AT

ARCHITECTURAL TECHNOLOGY

Click and build

3D printing and the future of construction

IN THIS ISSUE

Photovoltaics
Integration for renewable energy

MHVR
A breath of fresh air?

CPD
What members need to know

The magazine of the Chartered Institute of Architectural Technologists

Issue 109 Spring 2014 ISSN 1361-326X £5.00

AT magazine

AT magazine is published by
The Chartered Instute of Architectural Technologists
397 City Road London
EC1V 1NH UK
Tel. +44(0)20 7278 2206
Fax. +44(0)20 7837 3194
info@ciat.org.uk
www.ciat.org.uk

ISSN 1361-326X

Chief Executive
Francesca Berriman MBE

Editor
Hugh Morrison
editorial@ciat.org.uk

Advertising
Michael Delaney
Tel. +44(0)20 3603 7942
michael@cabbell.co.uk

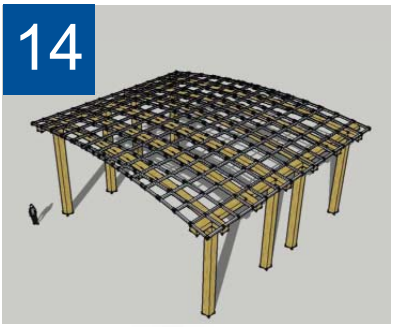
Copy deadline for next edition
18 April for Summer edition.
Published 16 June.

Advertising deadline for next edition
Orders must be placed by 23 May.

The Chartered Institute of Architectural Technologists (CIAT) is the lead qualifying body for Architectural Technology and represents those practising and studying within the discipline. CIAT qualifies Chartered Architectural Technologists, MCIAT and professionally qualified Architectural Technicians, TCIAT

Printed by
The Lavenham Press Ltd, Lavenham, Suffolk.

In this issue



Connect with us through our social media channels

Facebook Twitter Linkedin Youtube

Linkedin www.linkedin.com/pub/chartered-institute-of-architectural-technologists
Twitter @ciatechnologist
Facebook www.facebook.com/ciatechnologist
Youtube www.youtube.com/ciatechnologist

CIAT

Editor's foreword

Is 3D printing a pointless gimmick, or is it the precursor of momentous changes in Architectural Technology?

As a child in the 1970s and 1980s I was fascinated by technological predictions for the future, in magazines such as *Look and Learn* or on TV programmes such as *Tomorrow's World*. It seemed that by The Year 2000 (it was always capitalised), we would travel everywhere by hovercraft, enjoy holidays on the moon and everyone would carry a pocket communication device enabling them to speak to anyone, anywhere.

It's not hard to spot which one of those predictions came true – but all of them seemed the stuff of science fiction at the time.
My point is that we can never be quite sure what nascent technology is going to succeed – what will turn into the mobile phone as opposed to the Sinclair C5. Google that if you're too young to know what it means! This issue's cover is a case in point. The Echoviren is an architectural installation in a forest in California, and is one of the first structures produced entirely by 3D printing.

At the moment, 3D printing is used mainly for architectural model making, but a few tentative forays have been made into structures and building components. On page four we take an in-depth look at the possibilities of this technology. It's worth remembering that world-changing inventions such as the steam engine, the motor car, the aeroplane, the computer and even the internet were once viewed by many as pointless gimmicks with no future.

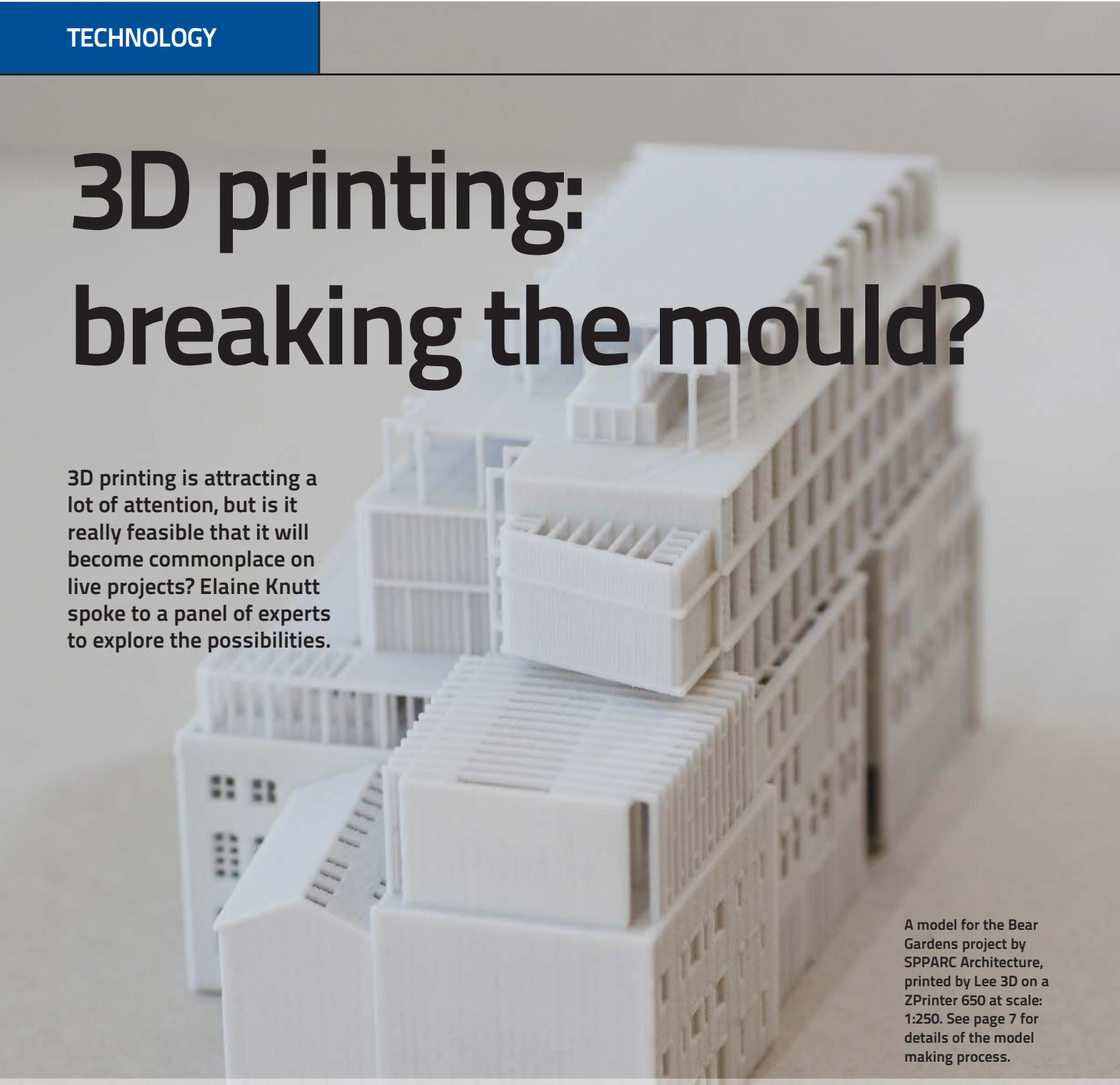
The Echoviren is one of the first structures produced entirely by 3D printing

The jury is still out on 3D printing, but if it continues to develop, it will have far-reaching implications for the future. In the same way that the huge 1940s computers at Bletchley Park are now viewed as direct, albeit primitive ancestors of the sophisticated computers we use today, the Echoviren might one day be seen as the direct ancestor of buildings entirely composed of 3D printed components.

Regards
Hugh Morrison
Editor

3D printing: breaking the mould?

3D printing is attracting a lot of attention, but is it really feasible that it will become commonplace on live projects? Elaine Knutt spoke to a panel of experts to explore the possibilities.



A model for the Bear Gardens project by SPPARC Architecture, printed by Lee 3D on a ZPrinter 650 at scale: 1:250. See page 7 for details of the model making process.

It won't have escaped the attention of *AT* readers that 3D printing is having a bit of a 'moment'. In the papers or online, there's a profusion of headlines: 'NASA 3D prints rocket parts'; 'New Vista print head could allow surgeons to print human organs'; 'US Navy prints spare parts at sea'; 'First 3D printing bureau opens on London's Oxford Street'. Not to mention the latest acquisition at London's V&A museum. All of this naturally raises multiple questions about 3D printing buildings and components.

A panel of experts and interested onlookers were consulted for this feature: George Lee runs a modelmaking 3D print bureau; Dan Culling of Skanska and Jeff Carter of BAM Design believe they could be using 3D printing in the not-too-distant future; lawyer May Looi ICIOB has both a professional and personal interest in the subject; and design management consultant John Eynon FCIOB sees it as a logical extension of BIM and 3D design. The group met Sylvain Preumont, a French entrepreneur who runs iMakr, London's first high-street 3D print shop.

Visit iMakr and you immediately grasp some of the contradictions inherent in 3D printing. Demand for the bespoke mobile phone cases and plasticky objects on display would seem to be limited — why print what can be cheaply mass produced anyway? But the very fact that iMakr exists — selling affordable entry-level 3D printers for innovators and designers to experiment with — does suggest that 3D printing is on an acceleratory phase of its development curve. A curve that could lead us to... well, over to John Eynon:

'It's the emerging technology but it could be as ground-changing as when PCs came out. It could change the construction industry and the retail industry too. You can download what you want, pay a royalty fee and make it. Why ship materials all the way from China, when you have them on site? You take out all the travel costs and carbon, destroy the supply chain and the

design industry, and create a different industry!' he finishes.

Preumont, not surprisingly, was also an evangelist and pointed out that schools and designers are buying printers. 'I am selling people their second printers because they want an upgrade. People are using them to print adapters or modifications of existing equipment that just isn't available any other way. But we're still waiting for the "killer app", the product that makes 3D printing a must.'

The others were also enthused by the potential, aware of experimental projects on university campuses that could cross into mainstream construction. Loughborough's Freeform Construction project has already 3D printed a double curving concrete wall section with voids for service runs already in place, the deposition nozzle 'printing' the concrete, layer by painstaking layer. And Looi has been reading about work at the University of California to develop new 3D printable concrete for its Contour Crafting technology that has three times the compressive strength of conventional concrete.

Because everything in 3D printing is bespoke, the technology brings the complex and costly into the same realm as off-the-shelf components. Carter relates the potential to the challenges of building a Zaha Hadid curvilinear design, for instance. 'We've built a couple of Zaha buildings and had to use software to transfer the design into something you could actually build. But this could extend the boundaries of what you could build,' he says.

It is clear that 3D printing lends itself to decorative elements and non load-bearing applications; Lee refers to follies and installations. Could it ever be scaled up to become a viable alternative to mainstream industrial manufacturing technologies, such as pouring concrete into shutters, extruding aluminium for cladding, manufacturing insulation materials? At iMakr, our panellists are keen to explore the technical limitations of the system and what it would take to shift it out of London boutiques and *Wired* magazine and on to construction sites.

