place enhance this status, now and into the future. I would also strive to ensure the workings of the Institute continue smoothly and deal with potential issues swiftly and efficiently.

An important part of any organisation is to ensure that the Regulations and policies are current, fit for purpose and where possible future proof. I have, and would continue, to work closely with the staff and other Officers to ensure currency of the Laws of the Institute, if elected.

I will also work closely with the Chief Executive, staff and Officers to drive forward the Corporate, Strategic and Business Plans to the benefit of the Institute.

I do not have an agenda for radical changes however if I see an opportunity to change systems for the benefit of the Institute, then I will work with the appropriate Officers and staff to implement the changes as smoothly as possible.

If elected, I would serve with diligence and dedication for the betterment of the discipline of Architectural Technology and in particular CIAT.

The position of Honorary Secretary requires the review of a lot of documentation which can be undertaken remotely. Therefore, the position does not require an excessive time away from home or work which I can easily balance.

I would consider it an honour and a privilege to be given the opportunity to serve the members of the Chartered Institute of Architectural Technologists for a further two years.

Vice-President Education

Nominated candidate: Nooshin Akrami MCIAT

I have been a member of the Institute since 2002, as a student and involved since 2012 as a Regional Committee member and as Regional CPD Officer (2012-18) for the North West. I am currently the Regional Councillor and honoured to be elected a Trustee of the Executive Board (2020-21).

I also represent the North West Committee at the CIC Regional Committee as Vice-Chair.

I have supported the Institute with membership assessments and have been supporting and mentoring members with their preparation towards Chartered Membership. I was part of an Evidential Review Panel in 2019 and the Gold Award Panel in 2020.

I have a First Class Honours degree in Architectural Technology and a Master of Science in Planning



Sustainable Environment. I am a Fellow member of the Higher Education Academy and hold membership with Institute of Environmental Management and Assessment too.

I was the Programme Leader for the BSc (Hons) Architectural Technology programme at the University of Bolton, as an Accredited programme, between 2011-17 and have been actively engaged with different relevant meetings and events supported or organised by CIAT.

I am passionate about the environment, passionate about education and a believer in the value of collaboration. I am truly honored to have been nominated for this post and I see this as a challenge to rise-up to, to become a better version of myself. This would be the best way I could make a difference, through becoming the change I want to see, and I would cherish your support and willingness to join in, for us all, to rise-up together.

My top priority is to promote the AT discipline as far as it can go, through collaboration for widening participation and synergy with internal and external stakeholders. The AT profession has an immense potential to drive the sustainability agenda and I would like to see us as sustainability ambassadors leading the way with our industry peers.

Having been a programme leader and an educator, I understand the dynamics and complexities of higher education establishments, and as an industry practitioner, I recognise the relevance of skills set and the importance of applicability of education to the industry. Although the COVID-19 pandemic has taken over everything, climate change remains the key challenge facing tellurians. Our role, not only as the dominant species on planet Earth but also as those who hugely are responsible for the state of our planet, is to revisit how we do what we do and whatever it is that we do in order to reduce our negative impact. My hope is that I can contribute to this goal, by aligning my efforts with the Institute's strategic goals (2018-23).

- Widening participation is the motto of many higher education providers these days, yet the AT discipline, like most other disciplines in the built environment, does not necessarily project a diverse demographic of students, leading to an industry which equally represents a narrowed demographic diversity. We are quite fortunate to have a very diverse committee in the North West Region and I would like us to achieve a rainbow of industry made of all those least-tapped potentials who can enrich and grow our discipline.
- Sustainability and a holistic way of applying it to what we do and how we lead our lives as societies, are topics very close to my heart and I believe the biggest challenge of our time too. My hope is that with my knowledge and enthusiasm, I can contribute to a deeper consideration for sustainability and its application for a proactive strategic approach to AT education and discipline, and in general to the rising of the Institute's sustainability profile to ensure we stay ahead of the demand from our current and potential members who expect a more proactive approach from their professional body.
- Collaboration is the key for any society to meet impactful goals such as those relating to Sustainable Development Goals (SDGs) issued by the United Nations in 2015. I hope to bring the sort of traits which enhance the Institute's capacity for collaboration to help us as a leading professional body to do our part in a progressive way towards achieving SDGs and increase our potential for recruitment and membership through our commitment to sustainability.
- Financial viability of our Institute will be a side effect

of our growth in areas of environmental sustainability, social equality, diversity and, of course, effective technologies. We need to remain the professional body which mirrors the values of mindful and engaged professionals of all age, gender and backgrounds and my hope is to reflect these values in every engagement and representation on behalf of the Institute.

With years of experience and involvement with the construction industry across two different continents and three different countries, I have been an apprentice, a trainee, a technician, a technologist, a student, an academic and now a consultant. I have spent close to three decades learning and/or practicing the discipline of Architectural Technology.

I have lived through a revolution, ten years of war, 20 years of Iran's Islamic dictatorship and endured the hardship of migration, twice. Life has helped me develop character traits such as a resilience, compassion, courage and resourcefulness.

I am currently self-employed and although this does not mean that I have more time, it means that I have more control over my time. I believe that I can commit to the time needed for this role, and I am prepared to do it.

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Nominated candidate: Carl Mills MCIAT

It is an absolute honour to accept the nomination for Vice-President Education and being given an opportunity to present my manifesto and ambitions for the role.

Within education there are many challenges and opportunities we face as an Institute. The field has been subject to many changing landscapes over the past few years and post COVID-19 will bring more evolution.

As a Programme Director of Architectural Technology, Building Courses Leader and Admissions Tutor, I am acutely aware of the pressures our industry faces. We must continue the growth of apprenticeship schemes, collaborations with industry, maintain and grow our student numbers and continue the positive work undertaken with aspirATIion and young members.

We also stand in a positive position to grow our international market. Having been involved in the re-Accreditation process, the focused strategy with Danish universities is very innovative and can provide huge benefits to both Danish taught students and our Institute.

I am a passionate educator and supporter of our forward-thinking Institute and witnessing the success of events, such as the AT Awards fills me with enthusiasm and optimism. Continuing to showcase all that is best with AT is essential to attract young people to our profession.

Much of the good work done in educating young people about AT comes directly from the Regions and Centres. Being involved with my Region since 2012, I have been involved with many school and college visits and national events such as the National Careers Guidance Shows. Maintaining and growing the number of these public events are critical for our membership to flourish and encouraging Regions to get involved with these is essential.

