AT
ARCHITECTURAL TECHNOLOGY

Style or substance?

Architectural Technology and aesthetics

IN THIS ISSUE

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Chartered Institute of Architectural Technologists

Editor's foreword

Architectural Technology professionals need to be aware of the delicate balance between aesthetics, technology and regulation...

Form follows function is the mantra of modernism in architecture, as every architectural student learns, but is the industry now so constrained by regulation that form mainly follows bureaucracy? Scott Kyson MCIAT asks this important question in his feature on page 10, and suggests that AT professionals need to be more aware of the delicate balance between aesthetics, technology and regulation.

The latter two themes are prominent in this issue of *AT* with regulation discussed in features on the Party Wall Etc Act (page 26), biodiversity and the planning process (page 14) and the new rules on commercial to domestic conversions (page 4).

Technological developments in our industry are featured on page 6 with a look at solar power, acoustic design on page 18, sprinklers on page 20 and the problems of overheating on page 28. In this issue we also take a look at the new membership qualifying process (page 32) which is an important development for anyone looking to progress to Chartered Membership.

I mentioned earlier that form might be following bureaucracy; I think there is also a danger that form follows the latest flashy CAD capabilities. Building Information Modelling, of course, is a lot more than just CAD, and the encouraging results of our survey on BIM can be seen on page 43.

Building Information Modelling is a lot more than just CAD

Finally, we have received overwhelmingly positive feedback for the new look *AT*; please keep your suggestions coming. I have been impressed by the increasing number of high quality membership contributions.

Please keep writing, as *AT* is *your* magazine.

Regards
Hugh Morrison
Editor

Reaching to the converted

Plans to promote office-to-residential conversions by side-stepping planning approval could deliver wins all round, but what are the technical implications involved in carrying out the adaptations? By Stephen Cousins.

In January, the government announced plans to relax permitted development rights to allow the conversion of Class B1 (offices) into C3 (residential) without the need for planning permission. The planning shortcut feels intrinsically right for our times: faded, redundant office stock that no longer meets the requirements of today's occupiers is brought back into use, while conversion projects encourage regeneration and deliver new homes, particularly in urban areas where the shortfall is greatest. However, the announcement was followed by a significant backlash. Opponents fear that an uncoordinated building boom could flood the market with sub-standard properties and alter the long-term character of towns and cities, turning vital employment-generating centres into less active residential neighbourhoods.

Opposition is so strong that around 700 local authorities have written to the government requesting exemptions from the rule, and planning experts now warn that ministers may be forced to delay the policy's implementation or face legal challenges. But the property sector is largely backing the proposal, particularly in London and the south east where the relatively buoyant housing market — combined with a plentiful supply of old, tired 1960s office space — makes the sums stack up. According to the Financial Times, average residential values in the capital are £3,000 per sq ft compared with £2,375 for office space. London could soon have several office-to-residential flagships, including the proposed conversion of the 47-year-old Centre Point into 82 flats and duplexes. As offices, it has never been commercially viable, but homes will create additional value and bring new owners to pay service charges in perpetuity. Croydon will also be flying the flag: Legal & General has just won planning permission to convert the town's former Nestlé headquarters to apartments. The company left St George's House in January 2012, citing narrow floor plates as a key reason for the move. Under a scheme by EPR Architects, it will now be converted into 288 flats and its slab-style aesthetic given a makeover by adding storeys to give it a stepped skyline. In future, the hassle-free switch from office to residential could also make economic sense in regional towns and cities. According to figures from the Department for Communities and Local Government, a potential 22,000 (net additional) new homes could be created as a result of the relaxation of rules.

Ironically, much of the vacant space is in the hands of councils themselves. 'Many councils have consolidated their services and have significant empty and unlettable office space that's creating blight,' says Ben de Waal, head of residential at Davis Langdon. 'Where buildings are close to local amenities and transport links, I can't see an argument for not converting.' There will still be considerable technical challenges in office-to-residential conversions — which are likely to add up to a significant per sq m cost. Typical post-war office blocks, with deep floor plates and solid concrete frames, are likely to require extensive modification to allow sufficient daylight and ventilation, as well as to incorporate more extensive drainage and service runs. Offices with large windows and curtain walling may fall well below thermal requirements under Part L1B, as well as compromising tenants' need for privacy, perhaps making a complete reclad the only option. Construction and design teams will also face issues related to sound transmission, fire protection and provision of outside space, depending on an existing building's specific structure and location.

London's Centre Point is subject to proposals for 82 flats.

'The perceived savings by converting rather than building new can be a bit of a myth,' says de Waal. 'A lot depends on the suitability of the structure, foundations and the cladding system. Not having to erect a primary frame and floor structures is a plus, but you may have to implement an entire services, core and escape core strategy that requires a fundamental change to the building's structure, and this remodelling work may prove very expensive and offset any other savings,' he points out.

Buildings that lend themselves to conversion will be those where project teams can retain large amounts of their existing structural frame and foundations, avoiding the need for alterations or demolition. 'In many cases, the cost and timescale of modifications to the structural frame and cladding go to the heart of whether a building will be viable for conversion, or whether the developers instead opt for a wholesale demolition,' says Mark Farmer, head of private residential at consultant EC Harris. Farmer also points out that the ability to retain the existing facade is a big advantage, as installing a

new facade system can account for 20-25% of the entire building cost, and can also affect water tightness and delay the start of internal fit-out.

Period properties are an obvious candidate for residential conversion as many were originally designed as housing before being converted to offices, and could revert to their original character. However, on listed buildings there would be a ban on alterations to facades, or the carving out of voids to accommodate new service and drainage runs. Stephen Marshall at architects BDP says there are plenty of post-war concrete- framed, concrete-clad office blocks built during the 1960s and 1970s that are ripe for a revamp. He designed the recent conversion of Witham Wharf, a seven-storey concrete 1970s office block in Lincoln. 'There's a surfeit of this type of building, much of it empty and under local authority ownership,' he says. 'The three metre floor-to-floor heights, great views and relatively open concrete structural frame make it much better suited for residential than improvement to grade A office space standards,' he adds.

Perhaps more challenging are post-1970 commercial offices, many of which were designed with air conditioning in mind and so have very deep floor plates, making it necessary to insert atria and courtyards to bring daylight and ventilation into a residential plan. This type of layout, designed around an internalised aspect, is quite common in the Middle and Far East but nothing like what UK house builders and residential developers are used to. However, if the concrete floors are pre-stressed, the project team will be restricted on where they can cut openings to create atria, soil stacks and other services. Creating multiple dwellings out of a large-scale office building means ensuring adequate means of escape, in which case extra stair and lift cores may be required.

'Conversion will in many cases require breaking out the existing floor slabs,' says BDP's Marshall. 'The problem is that you're not always going to know exactly what's inside the structure until you start work on site. Our initial survey at Witham Wharf failed to reveal that some of the floor plates were different sizes, which held things up and added to our risk profile. The biggest alterations were needed at ground floor level where we transferred drainage connections outside the building perimeter — it meant a lot of work breaking out the slab,' he explains.

A change of use from office to residential will have an immediate impact on Building Regulations compliance, specifically the sections on structure (Part A), fire safety (Part B) and conservation of fuel and power (Part L). Buildings that fall under Section 20, typically those within inner London that are above 30m, might also require extra fire safety measures. Energy performance requirements dictated by Part L1B will often mean over-cladding or completely recladding the facade, which has the added advantage of increasing the building's lifespan and improving its appearance for potential tenants. Again, office buildings can be split into an earlier generation with concrete cladding — typified by London's Centre Point — and later arrivals with some form of curtain walling.

Sound transmission is a concern when upgrading offices to meet residential needs

If the wall structure is being upgraded rather than replaced, insulation manufacturers offer high-performance insulated render systems and internal wall linings, explains Tom Cox, product manager at Isover. 'On an office high-rise, internal wall insulation may prove cheaper because it doesn't require scaffolding and at around 100mm thick or less it won't eat into your floor areas. When a facade is being renovated and scaffolding is already in place, external wall insulation may be more suitable: our product is typically fixed to the wall then covered by either a vented facade or a render finish, he says.

Internal wall insulation might better suit period properties with protected facades, although Cox warns that when applied behind porous brick walls this can cause moisture build up, perhaps causing bricks to blow out. In such cases, a breathable insulation such as mineral wool used in conjunction with an invisible, external, breathable treatment could prove a more effective option. Sound transmission is a concern when upgrading offices to meet residential needs, particularly in 1960s blocks where numerous service cavities and ducts transmit airborne and impact sound. Solid concrete superstructures also tend to allow impact sounds to bridge from one dwelling to another.

Designing the necessary level of acoustic separation in these structures can be costly and as a result many projects could struggle to meet the necessary standards, warns Cox. 'Part E sets a requirement for a minimum 43dB airborne sound insulation between dwellings. However, many conversion projects will aim for "deemed to satisfy" levels of performance, ie, the best they can achieve with the given structure. It's a big concern that could lead to substandard properties and complaints of noise nuisance,' he says.

Any deviation from prescribed construction details in Building Regulations guidance could create problems, says Kevin Dawson, planning officer at Peterborough City Council and former chair of the CIOB's Faculty of Building Control and Standards. 'Improvements to design knowledge post-1940 meant that buildings grew lighter, making compliance with today's acoustic requirements more costly and harder to achieve, although with modern materials and techniques there really should be no excuse,' he says. There remain several questions regarding how the changes will be implemented in practice. Although the policy is intended to simplify the planning process and bring schemes to site faster, it is unclear whether deregulation will allow design teams to circumvent other aspects of development control, such as planning permission for material changes to facades, listed buildings consent, or requirements for renewable energy.

Another bone of contention is whether developers can convert buildings without liability for the provision of affordable housing or section 106 payments, which will impact on the economics of the land market as well as local authority coffers. But architect and developer Roger Zogolovitch, who runs Solidspace, is optimistic that the move could attract investment and deliver innovation. 'It's going to be so subject to that particular area that it won't result in a wholesale transformation of our towns and cities where every empty office building immediately becomes a block of flats. I think it will stimulate local economies, but it's a freedom in an area of such heavy regulation I think the imagination and intelligence of the architect will find a fascinating route through this and I think we will all be surprised by the amazing buildings that come out of it.'

Stephen Cousins is a freelance writer on construction, architecture and technology. Reproduced by permission of Construction Manager. *For more news, views and technical features visit www.construction-manager.co.uk*

The dawn of new

Rosemary Rawlings, author of CIBSE's *Capturing Solar Energy,* looks at the different ways in which the power of the sun can be used in buildings.

Solar radiation is one of the most plentiful and versatile sources of renewable energy. The UK receives between 900 and 1200 kWh/m2 of solar radiation annually and this energy can be used to provide heating, cooling and electricity for buildings.

Solar energy can be captured using:

- Passive solar design
- Solar thermal systems
- Solar photovoltaic (PV) systems

Passive solar design

For any building consideration should always be given to passive solar measures, which can reduce the overall energy demand, before any active solar technologies (or other renewable energy sources) are considered. These exploit the building's orientation, shape, construction materials, glazing, internal layout and external landscaping in order to maximise solar gains in the winter while avoiding overheating during the summer months. The main elements in passive solar design are careful design of south facing glazing, internal surfaces that absorb solar radiation well, thermal mass to store the energy and prevent overheating (possibly with a distribution system to extract the stored heat) and systems to minimise over heating such as roof overhangs or blinds.

Orientation is also important for active solar collection. In the UK a surface facing south and inclined at between 30° and 40° to the horizontal receives the maximum solar radiation, but east and west facing surfaces receive about 70% of the maximum. Shading of solar systems should be avoided, particularly for PV systems, where a small amount of shading can greatly reduce the electrical output.

Solar thermal systems

Solar thermal systems convert solar radiation to heat using a solar collector, usually using a flat plate or evacuated tube collector. Flat plate collectors use a metal absorber plate bonded to piping through which a heat transfer fluid is circulated. The absorber usually has a selective coating to maximise solar absorption and minimise radiation emission and is covered with a sheet of glass and insulated on the back to reduce heat losses. For low temperature applications like swimming pool heating a simple black plastic absorber plate without glazing or insulation can be used.

For any building, consideration should always be given to passive solar measures

In evacuated tube collectors the absorber is a metal strip down the centre of a glass tube, evacuated to reduce heat losses. The absorber is bonded either to a U-tube through which the heat transfer fluid is circulated directly or to a heat pipe which transfers heat via a heat exchanger to the heat transfer fluid. Evacuated tube collectors are more efficient than flat plate collectors, but more expensive. They can provide higher output temperatures, although field trials for the Energy Saving Trust showed that for domestic installations across the UK there was little difference in total solar energy yield between the two types.

Solar Photovoltaics systems

Photovoltaic (PV) cells consist of layers of semiconductor material, commonly silicon, which convert solar radiation into electricity. When light shines on the cell an electric field is created across the semiconductor layers causing an electric current to flow, which increases with the intensity of the light. The output from a single cell is small, typically 0.5 volts at a current up to 3 amps, but cells can be connected together to form larger modules. Crystalline PV modules typically are between 1.4 and 1.7 m^2 in area and have a peak power of between 120 and 300 watts. Modules can be connected together to provide an array with the required total output. PV cells produce direct current (DC) electricity, so an inverter is needed to convert this to alternating current (AC) electricity for use in buildings or export to the grid.

Image © raven - Fotolia.com

There are three main types of PV cells:

- monocrystalline– slices from a single crystal
- polycrystalline – made from small grains of monocrystalline silicon
- thin film amorphous – made by vapour deposition of a very thin layer of material

power

Monocrystalline cells are the most efficient, with module efficiencies of 15-18%. Polycrystalline modules are less efficient, at 13-15%, but are cheaper. Amorphous thin film modules are considerably less efficient at 5-7% but are cheaper again and can be applied to a wide range of substrates for integration into building elements.

Solar thermal water heating

The most common use of solar thermal collectors is to heat domestic hot water. Water from the cold supply feeds dedicated pre-heat solar storage which is heated by the solar collectors. The pre-heated water is then heated to the required draw-off temperature as necessary by a back-up immersion heater or boiler (since solar energy is intermittent and variable, a back up system of heating is also required). The water to be heated can be circulated directly through the solar collectors. More often an indirect system with a heat exchanger is used, which allows anti-freeze to be used in the solar circuit. In general systems sized to provide all the water heating required in the middle of the summer will meet 50-60% of the annual demand.

Important issues to consider when designing systems include:

•High temperatures and control of the resulting possible high pressures and expansion
•Prevention of steam or scalding water reaching taps
•Protection from freezing of fluid in the solar circuit
•Control of legionella bacteria

The most common use of solar thermal collectors is to heat domestic hot water

Solar thermal collectors can also be used to heat water for industrial or agricultural uses and swimming pool heating. For outdoor pools the water can be circulated directly through simple unglazed, uninsulated collectors. Solar cooling can be provided by using the heat collected to drive absorption or adsorption chillers to provide air conditioning

Integrating PV into a building

PV modules are available in a wide variety of forms: framed, unframed, or mounted between sheets of glass where they can be semi-transparent or translucent. They can take the form of other building components such as tiles/slates, rain-screen cladding or sun shading. This provides an exciting range of possibilities for integrating them into the building structure either as part of the façade or the roof and potentially offsetting some of the cost by replacing other building elements.Specific design issues include;

- Minimising shading of the PV surfaces
- Safety, as the electrical supply from the PV cells cannot be switched off when light is shining on them.
- Ensuring sufficient load bearing in retrofits

Legislation and regulations

Most solar thermal and PV installations will not need planning permission provided they meet the requirements for Permitted Development; however, be sure to check with your planning authority. Connected PV installations must meet the requirements for the connection of embedded generation to the distribution system, as set out in Engineering Recommendation G59/2 and G83/2 for installations up to 16A per phase. It is essential to ensure that the PV system cannot continue to supply power to any section of the grid which has lost the mains supply.

Solar thermal systems which could hold pressures greater than 0.5 bar above atmospheric pressure must meet the requirements of the Pressure Equipment Regulations 1999.

