AT

ARCHITECTURAL TECHNOLOGY

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Consigning bad design to the dustbin of history

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Design for fire safety in loft spaces

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Editor's foreword

CIAT elections

This issue contains an important questionnaire on CIAT's election process. If you have not received it, please contact Central Office on +44 (0) 20 7278 2206. Email info@ciat.org.uk

This issue takes a definite look forward to the future of Architectural Technology and the next generation.

CIAT's memorable fiftieth anniversary year is now over. A 'golden jubilee' inevitably involves a lot of looking back, but this spring issue by contrast is blowing away the cobwebs with a definite look forward to the future of Architectural Technology.

On page four there is an analysis of the future of solar power generation in the United Kingdom, which includes a description of the solar panels atop one of London's futuristic skyscrapers, 20 Fenchurch Street, better known as the 'walkie talkie.' Ironically, it was this building in 2013 which was blamed for reflecting sunlight onto the street below sufficient to melt the bodywork of parked cars – a good example of how vital it is to have the right design to ensure natural energy is a building's servant and not its master. On a similar theme, Mother Nature's power features again on page 18, where we take a look at the potential problems of incorrectly calculated wind loads around high buildings.

Professor Sam Allwinkle reports on page 21 on the ground-breaking CIAT Design Futures Symposium which took place in London, an event which assessed how CIAT and Architectural Technology professionals should approach the challenges of the modern built environment, not just in the UK but globally.

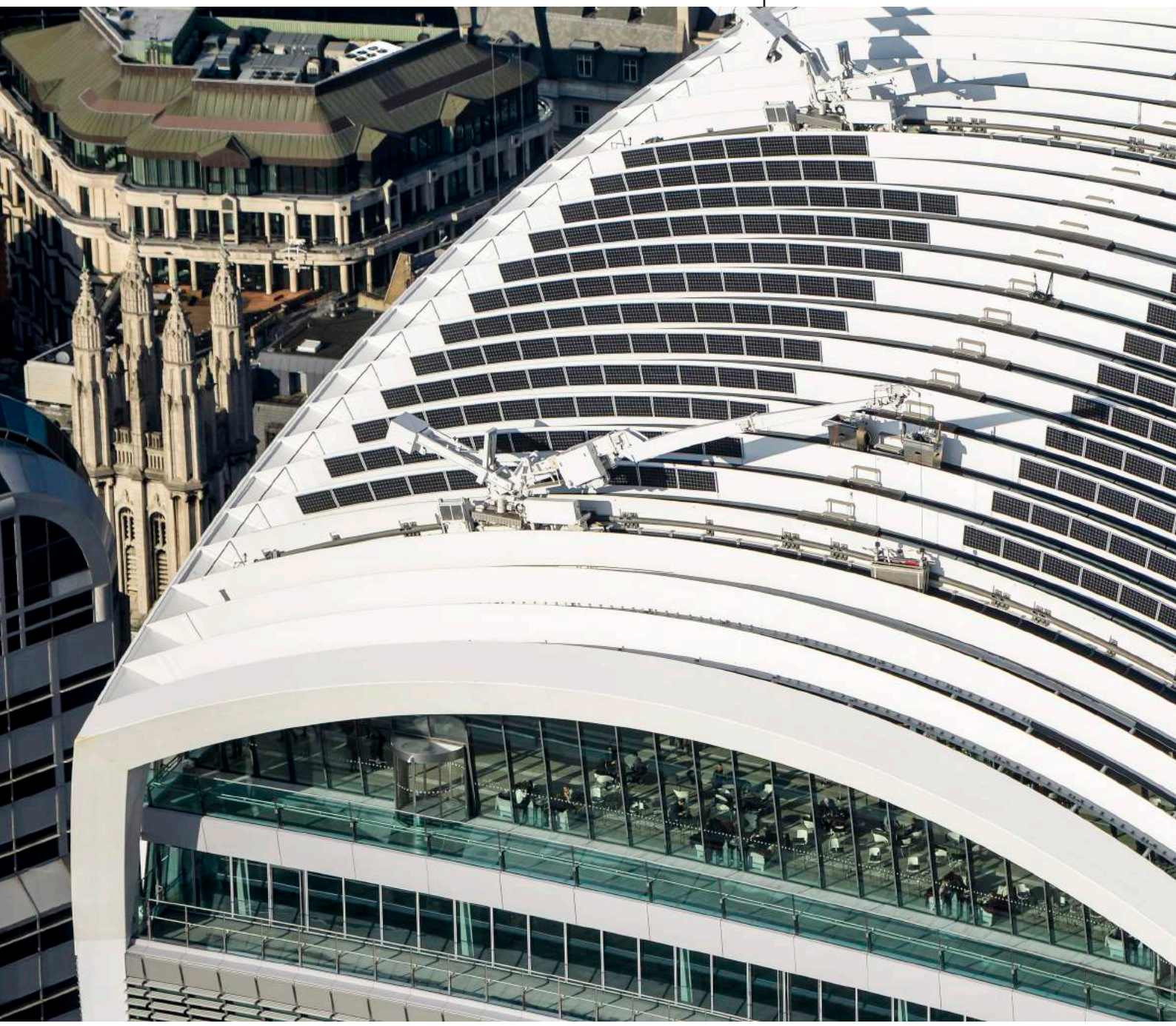
With the UK government's target of mandatory BIM Level 2 on state projects of April this year looming, Building Information Modelling is the topic of the moment. On page 22, we feature two case studies of BIM Level 2 used on public projects; a primary school in Wales and a prison in the West Midlands.

Looking to the future is not just about technology, but people as well. On page 34 in the membership section, James Banks, Membership Director, reports on the new aspirATion Group which aims to support recent AT graduates and help them become more involved in the Institute. On page 40, there is a report of the aspirATion group's first major event (in association with YATN, Young Architectural Technologists' Network) and it is clear, despite the nostalgic theme of the occasion, that the Institute has a bright new generation coming forward.

Hugh Morrison
Editor

The regenerat

Last year's shock decision to slash the feed-in tariff means the UK solar power industry is facing a much altered future. But how is it planning to come back from the brink? Andy Pearson reports.



tion game

The solar power industry spent the latter half of 2015 in a state of shock, following controversial plans announced in August by the Department of Energy and Climate Change (DECC) to slash the feed-in tariff subsidising domestic and commercial- scale PV installations, which came into force in January this year.

Jonathan Bates, Director and General Manager of Photon Energy, a supplier and installer of photovoltaic (PV) systems for public and private sector clients, quoting an article in *The Times,* says: 'The UK government is spending more on supporting grassroots football development in China than it is on supporting the UK solar industry.' DECC's plans are to cut the incentives for solar installations by up to 87%, from £70m to £2m. 'Most people in the industry are planning their businesses on the basis that there will be no generation tariff at some point this year', Bates says.

Changing face of the market

What will the changes mean for the domestic PV installations on homes and flats, and how will the new market dynamics affect building-mounted PVs on commercial buildings? Clearly, there will be difficult adjustments – and the social housing sector is likely to be badly hit. But over the longer term, with energy prices expected to rise over the medium to long term and PV unit costs still coming down, John O'Brien of BRE's innovations team believes that the elusive goal of parity between PV-generated electricity and the grid could be reached by 2018, driving greater uptake of the technology.

The feed-in tariff was introduced in 2011 to encourage the uptake of small-scale renewable installations and low-carbon energy generation. The main component of the FiT programme is the generation tariff, a payment made by energy suppliers for each unit of electricity the installation generates. The rate varies depending on the size of the system, and this is where the cuts have fallen.

Of course, organisations will also save money by offsetting electricity generated by PVs against the cost of electricity they might otherwise have bought from the grid, at a tariff of between 8 to 15p/unit. As Bates explains, 'PV has always been more appealing to heavy daytime power users benefitting from the "generation" tariff – a scenario that's largely unchanged. 'What the changes are going to do is to skew the future market to the people for whom PV will still work, which is the large daytime energy users,' explains Bates.

He predicts that the bulk of PV installations over the next couple of years will be manufacturing businesses running production operations from large flat roofed tin sheds, and the occasional large hospital, where the size of the savings from offsetting

PV-generated electricity against the cost of grid electricity still make commercial sense. 'PV will still be financially viable in certain scenarios, with a return on investment in the order of 9-10%,' he says.

Jonny Williams, Director of the BRE National Solar Centre, agrees. 'Without the FiT, industries with a high daytime power consumption operating in premises with large south-facing roofs will still provide a favourable rate of return on investment,' he says. He says this was evident at last year's BRE Solar Conference where, cuts to the subsidy programme notwithstanding, 'large developers were talking about developing hundreds of megawatts of PVs on commercial roofs' in 2016. 'There is a pipeline of projects ready to go post-FiT for the right owner-occupied building and where generation can be matched by demand,' Williams says. In other words, because the export tariff is unappealingly low, PV makes commercial sense only when all of the power generated by a roof-mounted PV system is used by the organisation occupying the premises, because it is offset against the cost of grid electricity.

Leasing benefit

If clients and owner-occupiers want to take advantage of PV-generated electricity but don't want to be responsible for installing or maintaining large arrays, one option is handing over responsibility for the entire PV installation to a third party – a common arrangement in the USA, according to Lauren Cook, a policy analyst at the Renewable Energy Association. Under a power purchase agreement (PPA), a solar developer effectively leases an organisation's roof as the site on which to install a large PV installation. The developer then sells the PV-generated electricity to the organisation at a price lower than that of the grid tariff. The organisation can benefit from generated electricity, which is cheaper than grid electricity.

'It means a company can benefit without having to worry about the cost of installation or maintenance,' says Cook. 'You can have a PPA for a company that only operates on weekdays that allows the electricity to be sold at weekends.' But if the manufacturing sector should be able to adjust to life after FITs, the domestic and social housing sectors are going to be much harder hit by the changes, says Photon Energy's Bates. 'The bottom will fall out of the domestic and social housing markets, which will take an awful long time to recover,' he says. The social housing sector will suffer because its PV installations are often funded by third-party investors, who pay the cost of the installation and then own the system. Electricity generated by the PVs is given to the tenants to displace grid electricity, which helps reduce fuel poverty, while the investor takes the FiT's generation and export payments to fund the asset and deliver them a profit.

'Without the generation tariff this system will be totally unviable,' Bates predicts, adding that the domestic retrofit sector will suffer without the FiT because small one-off retrofits will be too expensive to be cost-effective.

It's not all doom and gloom however. One aspect of the PV market that will remain largely unaffected by any change to the FiT is large new-build housing developments and new commercial schemes in metropolitan areas. PVs are installed on these types of development to meet local authority planning obligations which require up to 20% of regulated energy of a new building to be generated by on-site renewables.

'In London, where planning rules are defined by the London Plan, PVs are being installed irrespective of the FiT,' says Rick Wheal, a consultant at Arup. 'For central London you have to consider renewables where they are feasible, and the renewables that are feasible for a commercial office space are PVs which can be either integrated into the facade or mounted on the roof,' Wheal says. 'The key thing to bear in mind in central London is that total energy costs relative to the cost of rent, employees' salaries and everything else is about 1%, so when you talk about generating 1% of energy from PVs it is 1% of 1%, which makes the contribution incredibly small and that of the FiT even smaller,' Wheal explains.

In contrast to central London, Wheal says loss of the FiT will have an impact on the inclusion of PVs on commercial office or retail developments outside of the capital. Here the economics and planning rules are different: while the build cost will be relatively low, rental values will also be lower. As a consequence, the cost of putting renewables on an office location will be a higher proportion of total build cost. 'Without FiT funding, a developer is unlikely to install them, unless they have to, or, unless the developer wants to develop a green asset, because it is unlikely they will increase the value of the building,' Wheal says. But, over time, improvements in PV efficiency and other technological developments are expected to improve the economics of PV so that even commercial developments outside the capital can benefit. The cost of PVs has fallen by 70% in the past five years and it is expected to fall further still. Lauren Cook of the REA adds that the EU currently imposes a minimum import price on each PV unit manufactured outside the EU. 'If that was removed then module costs will come down, which will help reach solar parity, which is the goal because you won't need a subsidy.'

Power performance

New developments in PV technology could see dramatic increases in performance. At the moment PV cells are manufactured from silicon, which is able to harvest visible light. However, materials are starting to appear that can harvest light from the ultra-violet and infrared areas of the spectrum to generate similar amounts of electricity. A number of businesses are even working to enable glass to generate electricity.

'Once the technology is available you can start to think about every window having the potential to generate electricity or even shop fronts or entire office facades' Arup's Wheal predicts. Clearly, the UK PV market will have to be pretty resilient to survive the cut to the FiTs. There will be a noticeable impact on the numbers of PV installations on commercial developments in the near future, and a sharp downturn in social housing installations. 'It's going to be a difficult couple of years,' Bates summarises. But the fundamental advantages of generating electricity via PVs – for energy bills, for the environment and for corporate social responsibility – are only likely to strengthen over time. And it's also clear that the industry is already looking beyond the demise of FiTs to new business models and new technologies that will power the buildings of the future.

Andy Pearson is an award-winning technical journalist and editor.

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Images courtesy of EvoEnergy

One of the UK's highest solar panel installations *(left, and previous page)* was installed in 2014 by EvoEnergy on top of London's 38-storey 'Walkie Talkie' skyscraper at 20 Fenchurch Street.

Due to the unique nature of the project – installing a completely rail-less system on a glass roof 160 metres above street level and three floors above the inverter – and its location in the heart of the City of London, a series of bespoke engineering and logistical solutions were required.

Because of space restrictions, materials could only be moved on to the site as they were needed, with one delivery being made as one was being used. Constant coordination with crane and delivery teams was required just to get the materials up to the roof, where the EvoEnergy team had to work around dozens of other contractors to fit the panels gradually, row by row, as the glass roof was put into place.

A specially trained four-man team carried out every part of the project, working high up in extreme and often windy conditions. Rope access techniques were required just to get to the working area because of the slope of the glass, while everyone and everything had to remain tethered to the building at all time – including every panel, every tool, every nut, bolt and screw.

Furthermore, the team wore specially designed rubber shoes in order to avoid scratching the glass roof but these made working challenging in wet weather conditions.