To summarise, should you decide to vote for me I endeavour to use my passion and skill set to:



1. Work collaboratively to maintain and grow the upstream source of membership.
2. Support the advancement of our apprenticeship opportunities.
3. Engage industry to support AT education.
4. Explore international avenues and growth markets.
5. Continue to assist in developing aspirATIOn.

I look forward to seeing many of you in the lead up to the election and welcome any questions you may have in the meantime.

Vice-President Practice

Nominated candidate: Dan Clements MCIAT

It is an honour to be nominated for the role of Vice President Practice. I originally studied Spatial Design in the early 90's, followed by a stint in exhibition design. I started in architecture in the early 2000's and have been in professional practice for nearly 20 years. After a period of 'on the job' learning, I later achieved a First Class Honours degree in Architectural Technology from Northumbria University in 2009.



In 2015, I set up my own firm Aditus Architectural Services near Carlisle and since then I have been joined by two employees, developing a fantastic client base with projects within a range of sectors. Outside of running my business I am an on-call firefighter with Cumbria Fire and Rescue and Chair of Border City Lacrosse Club.

I have been a member of CIAT since 2010 and am the current Regional Councillor for the Northern Region having previously been the Regional Chair. I was, until recently, a Trustee on Executive Board and have been a Professional Practice Interview Assessor for many years now. I have enjoyed all the roles I have undertaken on behalf of CIAT and feel now is a good time for me to step up and undertake a new challenge.

Why vote for me as Vice-President Practice? As an active practitioner and owner of a CIAT Chartered Practice and someone who had previously been employed as an Architectural Technologist, I have a considerable insight into the requirements of practising Architectural Technology professionals. I would relish the opportunity to represent the Institute across a variety of forums and I have a wealth of experience with representing myself and my organisations.

The beauty of our profession is the sheer breadth and depth of our role in a variety of sectors and in all sizes of organisation. Whilst we may have come from an historical position where we typically played a support role within architect's practice, we have steadily progressed to a position of leadership and innovation within the industry. Architectural Technology has been moving forward and I believe it is the role of Vice-President Practice to assist with that journey, by ensuring the support, resources and profile keep pace with the speed of progress. I like to hope that I am known for being professional in my outlook and attitude, but also not afraid to speak my mind and speak up for the benefit of the Institute and its members and affiliates. I believe it is important that any elected officer be ready to contribute to every forum with which they are engaged and also to bring ideas, enthusiasm and positivity to the role. I believe I am that person.

Prior to accepting nomination, I was able to have some insightful discussions with the current Vice-President Practice, Rob Thomas MCIAT. In addition, I have been lucky enough to get a further insight into the role from Diane Dale, Practice & Technical Director at Central Office and have recently joined the Special Issues Taskforce looking at issues that affect our members in practice. I have worked closely at Regional level with the Vice-President Technical, Steven Hedley MCIAT and would look forward to continuing to do so if elected.

If elected, I would commit to work within the aims of the Institute and the agreed Corporate and Strategic Plans 2018-23. Whilst things are very different to how they were prior to the COVID-19 pandemic, change brings opportunity and I hope to assist our members and affiliates to make the most of that opportunity throughout the next two years. I hope to continue the fantastic work of the previous Vice-President's and the dedicated staff at Central Office and work hard to provide the tools that you, as practitioners, require going forward.

CIAT professionals have made amazing strides forward in recent years, I strongly believe I can work with our Architectural Technology professionals to continue that trend and to continue to elevate our profile as leaders in the industry. I would be delighted if you would consider voting for me in this year's elections.

We are in difficult times, the first global pandemic for a century and the unique challenges and opportunities associated with changing face of Europe and the increased development of the profession internationally. We are a global Institute with practising Architectural Technology professionals around the world, I seek to represent us all. I seek to build on, rather than re-invent, the initiatives of those who have come before. I have a desire to help practising Architectural Technology professionals to help themselves in whatever way we can, be it through visibility, resources or professional standards.

Looking at the five core tenets of the Strategic Plan 2018-23, I can offer the following explanation of how I see my role in supporting the aims of the Institute and its members and affiliates.

Leading and promoting the discipline of Architectural Technology and protecting its standards.

I would like to engage with as many practitioners as possible to help understand the requirements of our practising Architectural Technology professionals both as employers and employees and to engage with those who employ our members and affiliates but are not themselves connected to the Institute. I would like to continue to remove as many barriers as possible to the fair representation of our profession and ensure a level playing field for our members and affiliates, both those who run practices and those who are employed by them. I would seek to understand the barriers to progression within practice, employment within our industry and both the opportunities and barriers to winning work. First and foremost, I wish to ensure that I do as much as possible to continue to improve the prospects of our members and affiliates, whatever their position in practice. Fundamental to this is to continue to engage with external agencies and fellow institutes and build on the work of previous Vice-Presidents. I would also hope to attend key industry events to keep promoting the discipline of Architectural Technology.

Enhancing the profile of the discipline, the membership and the institute

I strongly believe that our profession produces some of the most enthused, adaptable and talented individuals within the construction industry. It is incumbent on us all to ensure that we get that message across and I will not shy from doing so at every opportunity. It is important that there is a strong emphasis on promotion of Architectural Technology to the public and to our fellow professionals, domestically in the UK and also internationally where we continue to see growth. Working with the Vice-President Technical and Education to ensure a common goal and a unified approach in working for the interests of the members and affiliates, is essential. There is a considerable cross over between Practice, Technical and Education, each with overlapping areas of mutual interest and opportunities to combine efforts to deliver maximum potential. The route to practising starts in education, the students of today become the practitioners of tomorrow and we need to ensure that we take every opportunity for promotion of the discipline. By working with Technical, we can hope to put in place the tools to assist our practising Architectural Technology professionals in their roles and by default enhance the understanding of our profession commercially.

Aligning, Collaborating and Partnering

CIAT has some fantastic domestic and international partnering agreements and memorandums of understanding. I am strongly in favour of working with other institutes and organisations for the mutual benefit of our practising Architectural Technology professionals. I do believe this can be enhanced by continuing to form relationships with key personnel and to engage in open and honest dialogue. It is important that this is a two-way street and that when working with external agencies we ensure that our members and affiliates are also protected against misinformed commentary, any attempts to limit function and restriction on employment opportunities and misinformation about what we represent. I would look to identify future collaborative opportunities and continue to broaden the opportunities for our practising Architectural Technology professionals through strong interpersonal relationships and networking.