Financial support

Solar thermal and photovoltaic systems are eligible for support under several government schemes. PV systems are eligible for the feed in tariff (FIT) scheme, and solar thermal systems are eligible under the Renewable Heat Incentive (RHI), although at present this only applies to non domestic buildings. Both types of solar system are measures which may qualify for the Green Deal if the conditions of the Green Deal are met.

CIBSE guidance such as KS15: Capturing Solar Energy *and* TM25: Understanding Building Integrated Photovoltaics *is available from the CIBSE Knowledge Portal at www.cibseknowledgeportal.co.uk*

The Parksted Temple

Paul Travis MCIAT, CIAT-Accredited Conservationist from Donald Insall Associates, worked on the restoration of an eighteenth century neo-classical temple in the grounds of the University of Roehampton. Here he outlines the challenges faced when reuniting fragments of architectural heritage.

Heritage assets have a unique relationship with the landscape in which they sit, and vice versa. Alter one and there is a risk of creating a deleterious effect on the other, and diminishing the significance of both. The opportunities to improve these circumstances are few and far between, both in terms of frequency and time. This case study helps to demonstrate that over a period of time, and with considerable desire, dedication, and research, a significant historic building that had suffered a detrimental intervention over half a century before can be reintegrated into its landscape in a careful, sensitive and useful manner.

The Parksted temple (sometimes spelt Parkstead) was originally constructed during the 1760s within the grounds of Parksted House, a villa designed by William Chambers (who also designed Somerset House in London) for William, second Earl of Bessborough to house his extensive and celebrated collection of classical artifacts collected from Italy, Greece and Turkey on his Grand Tour. The ownership of the estate changed through the years and eventually came into the possession of the Society Of Jesus, who cut the inscription around the frieze during the period when they used the building as a novitiate (later a Jesuit teacher-training college).

The grounds were much reduced in 1947 and in the early 1960s, compulsory purchase saw the temple dismantled to make way for the construction of the Alton Estate by the LCC. Much of the significance of the temple was destroyed as the steps and entablature were rebuilt as a garden planter in a new, unrelated, location, while the remainder of the masonry was discovered piled up in the cellar of Parksted House in 2000 when Whitelands College, University of Roehampton purchased the house. Donald Insall Associates were instructed to conduct a detailed inspection of the Parksted stones and to develop a series of reconstruction proposals based on the surviving masonry.

a significant historical building can be reintegrated into its landscape in a careful and sensitive manner

The nineteenth century art critic and commentator John Ruskin's belief in the inspirational value of beautiful objects was of more than usual relevance to the university since Ruskin had been a former benefactor, and the university was commendably very enthusiastic to see the temple rebuilt for the enjoyment of the public, guests and students.

They were aided in their desire to see the temple once more reinstated by the great, great, great, great grandson of the second Earl, interior designer Nicholas Haslam, who raised funds for a partial rebuilding of the temple in a new landscape setting; once more in keeping with the picturesque nature of the temple's original location and Chambers' and Bessborough's design intentions.

Following very positive consultation with Wandsworth Council and English Heritage, (who were both highly supportive of the project), Planning Permission and Listed Building Consent were granted for the work and a multi-phased project was developed to allow for funds to be raised gradually. The first phase involved the dismantling of the garden planter and its relocation to the newly landscaped sports fields, where it was reintegrated with some of the stored columns and entablature of the circular and the re-erection of the steps, column bases, columns, capitals and entablature to reintegrate the crepidoma and colonnade, bringing architectural elements together that had been separated for over 60 years, on a new structural slab specially designed to support the whole temple.

During the work on site it was noted that the Jesuits had fitted indented stone repairs around the frieze containing their inscription, suggesting there may have been a previous inscription which was emoved. Despite some of the masonry having been in long term storage, or buried in soil, the stone remained in good condition. Once it had been cleaned it was clear that the majority of the temple masonry had been constructed from Portland stone but that the capitals were carved from marble. Indeed, closer investigation has demonstrated that the four capitals are also of two different styles of carving with varying patterns of weathering.

One hypothesis under consideration is that while two capitals may be of eighteenth century origin, the othersmay have been purchased by the second Earl for his collection and may date from classical antiquity. Should this be the case, they would be the last remnants of the second Earl's collection remaining at Parksted: the remainder of the collection was sold by an impoverished descendant and purchased by the prolific collector Sir John Soane, though further analysis and academic research is required to test this hypothesis.

While there are many philosophical issues surrounding the relocation of heritage assets which should be avoided if at all possible, this unique project has enabled the university to reintegrate an historic building in a more sympathetic fashion in keeping with Ruskin's belief. It is easy to criticise previous intervention rationales, but without the forethought to retain the masonry that was not built into the planter, this project would not have been possible without a significantly larger budget.

In addition to the generous funding raised by Nicolas Haslam, financial support for the project also came from Wandsworth Council and the University of Roehampton. It is the university's intention to rebuild the remainder of the temple masonry, and replace the missing or damaged elements. Anyone interested in contributing to this unique project should contact Gilly King at Gilly.King@roehampton.ac.uk

Client: University of Roehampton
Historic Building Architect: Donald Insall Assoc.
Quantity Surveyor: Bob Batey Associates
Engineer: Geoffrey Points and Associates
Contractor: Cathedral Works Organisation

To find out more about becoming a CIAT Accredited Conservationist, visit www.ciat.org.uk/en/Join_CIAT/conservation_register/

Top: the garden planter made from the temple steps and entablature. *(Image: P Travis)* Below: the remaining masonry found in the cellar of Parksted House. *(Image: M Shippobottom).* Opposite: the restored temple. *(Image: P Travis).*

Design + Technology: bridging the gap

Surrounded by today's overwhelming criteria of regulations, design is often overlooked when it comes to integrating technology into the built environment. A biographical perspective by Scott Kyson MCIAT, principal of award winning London-based Studio Kyson

During the mid-to-late 90s I worked as an apprentice under the stewardship of John Halton a member of CIAT or BIAT as it was then. It was an apprenticeship that allowed me to carry out my academic studies whilst gaining valuable working experience.

John's tuitions were a perfect hybrid of afternoons lecturing about the art of drawing and the skills of detailing, while mornings would be spent carrying out more medial and grounding activities. I was taught to take great care in the presentation and arrangement of a drawing. Irrespective of its purpose or destination the same due care would be taken in preparing a sketch detail being faxed to a building site, as it would for a scheme presentation to the client.

During a process, which placed the impetus on understanding the component parts of the detail, each drawing would first be drafted on plain white paper in pencil allowing flexibility and room for error.

Once the construction science, dimensions and regulations had been affirmed; the re-drafting process onto tracing paper became a therapeutic exercise... whereby the impetus would now be on the presentation and arrangement of the drawing, with each sheet of tracing paper being treated with the same respect that a painter would a canvas.

Having reviewed the setting out and arrangement of the drawing at the drafting stage; the clarity and aesthetic qualities were reliant upon the choice of line weights and drafting techniques. When presenting a construction detail, the hierarchy of the structural components would be defined by their solidity and function in that concrete and masonry would be depicted with a 0.5mm pen whilst items such as timber would be 0.35 and plasterboard 0.25 and so on, articulating materials with fine hatch patterns would be carried out in the finest pens. Certain materials whereby function out-ways their presence such as a breather membrane or a damp proof course may be depicted in a different colour to reinforce their importance.

This rigorous ritual brought a sense of order, restraint and refinement

Annotation would be applied in a similar ordered fashion whereby notes would be neatly aligned to ensure that the drawing is not crowded whilst a balance would be stuck between their relationship with the detail and border of the sheet. This rigorous ritual brought a sense of order, restraint and refinement that would eventually form the basis of every well considered detail and design to follow.

John Halton's great methodology and his obsessive sense of order enhanced my desire to investigate the interconnection between design and technology in architecture.

The technology contained within our buildings and our ability to meet the overwhelming criteria of regulations is of the utmost importance; but our achievement is not that we have applied such technologies or complied with such regulations, but that they have been applied and adhered to in a holistic, cohesive and considered manner.

Principles of order

In the eighteenth and nineteenth centuries, architectural studies were focused on proportion and order. It was a period where individual style, new building techniques and materials were embraced. Architects such as Robert Adam would obsessively explore, examine and arrange architectural elements; from the articulation and symmetry of a façade to the height and plan ratios of each room.

At the heart of their principles of proportion and order is the 'golden ratio'; a ratio that could be used to form the proportions of a window or to arrange the hierarchy of a façade. This ratio governed their architectural language and set out the rules and structure on which their art could be applied.

During this time a number of stylistic revivals such as Palladian, Neoclassical and Regency enjoyed great success. It was a period where architects could apply their own style and decoration, embrace new building techniques and materials or conform to new regulations, however, always at its core was this philosophy of ratio and proportion that underpinned every design.

Their ability to adhere to this philosophy allowed these buildings to relate and speak to one another in the same

language and inadvertently work to shape our built environment. In contrast, the modern movement of the twentieth century rejected this philosophy; buildings were no longer to be shaped by ratio and proportion, with associated layers of decoration. Their form began to be shaped by function, a philosophy that suggested a formula between a buildings use and its form; a poetic theory summed up by Le Corbusier's vision of a home as 'a machine for living'.

Today's architectural studies of shape, proportion, aesthetic and functionality are often left with little consideration not because of the lack of capabilities or care but simply because Architectural Technology professionals and architects are very often repressed and depressed by rules, regulations and policies. It is now a recurring theme to perceive buildings merely shaped by bureaucracy; planning policy, Housing Quality Indicators, Code for Sustainable Homes, Secure by Design, Lifetime Homes, building regulations and so on.

It is not my intention to suggest that we should undermine policies and standards implemented with good intentions. However I think it is our duty, first of all, to analyse some of the consequences that this bureaucracy imposes on our projects and then secondly acting upon it when feasible. When looking at the history of architecture it must be considered when to embrace or to ignore; I reference the eighteenth and nineteenth centuries as I feel this period lends us counsel in order, ratio, proportion and restraint, principles that whichever style of architecture one chooses to practice or teach can provide an underpinning structure to the process and approach to design.

Pace of invention

Having learnt the principles of eighteenth and nineteenth century western architecture I found similarities when visiting Japan, where I stayed in traditional Japanese guest houses called Ryoken. Traditional Japanese architecture is strongly linked to function via daily rituals and respectively to nature with connecting courtyards and gardens; these traditional houses are organized around rigid cultural rituals and routines and set out by the proportions of a standard tatami (Japanese mat); they are defined by their relationship with nature through light and shadow, and material and texture.

The philosophy of ratio and proportion underpinned classical design

This type of architecture follows a clear set of parameters that have been established through society, culture and history. A major disruption to this philosophy occurred in the early twentieth century, through the introduction of western technology.

In his book *In Praise of Shadows* (1933), Junichiro Tanizaki illustrated his experience of building his own house. He explained his concern over every fixture and fitting, as painstakingly he attempted to merge past Japanese architectural style with modern technology. One of the first problems he encountered was in replicating the Shoji (the sliding paper screen). He initially refused to use glass yet realized that paper alone posed problems of security. Despite the lack of technology available at the time he created a Shoji by incorporating an internal paper screen and external glazed panel within a double framed unit. This increased the cost and yet still delivered a compromised end: from the outside the Shoji remained no more than a glass door, from the inside the mellow softness of the paper was destroyed by the glass laid behind it.

The struggled process of attempting to merge modern western technology within his ideal contextualized project continued with other items such as white porcelain sanitary-ware, the electric stove and other household appliances. They all brought great practicalities but failed to merge within the culture of a traditional Japanese home.

To quote Tanizaki, 'I always think how different everything would be if we in the orient had developed our own science, would not our myriads of everyday gadgets, our medicines, the products of our industrial art – have taken a different form, would they not have suited our national temper better than they do?'

Whilst at its core, he talks about the importance of light and shadows in old Japan, reminiscing of a time before electricity, covering everything from chinaware to geisha; where theatre was lit by candlelight and evenings were romanticised by sunset and moonlight. It is an inspiring and thought provoking read and one that I can relate to with issues we face in architecture today. Where the pace of technology moves so fast we struggle to incorporate it in a considered manner – or too often we are handed the solution to a technical problem with a product that falls outside the language of our design.

Where the pace of technology moves so fast we struggle to incorporate it in a considered manner

We exist within a consumerist society where architectural elements purchased off the shelf are designed with function in mind but often at the expense of aesthetics, rendering them ill-at-ease within a considered and well-designed architectural environment. One example is my project Cadogan Corner, a three townhouse development, within the gritty urban context of east London. The major difficulty within this project was the usual urban problem of excessive noise, however – on our particular site, the issue was exaggerated by the proximity of a motorway slip road, passing directly behind the houses.

To address the issue my hand was forced to select an 'off-the-shelf' product – a technically excellent Scandinavian quadruple glazed window. Whilst the product met all of the technical criteria required, it had an excessively chunky frame and did not respond to the minimalist language of the façade. Rather than allowing this product to dominate the design, I chose to use it only for the smaller windows and for ventilation concealing it behind timber slats and therefore integrating them into the façade. For outlook I was then able to articulate a large fixed frameless glazed unit allowing a crisp transition between the black timber and the glass. With consideration and careful design we were able to bridge the gap between the technologically advanced off-the-shelf product and the ambitions of our concept.

Scott Kyson's award-winning Cadogan Terrace project

Conclusion

In conclusion, if our buildings are to stand the test of time and sit confidently side by side with the work of our predecessors we must understand and embrace the principles of design that history lends us. That is not to say, create imitation or pastiche architecture, but by referencing these principles in design history they can provide us with a process that allows one to take a restrained, considered and ordered approach to every step of the design process. We cannot compare contemporary problems, such as the huge amount of bureaucracy we face today, to the problems of the past – but we can certainly learn from past techniques whilst applying our own individuality and technologies.

The decision as to whether technologies should be concealed within the fabric of a building or to be exposed and celebrated can then be made with clarity and not be an ill-considered afterthought. The gap between design and technology needs to be bridged. The next generation of Architectural Technology professionals should be picking up the gauntlet, teaching each other, teaching their clients, teaching architects and teaching designers that we can make the difference and that we can deliver technologically advanced and aesthetically coherent buildings which can compete on the international design stage.

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Biodiversity and planning

Current planning policy states that developments should not be permitted if they cause significant harm to biodiversity. Dr Jonathan Wentworth, Parliamentary Office of Science and Technology, looks at how planning departments deal with biodiversity risk and how developers can mitigate it.

If building developments decrease biodiversity there could be a net loss of human well-being. This article sets out how the information on impacts of proposed developments on biodiversity is given to planners in England. It also summarises approaches to enhance biodiversity and avoid, mitigate and compensate for negative impacts.