All of this inevitably meant that the installation team sometimes needed to pause for a number of weeks at a time while other parts of the construction process were completed. However on the most productive days the team could complete a whole row of 22 rail-less panels in a day.

Each 200W panel was fixed to the roof individually using four twisting, movable jigs instead of the mid and end clamps that are commonly used in commercial installations.

Connecting the finished panels on floor 37 to the inverter on floor 34 required more than 90 metres of cabling. 6mm DC cable was needed instead of the standard 4mm to minimise losses over such a distance – one of the biggest the EvoEnergy team has ever traversed.

Fire in the hole

Fire in concealed spaces such as roof voids can be a killer. This article examines how to reduce the risk at design stage and during construction. By Martin Shipp, Ciara Holland, David Crowder and Tom Lennon, Building Research Establishment (BRE) Global

BRE Global carries out fire investigation activities on behalf of the Department for Communities and Local Government (DCLG). An important element of its work is to publicise findings to designers.

Fire and smoke spread in concealed spaces within buildings can present both a life risk to occupants and fire-fighters, and cause widespread damage with extensive, difficult, and expensive clean-up and re-instatement. Indeed, in some cases, smoke deposits (and their resulting odour) can never be adequately removed and buildings have had to be demolished. One such concealed space is the roof void. This article seeks to provide an introduction to the issue of concealed fire spread within roof voids considering the 'lessons learned' from real fires and results of poor compartmentation.

In 2010, DCLG (then CLG) published a research study on fire compartmentation in roof voids of residential buildings [1]. This found that it is common practice within the industry for limited details to be included within the building regulations application. This puts the onus on the building contractor to ensure the correct detailing which increases the risks of errors and omissions.

Review of actual fires from 2003 to 2013

BRE Global has carried out a review of fires reported to DCLG over the past ten years from 2003 to 2013. Over this period BRE Global has carried out approximately 106 fire investigations either by attendance at the scene or through contact with Fire and Rescue Services. These fires have been reviewed and 34 of these 106 fires had an aspect relevant to concealed fire spread, as follows:

- Eleven fires were solely related to compartmentation in roof voids.
- Ten fires were solely related to issues with cavity barriers.
- Six of the 34 fires combined issues with compartmentation in roof voids and cavity barriers.
- Four fires were related to fires in/issues with ducting.
- One fire was related to ducting and compartmentation in roof voids.
- One fire was related to ducting and cavity barriers.

The main issues of note were:

- There were seven cases where the junctions of the compartment wall with the roof were either not fire stopped or the fire stopping was inadequate and not continued to the roof.
- There were three cases where compartmentation in roof voids was effective and prevented fire spread throughout the void.
- There were five cases of the 34 where mineral wool in wire netting was used as a cavity barrier in a roof space but was shown to be inadequate mostly due to holes in the barriers.
- There were three cases where 'push-fit' cavity barriers were installed but moved after construction was completed (or were poorly fitted in the first place).
- Twenty of the 34 cases involved inadequate cavity barriers; this includes absence of cavity barriers and poorly fitted cavity barriers.
- There were two cases where ducts passing through compartment walls were not fire stopped.

It is evident that compartmentation in roof voids is a particular issue with respect to hidden fire spread but that adequate compartmentation and correctly specified cavity barriers can be effective in limiting fire damage.

Issues from specific fire investigations involving fire spread in roof voids

As mentioned above, a number of incidents in recent years have involved fire spread within roof voids. The BRE Global fire investigation database has been reviewed to identify those areas where compartmentation in roof voids played a role (either positively or negatively) in fire development and the nature and extent of fire spread. Ten case studies have been chosen by BRE Global and are reported here as follows due to their relevance to compartmentation in roof voids. To ensure confidentiality, no mention is made here of specific

locations and all incidents are referred to with reference to the type of structure involved.

Case study 1: Residential development (four and five-storey apartment blocks)

The fire started in a small section of a flat roof of one apartment block, ignited the sarking felt on the adjacent pitched roof and spread into the roof void. The fire spread within the roof space over three apartments, bypassing two compartment walls.

Eventually, the fire spread into the roof void of an adjacent block, again involving three apartments and bypassing two compartment walls. The compartment walls were constructed from concrete building blocks. However, it was clear from the scene that no attempt had been made to fire-stop the junction between the walls and the roof as detailed in Approved Document B [2]. Figure 1 shows the junction of the compartment wall with the roof covering.

Fig. 1
Lack of fire stopping between compartment wall and roof covering

Case study 2: Three-storey block of flats

It is likely that the fire was initiated as a result of hot work being carried out on pipes penetrating the exterior wall of the three-storey block of flats. Initial fire spread was through the external wall cavity breaking out at roof level some distance from the point of origin. Once in the roof area, the fire spread rapidly, leading to collapse of the roof trusses and break out back into the floors below. It is clear from the speed and extent of the fire spread that the cavity barriers in the wall and compartmentation within the roof space were ineffective. Figure 2 shows the point of fire origin and the area where the fire broke out from the roof.

Fig. 2.
Block of flats showing the area of fire origin and damage to roof level.

Case study 3: Four-storey residential building

The fire is believed to have started on the landing of the second floor of a four-storey residential building. The fire spread from here to involve the third (top) floor landing and ultimately, to the roof structure, most probably via the roof soffit above a window onto the landing. Compartmentation was breached as the fire traversed the roof structure over a number of compartment walls. The compartment walls were constructed from concrete blocks clad in plasterboard with a plaster skim coat. The walls were continued up through the ceiling to the underside of the roof covering. The seal between the top of the wall and the roof covering seems to have been made from mineral wool (see Figure 3).

Fig. 3
Mineral wool fire stopping along pitch of roof in the background of the photograph

Fig. 4
Fire stopping in poor condition (image courtesy of London Fire Brigade)

Fig. 5
Attempt to provide fire stopping in curved section of wall.

Fig. 6
Fire stopping against underside of sarking felt but not pushed up against underside of roof tiles.

It is believed that the fire spread due to a combustible membrane between the tiles and the roof structure.

Case study 4: Four-storey apartment block

Fire broke out in one of the flats on the top floor of a four-storey apartment block. The fire broke out of the window and into the roof void through the roof eaves soffit and spread to destroy the entire roof area. The roof was a new pitched roof over an existing flat roof formed from a concrete slab. For this reason, the roof void could be considered to be a single compartment and separation would be necessary to maintain the maximum distances of cavities rather than specifically to maintain compartmentation.

Separation was provided in the roof space at approximately 15m intervals, comprising mineral wool and chicken wire curtains held in place with metal bars fixed to the timber trusses. The separation in the roof space clearly did not perform as intended. The poor state of the compartmentation in the roof space had been highlighted in a previous report following a fire on the same estate. The condition of the fire stopping in the roof space in a similar block is illustrated in Figure 4.

Case study 5 – Three-storey block of flats

The fire occurred in a flat on the top floor of a three-storey block of flats and spread into the roof space. The fire developed to involve the roof space over all three flats on the top floor. Fire spread over the compartment walls in the roof area appears to have been due to a combination of poor fire stopping in the compartment walls above ceiling level, poor fire stopping where the curved sections of the roof crossed the compartment walls, and fire bridging the compartment walls due to the presence of combustible materials within the make-up of the roof covering.

Figure 5 shows the attempt made to provide fire stopping where the curved section of the roof crossed the compartment wall.

Case study 6: Two- and three-storey blocks of flats

The fire started in a first floor flat of a block of flats, broke out of the room of origin through a window, and entered the roof through the eaves. Fire spread rapidly throughout the structure of the

roof. The roof was constructed from lightweight timber truss rafters. The roof covering was ceramic tiles under which a bitumen impregnated sarking felt had been fixed. Fire separation within the roof space was completed using a mixture of blockwork and cavity barriers.

The cavity barriers were constructed from mineral wool fixed to a wire mesh. The barriers were fixed to timber trusses using clamping plates. The fixing of the fire barrier to the timber trusses does not appear to have been in accordance with manufacturer's guidance since the barriers did not press up against the underside of the sarking felt so the fire was able to spread along the sarking felt over the top of the cavity barriers (see Figure 6).

Case study 7: Three-storey block of flats

The fire is believed to have been started by a cigarette discarded in wood chippings in flower beds arranged around the outside of a three-storey block of flats and in contact with the external wall. The fire spread from the wood chippings into the cavity of the external wall via a plastic air brick providing ventilation to the cavity situated beneath the suspended ground floor.

Cavity barriers in the external wall cavity were either missing or poorly fitted. The fire spread up the cavity to the roof of the building, causing significant structural damage to the roof and accommodation storeys. A combination of fire-fighting and effective compartmentation, both between compartments and within the roof space, prevented more extensive fire spread within the building. Figure 8 is an aerial view of the building showing the damage at roof level.

Case study 8: Two-storey residential care home

Fire started within a first floor bedroom of a two-storey residential care home. Smoke entered a wall cavity and found its way into the roof void where a detector was activated. Due to early activation and the prompt action of the Fire and Rescue Service, the fire was prevented from spreading into the roof void. However, there was inadequate separation within the roof space. The junction between the external wall cavity and the roof space is shown in Figure 8 (overleaf).

Case study 9: Three-storey timber-frame terraced house

The fire was started within an upper floor bedroom of a three-storey timber-frame terraced house and flames spread into an external wall cavity through failure of a uPVC window frame. From there, it spread into a compartment wall separating dwellings.

In this case, the quality of the compartmentation in the roof space prevented more widespread damage as can be seen from the undamaged roof trusses in Figure 9. The compartmentation was formed from two layers of plasterboard either side of the timber frame compartment wall, with all joints fully taped and sealed.

Fig. 7 Aerial view showing damage to roof structure

Existing guidance on compartmentation in roof voids

Guidance is presented in Section 8 of Approved Document B [2] on the means of satisfying the compartmentation requirement at the junction of a compartment wall with the roof. The guidance essentially involves:

- Fire stopping up to the underside of the roof covering or deck and restricting flame spread in the area around the junction, or
- Continuing the compartment wall up through the roof extending beyond the top surface of the roof covering.

Further guidance is available from the NHBC [3] to resist fire spread at the junction between roofs and compartment or separating walls. The NHBC guidance requires the junction to be fire stopped to prevent fire, smoke and fire spread from one compartment to the next across the wall. Although specialist information on fire stopping is available through the Association for Specialist Fire Protection (ASFP) [4], the particular detailing of compartmentation within the roof spaces of residential buildings is often left to non-specialist construction staff. Standard details, such as spandrel panels used in timber frame construction, provide a simple means of achieving the required level of fire resistance but do not account for fire stopping around any eaves cavity or the difficulties of providing fire stopping to the underside of the roof covering.

The current guidance in Approved Document B is the main source of information for those involved in specifying and providing compartmentation within roof voids. The particular issue of the detail at the junction between a separating wall and the roof in relation to preventing fire spread between dwellings was covered by the BRE Housing Defects Prevention Unit in Defect Action Sheets 7 [5] and 8 [6]. Further information was provided on cavity barriers and fire stops including cavities within roof spaces, in BRE Digests 214 [7] and 215 [8]. Full texts of the regulations can be found at www.planningportal.co.uk

Fig. 8
Close up of fire damage to pitch roof (arrow showing direction of fire spread from wall cavity)

Fig. 9
Undamaged roof trusses above seat of fire.

Fig. 10. Top floor of property showing fire damage to party wall but roof trusses are unaffected by the fire due to compart-mentation.

Case study 10: Mixed residential timber-frame development

The fire started within a ground floor flat and spread via the external façade into the compartment walletween occupancies. As with the incident in Case 9, the quality of compartmentation in the roof space, as shown in Figure 10, restricted the amount of damage from the fire.

Further work on compartmentation in roof voids

DCLG commissioned BRE Global to carry out a research project titled 'Compartment sizes, resistance to fire and fire safety'. As part of this project, BRE Global undertook a series of full-scale fire experiments within a purpose-built fire compartment within the BRE Burn Hall. The experimental programme encompassed fully developed post-flashover fires, focused on investigating the influence of high levels of thermal insulation on fire growth, development and space separation between buildings and fires within an enclosure representative of a basement fire with limited ventilation provided via horizontal openings in the ceiling.

The final experiment in the series utilised the fire compartment to provide a room on which a trussed rafter roof was constructed incorporating a compartment wall typical of a standard spandrel panel detail used in timber frame construction. The findings from this research programme have been published at www.bre.co.uk

Conclusions

The fire protection of concealed spaces is of prime importance because any deficiencies in installation and materials are not readily apparent and may quickly be covered over. Any inadequacies in such fire protection cannot be observed by the building users and, unlike other engineering provisions within the building, will not be directly apparent by its impact on every-day life. Any inadequacies in the fire protection of concealed spaces will only become apparent during the very time that their effectiveness is required – during a fire. Compartmentation in roof voids is a particular issue with respect to hidden fire spread. The biggest issue remains that of quality of construction. The research presented here and supported by the case studies shows that poor workmanship with inappropriate materials are the main reasons for the inadequate protection

of concealed spaces. There is a clear and demonstrable need to ensure that buildings are designed and constructed so that the unseen spread of fire and smoke within concealed spaces within its structure and fabric is inhibited, as required by the Building Regulations. There is adequate guidance available in the public domain to allow this to be achieved.

It also follows that the fire safety information required under Regulation 38 [9] is essential to those carrying out a fire risk assessment (under the Fire Safety Order) [10], so that the presence of concealed spaces can be identified and the fire protection they have been afforded can be assessed.

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Beating bin blight

Given the detailed attention that is paid to the design of new houses, it can sometimes seem as if insufficient attention is given to how bins for domestic waste and recycling are accommodated on housing developments. The National House Building Council (NHBC) advises on how to tackle the problem of 'bin blight'.

Evidence suggests that finding a suitable space for domestic waste and recycling storage is a common problem for many households. Whereas there may be limited opportunity for addressing this issue for existing houses, in the case of new build there is scope to design to accommodate bin storage and collection from the outset. Successful design brings benefits both in terms of reducing visual impacts but also of improving convenience for the people living in new homes.