Providing services for the benefit of members and society

On deciding to accept my nomination, my mind immediately turned to how we could deliver the best value for our practising Architectural Technology professionals. Perhaps the most valuable commodity we have is our recognition as competent professionals through membership of the Institute and the standards that it demands. Anything I hope to work on, if elected, will seek to add to the value to this already critical achievement. However, I am aware that there may still be gaps in professional services that we can and should offer. Some additional fantastic services are already in the pipeline and there are resources available that could maybe be made more accessible to our members and affiliates. I plan to work closely with our dedicated staff at Central Office to find ways to provide as much information and services to our practising Architectural Technology professionals. As a practice owner myself I am aware of the benefits of strong contracts and information on practice and employment law. I feel that these are areas we can continue to work on and enhance by reviewing our suite of information, identifying areas where we can assist Architectural Technology professionals and fill any gaps in documentation that we may have. We have and will,

witness a great deal of necessary change over the next few years, I firmly believe that we can assist our members and affiliates to be at the forefront of positive change and identify and fulfil their ongoing requirements to do so.

Remaining an effective and financially viable institute

The Institute is its membership. By adding value to membership, I would hope that we can add membership to the Institute and ensure a viable financial position going forward. This will enable us to be able to deliver on the strong vision that CIAT has for the Institute and its members and affiliates throughout the world. In addition, we can look at best value for the membership and how we resource it to ensure we continue to be financially viable and deliver on your membership. I will do everything I can to assist in ensuring that we have a long term, financially viable future.

How will fit in something as demanding as Vice-President Practice into my other commitments? I am lucky that I am surrounded by excellent people who assist me with both business and personal goals. I occasionally run out of the office to attend fires, but with an increased uptake on remote meetings and alternative working practices, I am positive I will be able to offer the time required to give my best to the role. When I set up my business, I consciously decided to do it on an ethical basis. I believe in treating people the right way, both my staff and my clients whom I believe should get best value for their trust in me. I try to live by my convictions, and I hope that in part I can help to improve the status of all our members in practice. The glass ceilings are coming down and we should continue to be leaders for change and progression, I hope to be a part of that drive. I would truly be grateful and honoured to receive your vote.

What happens next?

Candidates gave presentations at the Council meeting held on 6 March and we encourage you to liaise with your local Region, Centre or aspirATIOn about these.

There will be hustings held during the run-up period to the elections with all candidates – details on these will be circulated via *AT Weekly* and social media platforms

The full manifestos for the nominated candidates will be issued to members by email and found on our website. A campaign trail is now in progress with the election taking place at Council on 4 September 2021.

Key dates summary

Campaigning by candidates:

Now – 4 September 2021 inclusive

Election ealerts and updates on the website:

24 February – 4 September 2021 inclusive

Election at Council:

4 September 2021

Candidates advised if not in attendance at Council

Ealert announcing the election results:

6 September 2021

Assumption of position:

27 November 2021, close of 2021 AGM ■

CIAT Chartered Practices – launch of services to promote your CIAT Chartered Practice

'CIAT Chartered Practice', launched on 1 September 2020, is a protected title and listed within the Royal Charter. As such, only those practices who have been placed on the Register of CIAT Chartered Practices can use the descriptor, the logo and make use of these services¹. To assist in promoting your registered CIAT Chartered Practice, the Institute has developed a suite of brand-new services.

The services are:

- CIAT Chartered Practice Logo
- CIAT Chartered Practice Site Signboards
- CIAT Chartered Practice Plaque
- CIAT Chartered Practice Certificate

CIAT Chartered Practice Logo

The CIAT Chartered Practice logo is a great visual symbol to demonstrate that your practice is on the Register of CIAT Chartered Practices.



It offers impact to your brand and serves as an instant reminder that both you and your practice are registered with a professional body. It demonstrates that, as a Chartered professional, the services you offer and provide are of the highest calibre; engendering trust in those who seek reliable professional services and advice.

Use of the CIAT Chartered Practice logo builds on the commitment you have already made to your business, brand and clients through membership with CIAT. This logo, coupled with your Chartered Architectural Technologist protected descriptor, will enable you to maximise the communication of that commitment to your target markets and audiences.²

The CIAT Chartered Practice logo is free and available from the Practice Department. Please email practice@ciat.global

CIAT Chartered Practice Site Signboards Service

CIAT Site Signboards are designed to achieve the greatest promotional impact for CIAT Chartered Practices. They remain one of the easiest and economical methods of promoting your work. All registered CIAT Chartered Practices are encouraged to make use of the copyright protected CIAT Site Signboards, which are exclusively produced by CIAT.

Uniquely available to those on the Register of CIAT Chartered Practices, the range boasts three varying options:

1. With one line



2. With two lines



3. With three lines



Each variation providing a single line of contact details at the foot of the board can include address/telephone/ email/website details, subject to space.

The CIAT Chartered Practice logo, colour and lettering, all form part of the fixed template(s) and no additional graphics, logos or icons can be included. A QR code can be added upon request, in the top right corner only.

The signboards are available in standard sizes (4'x1' and 8'x2'), produced on 5mm rigid foamex board (suitable for outdoor), a vinyl sticker (suitable for windows) or a mesh banner (suitable for outdoor/scaffolding). Other sizes and materials are available upon request.

¹ If you are running more than one practice, each practice must be registered separately.

² Please refer to the CIAT Chartered Practice Logo Guidelines for further information on terms of its use, which can be downloaded here.

Here's a quick reference guide for your ease:

- The name of the practice must be the same as the one registered with CIAT.
- The CIAT Site Signboard template must be adhered to at all times.
- The template is issued under copyright and as such cannot be altered or amended in any way.
- Site signboards using the brand can only be obtained from CIAT.

To place an order

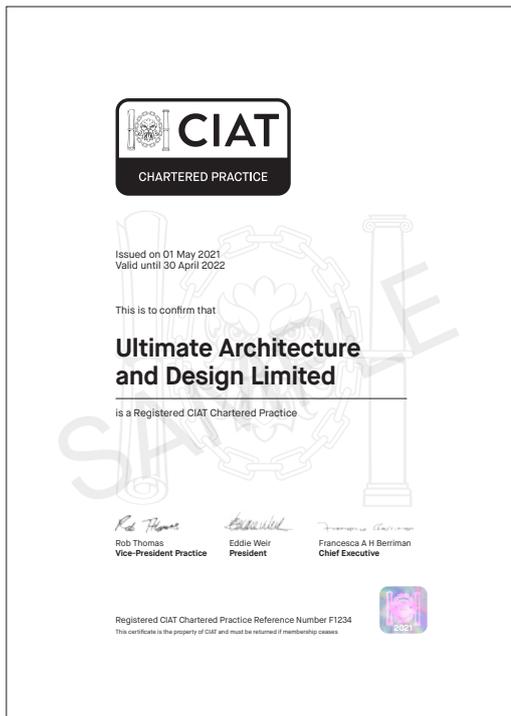
To place an order, complete the order form which you will find in the 'My CIAT' area of the website, and email it to ribadesignservice@riba.org

You will receive an email reply from the RIBA Design Services Team containing a PDF proof for your approval. Once your approval has been secured, they will contact you to take a card payment by phone before the board/s are issued.