Practicalities

First, there is a demonstration of high street 3D printing as it exists today, which is a reminder that the technology has some distance to travel. Preumont shows a printed architectural model of a group of houses, made using a fused deposition modelling (FDM) printer and a material called ABS (acrylonitrile butadiene styrene). The model looks like the sort of thing a skilled modelmaker could produce in a couple of days. As it turns out, it took the printer an equivalent 20 hours. 'So would a model twice as big be printed at the same rate?' Culling asks Preumont reasonably.

The answer is 'no'. 'Timing is physics, chemistry and mechanics — it relates to the power of the engine running the print head, the energy needed, the weight of the head. So twice as big is twice the length, height and thickness or 2 x 2 x 2 — that's eight times as long.'

Surely that performance will improve over time? Yes, but Preumont still points out that FDM is constrained by the basic principles of mechanical engineering. 'Four times faster is four times more energy — you can't alter that. What you can do is make the material lighter, or reduce the thickness — or use a bigger printer.'

Looi then touches on another practical issue. 'Are the machines sensitive to dust and vibration? If you're pouring concrete on site, would you have to protect the machine?' Preumont confirms that this would probably be the case, and Lee adds that today's printers are also very sensitive to humidity. It explains why the Dutch architects behind the most advanced 3D print-a-house project to date, the Canal House in Amsterdam, put their on-site printer in a mini-house of its own, the so-called Kamer Maker.

In fact, Lee and Preumont point out that there's nothing very high-tech about 3D printing. Although everyone in construction thinks of it in the same breath as BIM, the technology was actually developed more than 30 years ago. 'The technology is very simple — just three motors going along the x, y and z axes and software,' Lee says. It turns out that the recent upsurge of interest in 3D printing is related more to

Hold the presses

The Echoviren is located in Mendochino County, California. Produced by designers Smith|Allen it is thought to be the world's first 3D printed, full-scale architectural installation. Made of over 500 unique individually printed parts, 7 3D printers ran constantly for two months to produce it. It is intended as a 'microhabitat' for insects, moss and birds.

Whilst it is not really a building, it gives an insight into the future possibilities of 3D printing technology.

Image courtesy of Smith|Allen

the lapsing of critical patents than any technological breakthrough, with another important patent due to expire in 2014.

Lee sees the relative simplicity of the technology as a strength, as it lowers the barriers to entry for innovators to develop new printers, print heads or printable materials, in construction or other fields. '3D printing opens up the possibility of other players coming into the industry,' notes Eynon. Lee has also just spotted an innovation that ushers in more possibilities. 'The new Vista print head can work with multiple materials and they're selling just the print head. Previously, companies have been in full control of the machines and the materials. But if you can produce and market a print head...'

Even if we do see the birth of this kind of 'open source' 3D printing, the factor that's keeping the technology on university campuses and at the fringes of manufacturing is the range of materials, and the lack of consistent standards and certification. 'The thing that's preventing wider application in the real world is materials,' Lee argues. 'Take this ABS plastic — it's not waterproof, water goes right through it. We need companies to do research into materials resistance, or compressive strength, to give us all the technical information about what we can achieve.'

Preumont agrees that there is a lack of interest from the major materials and chemical companies. 'In the short term, there is no market for them. But soon there will be a market for the big chemical companies (such as BASF, Henkel or Dow Corning). They have the technology and materials, they just haven't thought about putting it in 3D printers.'

Innovative materials

This creates considerable potential for new materials to enter the construction lexicon. 'You could easily modify the concrete to make it stay in shape as soon as it meets with air, or print a conductive filament into a non-conductive material and instantly your component can light up,' Preumont says. Encouragingly, he says that the R&D team from one major multinational chemicals company has been in touch with iMakr.

So where next for 3D printing in construction? Lee feels that non-structural cladding harnesses its capabilities. 'You could 3D print cladding and reduce the weight in comparison with conventional materials, which could produce savings elsewhere in the building,' he says. BAM Design's Carter is unsure, as extruded aluminium is fairly light and cheap to produce anyway. 'Once you've got the die, the expense is in the die, not the fabrication itself,' he reasons.

One application where the panel agree that 3D printing is likely to emerge as a viable alternative to traditional construction methods is, ironically, historical restoration. 'If you had a historic building, you could 3D print the mould from a 3D laser scan and take the plaster cast out of it. There's already a company in the US that prints the moulds,' says Lee. Skanska's Culling thinks it could be useful for external landscaping features — possibly because Skanska is experimenting in this area.

'You could print 3D cladding and reduce the weight in comparison with conventional materials'

Culling brings up the question of where 3D printing fits in to the sustainability argument. 'So many projects these days are BREEAM or LEED-led. If you're looking at the carbon implications of the actual construction process, what is the carbon footprint of 3D printing?' Looi's response is that 'it has to be more sustainable than shipping materials from China'.

Lee's explanation is slightly more nuanced. 'Any process that involves sintering a powder (with a UV laser) or cutting metal will involve high temperatures. It's probably not any more energy efficient than moulding — although it depends on the temperature you need to work at. But a lot of the carbon comes down to sourcing the materials and transport, so the energy used might be less important than the transport carbon,' he agrees. 'Or the energy in use,' interjects Carter. 'That's where 3D printing could be interesting — if it could print insulation.'

Rethink building design

The group agrees that the future of 3D printing does not lie in retrofitting it to today's methodologies, but in creating new construction typologies that exploit its potential. 'If, in 10 years, 99% of buildings are designed the same way as today, then no I don't think we'll see a 3D printing revolution,' says Lee. 'We need buildings designed around its capabilities. It allows you to do things that couldn't have been done in the past, it needs engineers with the ability to do things anew, to come up with new forms.'

Looi agrees, but points to the need for extensive research and testing. 'Clients will want guarantees. Until 3D printed components have been fully trialled, I don't see anyone signing a collateral warranty.' She also points out that if 3D printing does become a viable option in the future, it might usher in a different approach to construction, and therefore to contracts, liabilities and warranties. 'It could be that the lifespan of buildings will be shorter. If a building or a component fails, you just print some more.'

Overall the group is confident they are witnessing the awkward adolescence of a technology that will mature over time. Several times, members of the group advance a variation of the Moore's Law argument — that computer processing power doubles every 18 months. If 3D printing is on the same technological path, we could be looking at a new method of design and manufacturing that could open up all kinds of new possibilities.

'I have a dream of a future where we build a major project and if ever you need a spare part, you would just 3D print it directly from the BIM database,' says Lee. 'But maybe it's just a dream...' He's right to be cautious, but the fact that 3D printed cladding components were last year installed in a mainstream City of London office project certainly brings the dream a step closer.

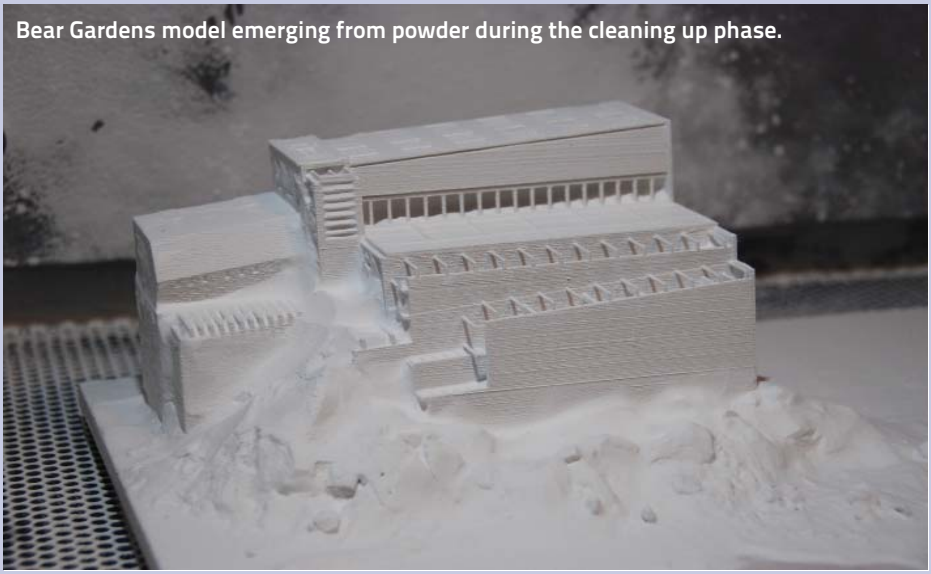
Elaine Knutt is editor of Construction Manager. *Reproduced by permission. For more news, views and technical features visit: www.construction-manager.co.uk*

Getting technical: FDM *v* SLS printing techniques

There are two 3D printing techniques relevant to architecture and construction. iMakr sells entry-level printers based on fused deposition modelling (FDM), which allows objects to be made direct from 3D CAD files. The technique is probably what most people think of as 3D printing: a print head with a nozzle deposits filaments of plastic or other materials that are unwound from a coil.

The nozzle is heated to melt the material, and its movements are controlled by software. The models at iMakr are printed in ABS (acrylonitrile butadiene styrene), a plastic that is available in different proprietary formats that is often used to make car bumpers and also found in Lego. ABS components can be smoothed and sanded after printing and given additional coatings, such as paint or waterproofing. As a pliable thermoplastic, however, ABS is prone to warping if it is cooled too quickly. Ceramics or metal powder mixed with an epoxy binder can also be printed on an FDM printer, but would have to be fired in a kiln to achieve the same strength characteristics as the original.

Another issue is that manufacturers' printers are designed to print only the materials it produces. 'There are compatibility problems — filaments and printers need to match. In the future, we will probably see norms and standards for 3D printing that allow more interchange,' iMakr's Sylvain Preumont says. Another important limitation is that it is impossible to print above a void: if there's an unsupported part in a design, the printer will automatically print 'support', often in another material, that then has to be discarded.



Bear Gardens model emerging from powder during the cleaning up phase.

George Lee's print bureau, Lee 3D, on the other hand, prints models using selective laser sintering (SLS), which is also a form of additive manufacturing. It involves putting layers of plastic powder on a machine bed, and using laser pulses to selectively fuse them into a solid. The shape is built up layer by layer: after the laser completes one horizontal cross-section of the desired shape, the powder bed is lowered by one layer thickness, and a new layer of material is applied on top. Skanska's experiment with 3D printed nylon cladding at the Bevis Marks project used an SLS machine. SLS can also be used with metal powder, ceramic or glass. As the technique is always based on powder, the resulting components are porous unless finished.

Lee says the technology is still maturing. 'For construction, what you need is controllability, but with SLS (using plastic powder), to get the right standard you end up throwing away the sub standard prints, which can be up to 40% of what's built. We need to get to a point where it's right every time.'