For generations the typical British dustbin was a relatively compact 90 litre steel container. The widespread adoption of larger wheelie bins alongside the introduction of a variety of additional bins, boxes and bags for storing waste for recycling has not been without its problems. Uppermost amongst these are the difficulties households face in accommodating all these bins and containers.

Terraced houses are particularly affected where there can be restricted access or no access to the rear of the property; the narrow frontage and limited front garden space can also impose further constraints.

Accommodating the bins and other containers within the curtilage of the home is not the only problem. The second challenge is where bins are placed on collection days so that they are accessible for collection – making sure that they do not get in the way of pedestrians and road users is an equally important issue for the designer.

The starting point for storing waste and recycling is that each house will have its own bins and other containers, and that they will be accommodated outside of the house. Communal storage is likely to be more appropriate for apartment buildings.

Ideally bins should be stored alongside each other and sufficient height should be allowed so that lids can be opened fully without having to pull the bins out. Other containers (boxes, bags, etc.) should be stored without stacking – either located alongside each other or on shelves for ease of access and use. Storage should be well ventilated to allow for the dispersal of odours and preferably be located in the shade to keep the inside temperature cool (Figure 3). It should also be located away from windows, ventilators and extractor fan terminals to prevent odours from entering the house. A lockable door should be provided to prevent tampering.

For most detached and semi-detached houses there is likely to be sufficient space to locate bin storage in the rear gardens. However, doing so without careful attention can have a detrimental effect in terms of visual impact and utility, eg presenting health and safety risks to children and pets, and making the use of gardens for relaxation and dining less appealing.

Responding to these challenges, some house builders have begun trialling the use of modular designs for bins to be put out of sight. Bin stores are constructed in various sizes to accommodate local requirements for storage of waste and recycling bins, the stores can also allow for discrete storage of other items such as bicycles.

Left: some examples of 'bin blight' on relatively recent housing developments in the north of England.

Lifting the lid on dustbin storage

The following are some points to consider:

Local bin strategy
Always check planning policies for features such as minimum garden depths or maximum carriageway widths. Are there local requirements for provision of bin storage? Consider the frequency and type of bins collected in the area.

Use of available space
Providing adequate space for the required number of bins will be a greater challenge on densely-developed sites, particularly where there are a lot of terraced houses. Consider the integration of waste and recycling storage from the earliest stages of the design.

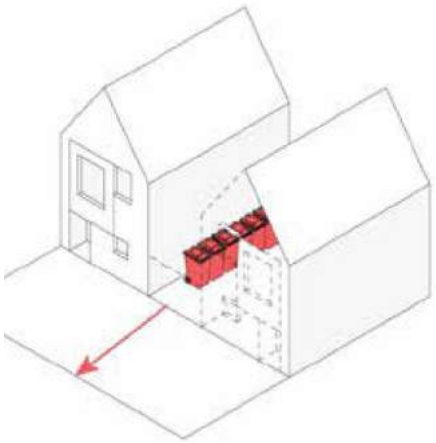
Communal storage
Aim to locate communal waste and recycling storage to be accessible and convenient for all houses and integral to the development's street scene and circulation routes.

Collection and access
Consider what happens on bin collection days. Provide appropriate hard standing areas to the front of buildings for bins to be left before and after bin collection. More space may be required when different types of waste and recycling are collected on the same day.

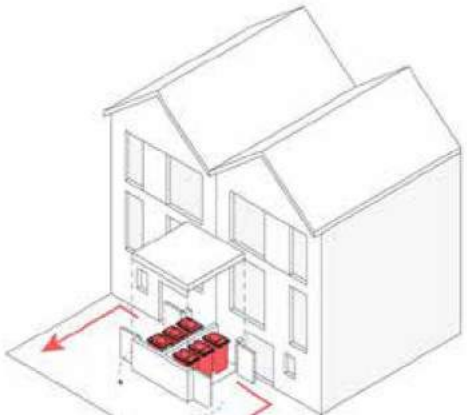
Appearance and quality
Give thought to how the design and materials of bin stores integrate with the design of the houses on the development. Use materials that will look good for years to come.

Flexibility
Local authorities' collection strategies may change over time. Try to design storage that is adaptable to future requirements, which can accommodate additional bins.

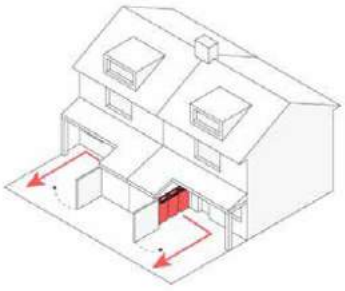
Street scene
Consider what residents and visitors will see as they approach the houses. Think about the appearance of the development on collection days.



Above: Horsted Park, Chatham. Bins are stored between semi-detached houses and hidden by a gate, which also adds security. Below: Centenary Quays, Southampton: purpose built stores adjacent to front doors, which also give privacy between thresholds.

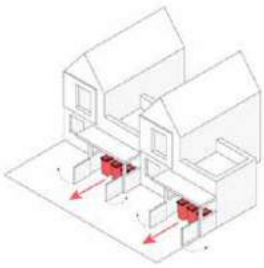


Generic bin storage designs



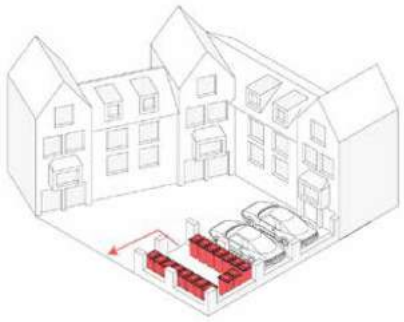
Storage within storm porches

This design for storage adjacent to front doors integrates into a wider porch.



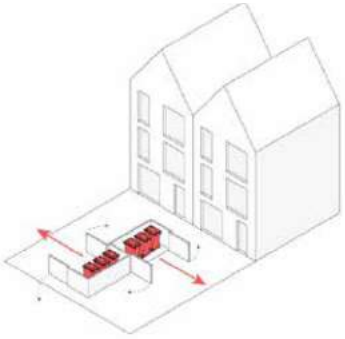
Storage in front of courtyard houses

Courtyard and terraced houses have restricted rear access. In this option bin stores are under porches, with doors that open away from front doors.



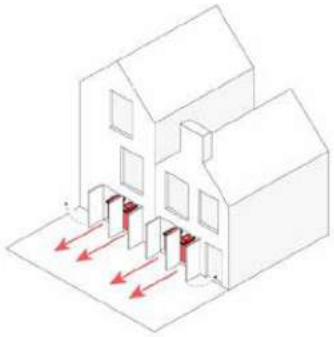
Communal storage within shared grounds

A larger communal store which requires screening/landscaping and which should be located near the street boundary for ease of access.



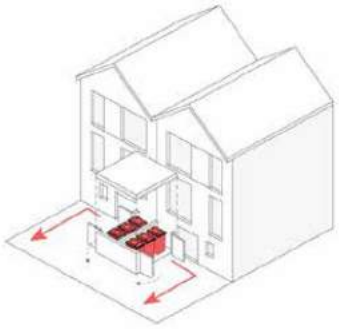
Storage in front of houses

Bins are kept in purpose-built stores in front of houses along the property boundary.



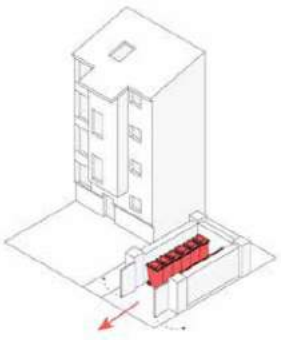
Storage behind garage-type doors

Particularly suited to mews buildings where there is little space at the front. Care should be take that the facade is not dominated by too many doors.



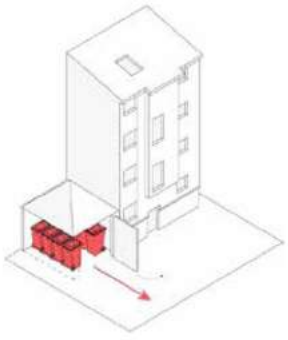
Storage adjacent to front doors

Purpose built stores adjacent to front doors have the additional benefit of improving privacy.



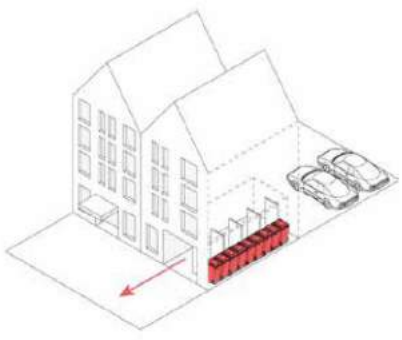
Storage within shared grounds

A communal solution located close to the street boundary.



Storage to the side of apartment buildings

Ideally such a structure should use the same facing material as the building.



Storage within apartment buildings

Best suited to smaller apartment buildings, bin storage is provided within the common parts but close to access.

Going underground...bin storage below street level

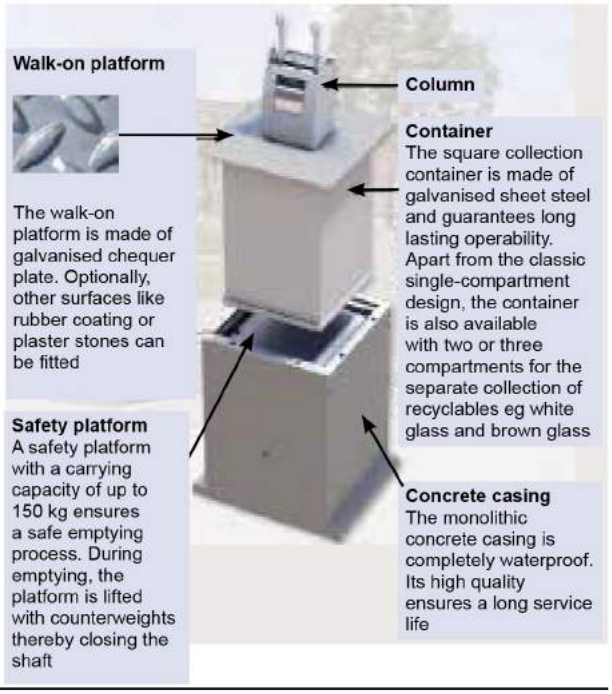
The prevalence of the 'row house' in much of Northern European town planning, and the use of long unbroken terraces for whole town blocks, rules out the use of multiple bins as a workable option. As a result countries such as The Netherlands developed, and then popularised, the use of underground cassette storage systems which are usually located within parking areas. Locating them in the parking areas allows heavy vehicles to collect bins without disturbing residents.

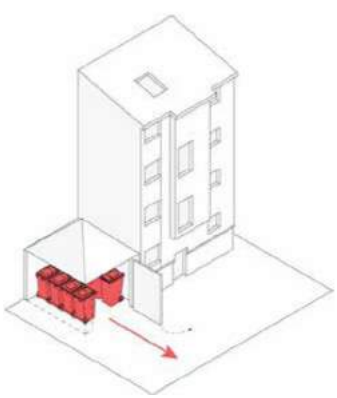
Underground bin storage systems have been used in London since the late 1990s when Tower Hamlets pioneered their use for waste collection in apartment developments. A major advantage of underground storage is that of space compared with conventional storage at ground level.

Underground bin storage systems generally have more capacity compared with the even larger 1100-litre 'Euro' bin. Using these systems also reduces the number of collections and the number of vehicles needed by the local authority.

A study produced for the London Plan consultation in 2014 highlighted that 1100-litre bins were typically using around 280 m^2 of space at ground floor level in apartment buildings. The implications are that four extra family-sized apartments could be built from space savings; there is also the benefit to the local authority and neighbourhood of reduced waste and recycling traffic. Bins are out of sight, thus also out of mind. Recycling provision in community hubs interspersed within the development can also be incorporated.

Peterborough waste authority has recently installed several underground bin storage systems in residential areas of the city, primarily in areas of low-rise flats and higher-density housing. The local authority is adopting this as the preferred method of waste collection in new urban developments, promoting its use over standard bin compounds. Underground bin storage has also been proposed in Edgbaston for a range of housing densities including detached housing.





Left: Stubwick Court, Amersham, Bucks. Communal storage has been attached to, or provided close to, the apartment buildings. Their presence is downplayed by dividing bins between a number of similar structures, with one built to offset the blank flank wall of the apartment building. Landscaping also softens the presence of the bin storage.

Gone with the wind

Wind around tall buildings can lead to unpleasant and sometimes dangerous conditions for pedestrians. Alistair Soane, Director of Structural Safety.org, looks into the important question of wind loading.

Reports to design health and safety website Structural Safety.org, have raised concerns about the design of temporary works to resist wind loading in urban environments. Temporary works have suffered local wind damage, and it is suspected that is, in part, because wind loads have not been determined correctly. Although reports relate to urban environments, temporary structures adjacent to tall buildings in exposed location may also be adversely affected.

The current UK Code of Practice for wind actions (BS EN 1991-1-4) addresses wind loading on buildings but only gives limited guidance on the effect of wind flow on nearby structures. Guidance on a small number of scenarios is given in the UK National Annex to BS EN 1991-1-4 (with further background information in PD 6688-1-4).

Clause NA.2.27 addresses a particular case of funnelling (where flow is forced into a smaller volume and so is accelerated).

An enhancement in pressure coefficients is given where the walls of two buildings face each other and the gap between them is less than a given value. Designers should always be mindful of the potential for funnelling, where air is forced into a narrow gap. The increase in wind velocity will increase the dynamic pressure and raise pressures on the surfaces of the gap.

The flow around buildings is complex and three-dimensional. However, it is possible to understand some of the underlying principles to assist in deciding when specialist advice is required. A desk study by a specialist can often provide a good indication of the significant issues.

Consider a rectangular building normal to the wind direction. The building obstructs the free flow of air, creating positive pressure on the windward face. This air flows down the face of the building due to the variation of oncoming wind speed (and pressure) with height. In effect the building acts like a scoop, collecting air from higher levels and delivering this to ground level. This is commonly referred to as a downdraft.

The winds brought down to ground on the centreline of the building recirculate, counter-intuitively reversing the direction of the wind near ground level.
Winds brought down to ground away from the centreline of the building accelerate around the upwind corners of the building; the down-drafted air is drawn to the negative pressure in the wake of the building.