Should you find that the board quantity you require is not detailed on the order form, please just indicate the amount you require in the covering email.

The cost (inclusive of VAT) of those board quantities not detailed on the order form are as follows:

- 4 boards – £40.00 per board
- 6-9 boards – £35.00 per board
- 10 boards and over – £30.00 per board



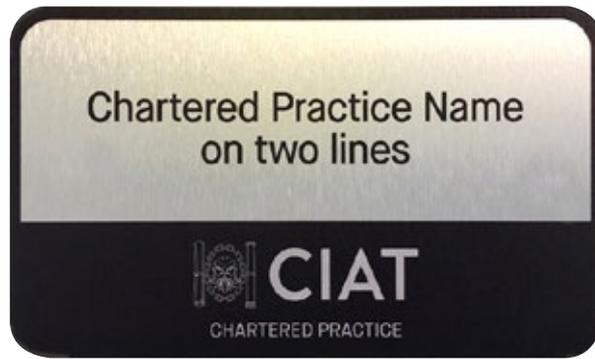
CIAT Chartered Practice Certificate

The CIAT Chartered Practice Certificate, which is issued annually from 1 May, is also exclusive to CIAT Chartered Practices. It provides a formal visual confirmation of your status that can be displayed at your practice. It has a dated hologram to validate its authenticity.

This A4 certificate will arrive in a presentation folder but you could also choose to have it framed yourself!

The annual introductory cost is £35 including VAT and delivery.

To order please contact the Practice Department, practice@ciat.global for further information.



CIAT Chartered Practice Plaque

The CIAT Chartered Practice Plaque is only available to CIAT Chartered Practices. It provides a stylish visual display of your status that can be displayed at your practice.

A landscape A4 rounded edged brushed aluminium plaque, finished with black detailing, echoing the design of the CIAT Chartered Practice logo. The plaque is UV proof and fully recyclable.

It can be fixed into place by drilling without fear of cracking, or even glued as it weighs just 223 grams.

The cost is £72 inclusive of VAT and delivery.

Your order can be placed by completing the CIAT Site Signboard order form and emailing the RIBA Design Services Team or alternatively, please email ribadesignservice@riba.org with your CIAT Chartered Practice name and number or call +44(0)20 7307 3737.

We are developing
new services –
watch this space



Conditions of use for these services

All of these services can only be used whilst you remain a Chartered Architectural Technologist and your practice is a registered as a CIAT Chartered Practice.

The CIAT Chartered Practice Site Signboards Service is an exclusive service. No other provider may be used to recreate this template. If you do decide to obtain a site signboard from another provider, then the CIAT brand, which includes use of the logo and CIAT Chartered Practice logo, is strictly not permitted for use. Any misuse of the brand will be subject to a referral to the Conduct Committee and/or legal action.

Copyright

The CIAT Chartered Practice logo is protected under copyright, issued under licence and cannot be changed or altered in any way. All uses must be approved in writing by the Institute. It may not be downloaded or copied from any source.

The CIAT Chartered Practice logo may not be used on, or with any, site signboards, plaques or certificates other than those produced by CIAT. ■

Fellow Membership, FCIAT – launching 22 March 2021

Words by James Banks, Membership Director

As part of the Membership Grade Review and new membership structure, we are delighted to be launching Fellow Membership on 22 March 2021.

Fellow Membership, FCIAT, complements the 'Chartered Architectural Technologist' professional qualification and is an acknowledgement of a Chartered Member's significant contribution to and/or excellence in Architectural Technology.

Benefits of being a Fellow Member include:

- The designation, FCIAT which sits alongside the protected descriptor 'Chartered Architectural Technologist'.
- It is an acknowledgement of your contribution to and/or excellence in Architectural Technology from your Institute and peers.
- Distinction within Architectural Technology.
- It gives additional external recognition and eminence from colleagues, peers, clients and employers.
- It forms part of the continued profile-raising of Architectural Technology as a discipline and profession.
- It offers the opportunity to be involved with, and represent the Institute within your area of excellence and/or significance.
- It enables you to be part of the built environment community of Fellows.

From 22 March everything you need will be available at architecturaltechnology.com. In the meantime, we invite you to consider how you could potentially demonstrate your significant contribution and/or excellence in Architectural Technology.

It is an aspirational achievement for Chartered Members to further demonstrate their skills, roles and functions.



What is Fellow Membership?

Fellow Membership is an acknowledgement of a Chartered Member's significant contribution to and/or excellence in Architectural Technology which complements the Chartered Architectural Technologist qualification. It is an aspirational achievement for Chartered Members to further demonstrate their skills, roles and functions. Fellow Membership is not a higher level to that of Chartered Architectural Technologist.

I am a Chartered Architectural Technologist already, what is the difference?

You will always be a Chartered Architectural Technologist, therefore there is no difference in relation to your competence in the discipline of Architectural Technology.

Chartered Architectural Technologist is the protected title and professional qualification achieved when Members demonstrate their underpinning knowledge,

experience and professionalism attained through education and practical experience. It is a protected descriptor which can only be awarded by CIAT under its Royal Charter, regulated by the Privy Council. Only CIAT holds the register of Chartered Architectural Technologists.

Fellow Membership is an accolade which awards the FCIAT designation and is recognition that demonstrates your significant contribution to and/or excellence in Architectural Technology. It is not an additional demonstration of competence or an elevated level of qualification to your Chartered Architectural Technologist, MCIAT status.

Who can apply for Fellow Membership?

All Chartered Architectural Technologist are eligible to apply and can aspire to become a Fellow Member should they choose to do so.

Why should I apply for Fellow Membership? What are the benefits of being a Fellow Member?

- The designation, FCIAT, which sits alongside the protected descriptor 'Chartered Architectural Technologist'.
- It is an acknowledgement of your contribution to and/or excellence in Architectural Technology from your Institute and peers.
- Distinction within Architectural Technology.
- It gives additional external recognition and eminence from colleagues, peers, clients and employers.
- It forms part of the continued profile-raising of Architectural Technology as a discipline and profession.
- It offers the opportunity to be involved with, and represent the Institute within your area/s of excellence and/or significance.
- It enables you to be part of the built environment community of Fellows.