Biodiversity in England

Over the last 50 years large areas of important habitats have been destroyed in England,[1] with many remaining areas fragmented and in poor condition.[2] This has resulted in serious declines in a wide range of species and losses from England, such as of the great yellow bumblebee.[3,4] Biodiversity is the abundance and variety of species and their physical habitats (Box 1).[13] Biodiversity has intrinsic value and humans also rely on it for economic resources and well-being (POSTnote 281).[14-17] The decline in such benefits has been highlighted by the UK National Ecosystem Assessment, who note that biodiversity is frequently undervalued in decisions about land use.[15]

The government considers that economic growth and protecting the natural environment are compatible and aims to halt biodiversity loss by 2020.[18,19] It also intends to increase the number, size, quality and connectedness of wildlife sites.[2,18,19] England's current protected sites do not form the coherent ecological network needed to stop net biodiversity loss (POSTnote 300).[2] A new body – the Natural Capital Committee – reported in April on how and where England's natural assets are being used unsustainably.[20]

Biodiversity and planning policy

The National Planning Policy Framework streamlines existing policy.[5] It states that 'if significant harm resulting from a development cannot be avoided(…), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused'. However, there are widespread concerns about potential impacts of the new Growth and Infrastructure Act on biodiversity.[21,22]

The mitigation hierarchy

The 'mitigation hierarchy' aims to prevent net biodiversity loss and is included in planning policy and ecological best practice guidelines.[5,25] Definitions vary, but usually include the following steps that must be implemented in order:[25,26]

- Anticipated biodiversity losses should first be avoided and reduced by using alternative sites and designs.
- Impacts considered unavoidable should be mitigated where the impact occurs if possible. For example, bat roosts or ponds that are destroyed should be replaced.
- Any residual significant biodiversity loss is caused by remaining impacts after avoidance and mitigation. This should be compensated for. Where possible this is done by creating the same habitat type off-site.
- It is desirable to aim for a net biodiversity gain by using enhancement measures, such as by providing more habitat than needed for mitigation and compensation.[5,25,26]

Box 1. Habitats and biodiversity loss

Photo courtesy of S.Cambs District Council

Some habitats, such as chalk grassland, are more important for England's biodiversity than others. This is because they are rare habitats and also support a high number of species or endangered specialists. Certain 'brownfield' sites, for example, are important for invertebrates and are more biodiverse than some 'greenfield' sites. Biodiversity is being lost from a variety of areas, including farmland and priority habitats (Box 2).[2,24] These unprotected areas are important because England's protected sites on their own are too small and isolated to stop net biodiversity loss.[2]

Legal protection of biodiversity

Developers and planners need to consider wildlife and conservation law (Box 2) and whether a protected species licence is needed (Box 3). The Biodiversity Duty in the Natural Environment and Rural Communities Act 2006 states that every Public Authority must have regard to the conservation of biodiversity. Some specified types of large development projects are required to comply with the European Union Environmental Impact Assessment (EIA) Directive.[27] This requires assessment of the effects of a proposed project on the environment and public consultation before a decision is made. Other developments may need an EIA if they

could affect protected areas or meet certain thresholds. Following consolidation, the Directive is being revised.[28-30] The Government will be consulting in 2013 on raising the threshold for when Local Authorities have to consider if EIA is needed.[31] This could result in fewer EIAs.

Measuring impacts on biodiversity

An Environmental Impact Assessment usually includes an Ecological Impact Assessment (EcIA). EcIA identifies, quantifies and evaluates the impacts on biodiversity of a proposed development (Box 4).[25,26] Most EcIAs are paid for by the developer and carried out by ecologists employed by consultancies. There is often input from the Local Authority, Natural England, the Environment Agency and other groups. The EcIA report forms part of the developer's planning application. The Local Authority can include the avoidance, mitigation and compensation measures recommended in the EcIA report as planning conditions and obligations.

Issues with current planning policy

Some have concerns that environmental regulations are preventing development.[35] However, a recent Government review of the implementation of the relevant EU Directives (Box 2) found no evidence for this.[36,37] Less than 0.5% of the land use consultations that Natural England receives are objected to because of these regulations.[36] A study of Local Authorities concluded that developers were not required to provide excessive ecological information in planning applications.[9] However, obtaining protected species licences can be slow and complicated, so the government is streamlining this process.[38] There are also concerns about the cost to householders of species surveys and licenses.

An absence of systematic recording means that there is a lack of evidence at a national scale about the relative contribution of development to current biodiversity loss.[39] However, there have been recent reported losses to Local Wildlife Sites,[40] while a 2005 study of lowland heathland indicated that biodiversity loss was occurring because of cumulative impacts of developments.[39] EcIAs are meant to consider whether cumulative impacts from other developments in the area will result in significant biodiversity loss (Box 4).[25] However, in practice this is poorly considered in EcIA reports.[6] Multiple small losses that are not considered significant, and therefore not material to individual planning decisions, can add up to a significant loss at a national scale.[26] There will also be biodiversity losses due to developments where EcIA is not required. In addition, Local Authorities are generally not requiring 'no net loss' for less-protected sites, and there is little use of effective compensation.[7,9,41-43] Other causes of biodiversity loss from development include:

- an inadequate awareness and resourcing of the ecology function in local authorities,
- the poor quality of some Ecological Impact Assessments,
- a lack of research and ecological constraints for the effectiveness of mitigation and compensation techniques.

Resources and awareness of local authorities

Awareness and implementation of the Biodiversity Duty varies considerably between Local Authorities.[44] Local authorities need to consider information in the EcIA report when making the planning decision. In 2011, about 40% of local authorities had an in house ecologist and there have been recent losses in biodiversity staff.[7,8] In some areas, a team of local authority ecologists at a regional level provide expertise at the local level. However, in a sample of planning cases from 2007, in nearly half the cases the planning officer received neither internal nor external ecological advice. These cases had poorer outcomes for biodiversity.[9]

Often the measures recommended in the EcIA report are not included as planning conditions and obligations,[45] and there is a lack of monitoring and enforcement.[46] Natural England also no longer routinely advises on individual cases.[8] Local Environmental Records centres are also essential to planning, as they manage biodiversity records. However, they are poorly used and resourced by local and central government.[8,47]

Quality of Ecological Impact Assessments

There is a skills deficit amongst ecological consultants.[48] Developer budgets and time constraints can also restrict species surveys.[6] This contributes to a narrow scope for many EcIAs, often focusing on a few species with high legal protection and cultural value.[49,50] Mitigation of impacts on a few high profile species will not usually adequately protect other species and habitats. EcIAs also tend to undervalue aspects of biodiversity that have local importance.[49]

Box 2. English and Welsh Wildlife and Conservation Legislation

- The EU Habitats Directive and the EU Wild Birds Directive protect various species.
- Special Areas of Conservation and Special Protection Areas are designated by member states for listed habitats and species. Proposed developments require an 'Appropriate Assessment'. If there are adverse impacts, plans can only proceed if there is no alternative, there is over-riding public interest and compensation is provided
- The Wildlife and Countryside Act 1981 identifies Nationally Protected Species. The level of protection for these varies.[32]
- Sites of Special Scientific Interest are a sample of England's important biological or geological sites. National Nature Reserves are a selection of the most valuable of these sites. Local Nature Reserves are managed for biodiversity at a regional or local level.
- The Natural Environment and Rural Communities Act 2006 lists 'Priority Species' and 'Priority Habitats' of principal importance for conserving biodiversity. The Environment Secretary of State is required to further their conservation, but they do not automatically receive legal protection.
- Local Wildlife Sites and Ancient Woodlands are designated for high biodiversity value, but accord a lesser level of protection than the designations listed above.

Box 4. Ecological Impact Assessment (EcIA) stages

EcIA is based in ecological science, but also requires professional judgement.[26] It is not possible to measure all aspects of biodiversity that might be impacted. Instead, the ecologist decides which ecological features, such as species and habitats, meet a threshold of 'value' to biodiversity or society and will suffer 'significant' impacts.[25,26] An impact is considered to be significant if it will affect the integrity of a site or the conservation status of a valued species or habitat in a given area.[25] EcIA is an iterative process, but includes:[25,26]

- identifying alternative sites and project designs that might avoid loss or allow enhancements to biodiversity
- deciding which biodiversity features need further investigation using existing data and additional surveys
- determining how the valuable ecological features will be impacted, including indirect, off-site and cumulative impacts
- developing the project design and mitigation measures
- identifying what residual loss to biodiversity would remain after mitigation, and the ecological and legal consequences
- reporting, which includes the residual loss and the likely success of avoidance, mitigation and compensation measures
- monitoring of enhancement, mitigation and compensation and then rectifying ineffective measures or unexpected impacts

Poor reporting of impacts to local authorities and public

There is no standard method for reporting biodiversity loss.[51] Non-ecologists in the Local Authority might only read the non-technical summary of the EcIA report. However, over a quarter of EcIAs in a recent academic review did not state in this summary what residual biodiversity loss was expected.[52] In addition, although EcIA reports are meant to be publically available, they are often hard to access. The Association of Local Environmental Records Centres state that EcIA survey data are generally not shared with them.

Implementing avoidance and mitigation measures

Alternative sites and project designs to avoid biodiversity loss are poorly considered.[6] This may occur if ecologists are consulted too late.[6] Developers do try to implement most of the recommended mitigation measures, but are hindered by the poor quality of mitigation proposals in some EcIA reports.[52] Opinion varies as to what extent it is possible to mitigate on site for impacts before using compensation off site. A project to improve the skills of ecological consultants is being led by the Institute of Ecology and Environmental Management, which is gaining chartered status.[48] The EcIA guidelines are being updated and a British Standard for biodiversity and planning will be published in 2013.[53]

Effectiveness of mitigation and compensation

A lack of research data and inadequate monitoring in all stages of EcIA means often it is not know if mitigation and compensation techniques are working.[10] Where monitoring does occur, measures such as bat and bird boxes are often considered successful simply if individuals are present.[54] However, the aim for European Protected Species is for a sufficient population to achieve a 'favourable conservation status'.[27] For example, wire bat gantries are used in England to guide bats over roads, such as the gantry over the A69 Haydon bypass costing £60,000.[55] However, a recent study showed that this gantry and three others do not work.[56] Previous monitoring studies of bat gantries have been criticised for only checking whether bats are present.[54,57] Defra plans to fund research into improved surveying of bats for road mitigation.[58] Natural England is reviewing available research and consulting ecologists on the effectiveness of road and rail mitigation techniques.[59]

Managing and creating habitats

There is a reasonable evidence base for managing habitats to maintain and improve their quality for biodiversity.[60] However, restoring or creating a particular habitat type where it does not currently exist is a developing science.[61-63] There has been some success with habitats such as ponds and lowland heathlands.[2,61] Some habitats such as wetlands can be apparently created quickly.[61] However, closer inspection shows it can take a long time and a lot of effort to get the same characteristics as natural habitats.[64,65] Creating habitats on former farmland may be particularly difficult due to high soil nutrient levels.[61] Certain habitats, such as ancient woodlands, are ecologically irreplaceable, so like for like compensation is not possible.[66,67]

Moving species and habitats

It is common to move individuals of some protected species from where development is occurring to habitat on or off the site (translocation).[68,69] There are many challenges to success, with inadequate monitoring and reporting again limiting improvements in practice.[70-73] Some whole habitats have been moved, but the limited evidence suggests most habitats do not retain their conservation value.[74] However, knowledge and practice is improving,[75] so some regard moving habitats as a better option than trying to create new habitat.[76] The government advisory body, the Joint Nature Conservation Committee, considers translocation to be partial compensation, not mitigation.[70,74]

Options for protecting biodiversity

Measures that might improve the existing planning system to address biodiversity loss include:

- Adequate resourcing of the ecology function in local authorities and their improved engagement with Environmental Records Centres would help to identify areas not appropriate for development.[47]

- Greater discussion between Local Authorities and developers prior to planning applications might help developers to provide the appropriate information.[5,9,38,53]

- Resources currently used by developers for translocation could be diverted towards better mapping of species and habitats, so that important areas can be avoided.

- A recent review of planning guidance considered the updating of Environmental Impact Assessment and biodiversity guidance to be a priority.[77]

- Local Authorities could follow the Welsh model by appointing a 'Biodiversity Champion'.[47] A public registry of EcIAs might also raise the status of the Biodiversity Duty and improve accountability.[7]

- EcIA could be commissioned by local authorities, while still paid for by developers.[7] Some suggest EcIA could be requested as best practice for some developments, even if a full EIA is not legally required.

- Planning applications could be required to state how a development will achieve a net gain in biodiversity.[47]

- A panel of experts could review the quality of EcIAs for large developments, as occurs in the Netherlands.[78]

- Greater research into the impacts of development and the effectiveness of mitigation and compensation measures.[10] The new draft EIA Directive proposes that monitoring of significant impacts is required.[79]

- Mandatory Biodiversity Offsetting to ensure compensation for residual biodiversity loss.7

Using biodiversity offsetting for compensation

Biodiversity offsetting is a tool for measuring the residual biodiversity loss and what compensation to provide.[80,81] Various types of metrics are used in different countries to combine aspects of a site, such as habitat type and condition, to give a number of 'biodiversity units'.[67] Defra is co-ordinating pilot studies with local authorities in six areas, with evaluation due in 2014 (Box 5). Developers voluntarily agree with local authorities to pay for the gain of at least the same number of biodiversity units as will be lost. This is done by creating new habitat or improving the condition of existing habitat. Offsetting is intended to operate through a market, with landowners such as farmers and charities carrying out the conservation work. Currently the only private broker is the Environment Bank, which matches developers with landowners and manages payments.[82]

Barriers and opportunities for developers

Developers would need time to adapt to mandatory offsetting. Proponents argue that offsetting would provide a clearer process across England, and for a reasonable cost removes the need for developers to manage compensation sites.[11,41] Some developers might use their land to provide compensation for their own or others' developments.

Offsetting metric

The English offsetting metric operates so that loss in an area of lower biodiversity value habitat, such as intensive arable farmland, can be compensated for by creating a smaller area of a higher biodiversity value habitat, such as a heathland.[67] Alternatively, loss of the same area of farmland could be compensated for by improving the condition of a larger area of heathland.[67] However, loss due to development on higher biodiversity value habitats has to be compensated for with creation or improvement of the same habitat type.[67] Local Authorities would continue to make the final decision on where compensation is placed and would need to consider people's local access to nature.

Defra have a number of guiding principles, including that the English offsetting metric should be simple to understand and use.[81] Some think this metric is too simple to capture all the important aspects of biodiversity, such as species. Others question whether biodiversity can be considered as interchangeable.[12] Metrics are an approximation based on scientific understanding about how habitat type and condition contribute to biodiversity. Validation of the English offsetting metric has yet to be carried out to check the numbers assigned to different habitat types and conditions. There are also concerns about the methods for dealing with risks in delivering compensation.[12,87]

Opinions on advantages and risks of offsetting

Proponents argue that offsetting working within guidelines will provide a net biodiversity gain.[11,82] The metric might make biodiversity loss clearer to planners, with limited evidence suggesting it could provide more compensation than current ideal practice.[41] Offsetting could also allow compensation to be pooled into larger restoration schemes, such as the Nature Improvement Areas introduced by the government.[2,81] This could help priority habitats and improve ecological networks.[2] Opponents argue that offsetting will reduce public funding for conservation and be used to justify environmentally damaging development.[12] Some fear that offsetting will separate people from nature and reduce avoidance and mitigation.[12] There are also concerns about using a market and brokers to provide conservation.[88] Biodiversity offsetting may contribute, but additional measures (outlined above) may still be needed to improve the consideration of biodiversity in planning decisions.

For footnotes, please visit: www.parliament.uk/documents/POST/postpn429_biodiversity-and-planning-decisionsreferences.pdf

Box 5. The English offsetting pilots

Developers in six areas (Devon, Doncaster, Essex, Greater Norwich, Nottinghamshire and Coventry, Warwickshire and Solihull) are encouraged to voluntarily offset residual losses. Offsetting in England is intended primarily to address biodiversity losses on land without legal protection. It is not intended to bypass existing regulations or the mitigation hierarchy.[81] Any development permitted on protected sites continues to need bespoke compensation.[67]

Habitat creation or improvements should be additional to what would have occurred with existing funding.[81] There are likely to be time-lags between the impacts of the development and provision of compensation.[83,84] Compensation areas should also be managed in perpetuity, or at least for the development's life span.[81,85] Most commentators in favour of offsetting in England prefer a mandatory system for developers with careful regulation.[86]

Sound advice

Noise is just as vital as temperature and air quality when it comes to occupant comfort. So what produces noise and how is it transmitted? Rebecca Hogg, acoustics consultant at BSRIA gives the basics...

When we think of comfort factors in buildings, we tend to think of heating, ventilation, and air-conditioning systems. But comfort also depends on the building's acoustic qualities, and any noise that is generated internally or allowed to intrude from outside. Noise can have a range of adverse effects on building occupants. It can lead to anything from mild annoyance, to loss of concentration and sleep disturbance.

Legislation and design standards for buildings are constantly changing, as is the equipment installed within them. New building designs come with their own advantages and disadvantages for various comfort factors. The way noise propagates through a space will change with the design of that space. Trends in building design therefore lead to new acoustic challenges that need to be understood and overcome.