If a structure (temporary or permanent) is located directly in front of a building, in the corner zones or in the separated flow region downstream from the corners, it is possible that it will experience wind pressures far in excess of those for which it was designed (if considered in isolation to its surroundings). This effect is illustrated in Figure 1 below.

Some design guidance is given in reference [4] on surface winds near isolated high-rise buildings, based on the work of Maruta [5]. This is a purely empirical method so is only valid over the range of parameters to which the model was fitted. A method is also given in Annex A.4 of BS EN 1991-1-4, and provides a first approximation for the peak velocity pressure on structures surrounding a single tall building.

However, many urban environments are far more complex, with many adjacent tall structures.

A conservative approach is to use the height of the tallest building as the reference height to calculate the dynamic wind pressure used near ground level. To indicate the significance of the effect, the wind pressure at ground level could be more than doubled by the blockage effects of an 80m tall building (See footnote 1).

Guidance is given in BS EN 1991-4 and the UK National Annex on the high local pressures that arise on the edges of walls and roofs.
Designers should recognise that wind loading is transient, cyclic and likely to be turbulent. Therefore, connections (eg for cladding, sign boards, fencing, etc.) in these zones should be sufficiently robust to resist fatigue.

Careful consideration should be given to the selection of probability and seasonal factors when determining wind loads in accordance with EN1991-1-4. Recommendations on return periods depending on the duration of the works are given in EN1991-1-6.

Particular care should be taken before adopting seasonal factors, as this requires strict control and certainty over the period of installation of the temporary structure.

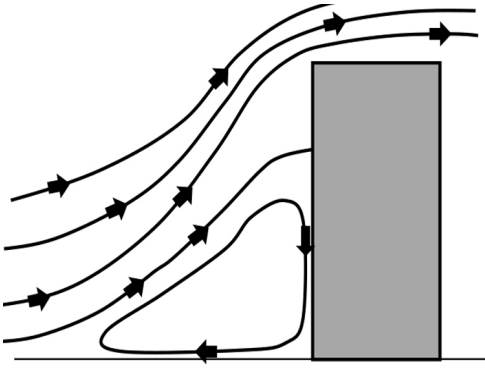


Figure 1: Flow on the centre line of a building (side elevation).

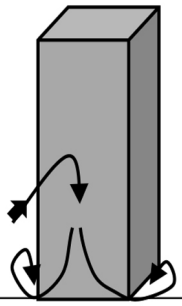
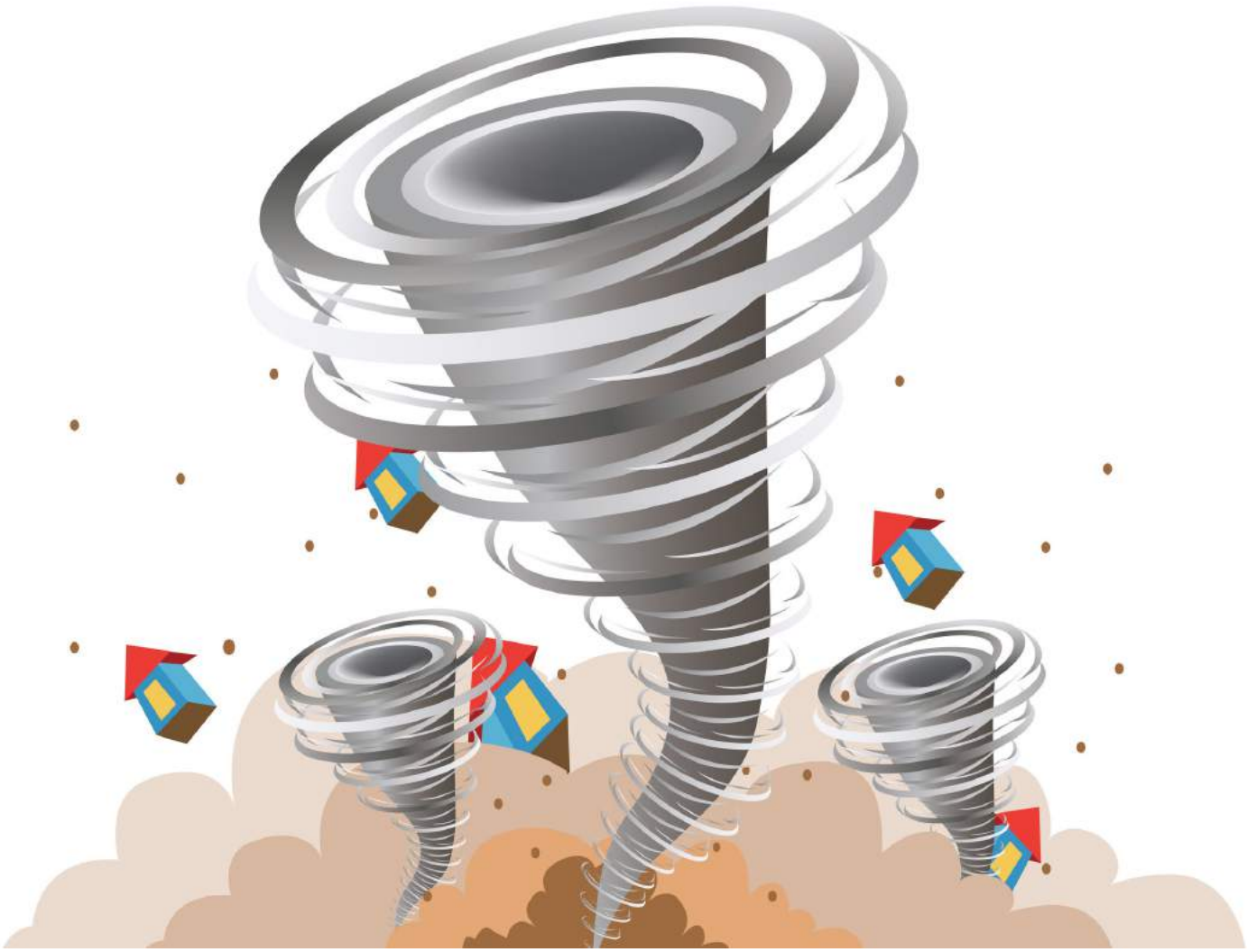


Figure 2: Flow around corners (front view).

Photo credit: Ramsah



Designers of temporary structures should consider how the environment around a temporary structure will change during the construction process. Different stages in the construction of a tall building may introduce blockage effects that alter or funnel wind flow, and give the critical design case for wind loading (e.g. with the addition of cladding). Advice should be sought in critical and complex situations, where a competent wind engineer may be able to help identify the main wind-related issues or suggest quantitative studies (e.g. wind tunnel or otherwise) where necessary.

Although this article was prompted by concerns regarding the design of temporary structures around tall buildings, it should be noted that wind around tall buildings can lead to unpleasant (and sometimes dangerous) conditions for pedestrians. Information to assist designers, planners, developers and building control officers in dealing with the wind environment around buildings is given in BRE Digest 520. (*Wind microclimate around buildings* by P Blackmore, ISBN 978-1-84806-185-9)

Footnote: (1) This example is indicative only. Designers should determine the appropriate wind pressure for the particular site under consideration, either using the conservative approach suggested, or by more detailed methods of assessment

References

[1] BS EN 1991-1-4: 2005. *Eurocode 1 - Actions on structures*. Part 1-4: General actions – Wind actions (Incorporating corrigenda July 2009 and January 2010).
[2] *UK National Annex to Eurocode 1 – Actions on structures.* Part 1-4: General actions – Wind actions (+AMD A1:2010).
[3] PD 6688-1-4: 2009: Published Document. Background information to the National Annex to BS EN 1991-1-4 and additional guidance.
[4] Cook, N.J. *The designer's guide to wind loading of building structures.* Part 2. Static Structures (ISBN 0-408-00871-7).
[5] Maruta, E. *The study of high winds regions around tall buildings.* PhD thesis. Tokyo, Nihon University, 1984.
[6] Blackmore, P. *Wind microclimate around buildings.* Building Research Digest (BRE) 520, 2011.
[7] BS EN 1991-1-6: 2005. *Eurocode 1 – Actions on Structures.* Part 1-6: General actions – Actions during execution

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Designing the future

Professor Sam Allwinkle PPBIAT MCIAT reports on the ground-breaking CIAT Design Futures Symposium.


Gensler's Shanghai Tower featured in the presentations

The CIAT Design Futures Symposium (held at the University of Westminster London in December 2015) focused on the global challenges that the industry is faced with and how Architectural Technology does and will play an increasing and integral part in the future of design. Presentations demonstrated the development and evolution of Architectural Technology as a key design discipline and the significant contribution it has, and will make, in changing the face and performance of the industry by pushing the boundaries of design knowledge, innovation and practice.

The majority of presentations were given by Chartered Architectural Technologists demonstrating the influence and impact that Architectural Technology and CIAT members have on design and construction of the built environment nationally and internationally. Thematic areas included:

Design Education and Architectural Technology

- Integrating technology in design studios – research led and practice based approach.
- Integrating BIM into Architectural Technology programmes, past, present and future of the Danish AT education – underlining the development and process of 'the benefits of co-design and the role of the Architectural Technologist from a Danish perspective'.

Design, Innovation and Smart Construction

- Robust detailing and pathways for new innovations – the role of a leading manufacturer within innovation and advanced construction
- The increasing role of offsite and advanced construction in the UK economy.

Digital Design, Collaborative Working and Co-Design

- Getting to grips with BIM: team working and information management
- The application of ICT and BIM to support collaborative design practice, supporting the incremental uptake of BIM from the rural fringe.

Design Practices, Processes and Performance

- Design and Build contracts and Architectural Technologists, a two point perspective on Architectural Technology, integration of building information modelling, sustainable design analysis and performance monitoring – a case study based approach.
- Testing residential building fabric and reporting on the impacts upon performance and potential risks to occupant safety.

Fergal Walsh of Gensler gave an incredibly impassioned keynote presentation entitled 'Head in the clouds, feet firmly planted on the ground' on the design and construction of the world's second tallest building; the Shanghai Tower. Fergal is an Architectural Technology graduate from the Cork Institute of Technology and is a Principal and Financial Services Firms Practice Area Leader at Gensler. According to Building Design Online, Gensler is the largest architectural practice in the world, turning over $1 billion each year. Fergal was the project lead.

Fergal's zealous presentation conveyed perfectly how Architectural Technology is an essential function within the design and construction process with the real and necessary skill in the technology of architecture. It is required to ensure that design solutions result in buildings that can be constructed to perform efficiently and effectively within the context of user needs, environmental, regulatory and budgetary requirements. His humility, sincerity and emotions where infectious; resulting in an audience that were close to tears creating a moment that will have a lasting impression on future, current Architectural Technologists.

The Symposium was an exemplar promotional platform for the discipline of Architectural Technology. This was evidenced by the content and quality of the presentations which stressed that Architectural Technology is a significant design function linked to project management and processes; through the integration of technology and the emergence of collaborative working within communities of professional practice.

Architectural Technology is clearly evolving into the critical design discipline in the digital age for building projects through the use of information, communication and design technologies, such as Building Information Modelling. All of which are needed to optimise the production process – ensuring economic efficiency and effectiveness, maximising building performance, their sustainability, reliability and minimising environmental impact.

Extracts from the Symposium publication will be featured in AT *magazine and on the website when available.*

BIM in action

Stephen Cousins looks at two recent BIM Level 2 projects.

Holyhead Primary School

Anglesey

Client: Anglesey County Council
Lead contractor: Wynne Construction
BIM Tools: Autodesk Revit, 4Projects

One of Wales' first BIM Level 2 exemplars and Anglesey County Council's most advanced BIM project to date, building Holyhead Primary School put pressure on the relatively inexperienced client and project team and exposed compatibility issues between construction and infrastructure BIM software.

The £9.9m project involves construction of a two-storey new build and the remodelling of the grade II-listed Cybi building, an empty Victorian red brick school complex, built in 1904. Chester-based Lovelock Mitchell Architects is leading the implementation of a fully coordinated BIM model, on behalf of design and build contractor Wynne Construction.

BIM will be taking the full journey, from design coordination and clash detection, through 4D construction sequencing, with an 'as-built' asset model set to be developed to produce data drops for use by Anglesey County Council's FM team. The project started on site in January 2016.

Software from 4Projects was used to create a common data environment and host the fully federated model, combining separate Revit models of the architecture, by Lovelock Mitchell, the structure and civils, by Caulmert, and the building services, by Environmental Services Design (ESD). Wynne Construction is working with its suppliers to develop the final detailing, which is being fed back to the design team to add into the federated model.

BIM's emphasis on upfront design put the team under pressure during the early stages, explains Allan Smith, director at Caulmert: 'It has been a learning curve, for the client and end user, to embrace the timescales required to detail every nut and bolt before a spade is put into the ground. The M&E side was a particular challenge, and the building services guys couldn't come onboard until some upfront work had been done to identify their requirements, which took time.'

The historic Cybi building was painstakingly modelled in Revit by Lovelock Mitchell, based on surveys, photographs and a large number of existing drawings, then incorporated into the federated model. A large portion of the building's rear elevation will be demolished, but the front elevation, with its three main gables, slate roof with red tiled crestings and tall chimneys with ornate capping detail, will be retained and refurbished.

'All the individual historic building elements, including the feature stonework, have been incorporated within the model, most of which were modelled by the architects,' says Smith.

Caulmert is responsible for structural modifications to the existing building, and any new structural elements, all of which have been fully coordinated within the model. 'The process worked well, particularly as Wynne's design manager was heavily involved and could arrange any site investigation works required,' he adds.

Ground conditions on site include varying depths of rock, from 1m to 3m deep. The rock was modeled in Revit to determine how to optimally position the new build to avoid any unnecessary rock excavation work – deep enough to use the rock surface to support loads and avoiding the need for any expensive breaking out.