A Z Printer 650 (SLS) printing a 'slice' of a model.

The specifying

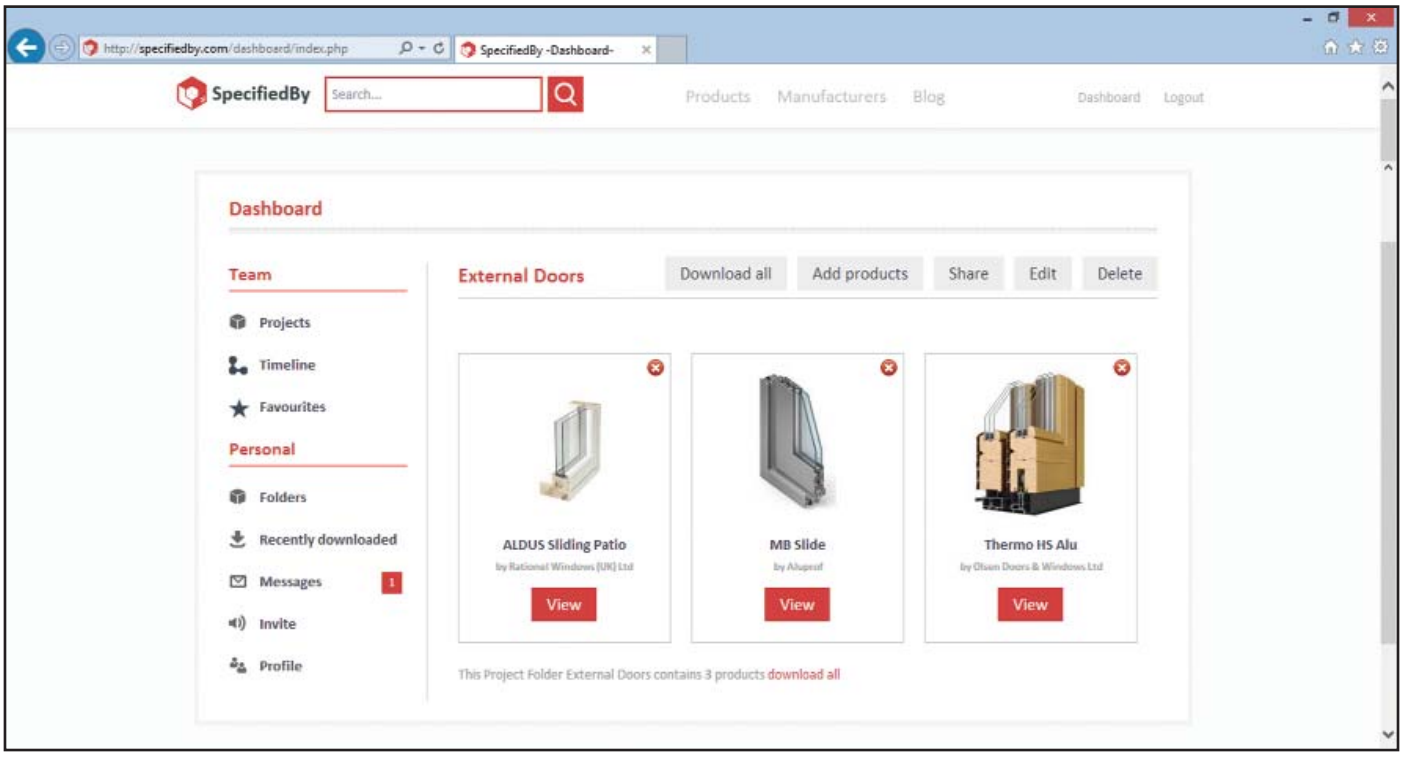
CIAT is supporting upcoming digital startup, SpecifiedBy, which is modernising the way the industry researches and specifies building products. Founder and Architectural Technology graduate, Darren Lester explains more.

Digging through a pile of building product catalogues and directories trying to find the one you're sure you saw the other day. Googling an undescriptive term like 'Casement Windows' and hunting through the countless poorly designed manufacturer websites that lead to never-ending frustration.

Visiting a product directory website and leaving with a not-so-shortlist of manufacturers to chase up, on the off chance they might have a product that meets your requirements. Putting yourself at the mercy of the sales reps by picking up the phone or sending an email just to get hold of a simple CAD detail. All of these frustrations associated with specifying building products are why we started SpecifiedBy. We've set out to create a smarter way to find and research building products, to organise and share this research, and to identify and specify the best products for a particular project.

We want to bring all the information a specifier might need, for every construction product available in the UK, into a single website; everything from product images, descriptions and properties to supporting files and documentation (CAD drawings, 3D models, BIM components, datasheets, case studies, certificates, sample specifications etc). We want to organise this information so everything is uniformly structured, clear and easily searchable.

That in itself, whilst being useful, is not overly innovative or exciting, but it gives us a platform to build some smart stuff on top of. The first thing we have done is create functionality that allows a specifier to save, organise and share product information using project folders, making the research process much more efficient – and our built in messaging system allows for quick,



specialists

SpecifiedBy

direct contact with manufacturers without the need for emails or phone calls.

Smart search

We'll soon be introducing smart search, where a specifier can identify properties relevant to a specific product type, specify the requirements for that property and be shown the products that meet that criteria.

For example, you might know you want a rooflight window that achieves a maximum U-value of 1.4 W/m^{2}K, so you would set this as part of your rooflight criteria and automatically filter out all products that don't meet that standard. This could save substantial time, effort and money.

Individuals and practices

The next big area we're looking at is how we can help teams as well as individuals. Right now, SpecifiedBy is better suited to the individual specifier, but we're trialling a version that allows a practice to access a 'private' version of the library, allowing for better collaboration between team members, increased customisation, added project management functionality and a timeline feature that keeps a history of who has researched and/or specified products for each project – meaning less duplication of work.

We plan to give you back your unique in-house library, that merges manufacturer supplied building product information with your practices own knowledge and experience, but without the hassle of keeping product catalogues up-to-date.

If you'd like more information or to get involved with testing, go to: http://bit.ly/InHouseLibrary.

Partnership with CIAT

We approached CIAT about working together for the simple reason that we believe Architectural Technology professionals can play a vital role in shaping SpecifiedBy and how we develop the product. Ultimately, this is a tool for the profession, so we want to build it with your input.

> '...we don't want to start SpecifiedBy without your input.'

We benefit from being able to reach out to members, the added credibility of being associated with a respected industry body and, hopefully, we end up with a much more valuable product. For CIAT and members like you, it's an opportunity to get involved with the development of an exciting tool that will hopefully help to evolve practices within the profession. You will be our first port of call for sharing new ideas and beta testing new features and developments. Finally, whilst SpecifiedBy is 100% free for specifiers right now, we may introduce premium features in the future, such as the practice version. Our partnership with CIAT will ensure that members will receive generous discounts.

How you can get involved

We've already had input from members including Steve Scaysbrook MCIAT and Mark Wilson MCIAT, both of whom took an interest in what we were doing in the very early days, and were able to provide valuable insights into their product research process and continue to do so to this day. We don't want to build SpecifiedBy without your input, so if you feel in any way inspired to get involved, sign up and feel free to drop me an email at any time. We welcome all ideas, feedback, criticisms and suggestions.

We're also looking for technical specialists who would be interested in helping us to identify the key properties for each product type and structure the product data.

We believe this partnership will be the start of an exciting journey for the SpecifiedBy team, the CIAT and its members. We hope you'll join us.

Contact details
darren@specifiedby.com

Sign up for SpecifiedBy at http://SpecifiedBy.com/CIAT

Follow SpecifiedBy on Twitter: @SpecifiedBy

Your Awards opportunity

Winner of the 2013 Open Award for Technical Excellence: LSI Architects LLP for Louise Hamilton Centre

The Award for Excellence in Architectural Technology

The Award for Excellence in Architectural Technology is the premier built environment accolade which recognises outstanding achievement in the practice of Architectural Technology.

How to enter

Submissions are invited for projects (whole, or part of) that have been completed within the last five years.

Your submission should include illustrations, images and written specifications or other report documentation for the project and be presented in the format of two A2 boards and two A1 detailed design drawings (maximum).

In addition, your submission must also include a summary of the entry (approximately 1000 words) with the following headings, clearly indicating how the project achieved Architectural Technology excellence in terms of:

- Functionality
- Buildability
- Performance
- Innovation
- Sustainability

To enter, apply online at www.ciat.org.uk/en/awards and select **Award for Excellence in Architectural Technology.** You will need to submit PDFs (300dpi or higher) of your A2 and A1 boards and A4 summary with a 9MB maximum individual file size.

Closing date for the submission of your application is 27 June 2014.

Judging and announcement of winners

Judging will take place during July and the Judging Panel may request to visit the project. If this is the case, you will be contacted in order for the necessary arrangements to be made.

The winners and Awards will be announced and presented at the President's Dinner Dance to be held in Nottingham on Saturday 29 November 2014. Shortlisted applicants will be invited to attend.

Winners will receive:

Winner (First prize) a cast plaque for permanent attachment to the project, certificate and £1500[1]

Highly Commended (Second prize) a cast plaque for permanent attachment to the project, certificate and £750[1]

Commended (Third prize) a cast plaque for permanent attachment to the project, certificate and £550[1]

[1] or equivalent money if based overseas

Winning entries remain the property of CIAT and will be used in publicity material accordingly. Shortlisted applicants are asked to submit their winning boards for display purposes mounted on 5mm thick foam core board.

All queries should be directed to awards@ciat.org.uk or call +44(0)20 7278 2206 and speak to the Public Relations Director.

The Award sits alongside the Alan King Award which recognises excellence in projects valued £750k or under.

The Alan King Award, named after the Institute's first President, recognises projects valued £750k or under and have demonstrated outstanding excellence in the practice of Architectural Technology.

How to enter

Submissions are invited for projects (whole, or part of) that have been completed within the last five years.

Your submission should include illustrations, images and written specifications or other report documentation for the project and be presented in the format of two A2 boards and two A1 detailed design drawings (maximum).

In addition, your submission must also include a summary of the entry (approximately 1000 words) and include the following headings, clearly indicating how the project achieved Architectural Technology excellence in terms of:

- Functionality
- Buildability
- Performance
- Innovation
- Sustainability

To enter, apply online at www.ciat.org.uk/en/awards and select Award for Excellence in Architectural Technology. You will need to submit PDFs (300dpi or higher) of your A2 and A1 boards and A4 summary with a 9MB maximum individual file size.

Closing date for the submission of your application is 27 June 2014.

Judging and announcement of winners

Judging will take place during July and the Judging Panel may request to visit the project. If this is the case, you will be contacted in order for the necessary arrangements to be made.

The winners and Awards will be announced and presented at the President's Dinner Dance to be held in Nottingham on Saturday 29 November 2014. Shortlisted applicants will be invited to attend.