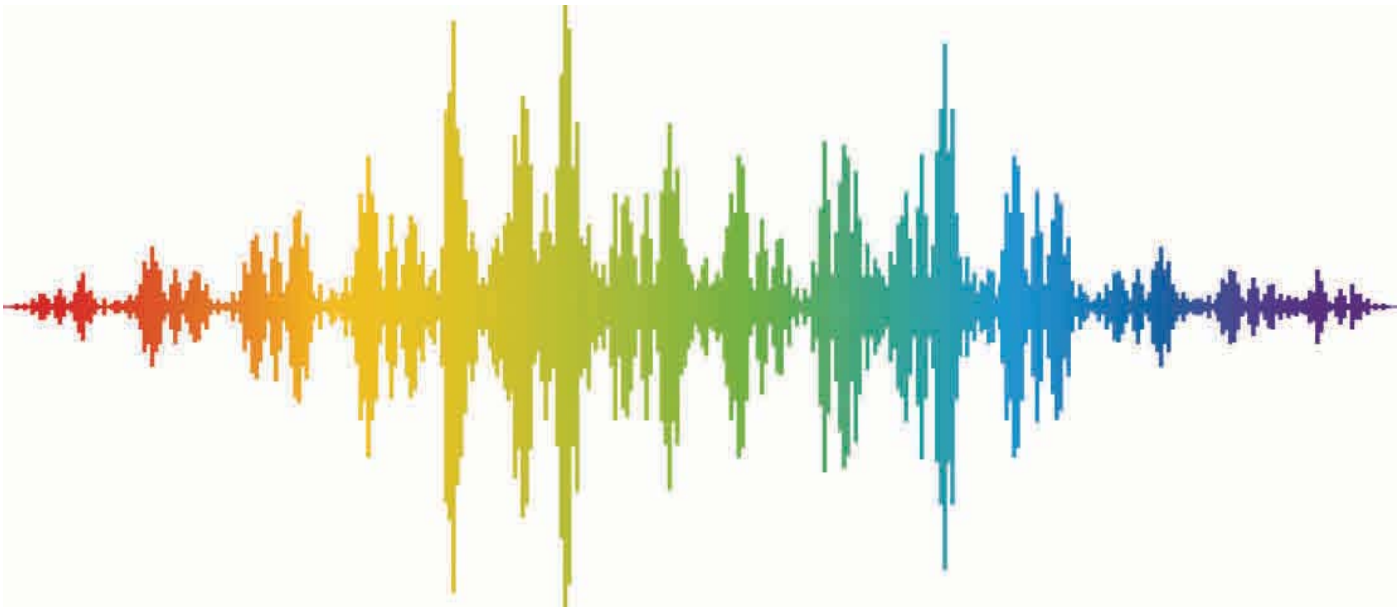
The causes of noise are many and varied: kitchen extract systems in commercial premises, heat pumps located in residential areas, pumps in plant rooms, and air conditioning units in office buildings. In fact, any moving or vibrating part in a product can produce noise, and this noise will vary with the operation of the product.

For example, as a fan's rotational speed changes, the noise produced by the fan changes.

Trends in building design lead to new acoustic challenges

Some products may produce a noise with a distinct component, such as a high pitched whine or periodic hum. Noise with a distinct tone has been found to be more annoying to the listener (a penalty is given to such noise sources when noise impact assessments are carried out).

Some systems contain a single source of noise, while others contain multiple noise sources. For example, in an air-source heat pump the noise sources are a fan, a compressor and a pump. Noise can be measured in different ways. Product manufacturers can carry out a sound characteristic test on their products and declare the noise level of the product in order to satisfy the client's criteria.



There are many international, European, and British Standards that outline how product noise can be measured. BS EN 12102:2008, for example, covers HVAC systems. It outlines the methodology for determining the sound power level of products used for space heating and cooling. This Standard highlights the importance of measuring noise level at controlled conditions including air temperatures, water temperatures, flow rates, and relative humidity.

In recent years there has been greater awareness of the importance of noise. This is reflected in various product certification schemes. One such scheme is the Microgeneration Certification Scheme, which states that heat pumps must be tested for thermal performance and noise. The scheme details the thermal conditions under which the sound characteristic tests must be performed.The relationship between thermal conditions and noise is very important. A product like a heat pump will operate differently at different temperatures, and consequently the noise produced by the heat pump will also change.

The relationship between thermal conditions and noise is very important

Noise produced by a product will be transmitted through the air. This is termed airborne noise. Vibration transmitted through structures, and which may be radiated as noise by connected components, is called structure-borne noise.

Figure 1 (right) shows a building with a plant room in the basement and offices above. The red box shows an air conditioning unit in the plant room. This produces noise which propagates through the room, as shown by the blue arrows emanating away from the air conditioning unit. This noise could cause disturbance to people working in the plant room.

Airborne noise could propagate through the ductwork

Airborne noise can be transmitted through a ceiling, causing disturbance to the occupants of the offices above. The air-conditioning unit may be supplying air to the offices and therefore airborne noise could propagate through the ductwork and into the offices. Noise transmitted through duct systems is a common reason for crosstalk between meeting rooms, where the conversation from one room can be heard in the other. The air-conditioning unit can also cause structure-borne noise, as shown by the green arrows.

How can noise be controlled? Noise from HVAC can be controlled by either minimising the noise at source or minimising the noise transmitted. Reducing noise transmission can be achieved by placing silencers in ductwork, by using acoustic louvres and anti-vibration mounts, and by examining the building construction to identify relationships between sources of noise and occupied zones. Minimising noise at source can be achieved through product development. For example, if an air-conditioning unit has a particularly noisy compressor, this could be examined in an attempt to make it quieter.

It is important to consider how the characteristics of noise can change with the operation of a product. If a product is going to be operating at a particular environmental conditions (such as thermal or airflow conditions), then it is essential that the product is developed under these conditions. Acoustic product development is very beneficial, as minimising the noise produced will reduce the amount of noise mitigation that might be needed after the product is installed.

Rebecca Hogg MEng is an acoustics consultant at the Building Services Research and Information Association (BSRIA). For more information contact rebecca.hogg@bsria.co.uk. BSRIA provides acoustic testing of products and sound Insulation Testing for Part E of the Building Regulations.

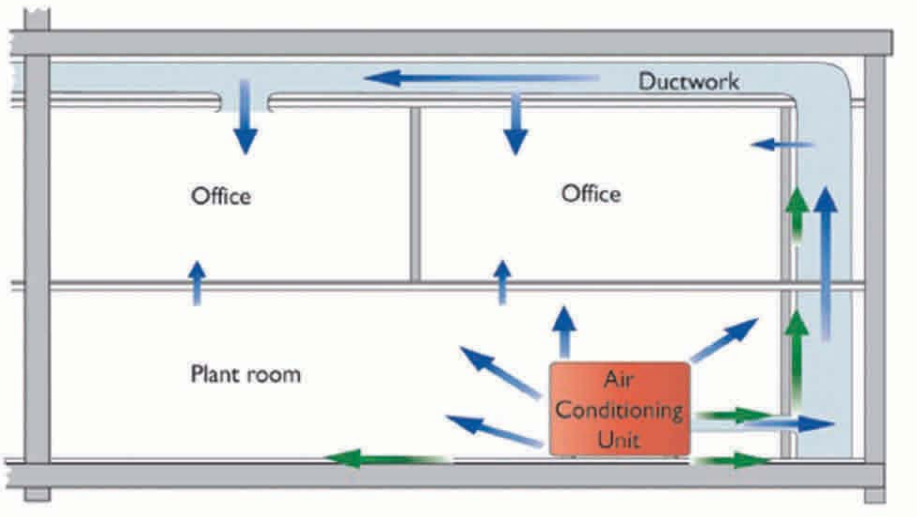
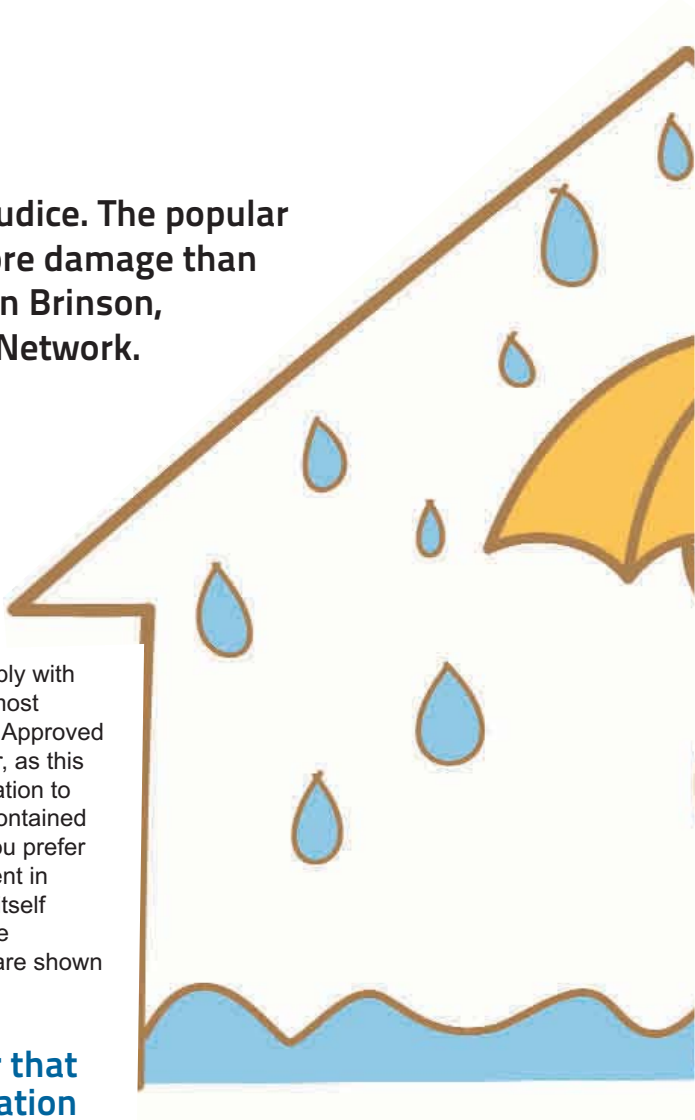


Figure 1 shows a building with a plant room in the basement and offices above. The red box shows an air conditioning unit in the plant room. This produces noise which propagates through the room, as shown by the blue arrows emanating away from the air conditioning unit.

Water, water, ever

Sprinkler manufacturers are battling against prejudice. The popular perception is that they cause chaos and much more damage than they prevent. This is far from the truth, writes Alan Brinson, Executive Director of the European Fire Sprinkler Network.



All of us have heard of sprinklers but are you aware professionally of the gains they offer in architectural design freedom? Did you know that sprinklers can save your client money? The Business Sprinkler Alliance, BSA, was set up to inform the business and construction sectors of the benefits of sprinklers, so that business owners and building designers can make informed decisions about their use.

Unfortunately, the sprinkler world is battling against prejudice. This is because when sprinklers are shown on television or in films, dramatic effect insists that they all go off together and cause mayhem. In fact, of course, nobody would buy a system that works like that. Instead, each sprinkler is held closed by a small glass bulb containing a liquid which expands as it gets hot. At a set temperature, usually 68°C, there is no more room for the liquid to expand, the glass bulb shatters and the sprinkler seal is released. Each sprinkler operates individually and in most fires only one or two operate, spraying much less water than a single fire hose. Since the sprinkler system starts to spray water on the fire well before the fire brigade arrives, fire damage is reduced by over 80%. Water damage is also much less significant and best of all, fire deaths are very rare.

In England and Wales to comply with regulations for new buildings most designs follow the guidance in Approved Document B, (AD-B). However, as this makes clear, 'there is no obligation to adopt any particular solution contained in an Approved Document if you prefer to meet the relevant requirement in some other way.' In fact AD-B itself frequently offers more than one approach, a number of which are shown in its Table A2. For example, while AD-B requires sprinklers in offices and flats higher than 30m, for offices between 5m and 30m in height and for single storey shops, assembly and recreation buildings, factories and warehouses it offers a 30 minute reduction in required fire resistance. Table 12 in AD-B limits the floor area of any one storey in a shop or shopping centre to 2,000 m^2 but does not impose a limit with sprinklers. AD-B calls for care homes to fit self-closing devices on each bedroom door but they need not be fitted if a sprinkler system is provided.

BB100 makes clear that there is an expectation that most new schools will be sprinklered

AD-B also has some incentives for the use of sprinklers in houses. In a four-storey house a sprinkler system may be fitted as an alternative to a second, protected staircase. More commonly, where a loft in a two-storey house is converted into an additional storey the staircase may end in an open plan ground floor if sprinklers are fitted there. Otherwise the staircase must run in a corridor to the front door.

Space is at a premium in our cities. If buildings are fitted with sprinklers AD-B allows them to be built closer together, halving the minimum distances between buildings because the risk of fire spreading from one to another is greatly reduced.

rywhere?

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AD-B does not cover schools. Instead, BB 100 gives government fire safety design guidance for schools. BB 100 makes clear that there is an expectation that most new schools will be sprinklered. One design gain with sprinklers is the raising of the fire compartment area limit from 800m² to 2,000m² in multi-storey schools and to an unlimited area in single storey schools. Schools have proven to be particularly vulnerable to fire with insurance losses above £50 million each year. Consequently, insurers generally offer far better terms for sprinklered schools.

BS 9999 was published in 2008 and is likely to begin a revision cycle this year. BS 9999 assigns risk profiles to buildings depending on who is in them and the likely rate of fire growth. It then sets out guidance much like in AD-B but introduces flexibility if certain measures are strengthened. If sprinklers are fitted, the rate of fire growth is assumed to be one category slower. Using the tables, this allows longer travel distances and narrower escape routes. It could mean a building needs two staircases instead of three, a saving which would more than pay for the sprinkler system. As in AD-B, if sprinklers are fitted the required fire resistance is often 30 minutes less. While BS 9999 does not have the same standing as the statutory guidance of AD-B, government representatives attended every committee meeting to draft the standard and did not raise any objections to the current text.

In December 2011 BS 9991 was published. This standard covers residential buildings and complements BS 9999. Like BS 9999, it contains many design freedoms for sprinklers. Based on research by the Building Research Establishment conducted for the NHBC, it permits open plan flat design, so that the front door opens into a living area beyond which are the bedrooms. AD-B does not allow this layout because if a fire starts in the living room, anyone in the bedroom would have to go through that room to escape. The BRE research showed that with enhanced detection and a sprinkler system, a higher level of safety is afforded in an open-plan flat than in an unsprinklered flat with a protected

Sprinklers are often preferred to the traditional solution of additional compartmentation

corridor. Many people like the open-plan layout, which gives a view and natural light from the front door while turning the corridor into liveable space. Outside the flat, BS 9991 permits longer common corridors if sprinklers are fitted, again potentially saving a staircase. It also accepts reduced fire brigade access, which can be helpful if a building plot is behind other buildings or the access road is narrow. As with BS 9999, government officials attended every meeting during the drafting process.

The relaxations in traditional building layout and compartmentation given in BS 9999 and BS 9991 are relatively modest. The BSI committee which wrote

them was cautious since the standards could be applied to a wide variety of designs. Greater flexibility is often possible with a fully fire-engineered design. While the sprinkler system will be the same, the fire engineer will show for the design of the specific building that it is safe and reasonable to extend travel distances further, or to have multi-storey compartments. When heritage buildings become hotels or public buildings sprinklers are often preferred to the traditional solution of additional compartmentation which, as the official guidance in Scotland makes clear, causes greater damage to the historic fabric.

But what about the cost? A government study of about 60 schools found that sprinklers typically represent 2% of the cost of a building. However, as described above, they can frequently be used to reduce other costs so that the net cost effect may be neutral or better while the architect is able to design the building with fewer restrictions in layout. Cost benefit analyses have already shown an economic case for fitting sprinklers in schools, flats and care homes.

They can frequently be used to reduce other costs

Later this year the BSA expects to publish the results of cost-benefit analyses it has commissioned on warehouses and factories. The BSA has already published a report on the environmental impact of warehouse and factory fires, showing that sprinklers could save huge amounts of fire-fighting water and reduce the average lifetime carbon emissions from these buildings. This is a quick summary of the potential benefits sprinklers offer to Architectural Technology professionals. The BSA plans to offer free sprinkler training courses to CIAT members, and announcements will be made when these become available.