Caulmert's structural model, built in Revit, integrated neatly with the architectural model, but bringing in the infrastructure and landscaping elements was more complex, requiring extra effort to convert IFC files produced by AutoCAD Civil 3D to enable them to be read by Revit. 'The infrastructure sector seems to be further behind the curve on BIM and not as familiar with things like the NBS Create specification tool for BIM,' says Smith. 'At present, their BIM software doesn't speak fully to the construction and engineering equivalents, it's not a smooth process.'

Images courtesy of Wynne Construction

Clash detection exercises, carried by Wynne and the design team, uncovered a total of over 50 clashes that needed resolving prior to going to site. The coordination process took around two months, to go into the level of detail required, Caulmert even placed an engineer full time in the architect's office to speed up the process.

'Despite all the effort expended at the front end, we feel confident that BIM will save time and money and benefit the scheme in the long run. A key lesson learned has been the need to educate people upfront to engage with the process. In many ways it feels like the industry has gone full circle with BIM, returning us to a time when the design was always done upfront, before going out to tender then building a project,' Smith concludes. *(Continued overleaf).*

HMP Oakwood

Featherstone

Client: Ministry of Justice
Lead contractor: Kier Construction
BIM Tools: Autodesk Revit, Navisworks, Clearbox BIMXtra

The £185m new build prison, near Wolverhampton, is privately operated by G4S on behalf of Her Majesty's Prison Service. Built in 2009-12, it functioned as an early proving-ground for BIM software and processes for the Ministry of Justice (MoJ).

The development is located alongside the existing HMP Featherstone and comprises a self-contained Category B Prison and a Young Offender's Institute, providing 1,605 cells, new accommodation units and other support facilities, spread across 17 separate buildings. It includes three new car parks, access roads and 5,000 metres of ermanent security fencing. The project was won, in 2009, by a consortium headed up by Kier, with Pick Everard acting as lead designer responsible for the architecture, structural engineering and civils and for coordinating the digital design in BIM.

Pick Everard had recently made a commitment to working in Revit and used the software to model all the architecture and structure, working closely with building services consultant WSP, which also modelled in Revit.

'It was before the term BIM was in common use and we had to push the boundaries of the technology to enable effective coordination and collaboration,' says David Nisbet, partner at Pick Everard.

'An initial challenge was encouraging the companies involved to share their proprietary design information. BIM requires collaboration, but there is a danger that, when sharing models, one firm could cause damage to another's model. BIM requires a respect for other organisations' information. Nowadays there is more of an audit trail identifying the 'author', *(ie, designer)* producing the model, with tags for all the digital families or items they create.'

Clash detection exercises were carried out in Navisworks and used throughout construction to demonstrate to the MoJ's technical advisers, and Faithful + Gould's project management team, that the scheme was being delivered in line with the design.

However, the software's sensitivity tolerances needed refining to the realities of construction, says Nisbet: 'Our initial clash detection on the main gatehouse entry building revealed over 100 clashes, which was quite concerning. We realised that Navisworks worked to an absolute, rather than constructional tolerance between different elements, but by programming additional parameters into Kier's software [a fledgling version of BIMXtra used to host the fully federated model] and defining more acceptable tolerances between elements, such as walls or intersecting drainage lines, the process became more effective."

A major feature of the project was the extent to which off-site prefabrication and modularisation was used. A subsequent clash detection exercise uncovered just two critical clashes that the designers were able to resolve before going to site. The team's ability to identify potential clashes in the software improved throughout the project, says Nisbet, as subsequent prison buildings were designed and detailed.

BIMXtra was used by Kier to programme build sequences for each work package, as well as demonstrate to the client their ability to coordinate construction delivery. The contractor exported videos from the model showing construction sequences superimposed with temporary works, delivery routes, holding areas for delivery vehicles, access arrangements for staff and more. The approach was quite revolutionary at the time, says Nisbet.

A major feature of the project was the extent to which off-site prefabrication and modularisation was used. Building services contractor Balfour Beatty modularised all the M&E installations, including plant rooms, full-height service risers incorporating drainage, water, heating and cooling systems, and a complete energy centre, which were manufactured offsite, delivered and craned into position.

Balfour modelled the M&E in Revit, based on WSP's original model, the 3D information was used, in combination with standard 2D drawings, to manufacture the modules in the factory.

'Modelling in Revit, and coordinating in Navisworks, gave us the confidence that the modules would slot into place when brought to site. The riser frames installed in the 13 house blocks had just 20mm clearance, but they all fitted perfectly,' says Nisbet.

HMP Oakwood involved the production of more than 10,000 drawings, requiring a strict process to manage any revisions and resulting variations. Revit was used for automatic design scheduling, producing a new schedule when any changes were made, for example to the number of doors or items within doors, highlighting any differences from the previous revision. The schedules were sent to Kier, which added in pricing columns, enabling the fast and accurate calculation of variational changes.

'This practice is more commonplace now," says Nisbet. 'After Oakwood, our quantity surveyors started using Vico software, which plugs into Revit to produce schedules and generates bills of quantities and pricing information. It also includes clash detection so a surveyor can challenge...(a designer) if any issues are revealed.'

The use of BIM, in combination with pre-fabrication and lean programming techniques, which minimised the time required for every work activity, meant Kier was able to hand the project over three months early. The MoJ required Pick Everard to hand over a series of asset schedules at the end of the project, comprising lists of building services equipment, such as plant, air handling units, pumps, fans and fixtures and fittings, all of which were asset tagged within the model.

Many of the lessons learned at Oakwood have been incorporated into the MoJ's brief for a £250m new 'super' prison being built in Wrexham, north Wales, where Level 2 BIM requirements include a detailed BIM Execution Plan and COBie data drops at various stages. 'The MoJ is a very proactive client and already pushing beyond what most people think of as Level 2 BIM, with very detailed and onerous requirements,' concludes Nisbet.

Stephen Cousins is a freelance architecture and technology journalist. Reproduced by kind permission of BIM+ For more news and information visit www.bimplus.co.uk

A major feature of HMP Oakwood was the extent to which off-site prefabrication and modularisation was used.

Shortlisted projects 2015

The Award for Excellence in Architectural Technology and the Alan King Award 2015 received entries of exceptional quality; it was therefore decided to publish details of shortlisted projects as well as winners. In this issue we look at three shortlisted entries in the Alan King Award.
To find out about this year's Awards, please visit page 43.

Brook Primary

Stourbridge

Tweedale Limited
CIAT Registered practice

Brook Primary School is a local education authority school, run by Dudley Metropolitan Borough Council (MBC), in Stourbridge, in the Black Country. The main building forms an 'L' shape with the main hall as a centrepiece of the school. All classrooms face the internal play areas.

The brief from the school was to create a new classroom, a new library which could be at the heart of the school, infilled corridors, separated cloakroom areas and extra storage space.

There was a fairly sharp point where the hall met the corridors, which gave very unusable spaces, mainly filled with planting. The aim was to utilise these areas as internal space for the school and infill the space between the corridor to the classrooms and the hall.

Design solution

The relatively simple, yet striking design was created through thinking through some difficult junctions and detailing. The application of 3D design software was instrumental in achieving the design solution. Specialist subcontractors, such as the steelwork fabricators and a rooflight designer were sought out.

One side of the hall now includes a classroom with a cloakroom with access to the playground, a breakout space with an area for the school photocopiers and a storage area for outdoor equipment. The other houses the open plan library area, meeting/presentation room, another cloakroom in two blocks with access to the playground and a PE store.

A kite shaped roof with a peak to the outside allows for various features internally.

A perimeter of low angled roof where the plan abuts the main building and hall and a kite shaped roof with a peak to the outside allows for various features internally. The design enabled the school to utilise space which had previously been unusable on both sides of the hall. The former library area was hidden away at the back of the building and the new open plan library is placed at the heart of the school. In the new classroom, the underside of the 'kite' roof doubles up as the ceiling. The rooflights provide enhanced natural light and ventilation, as recommended by educationalists.

Buildability

Construction took longer to build than the six weeks summer holiday. Due to the fact that all classrooms are accessed only from the corridor, the contractor had to construct a temporary, weatherproof wall to allow both pedestrians on the school side and construction of the extension on the site side. The single storey structure employed a steel frame which facilitated the 'kite' roof. Blockwork walls were rendered externally with brick detailing and timber used to create the corridor roofs.

Performance

The simple design of the 'kite' roofs meant that the detailing and construction of the two main showpiece areas was relatively straightforward, but the finished product is striking.

The corridor roofs, which had to marry in with the differing heights of both the main building roof eaves and the hall roof eaves were more problematic. A metal standing seam roof was used for the corridor which abuts the main building (to the classrooms) and used a single ply membrane for the corridor to the hall side. Following lessons learnt in Phase 1 it was decided that the single ply membrane was more suitable for both areas, particularly as the cloakrooms and storage rooms stuck out independently from the 'kite' roof.

Innovation

The design itself was innovative to ensure the best use of space, but with practical integration of the roofs, for both waterproofing and future maintenance. The design also enabled the use of rooflights in the corridors and classroom and library for better natural light and ventilation.

The provision of covered outdoor areas also allowed the school to use the outdoor areas more effectively and the Year 6 café space outside the library has given the older children somewhere to call their own.

Sustainability

The blockwork, insulated cavity walls and the insulated timber roof (with its single-ply membrane) serve to regulate the climate of the school. The pupils also have a calmer, brighter environment and one they are extremely proud of. Underfloor heating and with smart technology that automatically opens/closes rooflights has also been implemented.

Inclusive design

Despite being a single storey building, originally there was a single step up into each room off the corridor. This was addressed by raising the level of the corridor floor up by approximately 150mm so that there were flush thresholds everywhere, including to all external doors. All doorways were also made wide enough to accommodate wheelchairs.

Platinum Standard house

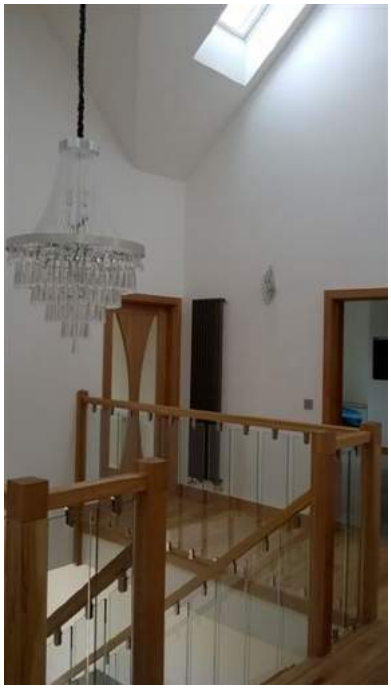
Highlands

Richard Jack MCIAT
Chartered Architectural Technologist

The client wanted a zero carbon residential building in the countryside, on three acre brownfield site adjacent to ancient woodland. The budget was set at 750k including all external works, garage, log store, and cycle store. The existing stone built steading which was originally housing was not in good condition and the intention was to utilise the stone somewhere in the development.

Local planning policy allowed for contemporary buildings, but the client was more of a traditionalist narrow gables and 40 degree pitch roofs were implemented. With a house of this size the floor levels and widow heads had to be raised to get the proportions right.

To meet the clients quality requirement and tick the sustainability box we selected locally sourced Clashach stone, natural welsh slate for the external appearance and timber frame for the main construction.



With the renewable technology we have delivered a dwelling with zero running cost and profit for maintenance within budget.

Functionality

The project has an automated MVHR system, heating controls on room stats with mobile phone application software for remote adjustment. Hot water is metered from the solar PV and airsource for RHI payback. Two fully controllable 310l hot water storage tanks for hi/low usage. Two log burners, one at each end of the house are built into masonry walls which operate as radiant walls as the rooms cool in the early hours. South facing orientation with vertical fenestration make the most of solar gain and natural light.

Buildability

Sustainable timber frame was selected to suit local contractors and make the requirement of deconstruction under the Platinum standard more simplified. The use of long hex head screws instead of nail guns was welcomed by the installer for ease of use and the structural engineer was happy to provide a screw schedule as opposed to nailing. Closed panel frames were used for speed and increased quality.

Performance

The dwelling meets the Scottish Building Regulations Platinum Standard Aspect 1 which is the highest rating a dwelling can achieve under the latest 2010 Standards. Aspect 2-8 is not currently defined and Gold standard default applied. The criteria seems problematic, but when broken down it is more cost efficient and sustainable to strive for a Platinum standard in the Highlands where oil heating is still being installed. The annual oil heating cost for a house of this size was calculated at £3500p/a. In order to achieve Platinum Aspect 1 the following criteria were met:

- Carbon dioxide emissions set at zero with a 105% improvement on the 2007 building regulations.
- Energy for space heating achieved 40 kwh/m²/yr
- 5% of hot water demand is met by solar thermal
- 50% of the buildings demand for water heating from renewables.
- Home user 'Quick Start Guide' for optimising performance.
- Uprated acoustic walls and floors, enhanced natural lighting, private outdoor spaces for well-being and security
- Recycling space, designing for deconstruction met under material use and waste.

With the use of a 200L water butt, water meter, 3.5L WC flush, shower 6L/m, this will meet the water use efficiency required. There is also a home office, mobility space and bike storage.

Innovation

The aim was to create a dwelling that was effectively free to run. What has been created generates an income and is low carbon.

One of the key points to the success is that there is a 25 year return on the PV which helps with the running cost of the air source heat pump in the winter. Solar thermal PV provides free washing water for five months of the year. Super insulated shell with MVHR to provide comfort and control.

Sustainability/Inclusivity

The whole build is recyclable apart from the 50% plasterboard. The building is designed for deconstruction. The design is DDA Compliant to meet current regulations BS8300 and fully future proofed for accessibility.

Braeside Studio

Borders

Stuart Davidson Architecture
CIAT Registered practice

The aim was to provide a contemporary studio space within the client's garden which would complement the space. The inside of the studio is designed to provide maximum workspace with controlled daylighting to reduce overheating whilst still retaining a good quality of light.

Functionality

The large bi-fold doors are designed to maximize light and views to the outside. The interlinking flooring materials between the internal and external create a flow between the environments. The external terrace can be utilised for tutorial workshops and as a spill out zone.