Winners will receive:

Winner (First prize) a cast plaque for permanent attachment to the project, certificate and £1500[1]

Highly Commended (Second prize) a cast plaque for permanent attachment to the project, certificate and £750[1]

Commended (Third prize) a cast plaque for permanent attachment to the project, certificate and £550[1]

[1] or equivalent money if based overseas

Winning entries remain the property of CIAT and will be used in publicity material accordingly. Shortlisted applicants are asked to submit their winning boards for display purposes mounted on 5mm thick foam core board.

All queries should be directed to awards@ciat.org.uk or call +44(0)20 7278 2206 and speak to the Public Relations Director.

The Alan King Award

Highly Commended in the 2013 Open Award for Technical Excellence: Edward Architecture for Fonab Castle Hotel, Pitlochry

Commended in the 2013 Open Award for Technical Excellence: Once Architecture Ltd for the Pool House, Cambridge.

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

Discover the power of the group

Group Membership Scheme

Enjoy a waived application fee and 50% off your first annual subscription

If you are a practice or organisation with three or more paying members or applicants applying for any grade of membership (excluding student) then you are eligible to apply through the Group Membership Scheme (GMS), saving time and money in the process.

Financial benefits include:

- waived application fee saving £60 per applicant.
- 50% reduction in first year annual subscription per applicant saving a maximum of £88.
- 25% reduction in future assessment fees when submitting en bloc, which is a maximum saving of £75 per applicant.

Other benefits include:

- eligibility to apply for a licence to use the CIAT GMS logo
- if five or more applicants are ready for their Professional Interview at the same time, the Interview Board can be arranged at your workplace.

For more information and to apply please visit:
www.ciat.org.uk/en/Join_CIAT/benefits/gms.cfm

Staying grounded

Basement conversions can be lucrative, but also complex. Claire Barwick offers some advice on staying out of deep water, in every sense of the word.

The recent trend for basement excavations on so called 'Iceberg homes' can have potentially damaging legal consequences as Ruby Wax and Rachel Johnson found out when they secured a rare victory by blocking financier Mark Hawtin's plans to create a vast underground extension by digging under a public road in Notting Hill.

Basement conversions bring work for construction firms — these are long and complex jobs so are potentially lucrative, but they can also involve water tables and other complex issues. Failure to do the work properly and cement a contractual relationship between subcontractors could mean trouble further down the line.

A total of 72% of basement constructions are within the London boroughs. Last year Kensington and Chelsea council published new draft rules to limit basements to a single storey and impose much tighter limits on how far they can extend under the garden area, following a surge in applications as owners have sought to bypass planning restrictions on changes to their homes above ground by extending below ground.

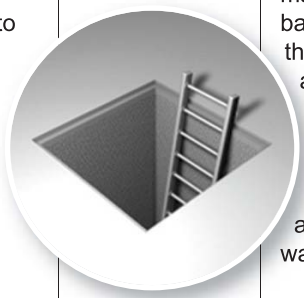
The increasing popularity for basement extensions and renovations, combined with changing weather patterns and a push for more sustainable urban drainage, have meant that basements present an ongoing risk. Legal claims regarding basements built since 2005 have cost the industry nearly £21m.

Research shows that over a quarter of sites surveyed revealed high or unknown water tables, yet proposed unsuitable construction solutions. The National House Building Council (NHBC) has announced plans to revise its guidance on basements over the coming months and to work closely with the industry to improve basement design and construction. Recent large losses have involved properties adjacent to the deck surface suffering from rising damp and failed tanking where the membrane was cut to allow for drainage. While tanking defects account for nearly two-thirds of claims, podium slabs share some of the blame. Podium decks generally have a greater exposure to the environment.

The below-basement performance is critical to the surface water drainage and waterproofing system to prevent leaking. Drainage maintenance risks and potential risk of perched water — a reservoir of water created during the construction of the basement — must be taken into account at the design stage. NHBC advises completing a desk study and ground investigation report as the water table is critical to the structural design of a basement, assessment of buoyancy risks and the selection of the waterproofing system.

Waterproofing measures should be designed on the basis of ground water to the full height of the retained ground, or on advice from a geotechnical expert regarding geology and hydrogeology. If tanking is being considered, the waterproofing of the basement must be continuous right to the outside of the building and there must be a cavity tray to prevent bridging which is sealed to the basement waterproofing. Basement waterproofing should also be checked to ensure it can withstand large loads from the walls above.

The NHBC is taking the issue seriously. After its research also revealed that in over three-quarters of claims, the site notification and initial notice had not been completed correctly when declaring basement construction it is now requiring builders to declare basement construction on the SNIN form as part of its risk management process. One of its project managers will be involved in any basement development to assess the proposals and assist in achieving satisfactory construction. It is advised that sites with basement or semi-basements should be clearly identified on the SNIN when the application for a Buildmark warranty is made.



Legal claims regarding basements have cost industry nearly £21m since 2005

In summary, those considering a basement excavation need to:

- Ensure podium decks have a suitable drainage systems with allowance for maintenance;
- Ensure adjacent surface water catchment areas and surrounding ground water flows are limited;
- Ensure proposals to use basements are identifi ed when making the application;
- Ensure proposals comply with BS 8102:2009 Code of Practice for protection of below ground structures against water from the ground;
- Complete a desk study and ground investigation report, clearly indicating ground water table risks or design for the worst-case scenario;
- Ensure waterproofing junctions are detailed.

In 2012, Lord Selsdon launched the Subterranean Development Bill to establish a code of practice for what still feels like a Wild West underground gold rush. The Bill has already been passed by the House of Lords, and Lord Selsdon hopes the proposed draft regulations will be published by the DCLG imminently. Whether that will be enough remains to be seen.

Claire Barwick is an associate with law firm Brachers. Reproduced by kind permission of NHBC

Building integrated transparent photovoltaic cells

Andrea Obremski ACIAT was the winner of the 2013 Student Award for Excellence in Architectural Technology (Report). In this paper she investigates the core considerations of integrating transparent photovoltaic technology into a building envelope as a substitute facade material.

Introduction

This paper summarises the key types of cells available and their appropriateness for specific applications with regards to their effectiveness in different climates, rather than generic laboratory tests of peak performance. The production methods of the different types of photovoltaic cell are particularly of interest as they affect the whole life cycle of the cell and therefore the suitability of their usage.

By investigating the relative simplicity of some of the cell manufacturing processes, a greater case for the use of this technology as a substitute building material can be made. The findings of this report identifies the most appropriate cell for a project application in the UK and highlights the necessity of considering the integration of Photovoltaic Modules from the initial design stages rather than later in a project stage as an applied 'add-on' to produce the most energy efficient, cost effective and aesthetically pleasing result.

Depleting oil levels and governmental requirements to provide 20% of British energy from renewable sources by the year 2020 [1], pushes energy generation towards more innovative building integrated products, with on-site photovoltaic micro-generation providing an advanced solution to this demand. Photovoltaic cells convert sunlight into electrical energy that can be used on site to offset energy demands, or sold back to an energy supplier in the event that surplus is generated, which is supported by Government incentives such as FITs (Feed-in Tariff Schemes).

The benefits of building integrated photovoltaic cells include:

- Lower material costs
- Lower labour costs
- Less maintenance
- Aesthetically pleasing

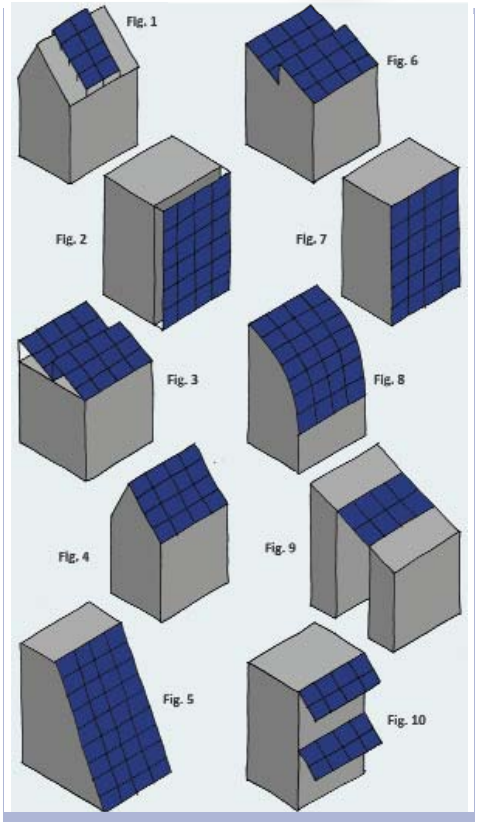
This report aims to explore the integration techniques available, specifically for the types of solar glazing technologies identified, and the affects they may have on the end result of a project.

Types of PV integration

Applied photovoltaic arrays. Figures 1-3 (right) show examples of photovoltaic arrays applied onto buildings, as opposed to integrated. Whilst retrofit of arrays is effective in some cases, designing structures with photovoltaic arrangements in mind can produce creative solutions that are more efficient in energy generation and far more aesthetically pleasing.

Integrated photovoltaic arrays. Figures 4-10 show examples of photovoltaic arrays integrated into the building fabric. Solar glazing is often only a few millimetres thicker than regular glazing panels and so can be easily integrated, generally using the same connection methods as standard glazing. Other forms of integration can include curtain walling and roofing materials, both are incorporated into the structure with standard connections. Integrated solar glazing is one of the most recent types of incorporation, and shapes the nature of the research in this report from here onwards.

Types of cells. Whilst the photovoltaic effect was discovered in 1839 [2], it was over 100 years later that a cell was designed to run every-day electrical equipment. The main types of cells currently used are discussed in this



Above: Types of photovoltaic arrays.

Key terms

Photovoltaic cell: area of material where absorption of solar radiation (light) takes place to generate an electrical current (ie the photoelectric effect).

Photovoltaic module: multiple photovoltaic cells connected together to create a unit. This is normally in a pre-formed system that is weatherproofed and ready for application to buildings.

Photovoltaic array: multiple photovoltaic modules arranged together.

report and can be arranged into the categories of first, second and third generation.

First generation cell technology

Monocrystalline and polycrystalline. Monocrystalline cells are predominantly formed using The Czochralski Process [3], where a crystal nucleus is dipped into a silicon-melting bath and then drawn out slowly in a rotating motion to form a cylinder of crystalline cell material. The cylinder edges are then chamfered (often to form an octagonal shape) allowing efficient arrangement within a module. The block is then sliced into wafers forming the individual cells of a photovoltaic module.

Polycrystalline cells use similar technological principles and module construction as Monocrystalline; however implement a different cell production technique. Polycrystalline cells are normally formed from heating raw silicon and pouring into moulds to form silicon blocks. Once solidified the blocks are then chamfered and sliced into wafers as with monocrystalline. Unfortunately both cell types use toxic chemicals that reduce desirability and increase costs.