Steel away?

Metal theft is a growing concern to police forces across the UK, costing the economy around £770 million annually. James Kelly, Chief Executive of the British Security Industry Association (BSIA), discusses some of the ways to design out crime.

The potential victims of metal theft are endless, ranging from railway infrastructure, plaques on graves or memorials, lead piping or roof tiles on houses and even trophies from sports clubs. Valuable materials, such as lead or copper, are targeted by thieves for their extrinsic value and are often generated to make new products.

New buildings tend to utilise an array of different raw materials throughout the construction process. Therefore, designing a building with the risk of metal theft in mind can be extremely beneficial, potentially preventing the loss of valuable materials once the building is completed.

Security measures should be implemented from the word go, being considered in the design stage right through to the final phases of construction. Metals are perhaps most vulnerable during the construction process, when materials can be left unattended for longer periods of time, creating opportunities for thieves. If these vital materials are stolen, the construction process could also become much lengthier than expected – having to take the time, and money, to source replacements.

Many may have the impression that security measures consist of robust obstructions that are likely to compromise the look of a new building. This is simply not the case. Churches have often fallen victim to metal theft in the past, mainly due to their roofs, which tend to be rife with lead panels.

One BSIA member, Optex Europe, provided a solution to a rural church in Essex in the form of wireless virtual perimeters. A series of detectors were installed along the roof, creating a perimeter without the need for obtrusive wires. If an intruder happens to cross over this perimeter, key holders are then alerted and can respond accordingly to the situation.

Another BSIA member, GJD Manufacturing Limited, has partnered up with a company called E-bound to develop an electronic wireless roof system comprised of passive infrared motion detectors in order to distinguish intruders. This kind of covert perimeter security can be installed to fit all kinds of structures. Perimeter security is said to be essential and often referred to as 'the front line' of security.

For buildings that are not occupied 24 hours a day, intruder alarms can be linked with Alarm Receiving Centres (ARC). This way, no matter what time of day an alarm is triggered, a trained operator will be notified of the intrusion and will be able to organise the necessary response.

Another extremely effective way of securing your materials can be through asset and property marking. By having your materials marked with a forensically coded solution, if stolen, the goods are rendered worthless by either their covert or overt markings. Security marking gives police the opportunity to catch and convict criminals, and consequently return the stolen goods to their rightful owners.

Grease is painted on to the vulnerable material and if touched, fingerprints will be left behind

There are a wide array of marking solutions available, and BSIA members distribute a large proportion of the products in the UK that use forensic codes. As well as using codes that are traceable through a database, there are also a variety of marking solutions that will transfer onto the skin, clothes or equipment of those attempting to steal property.

One BSIA member, Selectamark, has been using a forensically coded grease to combat metal theft. The grease is painted onto the vulnerable material and if touched, fingerprints will be left behind. The grease also instantly transfers onto the hands and clothing of those who touch it, staying on the skin for up to two weeks. This can place a criminal at the scene of the crime, whether or not they have been successful, potentially preventing anyone else from attempting to do the same.

It can be difficult to decide what kind of security is best for the area you are trying to protect, particular in a process as complex as designing a new structure. Security consultants can give support with these decisions, offering a wide range of services such as threat and risk assessments or holistic security strategies.

For more information and a free metal theft guide, please visit www.bsia.co.uk

When the party's over

David Taylor MCIAT looks at some of his experiences acting in his capacity as a Party Wall Surveyor and warns of the dangers of a lack of awareness of Party Wall issues.

The Party Wall etc Act 1996 is applicable across England and Wales and members will find themselves having to advise their clients on matters of notification where the Act applies as well as acting as Party Wall Surveyors if they provide this service. This role is particularly suited to the skills of a Chartered Architectural Technologist.

I have been involved in Architectural Design for over 30 years, and over the past three to four years have seen the impact of the Party Wall etc Act 1996 play a significant and important role in the day to day design procedures along with local authority planning and Building Control. As a member of the Faculty of Party Wall Surveyors from its early days of inception, I am alarmed at the lack of awareness and disregard some designers and practitioners still have towards this legislation, it's bad enough incurring a Professional Indemnity Insurance claim for a design omission or error, what about a failure to advise on the Party Wall Act?

In once case, adjoining owners excavated to construct a side and front elevation extension, but the designer failed to inform the property owners of their duties under Party Wall etc Act, and subsequently the adjoining property collapsed. Notices were not served and the designer was held responsible and liable (a lesson for all!)

Party walls separating the lands of adjoining owners are sensitive areas at common law. Each owner has some interest in the wall and often neither can do any work to it 'nor close to' without proper notification. The Party Wall etc Act 1996 has been in operation across England and Wales since 1 July 1997. Its previous form was that of the London Building Act 1939 which was only applicable in inner London areas.

I am alarmed at the lack of awareness and disregard some designers have

The Party Wall etc Act is an enabling Act to allow a building owner to exercise his right to build with proper consideration of his neighbours and their properties. One of the most crucial factors of the Party Wall etc Act is that a notice must be served on the adjoining owner, conveying information about the intention to undertake certain works by the building owner to the adjoining owner and that which could have an impact upon the adjoining owner's property. Section 10 of the Party Wall etc Act is the main part of the act which deals with the party wall award process, appointment of surveyors, agreed surveyor and third surveyors. The surveyors perform a statutory role rather than acting as agents. Any award prepared will therefore only be valid to the extent that it complies with the terms and spirit of the Act.

Understanding the principles must be the starting point to interpreting the Act which enables property owner(s) to undertake

certain works that, under previous legislation was impossible without the consent of the Adjoining Owner(s). In essence, the Act enables an interference with the proprietary rights of another owner(s) property without fear of being sued for trespass. 'The 1996 Act is intended to provide an efficient procedure to enable building works that will affect neighbouring owners to be put in hand promptly and on a fair and

Understanding the principles must be the starting point

reasonable basis' (Manu *v* Euroview Investments Ltd [2008] 1 EGLR 165) Getting the procedures right is therefore fundamental to achieving a valid award that legalises previously illegal activities such as trespass and nuisance. However, the rights under the Act can only flow from proper administration. Some case studies follow to highlight the pitfalls that could arise out of a failure to observe the correct procedures.

Case study 1: Failure to serve notice

If an owner starts works without serving notice under sections 1, 2 and 6, of the Party Wall etc Act, they are unlawful. If the works are completed, that is the end of the matter under the Act, however the adjoining owner's only redress in this case is through common law. There have been occasions where surveyors have sought to regulate the procedure with retrospective notices and awards. In Woodhouse *v* Consolidated Property Corp, building works to a basement had commenced on the basis that they were not subject to notice under the 1939 Act. However, Consolidated served a retrospective party structure notice and prior to the passing of the 14 day notice period, the party wall collapsed.

Surveyors were appointed after the event and determined the liability for the damage caused by the collapse, but could not agree on liability. The Third Surveyor determined liability and awarded that Consolidated should pay damages to Woodhouse. In the appeal it was held that the surveyors had no statutory basis other than to determine the method, time, and execution of the works which followed the notices. The collapse of the party wall having preceded the appointment of the surveyors was unlawful and therefore the Third Surveyor's Award was a nullity.

In a more recent case, Louis *v* Sadiq, it was held by the Court of Appeal that Mr Sadiq had executed work without appropriate authority, and had performed an unlawful act. Mr Sadiq belatedly served notice for the incomplete and/or additional works; however, the surveyors' jurisdiction was limited to dealing with the works that flowed from the notice and not anything prior to the notice. Judge Evans LJ stated 'the issued raised in the present case is whether the appellants' liability at common law is either excluded or reduced by the provisions of the Act, which he invoked, eventually, after the nuisance had arisen. I would have no hesitation in rejecting this submission even without reference to authority, because, in my judgment, there is nothing in the Act which can be said to have this effect.' Accordingly, the owners and/or their surveyors cannot serve retrospective notices.

This page and opposite: Mabey support system used to support dwellings either side following demolition of an attached terraced property. Party Wall Awards were put in place and a number of Party Wall Surveyors were involved in the process acting for adjoining property owners. In total nine Party Wall awards were provided.

Case study 2: Section 10(7) notice

The appointed and selected surveyors have a duty (both morally and professionally) to deal with matters as efficiently as possible. To prevent delays, a surveyor can serve a section 10(7) notice requiring the other surveyor to respond within ten days. If they fail to act effectively, the surveyor can proceed *ex parte*. ('in the absence of another.') Unfortunately, surveyors often mistakenly believe that this gives them the right to proceed with all outstanding matters. This is not the case; the right to act *ex parte* is limited to the request set out in a 10(7) notice. Before proceeding *ex parte* the surveyor must be satisfied that the response to the notice is not an effective response. For example, where a notice asking the surveyor to agree his fee is ignored, the surveyor can proceed *ex parte* (Bansal *v* Myers). If the response is, for example, 'I would like to refer the matter to the Third Surveyor,' then that is an effective response and the 10(7) notice has been satisfied and section 10(10) must be applied.

Case study 3: Section 1(5) notice

Section one undoubtedly causes the greatest amount of anxiety and frustration to the adjoining owners. This section only applies to new walls on the line of junction, raising an existing wall is not subject to the Act's procedures. I believe some surveyors often confuse or misinterpret this section and apply it to walls built away from the line of junction in order to obtain a right of access on to the neighbours' land. Quite simply, if the proposed wall is away from the line of junction for any distance it is not 'on' the line of junction and section 1 does not apply.

A good example of the confusion flowing from the interpretation of section 1(5) is demonstrated in the case file of Davies and Sleep *v* Wise, which turned on whether the Third Surveyor had properly interpreted the definition of 'on'. The Third Surveyor determined that the proposed works satisfied section 1(5) and that the building owners were entitled to a right of access. The Third Surveyor's Award was appealed against; the adjoining owners argued that the works were 'not in pursuance of the Act' and therefore did not satisfy the requirements of section 8(1). Judge HHJ Pearl held that 'a surveyor only has jurisdiction to allow access under section 8(1) of the Act "for the purposes of executing any work in pursuance of the Act"'. The proposed works were not on the line of junction and therefore not subject to the statutory regime under the Act. The appeal was therefore upheld.

This case clearly establishes that the right to access will turn on whether or not the wall is or is not being built 'on' the line of junction. Adopting the natural and ordinary meaning of the word 'on' was the critical point which the Building Owner(s) failed to do, however this is a County Court judgement and does not set any binding legal precedent, although it is, in my opinion, persuasive and of value to parties involved in party wall procedures.

Conclusion

The list of examples are endless and it would be impossible, within the limitations of this article, to detail all that I regularly encounter primarily as a Chartered Architectural Technologist and a Party Wall Surveyor. However, it can clearly been seen that there are differing views and approaches adopted by surveyors when they apply the Act. It is, in essence, a complex specialist area of surveying that requires a methodical and practical approach.

It should also be understood that the burden of proof lies with the defendant (Building Owner) rather than the claimant (Adjoining Owner) where there is a failure to serve notices. Until there is further clarity on the Act, I envisage further disputes arising, but members should ensure that proper practice procedures are in place to advise clients, and avoid the dangers as depicted here. Vice President Practice, Gary Mees said: 'The Party Wall etc Act is an enabling Act designed to be fair to all parties. CIAT has produced an information sheet for members which can be viewed in the Members' Only area of the website under Practice Resources. Members undertaking the role of Party Wall Surveyor may be interested in purchasing the Party Wall Pack, which comprises the contract administration forms of templates of the Notices, a draft Party Wall Award and the information sheets.

Extension project to the rear of a Grade II listed building. No party wall notices or award were issued and consequently, following demolition of an out building the corner wall section of the adjoining property collapsed exposing the kitchen of the adjoining property.

The building owner is now being pursued through the courts for damages, and the building owner is subsequently suing the designer for negligence, in failing to advise them of the act and their duties as a building owner.

Compulsory CE marking of industrial doors is just weeks away

What you, the Architectural Technology professional, need to know

From 1 July, it will become a legal requirement for all non-fire industrial doors to be CE marked under the Construction Product Directive. In fact, it will be a criminal offence to place a construction product on the market without a CE mark, provided there is a harmonised European standard in force for the product - which is the case with industrial doors and shutters.

As a member of the Chartered Institute of Architectural Technologists, you are called upon to specify doors and shutters when choosing products for an industrial or commercial building project. How will this imminent change in CE marking legislation impact on your decision-making

Choosing industrial doors from suppliers that are members of the Door & Hardware Federation is your assurance that all CE marking obligations are being met. It gives you peace of mind that the CE marked product has been checked to ensure it complies with health and safety and some environmental regulations. Neither you nor the architect needs to check compliance (but a check still needs to be made to ensure it complies with Building Regulations).

Nor will any risk assessments have to take place (except by the building owner or user). **Choosing a CE marked product from a DHF member company means that the CE mark is evidence of compliance relating to product safety under health and safety legislation, and so It helps protect the architect's client against litigation in the event of an accident occurring.**

How will CE marking legislation be enforced? All powered doors already need to be CE marked under the Machinery Directive. The responsibility for enforcing this in workplaces lies with the Health and Safety Executive (HSE).

A spokesman for the HSE said: "CE marking is the responsibility of the person who places the product on the market, or puts it into service, for the first time. In law, this duty rests with the responsible person which, in most cases, is either the manufacturer or the manufacturer's authorised representative. By affixing the CE mark the responsible person takes on responsibility for the conformity of the product. CE marking is a visible sign that the product complies with all relevant product supply law."

So in the case of a non-fire powered industrial door, the HSE will need to see the door manufacturer or supplier has affixed the CE mark to the product.

The task of enforcing CE marking under the Construction Product Directive (this is the CE marking requirement coming into force on July 1) falls to Trading Standards. So all powered industrial doors need to comply with both Machinery Directive and the Construction Product Directive. How will HSE work with Trading Standards inspectors in this case?

A spokesman for the HSE said: "HSE will continue to liaise and co-operate with Trading Standards, as we do now, for products which must comply with multiple directives. As a public authority we are responsible for monitoring the safety and conformity of products against European product supply law, an activity known as market surveillance. The HSE is one of the UK's market surveillance authorities which monitors and enforces legal requirements on the safety of most products used at work."

So compulsory CE marking of industrial doors is a fast approaching reality ... and it is clear there will be strict enforcement of CE marking compliance for industrial doors.

By ensuring every CE marked industrial door or shutter is supplied by a DHF member, the architectural technologist specifying industrial doors has peace of mind regarding compliance.

There are other benefits, too, in the architectural technology professional choosing a DHF member company. In particular, he is assured that every DHF member company abides by the DHF's stringent Quality Assured standards covering capability, customer service and quality. These are further backed up by DHF members' adherence to a Code of Conduct governing members' standards of workmanship, quality assurance, training, safety and business integrity. And there is a guarantee that the product will meet the performance levels stated in the declaration of performance.

So the message to CIAT members is clear: for peace of mind, always choose a CE marked product from a DHF member supplier.

For further information you are urged to download the DHF Guide to Specifying CE marked industrial doors from the DHF website http://www.dhfonline.org.uk/downloads/pub205.pdf. This gives extensive and clear details of the legal CE marking obligations of the architectural technology professional when specifying industrial doors and shutters. It also details how the CE mark declaration of performance can guide the specifier towards the ability of the CE marked product to contribute towards meeting building performance requirements. These can include: hygiene, health and the environment; safety and accessibility in use; and energy economy and heat retention.

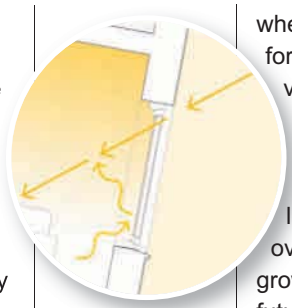
The greenhouse effect

The problem of overheating is a major consideration for designers of energy efficient homes, advises Neil Smith, Head of Research and Innovation, NHBC.