What is the difference between FCIAT and MCIAT?

There is no difference in relation to your competence in the discipline of Architectural Technology.

Chartered Architectural Technologist is the protected title and professional qualification achieved when Members demonstrate their underpinning knowledge, experience and professionalism attained through education and practical experience. It is a protected descriptor which can only be awarded by CIAT under its Royal Charter, regulated by the Privy Council. Only CIAT holds the register of Chartered Architectural Technologists.

Fellow Membership is an accolade which awards the FCIAT designation and is recognition that demonstrates

your significant contribution to and/or excellence in Architectural Technology. It is not an additional demonstration of competence or an elevated level of qualification to your Chartered Architectural Technologist, MCIAT status.

Is Fellow a recognised qualification?

It is Chartered Architectural Technologist which holds the recognition whether you are MCIAT or FCIAT.

Fellow Membership, FCIAT will demonstrate your eminence and distinction within Architectural Technology.

How should Fellow Members describe themselves?

Fellow Members should describe themselves as per the example below:

Lorraine McCall FCIAT

Chartered Architectural Technologist

(use of the protected descriptor Chartered Architectural Technologists, which is your qualification demonstrates your competence and recognition)

When will this be launched and how can I apply?

It is being launched on 22 March 2021 and applications can only be made via architecturaltechnology.com.

You must complete the online form, sign the declaration, refresh yourself on your ongoing obligations under the Code of Conduct and pay the £300 assessment fee.

What are the criteria to become a Fellow?

You must be a Chartered Architectural Technologist and complete the online application form and demonstrate your significant contribution to and/or excellence in Architectural Technology.

Your submission is limited to a maximum of 1650 words and must include:

- **Context:** Information about you and a brief overview of your activity within Architectural Technology.
- **Significant Contribution and/or Excellence:** Information on why you are applying for Fellow Membership. This should include: what you believe you have contributed to and/or how you have achieved excellence in Architectural Technology, when you achieved it, how it was achieved and in which sphere of Architectural Technology it was achieved. (For example: professional practice, policy, academia, research, specialist areas, government, industry, the Institute).
- **Impact:** Information on the change, effect or influence you believe your significant contribution and/or excellence has had, and the scope of this impact: local, national, international or global.
- **Value:** Of Fellow Membership to you and how you would use it to contribute further to Architectural Technology.

Do I apply or do I need to be nominated?

If you are a Chartered Architectural Technologist you can apply to become a Fellow. It is not possible to achieve it through nomination.

Do I need to have been a Chartered Architectural Technologist for a specific amount of time?

No, it is open to any Chartered Architectural Technologist who can meet the criteria. There are no time-based restrictions.

Who will assess my application and how long will it take?

A Fellow Panel will review your application and make its decision, which will be confirmed in writing (via email) within 28 days of submission.

What decisions can the Fellow Panel make?

1. **Pass:** You would be invited to be a Fellow Member upon paying the additional annual FCIAT subscription fee of £75. and a certificate would be issued, and you use the designation FCIAT in tandem with Chartered Architectural Technologist.
2. **Defer:** If you did not satisfy the criteria or provide sufficient information for the Panel to make an informed decision, your first submission would be deferred, but you would have the opportunity to make two further submissions at no additional charge.
3. **Refer:** If your application did not satisfy the criteria following three submissions, guidance on remedial actions and a timeframe outlining eligibility to re-apply would be provided. All subsequent submissions would require a new application and £300 fee.

Can I appeal the Fellow Panel decision?

No. The decision is final with no right of appeal.

Is there an interview to become a Fellow Member?

No, it is a written application only.

Do I need to provide supporting evidence?

It is not a technical application against defined standards, and as such supporting documentation/evidence is not required in all cases. However, you may submit supporting documentation/evidence if you deem it necessary to your application, or if stipulated by the Fellow Panel after the assessment, should they require further information. The purpose and added value of supporting documentation should be carefully considered to ensure it is relevant to the application.

You are encouraged to include links to websites or make reference to other documents within the written statement. All additional documentation, references or links must be relevant, focused and succinct.

How much will it cost to become a Fellow Member?

The assessment fee is £300 (incl. VAT) and there will be an additional annual subscription fee of £75 for FCIAT on top of your Chartered Membership subscription in the year which you achieve Fellow member. In future years, the Fellow Member subscription will be set and approved by the Finance Committee and Executive Board.

Will my annual Fellow Membership subscription also cover my Chartered Architectural Technologist status?

Yes. The standard Fellow Member subscription for 2021/22 will be £360 and will cover both Fellow and Chartered Membership. The subscription rate may differ if you are based internationally and/or are a CIOB dual member.

Should you have any queries, please do not hesitate to contact James Banks, Membership Director, j.banks@ciat.global ■

Church of England | Quinquennial Inspections *CIAT-Accredited Conservationists Recognised*

Words by Francesca Berriman MBE, Chief Executive

After many years of lobbying and meetings with those within the hierarchy of the Church of England, the Institute is delighted to that Chartered Architectural Technologists qualified as CIAT-Accredited Conservationists are now eligible to undertake works as Quinquennial Inspector.

This change came into force from 1 January 2021.

For information on Quinquennial Inspections please visit the Church of England's website, churchofengland.org/resources/churchcare/advice-and-guidance-church-buildings/quinquennial-inspections. Church of England buildings in the UK must be inspected every five years and the inspection must be carried out by a suitably experienced and qualified professional.



Membership news

Tanja Smith MCIAT receives OBE



Tanja Smith, Chartered Architectural Technologist, received an OBE in the Queen's Birthday Honours for services to apprenticeships and technical education.

Tanja joined the Institute for Apprenticeships and Technical Education from its inception in 2017 and was appointed Chair of the Construction Route Panel. Her role as Chair has facilitated discussions and made recommendations on apprenticeship proposals, content of apprenticeship standards, funding and end point assessments that are submitted by the industry

trailblazers. This has also included collaborating and reviewing the first of the new T-Level qualifications (design, surveying and planning) that was rolled out in September. Building services engineering and on-site construction is currently being worked on. Her day job is as Technical Director/Director of Technology for Gradon Architecture.

On receiving this accolade, Tanja said "I strongly believe that the apprenticeship scheme will have a positive effect on the industry, helping to not only address the skills shortages but also raise the bar on the level of education and practical training out there for those within the industry. I applaud all those who take the time out of their busy schedules to input into the industry, whether through apprenticeships, taking on trainees and work placement students, getting involved at any level in general within the industry to help create a robust, future proofed and exciting sector to work in."