Cell incorporation into modules is similar for both production techniques. Series of cells are externally interconnected and encapsulated in a transparent bonding material, typically resin, then (in the case of semi-transparent modules) enclosed between two layers of glass. This is therefore a framed module.

These processes are labour intensive and wafers (approximately 3mm thick) are fragile, which limits their uses. Monocrystalline cells are more expensive to produce than polycrystalline cells, but with relative efficiencies of 15-18% [3] and 13-16% [3], both cells have a place within the photovoltaic market.

Second generation cell technology

Amorphous silicon cells. Second generation cell technology came into effect in 1976 [4] after the production of the first thin film cell. This cell uses the homogenous structure of amorphous silicon (a-Si) rather than the regular crystalline structure previously seen and can absorb a larger range of light produced by the sun. Amorphous silicon cells typically seen today are formed by applying layers of positively and negatively doped materials onto a glass face. This is a considerably cheaper process than first generation technology as it does not involve the toxic chemicals associated with crystalline cell production and the temperatures required in the manufacturing process are around 80% lower [3]. During the first 6-12 months [3] of operation a-Si modules suffer from the Staebler-Wronski effect [3] ie degradation of cells as a result of light exposure, therefore reducing cell efficiency to 5-8% [3] after stabilisation.

A different example of building integrated second generation cell technology is the Polysolar PS-C Series Panel. Polysolar modules use the same principles as generic thin film cells; however produce a semi-transparent photovoltaic material. By substituting a conventional opaque metal base contact with a transparent conductor and using a production process that deposits an ultra-thin layer of silicon (using a plasma enhanced vapour deposition method) 20% light penetration [5] can be achieved. This (along with the bronze tinted colour of the cell) makes them ideal integration as a solar shading device.

At Willmott Dixon Health Campus at the BRE Centre, Watford, these Polysolar cells are used as a solar canopy. *(Below, left)*. The 36 no. 1100 x 1300mm modules with a peak efficiency of 8% [5] produce 3000kWh of electricity per year [6].

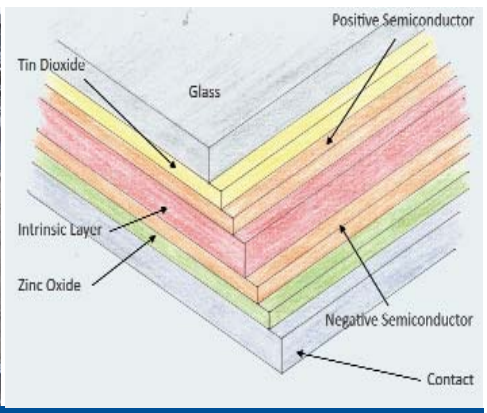
Whilst having a relatively low peak efficiency, the cell can still provide electrical output in dull light, unlike crystalline cells. Due to Britain's often overcast climate the Polysolar cell at the BRE Centre produces 30% [5] more energy annually than a comparative crystalline cell.

Third generation cell technology

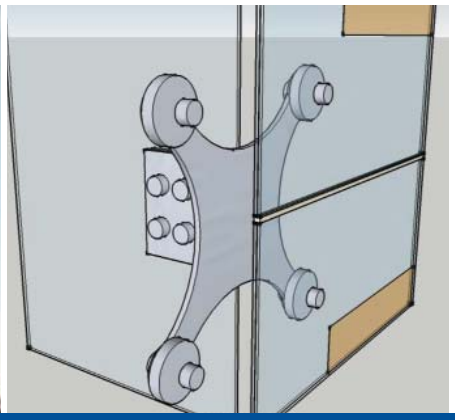
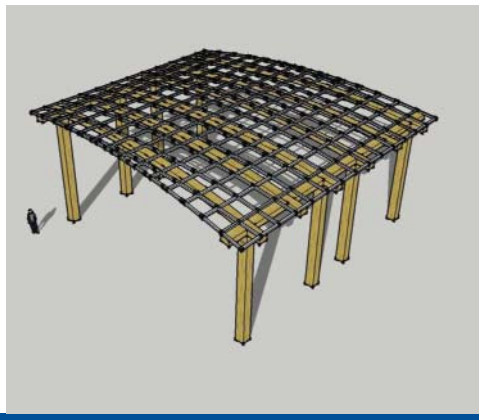
Dye sensitised nanocrystalline cells. More recently (1991 [3]) third generation cell technology has progressed to a new type of semi-transparent cell that uses an organic dye to absorb light; dye sensitised nanocrystalline cells (Grätzel Cells). Although these cells can absorb direct, indirect and artificial light, the peak efficiency is the lowest of all cell types currently in production, at 6% [3]. Grätzel Cells can also suffer from light degradation, however due to their production process the cells can be scraped clean and re-printed.

The cell works through anthocyanin dye absorbing light. The light excites the electrons within the dye causing them to move out of the dye molecule, through the titanium dioxide and into the electrode (now the negatively charged electrode). A current is formed when these electrons travel out of the solar cell into the load, and then back through into the positive electrode. As the electrons travel into the positively charged electrode (with the use of a catalyst) the electrolyte carries the negative charge across to replace the missing electron that was removed from the dye when excited by the light. The process now repeats, creating a direct current [8]. This is a simple technological principal and correctly harnessed has great potential for future applications.

The commercial dye sensitised solar cell production process uses readily available materials that are non-toxic and safe to



Above, left: Polysolar canopy at BRE. Centre: vertically mounted panel at Sheffield solar farm. Right: inside a dye sensitised nanocrystalline cell

Above, left: stylish use of a Grätzel Cell. Centre: suspended glazing system perspective detail. Right: timber canopy frame with metal PV sub-frame.

work with. As these cells do not require clean room facilities or toxic chemicals, they are the cheapest cells to produce.

The image above shows a potential application of dye sensitised technology.

Due to the relative newness of this technology there are still a number of problems to be resolved, such as the instability of using a liquid electrolyte that can freeze or expand under extreme temperatures. There is also still significant trouble with the Staebler-Wronski Effect, causing severe reductions in cell efficiency.

Due to these reasons there are very few precedents for this type of cell, if any at all in building integrated applications. Grätzel Cell examples are mainly restricted to small electronic applications, for example self-powering lanterns and fans. Research within this field is currently underway, reducing the imperfections in these types of cells. In the future there may be a place for them within a building, for example in window applications. Due to the nature of the production process and the basic cell principles, dye sensitised solar cells can be integrated into solar glazing in the same ways of that of the transparent amorphous thin films previously mentioned.

Types of glazing integration

The following examples show photovoltaic glazing integration using the Polysolar PS-C module as mentioned previously.

Mullion-transom systems. Mullion-transom systems consist of a series of vertical mullions transferring the loads throughout the frame with horizontal transoms for bracing. The photovoltaic modules sit between the frames and are dry fixed with a clamping front plate, as seen above. Due to the protruding frames to the external side of the system, dirt can accumulate reducing the photovoltaic module's performance. This system may be used in both vertical and sloped situations; however slopes with a low gradient may suffer unacceptable levels of water attenuation.

Suspended glazing systems. Suspended glazing (see above) is constructed top down by hanging sheets of glazing off a top clamping strip. The next row of glass is then hung from bolts from the previous row of glazing. The wall's structure comprises two main components: the glazed wall skin – to provide the water-tight skin, and the vertical fins – to provide resistance against wind loads. The vertical fins are traditionally formed from toughened safety glass, steel, or tension structures. The height of suspended glazing is dependent on the strength of the bolts connecting the sheets of glazing together, and the weather tightness dependent upon silicon sealant. Unfortunately this system has limitations with the integration of transparent photovoltaic modules. Where the glass is drilled through, no photovoltaic material can be applied. This means that for each module there may be large boarder areas with no photovoltaic material, reducing the potential energy output for the facade. If the semiconductor layer of a photovoltaic is drilled through the module will no longer be productive.

Structural sealant systems. Structural sealant glazing can be separated into two main sub categories of two sided and four sided sealant systems, both of which can be used in vertical or sloped applications. When two sided sealant systems are used vertically, the vertical sides of the glass are bonded using silicon, whilst the top and bottom edges can be glazed into rebates or recessed channels [9]. In sloping systems two edges are mechanically held down at the edges of the frames, with the joints in the glazing running perpendicular to the slope sealed with silicon.

Four sided silicon glazing uses silicon along the back side of the glazing along all four edges to seal the glass onto a sub-frame. This system allows even distribution of the self-weight of the glass and any imposed loads down into the frame. Silicon sealed photovoltaic modules are effective as they do not require any modifications to the modules, such as drilling. With a smooth finish to the panel water is shed easily and there are fewer places for dirt to collect and shade the photovoltaic material.

Clamp fixing systems. Clamp fixings are popular for integration as they do not require the glass to be drilled. These are the most widely used integration technique for pre-framed photovoltaic modules on a sub-frame traditionally seen as an addition to a roof space. The clamp fixing works with a U shaped bracket which clips onto the edge of the module. The clamp is then fixed back to a (traditionally metal) sub-frame. Dependent upon the application more or less clamps may be needed along the different edges of the module to prevent cracks from loading stresses.

Grid connection

Grid connected systems do not require the use of batteries which, as well as being hugely environmentally damaging, have a lifespan of less than a half of a photovoltaic module; which generally have guaranteed 80% efficiency for 20 years by manufacturers [3]. Stand-alone systems require additional equipment that is not only expensive but can take up a large amount of space, which in a restricted plant room is unwanted. Unfortunately with the increase in unregulated amounts of photovoltaic micro generated energy being added to the National Grid, high levels of voltage in some areas are becoming a problem.

If grid connected photovoltaic arrays increase rapidly in popularity over the coming years there could be restrictions brought into place to limit the amount of energy being added to the grid. New photovoltaic systems being integrated into the grid should retain the ability to store at least some of their own energy produced to account for such circumstances in the future.

There is of course potential for other types of energy storage that are much more environmentally considerate than the use of batteries, such as pumping water uphill for use as a gravitational potential energy store. For some building types, storage may not be necessary, for example hospitals and supermarkets where there is a constant demand for energy.

Example application

Integration method. The illustration opposite, right, shows an example application of building integrated photovoltaic glazing (160 panels) over an external canopy. The chosen system in this application is that of four sided structural sealant on a metal sub-frame. This is most appropriate for this example as it creates a homogenous face preventing water and dirt accumulating on the modules, which could be a major problem with the low pitch of the slope (average 6° gradient).

Energy output data. The data shown on this page is for the polysolar transparent thin film amorphous solar cell. The 1300mm x 1100mm PS-C Series panel is located at the Sheffield Solar Farm, UK. The graph below left shows the monthly average energy output for this cell, ranging from April 2012 to March 2013. The right hand graph shows how from this existing data an average monthly energy output for a larger scale example application can be calculated. (This is only loosely indicative, as this does not take into account multiple factors which would dramatically affect the output such as location, orientation, overshadowing and integration methods).