As the industry progresses towards the Government's 2016 zero carbon target, improved energy efficiency standards for new homes have required much change. Materials and construction methods have moved on, and today's new homes are built with more thermal insulation and to a higher standard of airtightness than ever before. This means they deliver warmth, comfort and energy savings in the winter, but there is a growing concern that highly insulated, airtight homes could be at an increased risk of overheating during the summer.

When it does occur, overheating is likely to be caused by a combination of factors, including heat being trapped by higher performance double glazing and extra heat being generated in the home by additional domestic appliances and building services. The increased insulation and airtightness mean that the heat is less likely to be dissipated, and the problems may be exacerbated in urban areas due to the amount of paving and hard landscaping that surrounds homes and heats up the incoming ventilation air.

It is hard to judge exactly how common a problem overheating is – how many homes are affected and to what extent? Mostly, overheating will be short term during periods of hot weather and any discomfort is soon forgotten when cooler weather returns. But for some people, especially vulnerable elderly or infirm people, there can be a risk to health and so the issue should not be dismissed. And it is likely that the risk of overheating will become a growing consideration in the future, particularly if, as expected, climate change leads to hotter spells.



If occupants cannot throw open their windows, homes will stay hotter

Last year, NHBC Foundation published a new guide – *Understanding overheating: where to start* – to introduce the house-building industry to this relatively new issue. Exploring the main factors causing overheating, and identifying practical design and specification changes that can help reduce it, the guide also explores the important factor of consumer understanding and interaction with new homes. We consider a few of these aspects in this article and draw on one of the seven case studies used in the guide, offering an actual example of a home in which problems have been encountered.

The location of a site and the arrangement of buildings have a significant bearing on the likelihood of overheating: it is widely understood that the orientation of windows will affect the extent of solar gain. However, what may be less obvious is that occupants' ability to open their windows will be impacted by security and noise concerns in

One house type rotated through different orientations will behave differently.

urban areas. The extent to which rapid, purge ventilation can be achieved in practice will depend on the window design, and if occupants cannot throw open their windows and purge the hot internal air effectively, homes will stay hotter for longer periods than they need to.

Certain design and specification changes can go some way in helping to reduce the risk of overheating. In addition to making sure that good ventilation is provided, the use of solar shading devices such as shutters, awnings and blinds can deliver further benefit. Thermal mass – the ability of building materials to store heat – can be another useful tool, as long as adequate ventilation is provided.

Strategies for reducing the risk of overheating in homes, however, also require the understanding and participation of occupants. Some measures can only be effective if people know how to use them – and remember to do so – and so there is a role for good information and guidance. Encouraging behaviour change in this way will help to reduce the likelihood of occupants buying and using air conditioning units, which only add to fuel consumption and CO_2 emissions, contrary to the purpose of an energy efficient home.

As climate change continues and spring and summer temperatures look set to increase over the coming years, overheating is something house builders and homeowners need to have greater awareness of. Good design, with features used effectively by occupants, needs to make sure homes of the future are both energy efficient and comfortable all year round.

A free copy of the guide is available to download at www.nhbcfoundation.org/understandingoverheating

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Case study: the urge to purge

Understanding overheating: where to start **features seven case studies. They demonstrate the challenges of solving overheating problems that do arise and provide a useful reminder of what must be avoided. We share one below.**

Overheating was observed in a predominantly north- and east-facing flat in an 11-storey development, located in an urban area close to a busy elevated road. The building fabric is well insulated with low thermal mass due to lightweight internal walls and suspended ceilings.

This corner apartment with large unshaded windows was intended to be naturally ventilated. Due to its proximity to the road, its air supply was supplemented by means of ducted vents in the ceiling along with intermittent extract fans in the kitchen and bathroom. The bottom-hung windows were designed to be openable to allow for purge ventilation, but were fitted with restrictors.

The floor-to-ceiling glazing admits large amounts of sunlight during the day, with the only means of heat expulsion being through the windows. The restrictors, however, limited their opening to 100 mm, due to which the panels could not extend beyond the window reveal, making the effective opening area very small. The proximity to the busy road made it difficult for the windows to be left open overnight for effective night-time ventilation. In addition to this, the background ventilation grilles did not provide adequate air supply to remove the built-up heat.

Cross-ventilation is most effective when windows are located on opposite façades, which is not possible in this case. Additionally, the night purge strategy could not be effectively used due to the location of the flat and design of windows.

Growth through BIM By Richard G Saxon, CBE

Richard Saxon is the UK Government's BIM Ambassador for Growth. He was commissioned by the Department of Business, Innovation and Skills (BIS) to produce a report to help maximise the growth effect of the Government strategy for BIM at home and in export markets.

Building Information Modelling (BIM) is an innovative and collaborative way of working that is underpinned by digital technologies which support more efficient methods of designing, creating and maintaining the built environment.

Saxon sees that BIM will raise productivity, providing better buildings, faster and cheaper. These innovative technologies also represent an opportunity for the UK professional services sector to become a powerful international player.

Saxon researched and observed key developments in BIM internationally, in the EU and at home. The report examines the scale and shape of the market in the UK and worldwide; the basis for BIM-driven growth; the outlook for BIM development to 2020; impacts on the members of the value chain; and the strategy for growth through BIM.

Available to download free of charge from www.cic.org.uk

The report examines the scale and shape of the market in the UK and worldwide

Party Walls: A Practical Guide by Nicol Stuart Morrow

The preface to this book commences with a brief history as to how the Party Wall Etc. Act 1996 evolved and why it was necessary today. Prior to 1996, jurisdiction often depended on applying common law to predominately technical matters, resulting in the costly engagement of legal professions and timely delays. The structure of the book is as follows:

- Overview of the Act
- Architects and The Party Wall Etc. Act 1996
- Sections 1-22 of the Party Wall Act, discussed
- Preparing an Award
- Case studies
- Calling in the third surveyor
- Fees
- Appendix

The Party Wall Etc. Act came into effect on 1 July 1997 and extends to the whole of England and Wales. This section of the book is very useful and informative; it identifies sections 1-13 of the Act with concise bullet points giving various examples, as to what a Party Wall Surveyor may expect to come across. It also gives brief examples of the various procedures involved. The overview is structured very well and acts similar to a flowchart with integrated questions and depending upon the answer results upon the next move forward.

Being a RIBA publication it is geared towards architects, however this section remains applicable to Architectural Technology professionals as it concentrates on reviewing the building design and the Party Wall's influence from an early stage of the design process. This section also discusses how the designer's role changes as the project evolves. The Sections 1-22 of the Party Wall Act, discussed, are set out with the original wording from the Sections/Clauses from the Act, which is worded very legally and formally as one would expect. The author has then broken this terminology down in a less formal manner and explained the Section/Clause in a way that is easier to understand. There are also drawings to identify the various types of Party Wall situation you may come across.

The preparing an award part of the book is useful as it has sample letters and awards. There are two case studies; the first is an award with an agreed surveyor. This again has an example award and this time it is filled out. The second case study is an award by two appointed surveyors. This too has a completed example of the award for reference purposes.

The penultimate section entitled calling in the third surveyor, within this part it discusses the process where the two parties are in dispute and the role of the third surveyor. The final chapter of the book reviews what may be involved and gives various examples as to what to factor in when considering the fee proposal. The book's appendix also has further templates for Access to adjoining land.

In summary the book is useful for a quick reference guide and could be seen as a bit of a 'troubleshooting' manual should you come across a scenario you are not familiar with. The Party Wall is reasonably complex topic and the author has done a good job in simplifying the terminology of the Act.

Review by Michael Greve MCIAT (www.wcecuk.com)

RIBA Enterprises. Jan 2010. £35.00.
ISBN 9781859463109

Creating Winning Bids

by Basil Sawczuk

This is a thoughtfully pieced together book on the often much ignored subject of winning work. Topics include the different types of work available; ways of finding and securing it; ensuring you understand the different forms of tender and their associated negotiating processes, the preparation and planning required to create winning bids, what should be included in the tender documentation and the relevance of a prequalification questionnaire and whether or not to include an appendix as part of the bid documentation.

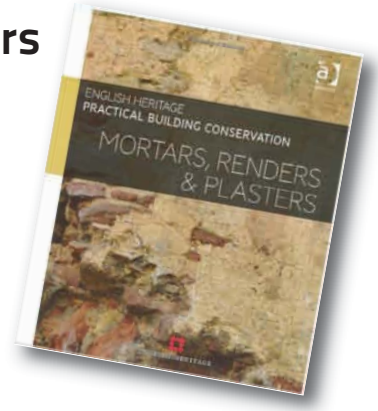
I particularly liked the discussions on the relevance of establishing your credibility and experience; the inclusion of past projects, whether client endorsements should be used and how to create a bid focussed curriculum vitae. Surprisingly, the primary focus throughout this book is the often ignored and much misunderstood topic of effective marketing strategy, making it a good reference for any sole operator, director or marketing professional of a multi-national architectural practice. *Mark R. Shaw MCIAT*

RIBA Enterprises. April 2013.
£25.00 ISBN 9781859464984

Mortars, Renders and Plasters

English Heritage Practical Building Conservation series

Volume editors: Henry, A.,Stewart, J.
Series editors: Martin,B.,Wood,C.



Mortars are the bonding agents of masonry units, and building materials are often protected externally by renders, and internally by plasters, often with decorative effects or as a base for decorative effects such as paintings. While the materials are often 'sacrificial' and may require renewal as part of maintenance programmes, lack of understanding of their performance has led to unnecessary removal of historic materials which have been replaced by inappropriate new mortars and irrevocably changed the appearance and aesthetic of historic buildings.

The *Mortars, Plasters, and Renders* volume from the 1988 Practical Building Conservation series was an important milestone in the understanding of the properties of these materials, how they decayed and how they may be repaired appropriately. Since its publication, there has been not only an upswing in the development of informed conservation using lime-based products, but a large increase in the research and understanding of building limes both modern and historical.

Additionally, the growth in the use of sustainable materials for use in renovation and new construction has seen an increase in the number of lime based products in the market-place. This volume sets out to provide a broad perspective of contemporary theory and practice not currently available in one publication.

The volume is set out in the same format as the others of the series, describing the history of the preparation and use of the materials, the main causes of damage and decay, diagnosis of deterioration and repair strategies. A number of special topics are covered, including the treatment for ruins, decorative painting on renders and plasters, and natural cements. Like the other volumes, it is well illustrated, with clear tables, a glossary and further reading for additional research. all in all, this volume appears to be a worty successor to the 1988 volume and helps to consolidate the information that has developed on the subject in the subsequent period.

Review by Paul Travis MCIAT

Ashgate Publishing. 2012
ISBN 9780754645597 £65.00

101 Rules of Thumb by Huw Heywood

The essential elements of low energy architecture are explained in this book in chapters concentrating on site and location, manipulating orientation and form, low energy building envelope, energy and the internal environment and rules and strategies for different climates.

Using simple had drawn sketches that should appeal to all who use drawings as a means of expressing ideas and designs this book provides key principles on what is important when looking at low energy building.

Each page has delightful sketches that deal with a specific rule and these are backed up with more detailed information in written form. The simplicity of the sketches and text belies their obvious underlying scientific rigour.

This book sets out the fundamentals of low energy buildings with simple rules of thumb is suitable for any climate and for both new and retro-fitted buildings. I recommend this book; it is joy to read and helps to get back to first principles on low energy design.

RIBA Publishing Jan 2013.
ISBN 9781859464816
£17.99

Join the professionals

CIAT has developed Professional Assessment, a new membership progression process which was piloted over a 12 month period and is now operation. Professor Sam Allwinkle PPBIAT, MCIAT, Project Leader, New Membership Qualifying Process, and James Banks, Membership Director, here outline the new way to achieve Chartered status.

Following a review of its membership, CIAT identified that the professional activities undertaken by members in the field of Architectural Technology have become more diverse. In recognition of this diversity, the Institute has identified a broader range of professional functions within the field of Architectural Technology that are now eligible for consideration for Chartered Architectural Technologist status.

CIAT developed a new membership progression process which was piloted over a 12 month period. The new system has since been approved by CIAT's Executive Board and Council, and is now operational. The new process is designed to be utilised by candidates working across a range of job roles and functions within Architectural Technology and is based upon assessing professional performance. This process draws upon CIAT's established and tested membership progression framework and will allow candidates to use their experience in their chosen field to demonstrate professional competence whilst retaining standards, as well as being less prescriptive.

The new process, called the Professional Assessment, was piloted and tested in three phases to allow the Institute to monitor and evaluate the workability of this new system. Member Panel Assessors, Interview Assessors and candidates involved in this new process were asked for their feedback. Overall, the Professional Assessment pilot was positively received and supported by all parties involved in its development and implementation.

A number of the recently qualified Chartered Members are operating at a senior professional level within industry and their new status as Chartered Architectural Technologists will raise awareness of the Institute and Architectural Technology in the industry. Broadening our traditional focus and embracing a much richer and deeper range of skills, abilities and knowledge is in the interest of all Architectural Technology professionals.

The pilot process subsequently went through three stages of evaluation and modification before the final version of the Professional Assessment was unanimously approved by the Institute's Executive Board in March 2013.

Architectural Technology and the purpose of the Professional Assessment

Architectural Technology is the science and technical aspects of architecture primarily based upon the twin concepts of designing for performance and production through the use and integration of technology. Based upon this definition Architectural Technology is both creative and innovative and is an ever evolving design discipline. It embraces and incorporates a wide variety of professional functions that are underpinned by knowledge, experience, skills and competence within the built environment sphere; some of which are highly specialised. The Institute's membership comprises professionals practising in a variety of roles which sit within the discipline of Architectural Technology, including designers, lead consultants, academics, researchers and specialist practitioners.

Candidates must provide an in-depth critical analysis

Sam Allwinkle

CIAT, as the lead body in Architectural Technology, has identified four core areas in which all aspiring members working within the discipline must be able to demonstrate competence, regardless of their particular specialism or field of practice.

What is the MCIAT Professional Assessment?

The MCIAT Professional Assessment is a flexible, rigorous, robust and quality-assured qualifying process, based on performance and designed to recognise the diversity of Architectural Technology. Candidates must provide an in-depth critical analysis clearly summarising their knowledge, understanding and application of the construction process with regard to planning, design, construction and use, as well as relating it to their professional experience. This will take the form of a reflective report and will refer to challenges and successes encountered whilst working on projects and how any issues were resolved. Applicants will also

undertake a self-evaluation highlighting their strengths and weaknesses in relation to their area/s of practice. The Professional Assessment process is based on four core competencies:

•Designing
•Managing
•Practising
•Developing (self)

Why have we moved this way?
Although still in use, the POP Record qualifying system was considered as being overly process based, prescriptive and consequently had been a barrier to entry for many specialists in Architectural Technology. It was agreed that Professional Assessment should be applicant centred and user friendly.

Who can apply for the MCIAT Professional Assessment?

Any applicant working in or on, for example, architectural/architectural technology/design practice, component/specialist design, refurbishment, commercial, industrial, residential or domestic projects, public or private sectors, academia etc within Architectural Technology, should be able to apply their own experience to the Professional Assessment process.

Each application will be assessed on its merit. However, each applicant will need to demonstrate a sufficient level of knowledge and understanding and professional competence/experience in relation to their sphere/s of practice and demonstrate to the Institute they can meet the expectations of a Chartered Architectural Technologist, MCIAT. It is integral that all applicants are aware of the obligations to the Institute's Code of Conduct.

How much does it cost?

To apply for the Professional Assessment, applicants are required to pay £300 for the assessment of the application and the Professional Assessment Interview.

When can I apply?

Any applicant who can meet the required standard is eligible to apply. However, they must be an active member of the Institute.

Who assesses my application?

All evidence for your Professional Assessment application must be submitted with the initial application which is then assessed via a formal process by a CIAT Member Panel. This is to ensure the applications meet the required competence level to progress to the Professional Assessment Interview. The Professional Assessment Interview is undertaken by CIAT Interview Assessors. The CIAT Member Panel and Interview Assessors are all Chartered Architectural Technologists, therefore this is a peer review.