Membership news

Chartered Members

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

030746	Stephen Banks	Yorkshire, 02
025998	Joe Davenport	Yorkshire, 02
031480	Jack Turton	Yorkshire, 02
034361	Steven Haslehurst	North West, 03
033925	Paul Hicks	East Midlands, 04
025172	Matthew Rowbottom	East Midlands, 04
019245	Nicholas Chapman	West Midlands, 05
029147	Diana Grigorie	West Midlands, 05
021372	Thomas Hubbard	Wessex, 06
021266	Ben Mason	Wessex, 06
025762	Thomas Scott	East Anglia, 07
021300	Sarah Howard	Central, 08
020734	Syed Ahmed	Greater London, 09
025874	Alexander Cameron	Greater London, 09
032102	Benjamin Cook	Greater London, 09
016819	Anita Heverin	Greater London, 09
035337	Richard Leslie	South East, 10
031715	Simone Gray	Western, 12
020133	Graham Parkes	Western, 12
029040	Richard Weaver	Western, 12
027866	Kevin Lambert	Scotland East, 14
034988	Ciaran McDonald	Northern Ireland, 15

Welcome back

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

013902	Ajmal Ashraf	Yorkshire, 02
012177	Richard Willett	Wessex, 06
029564	Carl Stredder	Central, 08
021946	Samuel Aroko	Greater London, 09
025799	Georgina Marriott	Greater London, 09

CIAT-Accredited Conservationist

We would like to congratulate the following Chartered Architectural Technologists who successfully attained their accreditation as a CIAT-Accredited Conservationist:

021519	Alex Scrimshaw	North West, 03
016346	Mark Kerans	Western, 12
022078	Graham Briggs	Scotland East, 14
020887	Paul Roddy	Republic of Ireland, C2

In memoriam

We regret to announce the death of the following members:

007307	Gordon Markham	Yorkshire, 02
007066	Ronald Cross	East Anglia, 07
030061	Richard Ellis	East Anglia, 07

Wessex Region – Outstanding Graduating Students

The Wessex Region were pleased to present their Regional student awards remotely for 2020 and the Outstanding Graduating Student trophy went to Tyrone Pienaar BSc(Hons) ACIAT (pictured here). Tyrone graduated from the Architectural Technology and Design degree programme at University of the West of England. Miina Amariyan received the aspirATion Award following successful completion of her degree alongside Tyrone having stood out among her peers and duly awarded by the Regional Committee. The Region wish them well for their future career as Architectural Technology professionals.



Conduct Hearings | Disciplinary Sanctions

Member 020656, Christopher Froggatt:

At a Conduct Hearing, Christopher Froggatt was found in breach of Clause 1b) and Clause 3a) from the *Code of Conduct* effective 1 March 2019:

Clause 1: Professional Conduct

The members shall at all times:
b) act faithfully and honourably in their professional responsibilities.

Clause 3: Practice Registration

a) Only Chartered Members and profile candidates may act as principals and offer and/or provide services directly to a client.

Disciplinary action

In accordance with the *Conduct & Disciplinary Procedures* Item 20b), Schedule of Disciplinary Sanctions, the Conduct Committee determined that Christopher Froggatt was to be excluded from the Institute for a period of one year in respect of the breach of Clause 1b) from the *Code of Conduct* effective 1 March 2019.

In accordance with the *Conduct & Disciplinary Procedures* Item 20b), Schedule of Disciplinary Sanctions, the Conduct Committee determined that Christopher Froggatt was to be excluded from the Institute for a period of two years in respect of the breach of Clause 3a) from the *Code of Conduct* effective 1 March 2019.

These periods of exclusion are to run concurrently; the total period of exclusion from the Institute is **two years**.

CPD...and how you can do it

Continuing Professional Development (CPD), in the minds of many, often conjures up images of having to attend a paid for course or seminar and being talked at. Not only is this a drain on time and resources, but how sustainable is it to find the right events, book your space and re-arrange your schedule accordingly several times throughout the year to meet the Institute's annual requirement¹ of a minimum of 35 hours?



This out-dated assumption of what CPD is makes you an unenthusiastic actor in your own professional development. Would you be as reluctant to act if the possibility of a promotion was there? The answer to that is probably no.

CPD is not intended to be an add-on to an already busy workload; it is meant to develop your skills and help you perform better in your current role or enable you get to the next level of your career.

Paid for courses/seminars are just a few of the ways in which you can develop yourself professionally, and in most cases you can direct your own learning and development to suit your ambitions. Best of all, the majority of these activities don't require much, if any financial investment on your part.

Activities that can count towards your annual CPD requirements include:

- **Research**

If you are having to look into specific materials or techniques for a project that you or your practice is working on, this counts as CPD.

The key is to keep track and log the time you spent researching. This can be done on your own CPD record that can be accessed within the 'My CIAT' area of the website.

Reading up on existing and upcoming regulations also counts as CPD, as this will help you and your colleagues

ensure any projects are compliant with the latest requirements, rather than having to make revisions at a later stage.

- **Online**

The COVID-19 pandemic disrupted everyone's routine, and providers that offered face-to-face CPD before have now moved to hosting these sessions on platforms like Zoom, MS Teams and so forth.

All members and affiliates have access to Technology Network, which is a directory of members and affiliates willing to give guidance to other members and affiliates. Its main aim is to put members and affiliates with experience in different areas in touch with each other for guidance and support. Some Architectural Technology professionals who work in isolation benefit from contact with others in their field, as do newly qualified members experiencing teething problems. If you are not the one seeking advice, why not register the areas/topics that you would be willing to advise others on instead? Mentoring is also a form of CPD.

AT Weekly is another online resource that can keep you up-to-date with relevant information relating to the built environment, as well as the Institute's activity nationally and internationally.

The AT CPD Register lists a range of learning opportunities that have been assessed by CIAT and deemed professionally beneficial to Architectural Technology professionals. Similarly, Designing Buildings Wiki can also help you when researching products or methods for your projects. If you learn something new it is developing you professionally.

- **Professional qualifications**

There are several benefits to progressing your membership; Chartered status in particular, is a mark of an individual's commitment to upholding professional standards. Some professional qualifications can also denote a specialism within a particular area.

Chartered Architectural Technologist, MCIAT²

Becoming a Chartered Architectural Technologist does not happen overnight, but you can build steps into your professional development plan to help you obtain this status.