This means for the example application shown in the picture above left, in a year spanning from April 2012 to March 2013 there would have been a potential gross energy output of 10,000 kWh.

PS-C Series cell data.

Azimuth (orientation from north)	225°
Inclination	90°
Peak output power	85 W
Module efficiency	6%
Open circuit voltage	137V
Short circuit current	1.11 A
Thermal coefficient (Voc)	-0.300 %/°C
Outside dimensions	1300mm (L) x 1100mm (W) x 10mm (T)
Panel area	1.430 m²
Weight	33.5 kg

Conclusion. Overall this report shows the ease that, with proper planning from the outset, photovoltaic modules can be simply integrated into a building design. Whilst crystalline and opaque thin film cells can be arranged within a solar module to allow the transfer of light, for truly transparent applications the most pertinent cells are amorphous silicon with transparent contacts (as seen at Willmott Dixon Healthcare Campus) or dye sensitised nanocrystalline cells. Despite the fact that thin film and dye sensitised cells have the least peak efficiency, the case study has shown that in dull climates the average annual output is actually higher, and therefore more applicable for UK building integration.

The example application within the report shows the simplicity with which photovoltaic technology can be integrated into a building as a substitute façade material. By considering the application from the start an appropriate framing system can be chosen to allow a correct application of technology, reducing the need for additional framing and systems later which are associated with traditional photovoltaic panel applications as add-ons.

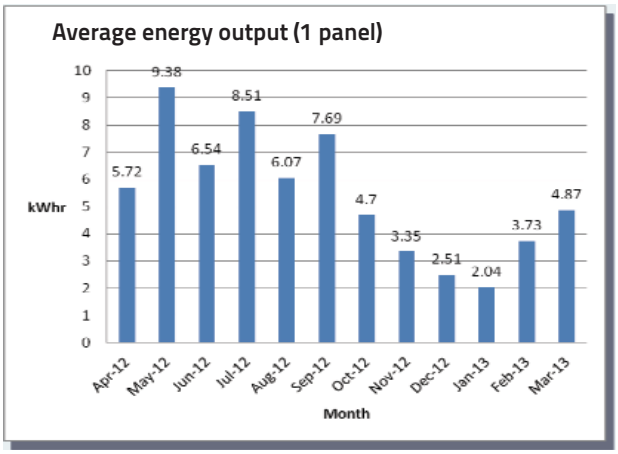
To conclude, whilst this report provided a thorough explanation on how to integrate transparent thin film solar glazing into a building facade, it did not fulfil the initial aim of totally integrating dye sensitised cells. However it is important to remember that due to the similarities in the production process (application of photovoltaic material onto a conductive glass substrate) once dye sensitised cell technology has been finalised it can be integrated in an almost identical manner, allowing this report to still have relevance in the future of building integrated photovoltaic cells.

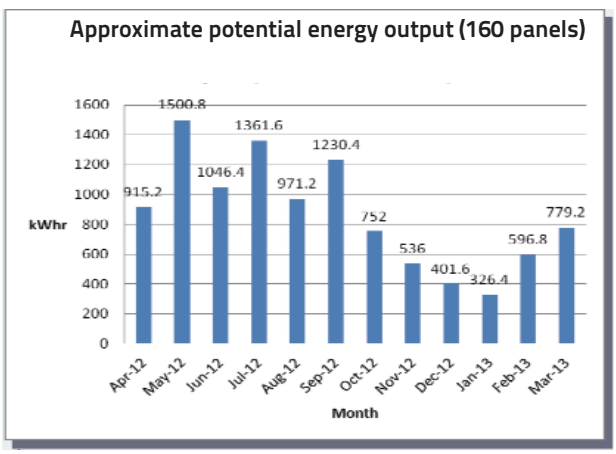
References

[1] European Union Committee (2008)
[2] Bellis, M. (n.d.)
[3] German Engineering Society (2005)
[4] Konarka Technologies, (n.d.)
[5] Polysolar (2012)
[6] Willmott Dixon (2009)
[7] Polysolar Promotional Talk, 2012
[8] IGERT, 2009
[9] McEvoy. M., 1994
[10] Sheffield Solar Farm, 2013

Bibliography

Bellis, M., (n.d.), History: *Photovoltaics Timeline*. [online]
Brookes. A. J., Meijs. M., 2008, *Cladding of Buildings*. 4th Edition. Oxon: Taylor & Francis
European Union Committee, 2008, *The EU's Target for Renewable Energy: 20% by 2020, Volume I: Report*
German Engineering Society, 2005, *Planning and installing photovoltaic systems: a guide for installers, architects and engineers*. London: James & James
IGERT, 2009, *Nanolab_Experiment*.
Konarka Technologies, (n.d.), *The Evolution of Photovoltaic Technology*. [online] Available at: www.konarka.com
McEvoy. M., 1994, *Mitchell's External Components*. Essex: Longman Group
Phillips, D., 2000, *Lighting Modern Buildings*. Oxford: Architectural Press





Left: actual and potential energy outputs for PS-C series panel at Sheffield Solar Farm.

Centre of attraction

Simone Ceccato won the Student Award for Excellence in Architectural Technology (Project) for his design for Maggie's Centre, London. Here he outlines his vision for a welcoming place of hope.

The site is situated in a car park in Moxon Street, London W1, a densely populated commercial urban area with a wide range of buildings and facilities, including housing, retail, offices, and educational and recreation facilities. The project proposes to provide a series of 10 retail units with associated back of house facilities. Surrounded by Victorian buildings, the centre is designed to focus the user on a range of different activities, providing a mixed use scheme comprising a Maggie's cancer care centre and retail space. This will create a place which will feel safe and welcoming, and which will provide non-residential support and information facilities for people with cancer and for their families and friends – above all, a place of hope and a building that makes you think about human relationships and connections.

Concept

In the effort to balance the Maggie's centre identity with the surrounding environment's influences, there were continuous changes in form in order to find the right atmosphere to transmit to the visitors. A flexible architectural structure was necessary to reflect different needs: the Maggie's centre should be a place where people can feel at home during a difficult time, but the site also requires commercial venues (shops, restaurant etc). The site plan generates a new symbolic relationship with its environment, in fact from each corner of the site will be possible to see all the four corners of the surrounding area.

The entrance will be facing the north side of the site, a welcoming space surrounded by flowerbeds and trees. To reinforce the feeling of a warm space, the centre will feature a large articulated façade, to allow the centre to have natural light all over the space. To maintain the sense of warmth and homely feeling, there will be a series of interior façades facing an internal garden, where people can gather together.

At the same time there will be some small private spaces for the visitors, as well as for volunteers working for the centre and for storage and administrative areas. There is also a kitchen area, where people can meet and spend time together with their family, an inviting open space where everybody can feel welcome. The overall feeling should be that the visitor is coming into a family community, always open and welcome. A continuous flow is intended between the surrounding environment and the centre, where nature becomes a part of residents' privacy; simultaneously giving a feeling the outdoors while providing protection from it.

Through the use of sustainable material such as wood, it will be possible to create a warm atmosphere for the building, but by the use of white concrete and large facades, natural light will also give a welcoming feeling of light.

Climate and site

This design involved studies of the angles of sunlight and the height of adjacent buildings. The thermal comfort requirements for Maggie's Centre include winter heating, modest summer cooling and responses to seasonal transitions that may require either heating or cooling. An average low temperature of 5°C in January and an average high of 25°C in July, and a moderate climate with predominantly overcast skies in the winter, posed potentially large problems for traditional passive solar design. Because electricity is generated on the site for all appliances and lighting, the flat roof is covered with photovoltaic panels facing south.

Daylighting and thermal design

The centre is designed with a highly insulated envelope and one good glazing area on the north side, and in all shops on the ground floor. This triple glazing area will allow greater access to daylight, fresh air and create a sense of warmth. Passive architectural design strategies include cross ventilation, direct gain passive solar and exterior shading; these are combined with active systems such as photovoltaics, to meet varying seasonal needs for heating and cooling.

The 2014 Student Awards are now open for entries. See www.ciat.org.uk for more details.

Cavity fires: the unseen killer

Cavity fires in timber-framed buildings are relatively rare events, but nonetheless there are concerns that in addition to the significant property damage that can occur there is a potential risk to life. By Neil Smith, Head of Research and Innovation, NHBC

The unseen spread of fire within wall cavities and the associated behaviour of combustible materials in fire situations has been a topic of much discussion over the years.

Evidence from fire investigations suggests that unseen spread of fire in cavities has resulted in disproportionate damage, along with anecdotal evidence that suggests the methods used for protecting cavities incorporating combustible materials may not be providing satisfactory performance.

Putting the issue into context, cavity fires in timber-framed buildings are relatively rare events, but nonetheless there are concerns that in addition to the significant property damage that can occur there is a potential risk to life safety, a challenge for the Fire and Rescue Services. With this in mind, the NHBC Foundation investigated the issue of fire spread within combustible cavities and this new piece of primary research – *Fires in cavities in residential buildings* – is now available. This is the second NHBC Foundation report to be published on the subject of fires following Fire performance of new residential buildings, published in 2011.

The research project commissioned an experimental programme of 21 fire experiments at the BRE Global test facility at Watford, based on the earlier work undertaken by BRE at Cardington. The test method chosen provided a realistic assessment of the in-use condition of cavity barriers in the external wall of a timber-framed building.

The experiments consisted of two 2.4 m x 2.4 m timber panels fixed to the masonry wall and separated by a timber beam. Performance in the experimental programme ranged from rapid fire spread with flames emerging from the upper panel after approximately six minutes followed soon after by collapse of the system to complete burn-out of the localised fire load with no fire spread or damage to the upper panel.

The experiments undertaken confirmed that when specified and installed correctly all commonly used horizontal cavity barriers are capable of meeting the relevant functional objectives of the Building Regulations. As part of the project, London Fire Brigade examined its Real Fires database to identify incidents involving fire spread through cavities in an attempt to evaluate the scale of the problem, the nature of the ignition source and the extent of damage related to cavity fire incidents.

A total sample of 30,086 building fires attended in London between 2009 and 2011 were considered. Of this sample, 92 cases were identified where the fire had spread through gaps or voids in the construction resulting in fire spread beyond the floor of origin to other floors or the whole building.

The most significant lesson is to ensure that cavity barriers are installed correctly in accordance with manufacturers' instructions and are not damaged, removed or interfered with during the period between installation and completion of the external rainscreen façade.

92 cases were identified where the fire had spread through gaps or voids

Those responsible for the installation, site supervision and the building control and approvals process should be made aware of the crucial role that cavity barriers play in restricting fire growth and spread in the event of a fire. It is essential to consider the implications of poor specification and installation, and the significant impact that small gaps and discontinuities within the line of compartmentation provided by cavity barriers can have on the spread of a fire.