Buildability

The site of the studio is within a landlocked garden area with only a narrow pathway serving as access though neighbouring land and the land rising some 3m from roadside. This formed the basis of the overall design. The brief ensured that only essential materials would be utilised. The overall panel lengths were sized to ensure minimal waste. The roof structure is formed of a simplistic insulated sandwich panel system with no additional load-bearing elements.

Performance

The building is designed to control energy with 90% efficiency. As there is no continual heating system, the structure was designed to be a single continuous structure with no thermal separation or weak points. Openings were reduced to a minimum and focused on specific areas to make the sealing of these simpler.

The property is designed to only require backup heating form the single wood burning stove. This is facilitated by a combination of super insulation, use of heat sink flooring and solar controls based on seasons of the year.

Innovation

The focus on creating an unheated structure formed the basis of both energy retention and control. An extra overhang controls both solar gains in winter and losses in summer. This also creates a mixed use external space.

The walls and roof are super insulated to allow full control of the thermal envelope. The floor has rigid insulation on underside of a concrete slab. This is designed to retain heat. Overall construction ensures that 2-3 hours heating by the wood fuel stove provides residual heating over two full days where the outside temperature is below 10 degrees.

Sustainability

The overall sustainability and lifetime worth of all elements were well considered throughout the design process – the overall aim was to construct and finish the property with durable materials. It was decided that at least 60% of the main materials had to be from a sustainable source.

This dictated the type of insulation, timber sourcing and carbon footprint of materials that were used. It ensured that the many elements were sourced locally.

Inclusive design

Due to the restrictive nature of the site, full accessibility for all is not possible. However, the property has been designed to create simplified clear access with widened, low rise access steps and clear external access areas.

The property has been created as a lifetime living property, adaptable and future proofed for many uses not restricting it to the current design studio use. It could be adapted and used as a summer house, family/play space, annex and or any number of other options.

Top and bottom: Braeside Studio: a contemporary studio space within the client's garden.

Above: 2015 Commended entry for The Alan King Award, Fen Road, Milton, Cambridge

For information on how to enter the 2016 Awards please see page 43 of this issue or visit tinyurl.com/sponsorCIAT

Core of collaboration

Alexander Naraian MCIAT, Chartered Architectural Technologist, Associate Director, ADAM Architecture and Regional Councillor for South East Region looks at the benefits of collaboration with interior designers.

I am an Associate Director at ADAM Architecture and a Chartered Architectural Technologist, MCIAT. ADAM Architecture specialises in progressive classical and traditional architecture. Considered leaders in this field, employing around 80 staff, we are the largest practice of this kind in Europe and have completed many award winning projects. ADAM Architecture is a CIAT Registered/RIBA Chartered Practice which employs both Chartered Architectural Technologists and Chartered Architects who work alongside one another. Without this approach to working, I am absolutely convinced that we would not enjoy the levels of success we have been able to consistently achieve.

Collaboration is one of those buzz words we hear used a lot nowadays

Collaboration is one of those buzz words that we hear used a lot nowadays. I am always slightly wary of overused words because the true impact of their meaning can often be lost or diluted as a result. We often find that during times of fashionable overuse, a word's meaning can often evolve during such periods.

But what does the word collaboration currently actually mean? I believe it important to understand the meaning at any point in time, so that the relevance of a word or term can be understood in context with its current use.

The Cambridge Dictionary definition of the word is: 'the situation of two or more people working together to create or achieve the same thing.'

The questions of whether or not collaboration is relevant in a design environment and does it bring benefits between professionals in design process were posed to me.

It's interesting, but when you understand the meaning of the word you suddenly understand its relevance to the way in which successful design is driven. Collaboration as a process provides purpose and direction, drawing on the true value of the collaborators key core skills and strengths, allowing those skills to be clearly focused on. At the heart of collaboration is a respect for one another's key expertise.

Interior Design and Architectural Technology, while related are not one and the same thing. They are two specialist and distinctly differing design disciplines that can complement one another very well.

At ADAM Architecture, we frequently work collaboratively with interior designers on projects. I have found that the most successful projects are those where this has been considered from the outset of, and continuation of, the design process, rather than being an afterthought. We understand value and embrace collaboration to produce stunning results. We always wish to produce a design to the very best of our ability, placing the best blend of talent on each project that we are fortunate to be commissioned and entrusted with.

Key consideration is given to team dynamic, personalities, common aims and the variety of skills necessary to ensure a harmonious team is chosen for any single project required to produce a well thought-through design. This really is the essence of collaborative working practice.

Interior design and Architectural Technology can complement each other very well

We apply this same approach with other consultant designers, such as interior designers. You see, it is critical for designers to work with common aims; otherwise a disjointed end result will transpire. I know that this should be common sense, but you will be amazed how easily and far too frequently in my opinion, this is not considered or managed in the construction industry.

Interior architecture and interior design are two different areas of design. I often find that the easiest way to describe the difference is by using the analogy of imagining a building as a simple dolls' house; if you picked it up and shook it, all that dropped out, such as loose furniture, pictures on walls, etc is known as 'FF and E' (furniture, fixtures and equipment) and would be classed as interior design. On the other hand, anything that didn't

The pool room of a house in St John's Wood, London NW8, which was a collaborative project between ADAM Architecture and Keech Green Architectural Interiors.

fall out, such as fitted furniture, fixed cornicing, skirtings, architraves, etc is, broadly speaking interior architecture.

So the benefits of collaboration – first and foremost, a great end product because each professional has been able to focus on their main core skills, bringing the very best value in what they do. The Architectural Technology professional deals with the technology aspects of the project, from producing detailed working drawings, to advising on finishes materials, such as suitable paint types to marble flooring.

The interior designer produces a palette of colour, textures, mood and feel for each interior room, with the AT professional advising and inputting on constraints, critiquing and assisting in the selection of finishes materials so that the interior designer's vision for each room is realised. The architect can keep a watching brief over the continuity of the architectural language of the interiors, so that they are harmonious to the architecture of the building itself.

Each professional has been able to focus on their main core skills, bringing the very best value

A current project in St John's Wood in London, where this is being realised very successfully is in collaboration with Keech Green Architectural Interiors. Keech Green was founded by Graham Green and Michael Keech, formerly designers at Ralph Lauren, who now employ a large team of architectural interior designers. Speaking on collaboration, Keech says: 'Understanding how each professional body can support the other to achieve the same end, while sometimes challenging, is an essential ingredient in the early stages of any project's evolution...the collaborative relationship...determines not merely our ability to do our job, but more importantly the project's end result.'

All of the processes above have been employed on this project and the personalities involved have really bonded in a positive way.

So there you have it – fairly compelling reasons to collaborate. My conclusion is that collaboration is a vital ingredient in a design environment, hugely benefitting the end product and therefore in turn, the client. I hope you, the reader share the same compulsion as me to give consideration to collaboration when appointing design professionals.

Conduct decisions

In accordance with the Code of Conduct, decisions on breaches of the Code are published here.

A019245 Nicholas Chapman

Nicholas Chapman was found in breach of Clauses 1b), 1f), 3a) and 8c) from the Code of Conduct effective 1 May 2014.

Clause 1: Professional Conduct

The members shall at all times:

b) act faithfully and honourably in their professional responsibilities;

f) not knowingly misrepresent their professional qualification.

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 8: Breaches of this Code

The members shall:

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

Disciplinary action:

In accordance with the Conduct and Disciplinary Procedures Item 18c), Schedule of Disciplinary Action, the Conduct Committee has determined that Mr Chapman was to be excluded from the Institute for a period of 1 year in respect of the breach of Clause 1b) from the Code of Conduct effective 1 May 2014.

In accordance with the Conduct and Disciplinary Procedures Item 18c), Schedule of Disciplinary Action, the Conduct Committee has determined that Mr Chapman was to be excluded from the Institute for a period of one year in respect of the breach of Clause 1f) from the Code of Conduct effective 1 May 2014.

In accordance with the Conduct and Disciplinary Procedures Item 18c), Schedule of Disciplinary Action, the Conduct Committee has determined that Mr Chapman was to be excluded from the Institute for a period of three years in respect of the breach of Clause 3a) from the Code of Conduct effective 1 May 2014.

In accordance with the Conduct and Disciplinary Procedures Item 18c), Schedule of Disciplinary Action, the Conduct Committee has determined that Mr Chapman was to be excluded from the Institute for a period of five years in respect of the breach of Clause 8c) from the Code of Conduct effective 1 May 2014.

These periods of exclusion are to run concurrently. Therefore, the total period of exclusion from the membership of CIAT is five years.

M008507 Kelvin Harley

Kelvin Harley was found in breach of Clause 1b), Clause 3b)ii) and Clause 6e) from the Code of Conduct effective 1 May 2011, and Clause 8a) from the Code of Conduct effective 1 May 2014:

Clause 1: Professional Conduct (from the Code of Conduct effective 1 May 2011)

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

Clause 3: Practice Registration (from the Code of Conduct effective 1 May 2011)

b) Chartered Members and profile candidates acting as principals shall:

ii) comply with the 'Requirements for CIAT Registered Practices' as published by the Institute from time to time.

Clause 6: Offering and/or Providing Services Directly to a Client (from the Code of Conduct effective 1 May 2011)

Chartered Members and profile candidates acting as principals of a practice shall:

e) not misrepresent the services available by their practice.

Clause 8: Breaches of this Code (from the Code of Conduct effective 1 May 2014)

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 18c), the Conduct Committee determined that Mr Harley was to be excluded from the membership of CIAT 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.

In accordance with the Conduct and Disciplinary Procedures Schedule 1, Item 18b), the Conduct Committee determined that Mr Harley was to be reprimanded and required to give an undertaking in writing to refrain from further contraventions of the Institute's Code of Conduct, in respect of the breach of Clause 3b)ii) from the Institute's Code of Conduct effective 1 May 2011.

The Institute is yet to receive this letter of undertaking from Mr Harley.

In accordance with the Conduct and Disciplinary Procedures Schedule 1, Item 18c), the Conduct Committee determined that Mr Harley was to be excluded from the membership of CIAT for a period of one year in respect of the breach of Clause 6e) from the Institute's Code of Conduct effective 1 May 2011.

In accordance with the Conduct and Disciplinary Procedures Schedule 1, Item 18b), the Conduct Committee determined that Mr Harley was to be reprimanded and required to give an undertaking in writing to refrain from further contraventions of the Institute's Code of Conduct, in respect of the breach of Clause 8a) from the Institute's Code of Conduct effective 1 May 2014.

The Institute is yet to receive this letter of undertaking from Mr Harley.

These periods of exclusion are to run concurrently. Therefore, the total period of exclusion from the membership of CIAT is one year.

023885 Andrew Jennings

Andrew Jennings was found in breach of Clause 4d) from the Code of Conduct effective 1 May 2014.

Clause 4: Professional Indemnity Insurance

Chartered Members or profile candidates who:
d) are or were principals shall on request by the Institute provide the necessary evidence to demonstrate compliance with clauses 4a)—4c) above.

Disciplinary action:

In accordance with the Conduct and Disciplinary Procedures Item 18c), Schedule of Disciplinary Action, the Conduct Committee has determined that Mr Jennings was to be excluded from the Institute for a period of three years in respect of the breach of Clause 4d) from the Code of Conduct effective 1 May 2014.

023034 Daniel Scott

Two complaints were raised against Daniel Scott. In one complaint, Mr Scott was found in breach of Clause 1b) from the Code of Conduct effective 1 May 2011 and Clause 8c) from the Code of Conduct effective 1 May 2014.

Clause 1: Professional Conduct (from the Code of Conduct effective 1 May 2011)

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

Clause 8: Breaches of this Code (from the Code of Conduct effective 1 May 2014)

The members shall:
c) when subject to an investigation by the Institute of an alleged breach of this Code use their best endeavours to assist in that investigation at their own cost.

Disciplinary action:

In accordance with the Conduct and Disciplinary Procedures Item 18c), Schedule of Disciplinary Action, the Conduct Committee has determined that Mr Scott was to be excluded from the Institute for a period of three years in respect of the breach of Clause 1b) from the Code of Conduct effective 1 May 2011.

In accordance with the Conduct and Disciplinary Procedures Item 18c), Schedule of Disciplinary Action, the Conduct Committee has determined that Mr Scott was to be excluded from the Institute for a period of five years in respect of the breach of Clause 8c) from the Code of Conduct effective 1 May 2014.

In the second complaint, Mr Scott was found to be in breach of Clause 8c) from the Code of Conduct effective 1 May 2014.

Clause 8: Breaches of this Code

The members shall:
c) when subject to an investigation by the Institute of an alleged breach of this Code use their best endeavours to assist in that investigation at their own cost.

Disciplinary action:

In accordance with the Conduct and Disciplinary Procedures Item 18c), Schedule of Disciplinary Action, the Conduct Committee has determined that Mr Scott was to be excluded from the Institute for a period of five years in respect of the breach of Clause 8c) from the Code of Conduct effective 1 May 2014.

The total period of exclusion from the Institute for both complaints is five years.

Aspire to aspirATion

James Banks, Membership Director, explains how the newly formed aspirATion Group is helping the next generation of aspiring Architectural Technology professionals

In August 2015, Council approved a new exciting initiative and established a new Group 'aspirATion, which will target students/recent Architectural Technology graduates to raise awareness of the Institute, the discipline and the position it holds in the industry. It will encourage CIAT membership and engagement of graduates with industry, starting in their formative years within the discipline.

Local groups, operating across all Regions, and Centres in Denmark and the Republic of Ireland have been formed which will feed into the overarching aspirATion Group, and which will be comprised of students, graduates and recently qualified professionals within the discipline.

These local groups will work with Regional/Centre Committees, Accredited universities, colleges, peer groups such as members of BRE Academy, CIOB Novus, RICS Matrics, G4C and industry professionals in their locality.

The overarching aspirATion Group is made up of the aspirATion Chairs from each of the 16 Regions and two of the seven Centres (Republic of Ireland and Europe) and they will form the link with Central Office. The Chairs of the Group will meet twice a year and it is hoped that this Group will aid with the transition from students to professionals in practice and ultimately progression onto the Regional/Centre Committee and Technician or Chartered membership, as they become more established within their professional sphere/s. The viability to launch aspirATion in our other five Centres will be reviewed in advance of the 2017/18 subscription year.