If you don't have much practical experience, you could refer to the Professional Standards Framework and speak to your employer about gaining experience in the areas in which you need to develop, mapped to our standards. Keep a record of this experience as this will save you a lot of time when you are in a position to complete the application process to become a Chartered Member.

For those of you that are closer to submitting, do not forget that attending the Membership Progression sessions offered by the Membership Department also count as CPD, as you will be given advice as to how best structure your application form and portfolio. If necessary, you can use the Mentor Match Me (<https://ciat.mentormatch.me/>) service to be mentored by a Chartered Member prior to submitting your application form, or before sitting your interview.

Chartered Environmentalist³

Chartered Architectural Technologists who have specialised in environmental issues may choose to 'badge' their competence by becoming a Chartered Environmentalist (CEnv). This qualification demonstrates your commitment to environmental best practice and a high degree of expertise within the sector.

Reflecting on your experience to date, and deciding how you want to continue evolving your skills within this area count towards your CPD hours as does undergoing the application process to become recognised.

Being registered as a Chartered Environmentalist sets you apart from others working in this field. It establishes proven knowledge, experience and commitment to professional standards, and enhances employability.

The application process consists of submitting a written application which requires you to address the competency statements by demonstrating how you have developed the breadth of knowledge through your work and engaged in sustainable management of the environment. This is then followed by a professional interview, carried out by CEnv assessors.

Conservation⁴

The Institute runs a register for Conservation professionals which is available for Chartered Architectural Technologists wishing to demonstrate that they are competent in the conservation of historical buildings and their surroundings. You have a choice being assessed as either a CIAT-Accredited Conservationist or a CIAT-Recognised Conservationist.

CIAT-Accredited Conservationists are conservation practitioners that take the lead in managing renovations, restorations and play an important part in preserving and conserving the heritage of buildings for future generations. They are recognised by grant/fund aided bodies such as Historic England, Historic Scotland, Northern Ireland Environment Agency, Cadw (Welsh Government historic environment service) and the Heritage Lottery fund. CIAT Accredited Conservationists are also eligible to undertake work as a Quinquennial Inspector.

CIAT-Recognised Conservationists on the other hand are those that have the appropriate knowledge and skills but who do not practise in conservation and instead have demonstrated their competence through the use of case studies.

As part of the application process for either option, you will be assessed and accredited against a set of competences in the area of conservation followed by a professional interview.

Researching, applying and/or sharing these techniques on projects or with colleagues counts as CPD, as does the process of being recognised for your knowledge and expertise in this area.

• Engaging with the Institute

The Institute would not be in the strong position that it is in without the continued support of its valued members and affiliates. Therefore, any time that you dedicate towards CIAT activity counts towards your CPD hours.

This involvement includes, but is not limited to:

- Being a part of the local Region/Centre Committee or aspirATIion;
- Sitting on any Group, Committee, Taskforce, Board, or Panel;
- Providing views on a consultation;
- Submitting articles to *AT Journal*, aspirATIion magazine; and/or
- Representing the Institute at meetings or events.

As you can see, there are plenty of opportunities to learn and achieve the minimum 35 hours of CPD, and please remember, the 35 hours are across a twelve-month period. Sometimes discussions with a colleague or mentor can inform or inspire you on how to progress with current and future projects, and can be far more productive and beneficial to your career than an impersonal course or seminar.

For further information as to what constitutes as CPD, please contact the Education Department on education@ciat.global ■

¹ All members and affiliates (excluding student members) are required to undertake a minimum of 35 hours CPD every year as stated in the *Code of Conduct*, the clauses are extracted for ease here:

Clause A7: Continuing Professional Development

The members (excluding student members) shall:

A7a) keep themselves informed of current practices and developments appropriate to the type and level of their responsibilities; and

A7b) be able to provide evidence that they have complied with the requirements for continuing Professional development (CPD) as published by the Institute from time to time.

Clause B7: Continuing Professional Development

Affiliates shall:

B7a) keep themselves informed of current practices and developments appropriate to the type and level of their responsibilities; and

B7b) be able to provide evidence that they have complied with the requirements for continuing professional development (CPD) as published by the Institute from time to time.

² For more information on how to become a Chartered Architectural Technologist, visit the website or contact membership@ciat.global

³ For more information on how to become a Chartered Environmentalist, visit the website.

⁴ For more information on how to become an Accredited Conservationist, visit the website.

AT CPD Register Directory brought to you by



For full details please visit ciat.org.uk/education/cpd/cpd-register.html

CDM

Introduction to the Principal Designer Role

This one-day, interactive, introductory course will equip delegates with the knowledge and understanding to undertake the new CDM2015 Principal Designer role on small and medium sized projects.

Cost/fee for attendance: £150.00

Contact: James Ritchie
E: james@jamesritchie.com
T: 07785915687
jracdm.com

BIM

BIM Level 2 Essentials

This online course aims to equip participants with BIM best practice, which when adopted leads towards efficient delivery, driving excellence, preventing accidents and saving time and money – both now and in future years.

Cost/fee for attendance: £170
bre.ac

BIM Level 2 for Information Managers

This online course is the second stage of the BRE Academy's BIM series. Successful completion of the course qualifies delegates to apply for BIM Certification for Individuals with BRE Global.

The course leads to a practical working understanding of the management of information within the BIM Level 2 process. Having completed this course, delegates will have a practical understanding of BIM management, standards, methods and procedures, and a deeper understanding of the BIM environment.

Cost/fee for attendance: £250.75
bre.ac

BIM Strategy and Concepts (ACM015) and BIM Application (ACM016)

Learning will take place through the Robert Gordon University virtual campus with a mix of online lectures, tutorials and self-guided study. Each topic within the module will have a number of self-required and obligatory activities aimed at emphasising the learning.

Cost/fee for attendance: £600 per module

Contact: Professor Richard Laing
E: r.laing@rgu.ac.uk T: 01224 263716
rgu.ac.uk/bim

Global BIM Management

The Global BIM Management Certification Program prepares participants to lead a new business paradigm in the AECO industry.

Cost/fee: €14,500

Contact: Maria Domingo, Product Manager
E: maria.domingo@e-zigurat.com
T: 0034 686 806 623
e-zigurat.com

How Virtual Reality saves time and resources (VR for Architecture)

To demonstrate how the sensation of actually being inside a building makes VR a powerful and money saving tool for communicating design intent.

Cost/fee for attendance: a nominal fee of £10 for the VR viewer

Contact: Scott Berry
E: scott.berry@applecoredesigns.co.uk
T: 0121 447 7788
applecoredesigns.co.uk

Building Regulations

Reducing the Performance Gap Through Fabric First

The presentation will improve understanding and confidence regarding insulation and how it is used how its performance is measured; the role of the designer/specifier in ensuring that manufacturers provide accurate U-value calculations and condensation risk analyses; and where insulation works with airtightness and thermal bridging details to contribute to a 'fabric first' approach.