What about the POP Records?

The structure and language of the POP Records are currently being reviewed by the Standards Group. Both qualifying systems will be aligned and the 2010 POP Records will run in tandem with the Professional Assessment. Rest assured any applicant who is completing the 2010 POP Record will be given ample time to qualify via this route.

Further information

For further information please contact any of the following CIAT staff:
James Banks, Membership Director (james@ciat.org.uk)
Amina Khanum, Membership Administrator (amina@ciat.org.uk)
Dorota Fitzpatrick, Membership Assistant (dorota@ciat.org.uk)
Telephone 020 7278 2206.

What the assessors say...

... a positive and appropriate step forward for the Institute. It provides a flexible and inclusive approach to Architectural Technology, it avoids the trap of protectionism whilst maintaining the status of the existing membership, and it provides a framework that will be recognised by other professionals and the public as being relevant to the discipline of Architectural Technology.
Neil Dransfield PPBIAT MCIAT

We are not assessing an ability to practice (that is for individuals to assess themselves) but that the candidate has reached a level of professionalism commensurate with Chartered Architectural Technologist status.
Mark Kennett PPCIAT MCIAT CEnv

As a moderator for POP Panels and an Assessor on the Pilot Scheme I can say without any shadow of a doubt that the requirements for Chartered Membership are not being dumbed down in any way to let anybody in. It is vital that we move on as an institute and embrace the ever evolving technology vital to the Built Environment – to ignore this we do so at our peril... People who bury their heads in the sands fail. *Kathy Thurman MCIAT*

What the candidates say...

Although on the face of it, it is less daunting, it is equally as challenging as the onus is on you to provide the evidence in your own format and style, together with deciding what you need to include. *Chris Curtis MCIAT*

The Professional Assessment gives you the opportunity to explain your area of practice and prove expertise and knowledge without getting side-lined by theoretical exercises. I would have thought that this can only help both the candidates and assessors establish a person's credentials and maintain the Institute's standards. *Matthew Faber MCIAT*

I felt overall the process was much less intimidating and more of a blank canvas to present yourself against what you do, what you have done and your educational background.
Scott Harrison MCIAT

The new route is much less onerous as it was directly related to my work to date and aspirations for the future. I found it easier to fill in the four categories and I really enjoyed the reflective style which was required in order to complete the task. *Virginia Rammou MCIAT*

Adding value through innovation

WCEC Architects recently sponsored 16 members of staff in becoming Chartered Architectural Technologists as part of the MCIAT Professional Assessment pilot scheme. WCEC Marketing Manager Kat Milano spoke to some of them to find out how they got on.

WCEC's approach to commercial and technical architecture has seen a companywide adoption of a BIM/Revit policy and professional development of Architectural Technologists. This forward thinking strategy by the partners at WCEC has seen significant advancements in the technical standards incorporating BIM/Revit expected from today's cutting edge technologists. This approach to technical architecture and personal development within the staff at WCEC has strengthened WCEC's reputation as one of the UK's leading commercial fully BIM compatible architectural practices. The 100% pass rate of 16 new MCIATs has bolstered the existing MCIAT members at WCEC, the development of which has been a core vision for the company.

The advancement and investment in nurturing the team and emerging skills has been intense and rewarding. WCEC are proud of the fact that they are a leading architectural company with their own in house BIM consult team. Partner Alex Wall said 'The decision to sponsor 16 members of our technological staff in their MCIAT applications was a natural progression of our on-going support for our Architectural Technologists in the drive to provide cutting edge and high value services for clients'.

Left to right: Mark Kraut MCIAT, Paul Griffiths MCIAT, David Moore MCIAT, Sarah May MCIAT, Sam Sellers MCIAT, Mark Morrell MCIAT, Graham Allen MCIAT, Josh Botham MCIAT, James Pulfrey MCIAT, Gareth Thorpe MCIAT and Dan Compton MCIAT.

What led you to try for MCIAT membership?

Sarah May: Progression to MCIAT was always one of my goals and was supported positively by the partners, specifically James Kemp MCIAT who had already been through the process. I was therefore challenged with progressing and helping others to gain Chartered status. When the pilot scheme was announced we saw it as a fantastic opportunity, as the staff at WCEC had so much experience that it was the perfect progression route.

How did you approach the MCIAT pilot process?

Sarah May: We discussed whom among the Associate Members in the practice was interested in going through the pilot process and from there we all got our heads together, set target dates for review and generally supported each other through the month long process. Each applicant generally worked through their applications on their own, as the Professional Assessment relates directly to the individual and their experience. The process cannot be completed as a Group.

Who acted as your referees and why?

Sarah May: Our referees consisted of the Chartered Architectural Technologists and Chartered Architects, familiar with the work of their allocated members of staff progressing within their teams.

How long did it take each applicant to complete? Was the pilot deadline set by CIAT a help or a hindrance?

Graham Allen: The deadline was set by CIAT; we had one month to complete the application part of the process. Any deadline helps as it focuses the mind and helps to plan work schedules alongside project programme dates. Daniel Compton: The deadline set by CIAT was essential to ensure we stayed focused on the task and time was dedicated to completing the application process.

How did you find the Member Panel Review Process?

Daniel Compton: Following submission of applications, the review process seemed to take a long time although in hindsight, given the number of applicants nationwide; this was actually done fast and effectively. Once the application had been submitted, there wasn't a great deal we could do other than wait for a decision by the member panel.

How did you find the Professional Assessment Interview at the practice?

Sarah May: The interviews were as relaxed as they could have been with interviewers asking leading questions to get you started. You were asked questions about your experience and nothing you hadn't already put in your application form. There were no surprises thankfully.

Graham Allen: The interview was very thorough and quite a few scenarios were tabled, I was able to answer the questions based on my past experience and knowledge. As part of the Group Membership Scheme, we were eligible to have the interviews at our office, I found that this simplified the process and also reduced the pressure that interviews usually generate.

Daniel Compton: The assessors were welcoming and in a short space of time I was able to relax sufficiently to answer questions and take part in the interview effectively. Having the Professional Assessment Interview at WCEC's office definitely made the interview less stressful.

Do you or your colleagues have any advice to candidates about to complete their MCIAT Professional Assessment?

Sarah May: I would suggest that any candidate thinking about progressing via the new Professional Assessment, should just commit to it and just do it! It isn't as daunting as the POP Record. At WCEC we undertook to update our CVs and write our experiences down on paper in bullet point form. We then looked at the finer detail and wrote a reflective report about specific points we could recall and provide evidence for. This then helped with the final core four sections and the application was complete.

The success has given the whole office a huge morale boost

Daniel Compton: Read the guidance notes for completing the application and ensure that your information is presented in a way that suits your specific journey through your career. Read through your application carefully and provide evidence that is relevant to the information in the application. James Banks, Membership Director at Central Office (james@ciat.org.uk) is always able to give further information.

How has the qualification benefited the practice? How many MCIATs do you have in the practice?

Daniel Compton: The practice has benefitted from newly qualified employees completing the assessment as they are more confident and the success has given the whole office a huge morale boost. A greater number of professionally qualified employees will also provide reassurance to prospective and new clients. This whole experience has enabled WCEC to actively demonstrate the company's policy of encouraging employees to progress their professional development.

Sarah May: We now have MCIATs involved in leading projects, general architectural practice and others in design and development roles. I myself am part of the in house sustainability team, WCEC Environmental, as a qualified BREEAM Assessor undertaking environmental analysis on a variety of projects. Out of 96 staff we have 16 MCIATs.

Do you have any advice for architectural practices which have large numbers of staff who can qualify with the Institute?

Daniel Compton: I would recommend any practice with a number of eligible candidates to encourage multiple applications as candidates would benefit by having the interview in familiar surroundings.

Are there more staff looking to qualify via the MCIAT Professional Assessment?

Daniel Compton: A number of staff at WCEC are scheduled for a Professional Assessment Interview. I understand that since the recent success of candidates at WCEC, even more staff with the relevant experience will be expressing an interest in applying for Chartered Membership.

Sarah May: We currently have a further 18 members of staff at all levels wishing to progress to MCIAT via the new membership qualifying process.

How do applicants plan to get involved with CIAT in the future?

Sarah May: Our members will be attending the Regional CPDs that are available to them and I myself have been asked to become a Professional Assessment Interview Assessor which is a challenge I am quite looking forward to. As a registered BREEAM Assessor, I am also looking into becoming a Chartered Environmentalist through CIAT.

Group Membership Scheme

Does your company have three or more applicants for CIAT membership? The Group Membership Scheme offers 50% off the first year's subscription.
To find out more visit:
www.ciat.org.uk/en/Join_CIAT/Group_Membership_Scheme/

Some colleagues are best kept at arm's length...

...while others are worth giving a helping hand.

So why not introduce them to CIAT membership?

£40 reward if you introduce a new member!

CIAT is continuing its successful incentive scheme for 2013. Introduce a friend or colleague to join the Institute and you will be rewarded for it. Simply visit:

www.ciat.org.uk/en/Join_CIAT/Introduce_a_member.cfm

and download the membership application form for your friend/colleague, complete it and return to the Membership Department. When returning the form, ensure your friend quotes your membership number and your name together with the reference number WEB13. Upon acceptance of his/her application and payment of a whole year's membership subscription we will send you a cheque for £40(€46) in appreciation. If you introduce more than one person we will pay £40(€46) for each.

The following are not eligible: introductions made under other membership recruitment schemes or activities or re-introductions of ex-members.

The new Membership Progression Route

Stacey Taylor MCIAT joined CIAT via the TCIAT POP Record and then took part in the Professional Assessment pilot scheme before it went live on 1 May 2013. Interview by James Banks, Membership Director.

Tell us about your professional background.
I have worked in the construction industry for eight years, five of these within my current practice gaining valuable experience on a range of projects. I undertook my ONC and HNC on a part time basis and was a student member before becoming an Associate member after completing my HNC.
In practice I specialise in working drawings and detail packages as well as writing specifications, taking projects onto site, contract administering and running the works on a day-to-day basis.

What made you decide to progress via the TCIAT POP Record?
I recently completed my TCIAT POP Record as I felt I was at a stage where I had sufficient knowledge and experience and felt that progressing my membership would be hugely beneficial to my future career.

How did you go about it?
I worked through the POP Record from beginning to end and firstly made notes on both the Underpinning Knowledge and Performance sections – identifying projects I might use. This was useful as it enabled me to go and research if there were any units I felt I needed a little more information on before committing to writing the full section. There were some units which I found easier than others as they feature activities I undertake on a daily basis. My Supervisor was my line manager. I chose this person as we work closely together on all projects and he knows the level and standard of my work.

How long did it take?
I was working on my TCIAT POP Record for approximately five months. I tried to do a full unit at a time by dedicating a few hours after work each week. This was helpful as all the resources I needed were available. I could have completed it quicker however I felt that this was a good pace to allow for review with my Supervisor along the way.

How did you get involved in the MCIAT Professional Assessment pilot?
After submitting my TCIAT POP Record the practice was approached and asked if they wanted to take part in the MCIAT Professional Assessment pilot scheme. At the time only TCIAT members or those who would have been completing their MCIAT POP Records through various other routes were eligible to apply. There was a relatively short turn around on the POP Record assessment and my TCIAT POP Record was assessed and approved during this period. This gave me the opportunity to complete the MCIAT Professional Assessment pilot scheme and potentially attend my Professional Assessment Interview.

I never expected the process to be so quick and stressfree

How long did the process take?
From the time of gaining my TCIAT to submission of the pilot scheme I only had two weeks. I found out within a few weeks that my application was successful and I was invited to attend the Professional Assessment Interview. The next two weeks were nerve-wracking but also exciting. I attended the interview and found out on the day that I had passed! This meant that attaining Chartered Architectural Technologist, MCIAT status took just over three months.

How did you find the process in general?
The TCIAT POP Record review process was very quick; I thankfully passed without a referral and was kept up to date throughout the review process. This was the same for the MCIAT Assessment. There were only a few weeks between submission and finding out whether the assessment had been passed for the next stage before my interview date was confirmed.

How was the interview?
I was nervous attending the interview but it was definitely a more pleasurable experience than I had expected. There is not much you can really do to prepare for the interview. You have to believe in yourself and try to keep calm!

Do you have any advice for other candidates?
For candidates currently completing a POP Record I would say use it as a revision and learning tool, if there is an area that perhaps you don't cover in everyday work don't panic, use it as an opportunity to discuss, do some research and with your supervisors help, programme this kind of work in to your schedule if possible so you can experience it first hand. I would also say don't rush. It's good to set yourself a deadline but you don't want to feel like you have to rush units – perhaps set mini deadlines. I would pick a supervisor who is approachable and knows your work well.

The most important thing I would say to anyone attempting their POP Record is make sure you are confident in what you do. I personally didn't want to start the POP Record until I felt I was ready and had good amounts of relevant experience and I really feel this paid off.

Any last thoughts?
In general the POP Record was a great tool for reviewing my current level and knowledge. I feel completing it and the MCIAT Professional Assessment was a great achievement and well worth doing. I never expected the process to be so quick and stress free and would encourage anyone to definitely consider progressing membership whichever level you are at.

For more information contact James Banks (james@ciat.org.uk), Membership Director, who can provide assistance, guidance and support for membership progression.

Council elections

Elections will be held in Council this September for those nominated to serve as Honorary Secretary, Vice President Practice and Vice President Education. Here the nominees outline their relevant experience and their vision for CIAT's future.

Honorary Secretary: Gordon Souter MCIAT

I am delighted and honoured to have been nominated again for the position of Honorary Secretary and if elected, I would continue to serve the Institute with immense pride. Since commencing employment in 1985 I was continuously employed for 23 years, (8 in private practice and 15 in house building), until being made redundant in early 2009. I am glad to say that I have now been employed for the last 3 years with one of the biggest house builders in Britain. During my employment I have worked mainly in the house building sector holding a number of positions from Architectural Technician to Technical Director. 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 over 14 years where I have been Chairman, Secretary, Councillor and CPD Officer; at national level for the last 8 years serving on Council, Executive Board the Conduct Committee and the Documents Taskforce. I also co-ordinate the CIAT responses to consultations that relate to Scotland. I served on BSAC 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 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 up their time to continue the growth and enhance the recognition of CIAT. Whilst the position of Honorary Secretary is not as high profile as that of the other officers it is nonetheless an important one. At this time the Institute is functioning well and as Honorary Secretary I intend to maintain this by dealing with potential issues swiftly and efficiently. If elected I would consider it an honour and a privilege to serve the Chartered Institute of Architectural Technologists.

> **"I would consider it an honour and a privilege to serve"**
>
> **Gordon Souter**

Vice President Practice: Gary Mees

This being the end of my second term as your Vice President Practice (VPP), I am again honoured that my colleagues, within the Institute's Council, have nominated me to continue in this position.

During my first term starting 2009, I instigated the separation of the Practice and Technical functions of the Taskforces culminating in the Vice Presidents focusing on their own specific roles and responsibilities. The VPP now has responsibilities for reporting to Council and Executive board on Documents Taskforce, Special Issues Taskforce and Liability Taskforce under the overall administration of the Practice Department. These Taskforces with their Chairmen, attending and corresponding members are the operational groups that prepare and provide a quality peer-to-peer review of all documents coming out from Practice Department and the Institute. From these working groups, documents are developed, reviewed and published, which are available in the Practice area of the Institute's website. I would urge all to visit and see what is available.

> **"Succession planning has been high on my agenda"**
>
> **Gary Mees**

Succession planning has been high on the Institute's and my own agenda. We have been identifying candidates with specialist areas of expertise for suitable taskforces in order to maintain the breadth of knowledge required within the working groups. This ensures the balance of fresh outlooks and ideas and the maintaining of irreplaceable experience and knowledge. CIAT is fortunate to be able to draw on this from the Institute's respected senior members on taskforces. I am delighted to say that we have welcomed a number of new corresponding members on to the taskforces. I trust they will enjoy the knowledge sharing and inputting into projects and information. I take this opportunity to thank those who have contributed, and who continue to contribute to the Taskforces on behalf of the Institute.