The Terms of Reference of the aspirATion Group as approved by Council are to:

- Provide a focal point for the Institute's activities and objectives with respect to all future Architectural Technology professional members.
- Maintain a dialogue between the aspirATion Group and the Institute's other Groups and Committees regarding issues that may affect future Architectural Technology professional members and to ensure that such members are not adversely affected by any of these issues.
- Raise awareness of Institute activities, objectives and constitutional processes.
- Increase the potential for participation among current students.
- Increase awareness of the Institute to potential future Architectural Technology professionals and other associated professionals.

The aspirATion Group Chairs had their inaugural meeting and induction/training session in London on 10 December 2015 and were invited as guests to attend the Institute's Design Futures Symposium at the University of Westminster, London on 10/11 December 2015.

Will Price, MCIAT, Wessex Region Chair and Rori Millar ACIAT, Northern Ireland Region aspirATion Chair will act as Chair and Deputy Chair for the first two years. The aspirATion Chairs are currently finalising details for upcoming events in the 2016/17 subscription year.

Get involved

The South East Region is currently without an aspirATion Chair. Therefore, if you have the drive and commitment to be a local Chair, please contact James Banks, Membership Director (james@ciat.org.uk) with a 500 word personal statement relating to the terms of reference outlining your aims for aspirATion and we will consider your suitability.

If you have any queries or would like to get involved in your Region/Centre then the Regional aspirATion Chair's name and contact details are available upon request from James.

Continuing Professional Development for CIAT members

Maintain, improve and broaden your knowledge and skills

What is Continuing Professional Development (CPD) and why is it important?

Undertaking Continuing Professional Development (CPD) allows a professional to maintain and develop necessary talents and skills. It gives you the opportunity to honestly appraise and identify personal areas for development in your role within the field of Architectural Technology.

As a discipline and profession, Architectural Technology is constantly evolving to respond to legislative, best practice and technological innovation. As such, it is recognised that experience and academic qualifications have a limited shelf life and in order to maintain currency, ongoing learning and development is critical. This is crucial to maintain your basic knowledge and skills, and also to improve and expand your professional sphere of activity.

Despite associations with added work, or classes, CPD should be regarded as a stimulating and necessary experience. Not only does it encourage you to reflect and act on areas which are necessary to remain competent within your sphere of practice, in some cases it allows employers to develop and/or provide appropriate training schemes for employees.

From an external point of view, it offers the public, clients and fellow professionals the confidence that the Architectural Technology profession maintains high standards and requires member competence.

The Institute requires that a minimum of 35 hours of learning is undertaken every year from May to April. However, professional obligation to clients, employers and professional colleagues may require more than this. Each member is responsible for determining the method and content of their own CPD which should be appropriate to their professional obligations.

Students are exempt and some other members may be exempt from this, depending on their level of responsibility. For members who are on maternity/ paternity leave, long-term ill or unemployed, the Institute advises you to undertake as much CPD as your circumstances will permit.

How do I know what kind of CPD to undertake?

There are many ways of identifying your CPD needs. Members are advised to outline their own Personal Development Plan (PDP) at the beginning of each year (May) to identify CPD activities they wish to undertake in support of their own objectives. A record card is provided annually by the Institute and includes guidance notes for PDP.

Consider career development or transition to a new role and how you would develop corporate, personal, management and technical skills. Define your short, medium and long term needs whilst considering how long it may take to fulfil them. It is also important to remember that CPD does not have to incur high expenditure on your part – these could be sourced by networking through CIAT and other professional meetings. Keep track of all CPD activities where professional development has been achieved as you can show these to clients and employers.

What counts as CPD?

Lifelong learning takes shape in many different ways. Below are examples of what counts, but is not exhaustive.

- Structured reading of books and periodicals;
- Use of distance learning text, DVDs, podcasts and CDs;
- Reading and writing articles/technical papers;
- Private study including systematic study of literature or even learning a relevant language;
- Recording on-the-job or academic research;
- Studies leading to a further qualification or academic award;
- Teaching-for those in practice;
- Practice-for those in teaching;
- Examining or tutoring;
- Webinars;
- New and emerging technologies;
- Undertaking certain activities on behalf of the Institute;
- Committee/community/Institute work which extends peer group learning; or
- CPD clubs.

Examples of organised CPD include:

- In-house seminars;
- Joint programmes with other practices;
- Local CPD events, arranged by CIAT or other organisations;
- Regional/Centre CPD events, courses and seminars;
- External conferences and courses (attendance or presenting at);
- Structured trade presentations; or
- Programmes organised by CPD consultants.

CIAT monitors its CPD requirements with a random 5% survey of its members on a yearly basis. If a CPD record is not received following a request by the Institute, this could result in the member being monitored for three years to ensure that they comply with the Institute's Code of Conduct. Unless asked, you are not required to send your PDP and record card to CIAT.

To receive further literature on CPD and Performance Standards, please contact Dr Noora Kokkarinen, Assistant Education Director on +44 (0)20 7278 2206. Email careers@ciat.org.uk. Further information and discussions on CPD can be found on the forums at www.ciat.org.uk.

Group dynamics: meeting the aspirATion members

James Banks spoke to Bradley Clarke MCIAT, North West Region aspirATion Chair and Leon Crascall ACIAT, East Anglia Region aspirATion Chair.

Why did you put yourself forward to be your Regional/Centre Chair for aspirATion?

BC: I put myself forward as I want to promote the Institute and get more members whilst wanting to feed back to the Institute to keep it relevant and modern.

LC: It sounded like an interesting opportunity to provide a platform for the Institute to connect students and professionals, similar to models and examples from other membership bodies, such as CIOB.

What are your plans for aspirATion in your locality for the 2016/17 subscription year?

BC: My plans for the Region are to get more young professionals involved with the Institute whilst promoting Architectural Technology as a profession. I hope to put on CPD events and also a couple of social events for members to just meet up and have a good chat over a drink.

LC: Mine is to work firstly with the full Regional Committee to help develop strategy for engagement. Visit the institutions/ colleges/universities and schools to raise awareness of the scheme, while in the initial period of finding its feet.

How did you find the Training Event and Symposium in London in December?

BC: The training was really good and provided all the info etc. for me to be able to set the group up and start events, the symposium was really exciting, and as mentioned by the guest speakers I think Architectural Technology professionals have a really good chance to make our stamp on the industry by using the opportunities presented by the 'BIM craze' that's sweeping through the industry at the the minute.

LC: It was good and informative, interesting to listen and network with so many of differing levels of experience, and from all over the UK.

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SECC

Visit CIAT on stand E13.
Kevin Crawford MCIAT, Vice President Technical will speak at the event on 27 April

Officially Supported by:

NEW OPPORTUNITIES FOR CONSTRUCTION SMES?

Recent announcements by the Homes & Communities Agency (HCA) have provided plenty of cause for optimism; 80 public land sites, coming in at over 600 acres, will be put up for sale to accelerate house building.

However, with the EU Threshold in place, a number of SMEs are struggling to compete in the tendering process due to restrictive financial controls. The House Builders Association (HBA) are working with the HCA to break this down by providing a catalogue of smaller sites with a simpler tendering process for smaller housebuilders, as well as facilitating access to finance.

Speaking on the behalf of the House Builders Association (HBA), Policy Advisor Rico Wojtulewicz said:

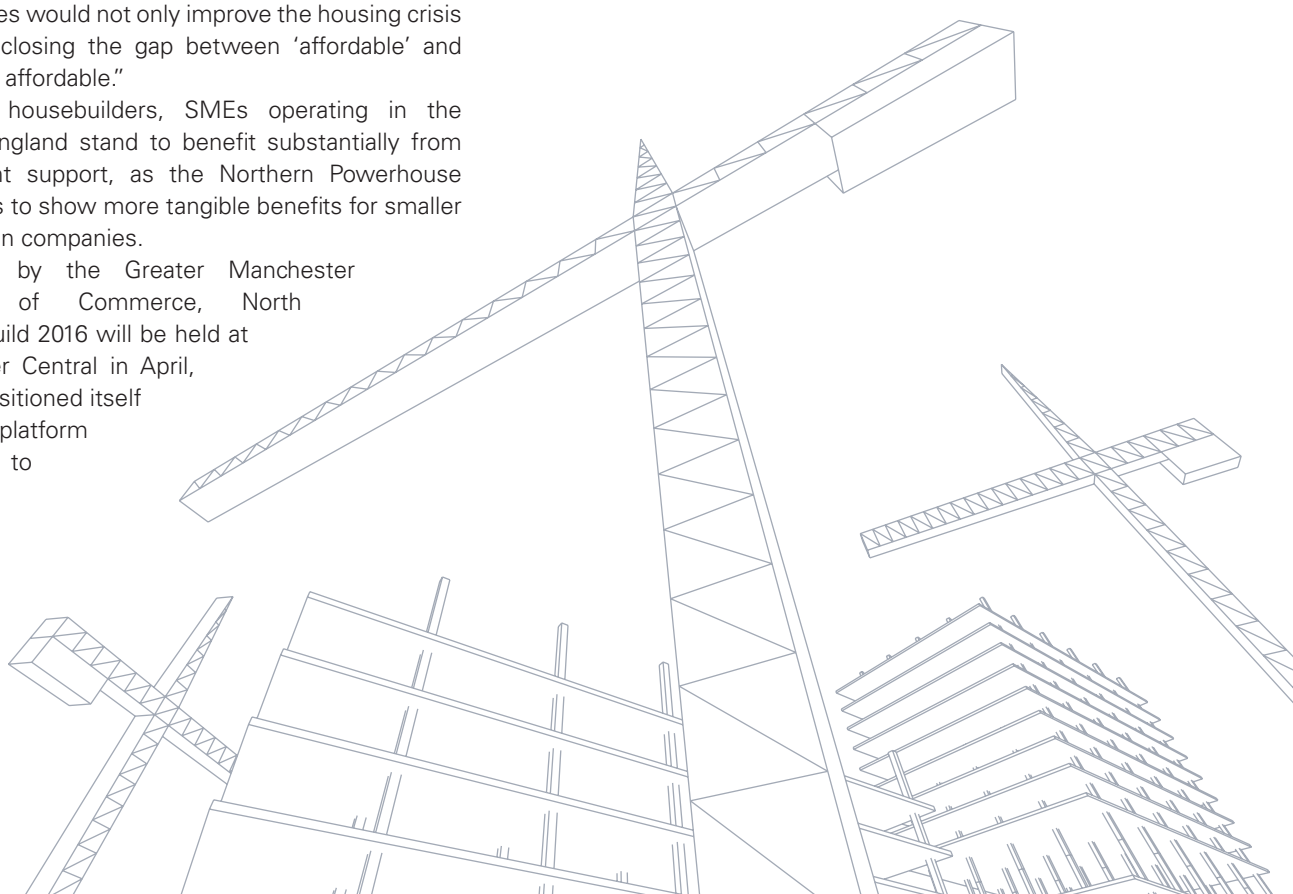
"Access to finance has improved but many developers have difficulty drawing it down due to a lack of planning permission. The Government has recognised this fact and as well as communicating with the HBA to find a solution the HCA is making a strong effort to identify small sites and support SMEs. This will surely help but the HBA remains staunch in its opinion that fixing planning and giving small sites and infill the same focus as large sites would not only improve the housing crisis but begin closing the gap between 'affordable' and realistically affordable."

Alongside housebuilders, SMEs operating in the north of England stand to benefit substantially from government support, as the Northern Powerhouse plan begins to show more tangible benefits for smaller construction companies.

Supported by the Greater Manchester Chamber of Commerce, North England Build 2016 will be held at Manchester Central in April, and has positioned itself as a key platform for SMEs to discover opportunities within the housing sector as a result of the Northern Powerhouse initiative.

Chris Fletcher, Marketing & Policy Director at Greater Manchester Chamber of Commerce, said: "We are really pleased to be able to support North England Build and it's great that Manchester has been chosen as the venue for this event. There is a lot of discussion and talk around the Northern Powerhouse at present and also a lot of differing views over what business opportunities will come about as part of this. There's no doubt that the construction sector will play a major part in the Powerhouse and events like this will help set the scene for many as to what the benefits will be."

For more information and to register for a *free ticket*, visit **www.northenglandbuildexpo.com**



Your opportunit

Elections for Honorary Officer position

The following Honorary officer positions are open for nominations. The elections will take place at Council on 10 September 2016:

President Elect
Honorary Treasurer
Vice President Technical

What do these positions involve?

With each of these positions you will automatically become a trustee of CIAT and therefore a member of the Executive Board, and also a member of Council, which acts at the strategic and electoral forum. As such you will be expected to contribute to the policies and future strategic development of the Institute.

The Institute has a Strategic and Corporate Plan 2013-2018 which projects will be identified from; the positions are both proactive and reactive dependent on the project work required. These are available on the website: www.ciat.org.uk/en/members_only/strategy-and-corporate-plan.cfm

There will also be specific meetings or working groups that you may need to participate in and possibly chair; please see below for specific detail.

Meetings expectations

You will be expected to attend two Council meetings (normally on a Saturday in March and September) and up to four Executive Board meetings as well as the Institute's Annual General Meeting.

There will also be the specialists meetings which you will either have to attend/chair or contribute to.

Representing the Institute and discipline

These positions may require you to attend events and meetings on behalf of the Institute, for example, at Construction Industry Council meetings, Award presentations or at universities.

Potential rewards

You will have the chance to shape the future of your Institute and strategic and operational levels. If you have ever wondered why something has or has not been done then now is your chance to do something positive about it. All reasonable travel expenses will be reimbursed (the positions are voluntary and unpaid).

I am interested: what do I do?

If you are a Chartered Member and are interested, you need to be nominated by a fellow Chartered Member in writing and sent to Francesca Berriman MBE HonDTech, Chief Executive, who acts as the Returning Officer. All nominations must be submitted by 20 May 2016.

Any Chartered Member is eligible to propose a candidate although no nomination is permitted without obtaining the prior consent of the nominee. Any Chartered Member is eligible to stand for this position.

Guidelines

The positions are open to **all** Chartered Members and **must** be proposed by a fellow Chartered Member. Nominations **must** have the prior consent of the nominee.