The choice of cavity barrier to be employed in any specific scenario should be an integral part of a building's design that should consider the likely risks and consequences associated with a fire. One adaptation that may need to be considered is the ongoing use of timber battens as cavity barriers.

Clarity is required within the construction project team on who is responsible for the installation and inspection of critical fire protection measures such as cavity barriers. The use of approved contractors and appropriate supervision at key stages during the construction will help to ensure that cavity barriers are installed correctly and the installation is not compromised by follow-on trades.

A copy of the primary research is available to view and download at **www.nhbcfoundation.org/firesincavities.**

Reproduced by kind permission of NHBC Foundation

BIM in the

David Heesom MCIAT attended the 2013 Construction Industry Technology Alliance (CITA) BIM Gathering in the Republic of Ireland and learnt about the current levels of the technology's adoption, and the possibilities for the future.

Last November I was fortunate to represent CIAT at the CITA BIM Gathering in Dublin. This event, organised by the Construction Industry Technology Alliance (CITA) was one of the first main conferences on BIM in the country and attracted over 300 people from the island of Ireland, the UK and the USA.

The organisation of the event was excellent, drawing some big name keynote speakers from the US and UK to give their views on BIM implementation and how the Republic of Ireland could move forward with BIM. This is not to say that the industry in Ireland is not already implementing BIM and there were lots of talks over the two days to show some great examples of where BIM is being used on a range of projects of varying sizes.

There is clearly high-level support for BIM implementation in Ireland and the conference was opened by Minister Brian Hayes who noted that the aim was to raise the construction industry from being approximately 5% of the country's economic wealth to 10%. The government was particularly interested in the application of BIM to sustainability and how it can be used for better managing their buildings (sounds a familiar story!). Some government departments were 'trialling' BIM use with a view to reporting back in 2014.

There were a range of keynote talks and all of the presentations from the two day event are now available for download on the CITA website (http://gathering.cita.ie/). Dana Smith from the USA told the conference that it was the role of the architect to present the opportunities of BIM to the owner then set up the infrastructure to collect the information. Interestingly he also noted how the BIM process is a real change for how we do things and we should go back and review how we teach people to be part

Republic of Ireland

of a team. Education was a point also picked by David Philp of BIM Task Group who noted that roles will exist in 20 years that do not exist now. He presented the UK perspective, highlighting how BIM is part of the built environment revolution and an opportunity to rebrand the construction industry. Also introduced was the word/acronym Totex – the total expenditure of an asset (i.e. capex plus opex) and how BIM supports this.

There are often comments made that at many BIM events there is too much focus on the technologyand not enough on the process and the human aspect that is required to make BIM happen. Laura Handler from Tocci Building in the USA balanced this by stating that BIM is 10% technology and 90% sociology. A very interesting talk where she noted that a company 'BIM Champion' should not necessarily be the person most excited by BIM, as they think it should be used on every project and may not be as objective!

'The Human Side of BIM' was a conference held last year and the video presentations are available through the bimforum.org youtube channel.* This is really worth watching, whether your interest in BIM has a more technical bias or not.

The concept of 'Big BIM' was presented by Finith Jernigan and this presentation was mind blowing once you started to think about how much data we can now possess and how we could design, operate and manage the built environment in the future. His vision was the link between 'geoBIM' and a BIM of individual assets and having access to all the data inbetween. This links to the concept of 'Big Data', which could transform how much information we have access to in the future when undertaking design work. He noted that this data needs to be managed through standards in order to maintain integrity but highlighted California Community College as an example which has 5200 buildings in BIM format, managed through a GIS in the cloud and linked to building automation and control systems.

Lots of case studies of projects were presented which demonstrated how BIM had made projects more efficient and very often, effective communication of data was the underlying reason. The accompanying exhibition area provided attendees with the opportunity to see the full range of software tools and services currently available. In total there were around 75 presentations on a complete range of BIM related topics. The only negative side of the event was with so many presentations in parallel streams it was impossible to see them all!

There is too much focus on the technology and not enough on the process and the human aspect

Overall this was a great event that opened the mind to where BIM is now, how is should be used and where it could go in the future. There is clearly an appetite for BIM in the Irish construction industry judging by the attendees and CITA remains active in supporting this through a range of events. Whether the government of the Republic of Ireland takes the same view as the UK in terms of BIM adoption remains to be seen, but the indications at the moment are that they will and there is ambition to grow the construction sector, which opens more opportunities for BIM-savvy Architectural Technology professionals in Ireland.

*www.youtube.com/watch?v=Xewrwi4rWt4

The *CITA BIM Report 2012* as well as the recently published *Forfas Report* (advocating CITA's role in BIM) are available to download free of charge at http://gathering.cita.ie/

Dr. David Heesom MCIAT is Reader in Building Information Modelling (BIM) at the Faculty of Science and Engineering University of Wolverhampton.

The MCIAT Professional Assessment – a new qualifying route

What is the MCIAT Professional Assessment?

The MCIAT Professional Assessment is a flexible, rigorous, robust and quality assured qualifying process, based on performance and designed to recognise the diversity of Architectural Technology.

Candidates must provide an in-depth critical analysis clearly summarising their professional experience. This should be a reflective report and should refer to challenges and successes encountered whilst working on projects and how any issues were resolved. Applicants should also undertake a self-evaluation highlighting their strengths and weaknesses in relation to their area(s) of practice.

The Professional Assessment process is based on four core competencies:

• Designing • Managing • Practising • Developing (self)

Who can apply for the MCIAT Professional Assessment?

Any applicant working in or on, for example, academia, general practice, component design, refurbishment, small residential projects, large commercial projects etc within Architectural Technology, should be able to apply their own experience to the Professional Assessment process, but they must hold one of the following membership grades: ACIAT, TCIAT or profile candidate.

Each application will be assessed on its merit. However, each applicant will need to demonstrate a sufficient level of knowledge and understanding and professional competence/experience in relation to their sphere/s of practice and demonstrate to the Institute they can meet the expectations of a Chartered Architectural Technologist, MCIAT.

How much does it cost?

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

CIAT

www.ciat.org.uk

For further information email our Membership Director, James Banks via james@ciat.org.uk or call us on +44(0)20 7278 2206

it eco fm SHOWCASE

Three Complementary Themes

One Outstanding Roadshow

it eco fm

Business Software | Green Building | Green Facilities

TUE 25 MAR 2014	**Nottingham**	TUE 29 APR 2014	**Newcastle**	TUE 20 MAY 2014	**Twickenham**

More dates and venues online

Media Partners

Accountable for up to 4 hours of CPD

Chartered Institute of Architectural Technologists

A Compago® event | For free tickets visit www.compago.co.uk

Framework Media Ltd 11 Star Lane RINGWOOD BH24 1AL Tel 01425 477565

MVHR: a breath of fresh air?

The move towards higher levels of energy efficiency in new homes and improved airtightness has led to around a quarter of new homes being fitted with Mechanical Ventilation with Heat Recovery (MVHR) systems. There is growing evidence, however, that such systems are not achieving their full potential. Report by Neil Smith, Head of Research and Innovation, NHBC

The changes to Building Regulations have introduced a practical and regulatory need to ensure that the indoor air quality and ventilation provision in new homes are appropriate, as well as designing the home in such a way that reduces the amount of energy used for space heating.

MVHR systems work by providing fresh air ventilation, while at the same time recovering heat from exhaust air that would have otherwise been lost. With most people in developed countries spending an estimated 80% of their time indoors, good indoor air quality is vital for the comfort, health and wellbeing of occupants. Poor indoor air quality can be connected to a wide range of serious health effects, including allergic and asthma symptoms, lung cancer, chronic obstructive pulmonary disease and cardiovascular disease.

An increasing number of house builders are using MVHR as a practical and cost effective way of meeting ventilation and energy efficiency requirements. It appears likely that the trend to install MVHR will continue, and it could well become the dominant form of ventilation for new homes.

Designed and installed correctly, MVHR can offer a number of benefits. But there is a growing body of evidence, based on academic study and practical observations that indicate MVHR systems are all too often designed, installed and commissioned in such a way that the design performance is greatly reduced.

Research from the NHBC Foundation in 2009 published in indoor air quality in highly energy efficient new homes – a review, followed by the publication in 2013 of the Zero Carbon hub-led Ventilation and Indoor Air Quality (VIAQ) Task Group report Mechanical Ventilation with Heat Recovery in new homes, both revealed a number of issues with MVHR systems.

To add to the limited evidence available from monitoring the use of MVHR in practice, the NHBC Foundation has released primary research that studies 10 homes in Slough, built by energy

Slough study shows lessons to be learned

10 homes in Slough, built by energy supplier SSE to Level 6 of the Code for Sustainable Homes, were studied by NHBC.

As well as examining design, commissioning, and installation of the systems over the course of 18 months of monitoring, the occupants were also interviewed on three occasions to provide in-use feedback. All the MVHR systems were recommissioned after one year.

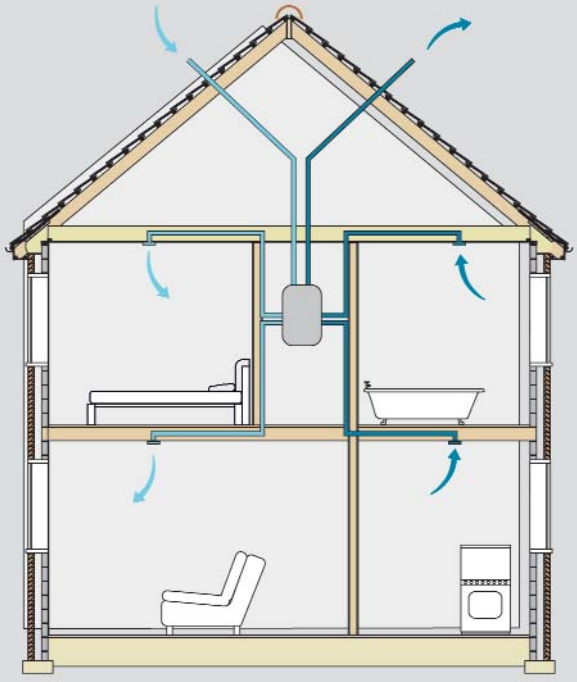
supplier SSE to Level 6 of the Code for Sustainable Homes. As well as examining design, commissioning, and installation of the systems over the course of 18 months of monitoring, the occupants were also interviewed on three occasions to provide in-use feedback.

When installed correctly, MVHR systems can deliver good performance, but it is clear from this new research published in *Assessment of MVHR Systems and Air Quality in New Homes* that a number of lessons still need to be learned. At Greenwatt Way it was considered necessary to make modifications and recommission all the MVHR systems after one year, with one needing a replacement fan unit also.