Vice President Education: Professor Sam Allwinkle MCIAT, PPBIAT

I am honoured that many of my fellow Members encouraged me to stand for this office and it is my privilege to accept. It certainly was not in my plan to seek election however due the diminishing pool of candidates with appropriate education and membership experience I agreed to this nomination. I wish to make it clear that if elected I only intend to stay in this position for one term as I plan to develop the capability and capacity of the early and mid-career Members in this field to be in a position to take over from me and others by the end of my term of office. Education and membership like any area of practice requires knowledge and experience to be able to contribute and lead with authority and it is vital that succession planning is developed for the future good of our Institute.

"everything I do is aimed at the membership and actively strengthening the Institute's profile"

Professor Sam Allwinkle

I have held many posts on behalf of the Institute including, President from 1995 to 1997. My last office was Vice-President Education 2001-2003 and since then I have chaired the Accreditation Group, a member of the Membership and Education Committee and a member of the Research Group. I have been involved, led and contributed to most of the major developments from SAAT to CIAT including the various name changes, the establishment of Architectural Technology degrees, setting up accreditation procedures, developing a qualifications framework, leading and chairing the first QAA Benchmark Statement for Architectural Technology as well as major input for the Royal Charter. As many of you are aware I am project leader for the membership futures project which aims to address many of the key issues that are and will affect the CIAT and the membership.

Given the changing and competitive nature of professional institutes linked to higher education, as well as with respect to the evolving UK funding environment, significant functions of the Vice-President Education portfolio (accreditation, standards, membership and research) currently undertaken are fundamental to the future sustainability, resilience and vitality of our Institute. Furthermore, while it is clear through knowledge and experience that these functions are inextricably linked, our Institute urgently needs to grasp the opportunities to achieve membership growth through and by strong leadership and management to deliver a coherent approach to policy, strategy and operation in these important areas. Lastly everything that I plan to do is aimed at the membership and actively strengthening the Institute's profile and enhancing the value of CIAT membership.

Vice President : Education: Robert Hill MCIAT

I have been an active member of council for about ten years spending much of that time on the Executive Board and also on Conduct committee. This has given me a very good grounding in the ways of the Institute and particularly in the areas in which it involves education and membership. Those of you who know me will no doubt agree that I am passionate about CIAT and am never afraid to tackle difficult questions and stand up for what I believe and for what is right for the Institute. I have worked at UWE Bristol for over 20 years as a Surveyor/Architectural Technologist and have managed many projects from small to multi-million pound new buildings. During this period I have been asked to give many lectures and take part in seminars and presentations to ensure our students see the practical side of the construction industry. This does not make me an academic, but does give me insight into academia.

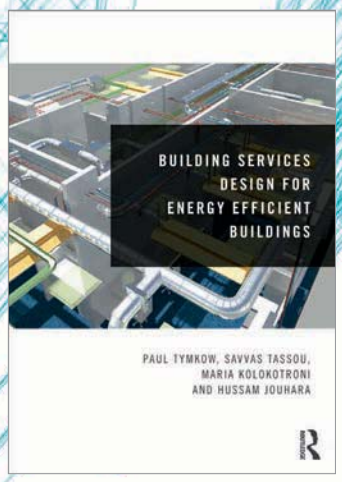
"In simple terms we must ensure that that courses provide the proper training for students to progress to Full Membership"

Robert Hill

Education and membership are closely linked as one should naturally lead to the other. In simple terms we must ensure that courses provide the proper training for students to progress to Full Membership. Unfortunately, as Sam Allwinkle has shown, we have failed to create the circumstances to make this transition work for many of our graduates.

I meet with the new students at the start of their course at UWE Bristol, and follow up with meetings during the course. These meetings have made it clear to me that there are many talented students working towards their degree, but also that far too many do not move into membership and some move away from the industry all together.

This is a great loss to CIAT and we must do whatever we can to address this. This cannot all be done from the comfort a committee room, but needs someone with drive and enthusiasm to encourage our membership to give these students a start. I believe that I am that person. Should I be honoured with election in September, and then with your support we can make things change.



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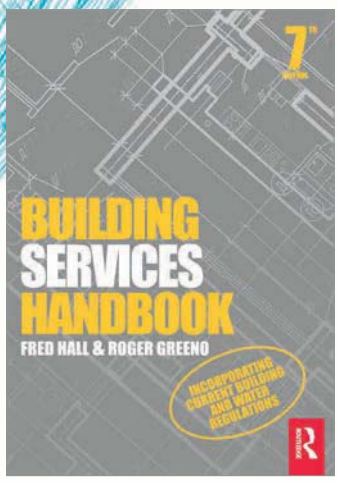

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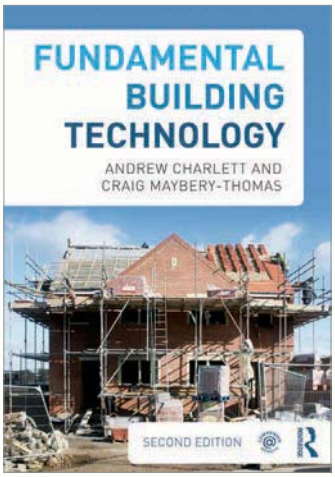

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RIBA Plan of Work

President attends launch of the definitive UK model for the building design and construction process

The RIBA Plan of Work 2013 was launched with a ceremony in London on 22 May attended by President Colin Orr and Gary Mees MCIAT, Vice-President Practice.
First developed in 1963, and now supported by CIAT and other organisations, the RIBA Plan of Work is the definitive UK model for the building design and construction process.

Following a fundamental review this major upgrade ensures that the RIBA Plan of Work continues to reflect the very best principles in contemporary practice. In addition to essential updates, including key changes from procurement to sustainability, for the first time some of the tasks can be customised by the user via a new online tool. President Colin Orr said 'The RIBA Plan of Work 2013 is an innovative development of the RIBA's established design and construction process model. At its heart is a customisable online work plan generator, which can be used to produce practice or project specific work plans.'

RIBA President Angela Brady said 'This has been a once in a generation opportunity to update the industry's process model to address key changes in areas such as procurement, town planning, sustainability, BIM and construction delivery.'

To download a free copy, please visit www.ribaplanofwork.com

"A once in a generation opportunity to update the industry's process model"

Angela Brady

NEWS IN BRIEF

Membership rises

In March 2013, a record number of 49 Chartered Members were registered. This beats the previous record of 37, set in January 2004. It is envisaged with the launch of the MCIAT Professional Assessment that Chartered Membership applications will rise.

CIAT goes global

The Institute now has members in 48 countries. Interview Boards have recently been held in Australia, Hong Kong and New Zealand. Candidates have also recently qualified from Canada, Denmark, Iran and St Vincent.

BREEAM abroad

The Building Research Establishment has launched its new environmental standard for the overseas market, *BREEAM International New Construction 2013* to assess commercial and residential buildings worldwide. Available from www.breeam.org

Correction

In the membership section of *AT* issue 105 we incorrectly referred to Stephen Hedley MCIAT as Stephen Headley. We apologise for this error.

CIAT AWARDS

Entries are now being received for the Institute's Open Award for Technical Excellence in Architectural Technology and Alan King Award.

The entry deadline for both competitions is 29 June and the winners will be announced at CIAT's AGM. Both Awards are open to all professionals.

For further information please **www.ciat.org.uk/en/awards/**

South Lodge, Burnhouse, East Dunbartonshire by Stuart Davidson Architecture which was Highly Commended in the 2012 Alan King Award.

Conduct

In accordance with the Institute's Code of Conduct, decisions by the Conduct Committee are reported in *Architectural Technology.*

M012953/F2576 – Mrs S Ross

Mrs Ross was found in breach of Clause 1b) from the Code of Conduct effective 1 May 2011:

Clause 1: Professional Conduct
The members shall at all times:
b) act faithfully and honourably in their professional responsibilities.

Disciplinary action:
In accordance with the Conduct and Disciplinary Procedures Schedule 1, Item 17 (b), Mrs Ross was reprimanded in respect of this breach and was required to give an undertaking in writing to refrain from further contraventions of the Institute's Code of Conduct; this she has duly done.

A022192/F3740 – Mr D Logan

Mr Logan was found in breach of Clause 1b), Clause 3a), Clause 7b), Clause 7c) and Clause 9a) from the Code of Conduct effective 1 May 2011:

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.

Clause 7: Conflicts of Interest
b) Employed members shall take reasonable precautions to disclose to their employer any conflict of interest which arises between themselves and their employer.

c) Any members perceiving a potential conflict of interest shall report that conflict in writing to either their clients or employer as appropriate at the earliest opportunity.
Clause 9: Breaches of this Code
The members shall:
a)report to the Institute any alleged breaches of this Code by themselves of which they become aware

Disciplinary action:
In accordance with the Conduct and Disciplinary Procedures Schedule 1, Item 17c), the Conduct Committee determined that Mr Logan is to be:

- suspended for a period of one-year in respect of the breach of Clause 1b) from the Institute's Code of Conduct effective 1 May 2011.
- suspended for a period of **one year** in respect of the breach of Clause 3a) from the Institute's Code of Conduct effective 1 May 2011.
- suspended for a period of **one year** in respect of the breach of Clause 7b) from the Institute's Code of Conduct effective 1 May 2011.
- suspended for a period of **one year** in respect of the breach of Clause 7c) from the Institute's Code of Conduct effective 1 May 2011.

Each period of suspension will run consecutively. Therefore, the total period of suspension will be for **four years.**

For further information on professional standards, the Code of Conduct and the complaints process please visit

www.ciat.org.uk

NEW MEMBERS

We are delighted to congratulate the following individuals on obtaining Chartered Membership (MCIAT):

Number	Name	Region/Centre
027097	Gillian Armstrong	00 Overseas
023597	Tom Atkins	10 South East
012881	Mark Axon	03 North West
020976	Jade Azcueta	02 Yorkshire
027455	Niels Barrett	00 Overseas
021139	Christopher Beattie	15 N. Ireland
027695	Matthew Bentley	04 E.Midlands
019882	Joshua Botham	04 E. Midlands
012537	Mark Botham	04 E. Midlands
025281	Mark Bouch	10 South East
016810	Richard Bown	00 Overseas
009570	Paul Burstow	10 South East
021167	Nigel Chilvers	02 Yorkshire
016827	Jason Clarke	02 Yorkshire
019478	Daniel Compton	02 Yorkshire
010384	Andrew Cronin	05 W.Midlands
022217	Elliott Crossley	02 Yorkshire
034444	Ivo De Rozarieux	06 Wessex
020614	Philip Deeley	08 Central
023063	Ana Dinis	07 East Anglia
015819	Paul Dobb	04 E.Midlands
017281	John Dougal	02 Yorkshire
009231	Peter Drew	00 Overseas
022731	Jason Etienne	04 E. Midlands
22270	Matthew Faber	05 W.Midlands
022281	Kerry Finch	07 E. Anglia
017570	Sean Finnan	02 Yorkshire
022371	Luke Flint	04 E.Midlands
027860	Changfeng Fu	09 Gr.London
014843	Scott Harrison	04 E.Midlands
016023	Stephen Hatcher	01 Northern
016952	Christopher Hicks	04 E.Midlands
015956	Thomas Hogg	05 W.Midlands
027772	Simon House	04 E.Midlands
020204	Theresa Huegdon	10 South East
019458	Duncan Isles	07 East Anglia
016567	Gareth Jenkins	00 Overseas
019629	Matthew Jennings	07 East Anglia
019079	Iain Jones	02 Yorkshire
018466	Dean Lazenby	16 Wales
017770	James Lock	12 Western
024371	David Lockhart	13 Scotland W.
027052	Christopher Lynch	02 Yorkshire
016798	Sarah May	04 E.Midlands
023142	Ian Keith McIntyre	14 Scotland E.
025554	Adrian McNally	15 N.Ireland
018468	Raymond McPeake	15 N.Ireland
021093	Sarah Mickowski	04 E.Midlands
017683	Carl Mills	05 W.Midlands
014738	Calum Mitchell	14 Scotland E.
019895	David Moore	04 E.Midlands
020686	Stephen Nevard	07 East Anglia
017490	Adam Newell	09 Gr. London
018826	Debby Osman	10 South East
027808	Matthew Rowe	07 East Anglia
025323	Alan Rowlands	16 Wales
015580	Martin Runcie	10 South East

Number	Name	Region/Centre
025642	Jonathan Scott	14 Scotland E.
022156	Andrew Seaman	02 Yorkshire
025641	Sam Sellers	04 E. Midlands
012637	John Sheridan	03 North West
015896	Sukchan Singh	02 Yorkshire
14395	Danny Slater	14 Scotland E.
019380	Alex Smith	05 W.Midlands
020394	Matthew Smith	02 Yorkshire
027706	Paul Smith	05 W.Midlands
024743	Paul Smith	02 Yorkshire
026889	Shaun Soanes	07 East Anglia
019136	Philip Stephenson	01 Northern
023867	Colin Stuhlfelder	03 North West
016630	Antony Sutcliffe	02 Yorkshire
022092	Barry Tape	12 Western
019090	Stacey Taylor	10 South East
019591	Neil Temple	07 East Anglia
018352	Glenn Thompson	15 N. Ireland
023569	Richard Torkington	07 East Anglia
019495	Stephen Turley	16 Wales
020848	Mark Walker	15 N.Ireland
022320	Ross Walker	09 Gr. London
019363	Geoffrey Wallace	01 Northern
025653	Derek Ward	C2 Rep. Ireland
013817	James Warren	07 East Anglian
015597	Jason White	07 East Anglian

The following have re-entered the Institute as Chartered Members (MCIAT):

007901	Simon Chadderton	00 Overseas
018312	Dimitrios Delivasilis	00 Overseas
012173	Graham Theobald	07 E.Anglia
005396	George Ward	01 Northern

The following have obtained professionally qualified Architectural Technician status (TCIAT):

020619	Mark Howarth	07 East Anglia
021762	Alan Taylor	10 South East

CIAT in Denmark

The Institute is pleased to announce that it has Accredited its first bachelor programme in Denmark. VIA University College was awarded Accreditation in Principle for its bachelor programme in Architectural Technology and Construction Management.

The degree is a three and a half year full-time English taught programme and has met the standards required by CIAT for it to receive Accreditation in Principle.

BIM Survey

At the end of last year, the Institute ran a survey on Building Information Modelling (BIM) and asked the membership to gain views and information to assist us in how we can ensure that information regarding BIM is distributed to the membership and is appropriate to their needs.

Thank you to all who took the time to participate in this survey, as the general response was excellent. More importantly, the information that we received has proved to be invaluable and incredibly informative.

When asked whether practices had implemented BIM collaborative processes at all, just over 40% of those who answered confirmed that their practice had implemented this, whilst only 31.6% confirmed that a collaborative form of contract (such as NEC3 or JCT CE) had been used. 41% of members confirmed that they had completed more than three projects using BIM.

Even though this highlighted that a considerable amount of work had to be done in ensuring that more information and knowledge regarding BIM was required for the membership, nearly 75% confirmed that their practice did understand the principals of BIM processes, which indicates a healthy and positive awareness of what BIM is.

What is also worthy of note are the response to some of the other questions, for example in response to the statement 'In our practice, the Chartered Architectural Technologists are responsible for the use of BIM,' 60.3% said yes, 42.5% said no. In response to the statement 'There is overall a better quality of work since using BIM' 40.6% said no, 59.4% said yes.

These responses show the positive impact that BIM working has had on projects where it has been implemented. Most importantly, a significant number of Chartered Architectural Technologists are responsible/the lead for BIM where it has been used, and this reiterates the Institute's commitment and position as being at the forefront in promoting the use of this process.

Nearly 75% of CIAT registered practices understand the principles of BIM

Some of those who participated in the survey agreed to provide their contact details for an interview with regards to BIM and these interviews will appear in a future issue of *Architectural Technology.*

Once again, thank you to those who took the time to participate in this survey as the information that you have provided will assist the Institute in ensuring that the correct and relevant information regarding BIM is passed on to the membership.

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