Nominations must be received by the returning officer no later than Friday 20 May 2016. The Returning Officer is the Chief Executive, Francesca Berriman MBE HonDTech, who will:

- invite the nominees formally to accept or reject the nomination;
- prepare a final list of accepted nominations and despatch it to all members of council prior to the meeting;
- invite all those who have accepted nominations to attend the Council meeting for election on 10 September 2016; and
- obtain copies of nominee manifestos for publication in *Architectural Technology* (summer issue) and circulation to Regions/Centres and Council.

All three positions take effect from the Close of the 2016 AGM to be held in Southampton on 12 November 2016

For further information on what the posts involve, please contact CIAT 397 City Road, London EC1V 1NH. Tel. +44 (0)20 7278 2206. Email: berriman@ciat.org.uk

Elected officers will be profiled in the winter 2016/17 edition of *Architectural Technology* magazine.

Members have their say at an AGM...if you want to become more involved in how CIAT is run, now is your chance.

ty to get involved

ns 2016

The roles of the officers in detail

President Elect

This role is for one year prior to the position of President (two year position). The role provides the elected member the opportunity to gain an insight into the role and function of the President, as well as the operation of the Institute. The position takes effect from the close of business at the AGM for one year.

Following approval by Council at its Autumn meeting, the President Elect becomes President from the close of business at the following AGM for two years.

The President is head of the Institute and as such is the principal external face for CIAT and the discipline, representing the Institute's vision, mission and strategic aims, as well as promoting its brand. The President is also Chairman of Council and the Executive Board.

At the conclusion of the term of Presidency the President will take on the role of Immediate Past President for one-year.

Honorary Treasurer

The role of the Honorary Treasurer is as Chairman of the Finance Committee. The Finance Committee oversees and advises on financial matters relating to Institute business such as the budget, the setting of the subscription rates and reviewing and approving the independently audited accounts; and makes recommendations regarding finances to the Executive Board and Council.

Vice-President Technical

The Vice-President Technical works closely with the Practice Department and Technical Taskforces in overseeing the technical issues relevant to the Institute, which ensure the maintenance and improvement of standards within the built environment.

The role also embraces current issues and the Institute's two premier Awards; The Alan King Award and The Award for Excellence in Architectural Technology.

The Vice-President Technical will work within the Institute structure to develop position papers on issues affecting the built-environment and the Architectural Technology profession.

The Vice-President Technical will also lead on many consultations which affect practising Architectural Technology professionals and represent the Institute externally, locally and nationally including senior/government level.

The Vice President Technical will be required to report to Executive Board and Council on the work of relating to technical issues from the groups and their output and that of the Practice Department.

In carrying out these activities it is essential that:

- the Vice-President Technical can represent the members externally relating to these issues to lobby for change or improvement where necessary and lobby on behalf of the discipline;
- the necessary documentation is produced for the membership's benefit on changes in legislation or regulations; and
- the appropriate guidance is available to assist members both in implementing and complying with legislation and regulations in their work and complying with the Institute's policies and Code of Conduct.

A Member wishing to stand must be a practising Chartered Architectural Technologist and have particular knowledge of the contractual side and an understanding of legislation and regulations. They must also be confident and able to represent the discipline at the highest level which includes at government level.

CIAT goes back to the 1920s in Belfast

Great success with a *Great Gatsby* themed event. **Report by Rori Millar ACIAT**

YATN (Young Architectural Technologists' Network) in collaboration with the Northern Ireland Region, the aspirATion Group and its committee were delighted to host members as well as many special guests at their first formal evening at the end of February. The event was hosted in Belfast's Prestigious Titanic Centre which was also the venue for the President's Dinner Dance in 2012.

Attending the event were Karl Grace, Immediate Past President, Paul Laycock, Vice-President Education, Eddie Weir, Vice-President Practice, Will Price, aspirATion Group Chair, James Banks, Membership Director, and Region representatives to support this exciting initiative.

The principal sponsor for the formal was Xtratherm, which has worked closely with YATN and supported the network from conception. We were delighted to host Xtratherm's Group Technical Manager, Danny Kearney. The remaining guests consisted mainly of student members attending the ATM course at Ulster University, Jordanstown and recent graduates of the course. It was fantastic to have such a diverse crowd at the event.

After a champagne reception in Titanic's lobby, guests made their way into the Andrews suite where they were treated to an outstanding four course meal. The audience was then addressed by YATN chairman, William Holland, about the group's formation a little over a year ago, and its future. Eddie Weir MCIAT, Regional Chairman, spoke about the Northern Ireland Region and Karl Grace PPCIAT MCIAT spoke about his time with CIAT and his Presidency.

Following the speeches the YATN committee members conducted a raffle which, along with CIAT, the following local companies happily contributed to:

- Cunningham Jewellers
- Drumbo Greyhound Track
- Belfast Giants Ice Hockey
- Boojum
- Rick Browne Kayaking
- Galgorm Castle Golf Course
- Grand Opera House
- EBSNI
- Chapterhouse Theatre Company
- Café Clements Belfast

Prizes included a year's membership to CIAT, a £200 watch, hotel vouchers, a four ball golf day and tickets to various shows/events.

Entertainment on the night was provided by the band Manouche who played a mixture of swing and jazz, the band happened to feature one of the Northern Ireland Region committee members Bill Johnston. The band was followed by a DJ that played a mixture of songs from the recent *Great Gatsby* film as modern classics, I am delighted to say that by the end of the night everyone was up dancing.

The event comes off the back of a busy 2015 for CIAT celebrating the last 50 years' achievements, if however this event is anything to go by the next 50 years are going to be just as fruitful.

As a national/international group aspirATion across its 16 Regions and Centres will be planning many events like this bringing together future professionals, technical expertise and celebrating the best in construction. It's a perfect time to get involved and help shape the group for the future.

If you are a CIAT member who qualifies for aspirATion make sure you contact your Region Chairman to see what role you can play in the group's future. We welcome greater links with other institutions as well as trade professionals so please get in touch to see how you can get involved too.

Contact James Banks, Membership Director, for more details: james@ciat.org.uk

Professional development in Yorkshire

Yorkshire Region will be hosting a full day of CPD free of charge this May. By Mark Wilson MCIAT, Chartered Architectural Technologist

Following the huge success of the inaugural CPD Day hosted by the Yorkshire Region last June, the Region has announce it will again be hosting a whole day of 'Professional Development' at Leeds Beckett University on Thursday 26 May 2016. The event will differ from last year's by the introduction of two plenary keynote speeches by two of the construction industry's highest profile speakers – Peter Caplehorn HonMCIAT and Richard Saxon CBE.

The premise of the event was conceived by the Yorkshire Region on the basis of 'CPD for All', where the event is supported and promoted by all of the professional institutes – RIBA, CIOB, RICS, CABE, CIBSE and ICE, who will be inviting their members to attend what will provide to be a day of quality, and value added presentations by a cross section of industry professionals, practitioners and providers, without a sales pitch in sight. After each plenary session, at the point of their online registration delegates will be offered the opportunity to select their own professional development programmes from a list of four presentations in each of two sessions; providing up to four seminar opportunities throughout the day.

The full day CPD training event will take place at Leeds Beckett University

Image credit: Chemical Engineer

The Yorkshire Region firmly believes that quality learning should not always have a significant cost attached, and professional development in a multi-profession environment can have a significant advantage to all concerned.

The event will be free to all delegates, with lunch, and refreshments provided throughout the day. Booking details will be available at www.ciat-yorkshire.org.uk/

Travel scholarships

Adam Architecture, a CIAT Registered practice, is giving students an amazing opportunity to research abroad. Adam Architecture's Travel Scholarship will be awarding one student £1500 to support their travel and research. The Scholarship is open to undergraduate and graduate students enrolled at a UK or international university or school of architecture studying architecture, Architectural Technology or urban design. Closing date 8 April 2016. To find out more visit: www.adamarchitecture.com

A recent project by ADAM Architecture. Read more on page 30.

Expert Witnesses: a reminder

Paul Greenwood MCIAT

Members who practise as expert witnesses will no doubt be aware that the courts are becoming increasingly willing to criticise experts in their judgements, in some cases very severely, where they fall short of what is expected of them. Such cases are often given much publicity in the various trade press, which can affect their reputation.

Members are therefore reminded to ensure that they are fully aware of their duties under the Civil Procedure Rules, and cautioned to only undertake appointments within their expertise in accordance with the Code of Conduct.

Given that fewer cases are now going before the courts (because they are dealt with under other forms of ADR), there are now less opportunities for experts to gain experience in giving evidence in court (and hone their skills in giving evidence).

Members should therefore give serious consideration to not only undertaking relevant training (and refresher training) in acting as expert and writing expert reports but also consider undertaking training in the giving of evidence in court. Such court room skill training is available from providers in this field.

New Members and re-entry

We are delighted to welcome the following as Chartered Members

25705	Mark English	01 Northern
34090	Richard Wood	02 Yorkshire
16500	Aharon Fegan	02 Yorkshire
18972	Sean Lilley	02 Yorkshire
19106	Daniel Heneghan	02 Yorkshire
24306	Alex Jones	03 North West
19509	Robert Spavin	03 North West
20226	Greg Stanfield	03 North West
25066	Roy Dent	03 North West
28034	Philip Best	04 East Midlands
24064	Reiss Christie	04 East Midlands
22987	Mark Owen	04 East Midlands
22380	Wei Lei	04 East Midlands
18429	Andrew Tape	04 East Midlands
25180	Simon Betteridge	04 East Midlands
12177	Richard Willett	06 Wessex
21921	Oliver Chambers	07 East Anglia
18892	James Pikett	07 East Anglia
24665	Jonathan Coltman	07 East Anglia
23149	Daniel Pelech	08 Central
15690	John Olliver	08 Central
16874	Andrew Wesson	08 Central
13871	John Heaney	09 Gr London
23833	Stuart Eaves	09 Gr London
17891	Deborah Shaw	09 Gr London
23621	Dane Calcunovitch	09 Gr London
29210	Peter Martin	09 Gr London
27054	Robert Aubrey	10 South East
30063	John Newson	10 South East
25550	Nicholas Prinse	10 South East
18212	John Smith	10 South East
12304	Darren Kent	10 South East
25955	Samuel Perryer	10 South East
26152	Samantha Parsons	11 Channel Is
22187	Benjamin Savage	12 Western
21378	Matthew Smart	12 Western
27562	Erlend Hutchison	13 Scotland West
19716	Laura Closs	13 Scotland West
19979	Alison Alexander	13 Scotland West
21088	John Mann	13 Scotland West
29026	Alistair Connell	13 Scotland West
29267	Gary Murray	13 Scotland West
29812	Thomas Warren	13 Scotland West
28103	Robbie McDowall	14 Scotland East
24580	Richard McQueenie	14 Scotland East
25625	Kevin McLellan	14 Scotland East
28573	Craig Shield	14 Scotland East
30187	Daryl Barr	14 Scotland East
22609	Joanne Fleck	15 N. Ireland
24316	Eoin O'Shea	15 N. Ireland
24791	David Eveleigh	16 Wales
23733	Martin Owen	16 Wales
13966	William Power	C2 Rep. of Ireland
17021	Roger Bell	C2 Rep. of Ireland
22160	Patrick Deo	C5 Asia

Congratulations to the following who have re-entered the Institute:

34170	Keith Eastwood	03 North West
11612	Mark Koliasnikoff	05 W. Midlands
19791	Kenny Hylton	05 West Midlands
19656	James Lai	08 Central
19320	Chris Clarke	10 South East

We are pleased to announce the five year reaccreditation as an Accredited Conservationist of the following Member:

13083	Toni Page	08 Central

Region and Centre news and events

Yorkshire Region 02

26 May: Professional Development Day: a full day CPD event organised by the Region in Leeds. Free of charge. See page 41 of this issue for more details.

North West Region 03

21 April: North West Region members and guests are invited to a site visit to Extra Care Facilities sponsored by Firstark and Knowsley Housing Trust.

Bluebell Park Apartments is a £14.4 million project of 122 new homes for the over 55s that need extra care and support to live independently in Huyton. Knowsley Housing Trust (KHT) is delivering the Bluebell Park Extra Care facility in partnership with Knowsley Metropolitan Borough Council and Bullocks construction. To help provide lower bills, 10% of energy source for the homes will come from renewable energy through Combined Heat and Power (CHP) boilers which capture and re-use the heat produced in day to day electricity usage. The project has received £2.6 million investment from the Homes and Communities Agency's (HCA) Affordable Homes Programme.

The visit will take place from 10:30am to 3.00pm and includes lunch. To book please contact Paul Greenwood via email (paulsgreenwood@btconnect.com).

Northern Ireland Region 15

15 April: CPD event on fire and acoustic detailing and performances of internal dry lining systems. Kilcarbery, Dublin. For more information email barry.mullen@architectdp.com

Republic of Ireland Centre

QQI National Standard for Architectural Technology

The QQI (Quality & Qualifications Ireland) have published a National Standard for Architectural Technology, now available on the QQI website (www.qqi.ie). CIAT was represented on the QQI task force which produced the standard and contributed largely to its content. It has been advised that the Department of the Environment, Community and Local Government will now establish a Statutory Register of Architectural Technologists, who will be recognised as qualified to act as Design and Assigned Certifiers under S.I.9 – Building Control (Amendment) Regulations. Further information will be disseminated as soon as it is available.

Denise Germaine MCIAT, Centre Chairman

CIAT Awards

Celebrating excellence

CIAT rewards the best of the best in Architectural Technology with its Awards.

CIAT Awards are recognised as the premier accolades that demonstrate outstanding achievement in Architectural Technology.

The Award for Excellence in Architectural Technology:
for projects with no financial limit

The Alan King Award:
for projects with a value no greater than £750k

Student Award for Excellence in Architectural Technology
Project and Report categories

To enter please visit:
www.ciat.org.uk/en/awards/

For sponsorship information please visit
tinyurl.com/sponsorCIAT

Or contact Hugh Morrison, Communications Director on +44 (0)20 3286 2201. Email hugh@ciat.org.uk

2015 Winner for Excellence in Architectural Technology, Seaton House

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