U-value Calculations and Condensation Risk

This presentation will improve understanding and confidence regarding insulation and how it is used; how its performance is measured; the role of the designer/specifier in ensuring that manufacturers provide accurate U-value calculations and condensation risk

analyses; and where insulation works with airtightness and thermal bridging details to contribute to a 'fabric first' approach.

Cost/fee for attendance: free to groups/practices

Contact: Lee Buckley
E: buckley.lee@recticel.com
T: 01782 590470
recticelinsulation.co.uk

Part L1A 2013 – Fabric Performance and Towards Passive, NZEB Targets

Topic areas for this CPD course include Building Regulations – Part L1A 2013 targets and corresponding specifications, Thermal Bridging and Airtightness Targets.

Section 6 2015 Scotland – Fabric Performance and Towards Passive

CPD topic areas include Building Regulations – Section 6 2015, Thermal Bridging and Towards NZEB/Zero Carbon House/Passive Standards.

Conventions for U-value Calculations – In accordance with BR443

Topic areas for this CPD course include Standards for U-values Calculations, Fabric Performance, Thermal Measurement and BR 443 Conventions.

Contact: Mary Maguire
E: marketing@xtratherm.com
T: +353 46 9066079
xtratherm.com

Fire

Fire Modelling for Fire Investigation and the Design of Buildings

Fire modelling is used primarily to predict the speed of smoke and heat from fires. BRE pioneered the original development and application of computational fluid dynamics (CFD) to create fire models that can when expertly used, be powerful design and safety tools.

Cost/fee for attendance: £42
bre.ac/course/fire-modelling-for-fire-investigation-and-the-design-of-buildings

Fire Safety for ACM

This CPD seminar will educate designers post-Grenfell about what is and is not combustible in line with Approved Document B.

The intended audience is anyone wanting to understand how to select non-combustible external cladding.

Cost/fee for attendance: Free
Contact: Mark Winstanley
E: mark.winstanley@3acomposites.com
T: 07584680263
alucobond.com

Fire Stopping and Compartmentation

Compartmentation is an essential part of fire safety design as it subdivides a building into areas of manageable risk, to provide adequate means of escape, and to provide fire separation for adjoining buildings.

Cost/fee for attendance: £250
bre.ac/course/fire-stopping-andcompartmentation

Property Protection and Business**Resilience: Automatic Sprinklers**

This presentation will provide recipients with an awareness of the beneficial impact that incorporating sprinklers can have and how they can add value to building design. It also looks at the impact of fire on businesses and how sprinklers can aid the design process.

Cost/fee for attendance: free
Contact: David Ing
E: david.ing@wearefabrick.com
T: 0162 275 4295

Other**Biophilic Office Design**

This online course is a webinar hosted by Flavie Lowres, BRE Sustainable Products Associate Director, who will illustrate the concept and main techniques that will be used in this exciting research project.

Cost/fee for attendance: £10.50
bre.ac/course/biophilic-office/

BREEAM Associate

This BRE Academy course has been designed to help understand, in depth, the essence of what BREEAM is about, what it involves, and how to successfully support the BREEAM process day to day.

Cost/fee for attendance: £195
breeam.com

Controlling Buildings Digitally

This CPD seminar will demonstrate how the correct deployment of a digital system can dramatically enhance the overall end user experience, or how a building manager can get better control over energy usage.

Cost/fee for attendance: £40 per person
Contact: Stuart Hanlon
E: training@mdar.co.uk **T:** 0120 2798 897
mdar.co.uk

In the Beginning: It all Starts with a Raised Access Floor

This CPD takes place in the form of a presentation, alongside the showcasing of product samples and equipment for a hands on approach, usually within a practice over a lunchtime period.

Bathgate Flooring can also offer the presentation from either of their 2 offices in Hereford and Warrington, with Hereford offering a factory tour of the manufacturing process.

Cost/fee for attendance: Free of charge
Contact: Darrin Andrews
E: d.andrews@bathgateflooring.co.uk
T: 07800 748930
bathgateflooring.co.uk

Inclusive Environments

The Inclusive Environments programme at Design Council aims to raise awareness about the importance of designing places that meet the needs of the diversity of people who want to use them.

The course is a free and interactive online training course that provides an introduction to inclusive design relevant to all built environment professionals. It has been developed in partnership with the key institutes and experts on Inclusive Design across the UK to help enable built environment professionals understand and apply inclusive design to the creation of new places.

Each module takes approximately 20 minutes to complete. Upon completion of the course, a certificate from Design Council will be awarded.

inclusive.designcouncil.org.uk

Leadership and Professional Development

A series of one-hour webinars covering various aspects of leadership and professional development.

Cost/fee for attendance: £42.50
 (15% discount for CIAT members – use code CIAT15)
bre.ac/course/leadership-professional-development-webinar-bundle/

Loft insulation isn't working – what can we do about it?

A one-hour online CPD module by LoftZone will explain the 'in-use factors' that limit the effectiveness of loft insulation; the research by the National Physical Laboratory and Carbon Trust that show how widespread these factors are; traditional insulation and building methods which are no longer appropriate; alternative techniques to maximise insulation performance; specific design considerations and a U-value calculator and safety requirements in lofts.

Cost/fee for attendance: free
Contact: Dave Raval
E: cpd@loftzone.com **T:** 01483 600304
loftzone.co.uk

The Future of Offsite Construction

BRE Associate Director of Construction Innovation, John O'Brien, describes the thought process behind the ZedFactory's ZedPod at the BRE Innovation Park in this engaging one-hour webinar.

Cost/fee for attendance: £10.50
 (includes 15% reduction for CIAT members – use code CIAT15)
bre.ac/course/future-offsite-construction/



AT Awards 2021 are now open

The AT Awards opened for submissions on 1 February 2021 for the following Awards:

- Excellence in Architectural Technology
- Student Awards for Excellence in Architectural Technology
- Emerging Talent in the Technology of Architecture
- The Chartered Architectural Technologist of the Year
- Gold Award
- The President's Medal

Full details and application forms can be found on the website. Winners will be announced and presented at the AT Awards event on 22 October 2021.

The AT Awards are recognised as the premier accolades that demonstrate outstanding achievement in Architectural Technology and celebrate the technology of architecture.



ciat.org.uk/awards.html
#ATAwards

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