As a result of this body of research, and at the request of NHBC's Standards Committee, it was agreed that new NHBC Standards for MVHR needed to be developed. Following the proven method of engaging with stakeholders, a group of experts from the ventilation and house-building industries was assembled, including representatives from several manufacturers of MVHR systems, a range of house builders, and academic and industry bodies. This group assessed the use of MVHR in house building, identified common problems and produced a set of technical standards to address them.

The outcome from this group is the new Chapter 3.2 *Mechanical ventilation with heat recovery*, which is now available as part of the 2014 edition of the NHBC Standards. It documents new technical guidance that will not only set the standard for MVHR, but significantly raise it, to the benefit of homeowners and the industry in general.

It is critical that when considering MVHR as a ventilation system for new homes, that these new benchmark standards are complied with. A well considered strategy during the design stage – before procurement and commissioning – is essential, as is ensuring that the design is followed through to the installation. A copy of this primary research is available at www.nhbcfoundation.org/MVHRsystems



NHBC guidance on MVHR: a summary

The full guidance is available to registered professionals free at www.nhbc.co.uk

System design
Satisfactory performance is dependent on the design taking into account issues such as the location of the fan unit, the type and position of air valves and terminals, and the control of condensation. It is important that what is designed is installed on site. The designer should be asked to review any on-site variations to confirm whether the system will still perform satisfactorily.

Ductwork
The type of duct and its airflow resistance needs to integral to the design. Compatibility between the duct and other components, such as bends, connectors and fixing brackets is essential. Components that make up a ductwork system should usually be from a single manufacturer. The airflow resistance of flexible ductwork is difficult to determine and should only be used in straight lengths up to 300mm.

Location of the fan unit
MVHR systems require regular interaction from the occupants, which will involve ensuring that the system is maintained, such as regular cleaning/replacement of the filters, around twice a year. Filters are usually incorporated into the fan unit. Because of the need to optimise space within the home, the fan unit is often located outside of the insulated envelope, typically in the roof void. Suitable access for maintenance should also be provided. It is important to ensure that the MVHR fan unit is suitable for its intended location and that the manufacturer's recommendations for the proposed location are taken into account.

Prevention of condensation
Ductwork may be carrying air that is at a different temperature to the surrounding atmosphere, and this can create favourable conditions for condensation to form either on or in the ductwork. The new chapter contains guidance for insulating ductwork.

Building integration
A well-considered strategy during the design stage – before procurement and commissioning – is essential, as is ensuring that the design is followed through to the installation.

Handover requirements
It is vital that end users are made fully aware of how the system works, in order for them to appreciate the importance of regular maintenance, such as cleaning the filters.

The Chartered effect

At RPS's Newark office three senior architectural staff successfully completed the MCIAT Professional Assessment. James Banks, Membership Director, found out how they, and the business, have benefited.

Chartered Architectural Technologists Paul Dobb MCIAT, Scott Harrison MCIAT and Simon House MCIAT work within multi-disciplinary design teams to deliver commercial projects across the UK, and have done so since joining RPS, gaining industry awards for developments valued from £50,000 to £600m, including the masterplanning of some of the UK's top industrial sites.

Although the Professional Assessment process is a natural progression of their academic development it was embarked upon, quite understandably, with an element of trepidation. Those fears were unfounded as all three succeeded in becoming Chartered Members. This is testament to their hard work and achievements along with the assistance and advice offered by their sponsors and the way in which they worked together and supported each other throughout the process.

What were your reasons for wanting to become Chartered?

Paul: It was a natural progression following my part-time degree in Architectural Technology and Digital Innovation. I wanted to achieve the highest status I could in my field to help aid my career path

.

Scott: Knowing I could lead projects from inception to completion and knowing an Chartered Architectural Technologist is able to set up his own practice, and provide a full range of architectural services was inspirational.

Simon: My current employer promotes career progression from within and at the time of the application I was aiming to achieve a promotion to Principal level. Qualifying as a Chartered Architectural Technologist greatly enhanced the possibility of promotion and provides further reassurance to clients, contactors and colleges that my knowledge, experience and advice has come from a sound background.

Paul Dobb MCIAT (above, right)

Paul is a Chartered Architectural Technologist and Principal Architectural Co-ordinator at RPS, and started his career in construction working in civil and structural engineering, later converting to architecture. He became curious as to how the industry turned architectural designs into reality, and wanted to follow and understand the more technical side of architecture.

Simon House MCIAT (above, left)

A Chartered Architectural Technologist at RPS, he gained an Advanced GNVQ for Construction in the Built Environment followed by a BA in Architecture from West Nottinghamshire College and the University of Lincolnshire and Humberside respectively. He has over 10 years of architectural design experience, developed whilst working within an architectural or multi-disciplinary team initially for residential, education, retail, distribution and manufacturing sector clients, but more recently specialising in the waste management and energy sectors.

Scott Harrison MCIAT (above, centre)

Scott is a Chartered Architectural Technologist at RPS and has over 18 years' experience in Architectural Technology, through practical work experience and day release studies, as well as via the more traditional GNVQ Level 3 'Built Environment' and 'HNC Building Studies' route.

He worked for a number of practices, across many sectors, before settling at RPS Group. He is involved in involved in designing buildings across wide range of sectors, from feasibility concept design stage through to detailed design and implementation, on new build, extension, alteration and refurbishment projects.

How did you choose your referees?

Paul: I used my Principal and Team Director as they had the closest links to my work and, through appraisals, could help guide me into areas where I was lacking the experience/knowledge.

Scott: My choice of referee was my Operational Director at RPS, with whom I have worked with since 2002. As an architect (and member of the Royal Institute of British Architects), he met the designated professional criteria as set by CIAT. He has witnessed my career progression and mentored me from a

junior level through to Principal, as a valued project leader working on projects up to a value of £50 million.

Simon: I chose my Associate Director due to his interaction with my current project work and his membership of RIBA, this made him an ideal candidate to help me progress through the application process.

How long did the Professional Assessment process take each applicant to complete?

Paul: Since gaining my degree in 2005 I have tried to complete two versions of the POP Record... there were certain areas of the built environment that I didn't specialise in and I had to try and demonstrate performance evidence, ie contract administration. Together with working in a busy practice and having a young family, they proved difficult to focus on and complete. The Professional Assessment is clearer to understand and then process. This together with submitting at the same time as my work colleagues helped me focus and use my work colleagues to bounce our responses against each other so that I was comfortable with the responses prior to submitting. Our set deadline was achievable and gave us a defined period in which to complete the submission, which was lacking beforehand.

Scott: The Professional Assessment took me approximately three months to complete including preparation for the interview. I believe the speed of my particular application was assisted by having had one to two years of relevant experience from which to draw upon with my current employer. I also believe that setting a realistic deadline helped, giving me a focal point outside of the office to progress the application.

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

Paul: This, like any interview, was a bit nerve racking but with it being in our own office it gave me a certain comfort factor. It proved to be a relaxing, yet professional, experience; plus, as we had applied as a group, we were able to support and reassure each other directly before, and after, each interview.

Scott: Videos are available through the Institute's YouTube channel, which provided an insight in to the relaxed environment and professional approach the interviews would take. I decided to prepare a Power Point presentation, and found this helped me focus throughout the interview and allowed me the opportunity to substantiate my application and present myself in professional manner.

Simon: The interviewers were excellent at making me feel at ease, starting off with a mixture of relaxed questioning including general conversations about the company I work for and why I wanted to join CIAT. The interview process then led onto questions relating to the projects I have worked on and the roles I have fulfilled, by the end of the interview I felt comfortable answering any questions they raised.

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

Paul: Try to stay focussed and give yourself deadlines. I found it easier to break down the questions and deal with them one at a time. Have confidence that you do know the answer – if your response isn't quite right you have the opportunity through the CIAT assessors to amend and re-submit. My main worry was that I wouldn't interpret the questions correctly and be penalised for it so I tended to dwell on things too much. You usually find that you know the answer; it's just the delivery that needs tweaking!

Scott: Use the membership team as much as you can. I found the support they gave helped keep my application concise and achieve the correct level of content/evidence, and completing the process as a group provided an additional support network.

Simon: Undertaking the pilot scheme application process is less stressful and time consuming than you would assume. The majority of the application documentation you are required to complete will be areas of work that you do on a day-to-day basis and therefore the evidence should be easily accessible.

Do you have any advice for practices which have large numbers of staff who could potentially become Chartered?

Paul: Set yourself up as a group and run through the questions together, invite your supervisors to the first meeting so they are clear as to what is expected of them too. Have regular review meetings with the group plus individual meetings with your supervisor. Don't feel guilty about spending quality time doing this during work time (don't use being busy as an excuse!), as both your and the company will benefit in the long run.

Scott: Work together as a team throughout the process. I believe this contributed to the success of five out of five candidates becoming Chartered members through our group application. We also arranged for CIAT to visit our office prior to starting the pilot scheme to discuss the POP record progression route as a group.

Simon: I would advise setting up regular meetings to enable constructive discussions about any areas that they may be struggling with.

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

Scott: I have a new member on my team who is looking to progress to Chartered status following completion of her degree in Architectural Technology. I will be happy to be her mentor throughout the process. We are currently looking to raise the level of awareness of CIAT within the office and always encourage attendance at Regional Institute events.

Simon: There are a number of colleagues within the office hoping to become Chartered Members that have approached me for advice on the application and interview process. RPS undertakes an annual and interim appraisal process that encourages continuing professional development, along with college and university qualifications, and membership with CIAT is supported and encouraged.

The company benefits

RPS now has seven Chartered Architectural Technologist members of staff.

David Dunbar RIBA, Operational Director *(above)* said 'RPS encourages and supports CIAT membership for several reasons. Firstly the qualification provides a chartered membership they can be proud of as it is nationally recognised and only achieved through the validation of considerable project experience and construction knowledge.

Secondly, the achievement process also provides a framework for professional development, focusing learning on specific areas of practice and motivating staff to set their own development objectives, which is healthy and beneficial for themselves and the company.'

Continuing Professional Development

Continuing Professional Development (CPD) demonstrates to clients, colleagues and the public that members of CIAT are committed to keeping up to date with current developments and changes within the industry.

By Bonita Carmel, Education and CPD Administrator.

Here is a reminder of the key benefits of CPD:

- it focuses the individual member's attention on what is necessary to remain competent;
- it allows the employer to develop a structured training scheme for employees;
- it shows that the Chartered Institute of Architectural Technologists is maintaining standards by promoting competence; and
- it shows the public that it is served by a profession intent on maintaining high standards.

Within the Institute's Code of Conduct it states that 'members (excluding student members) shall keep themselves informed of current practices and developments appropriate to the type and level of their responsibilities; and be able to provide evidence that they have complied with the requirements for continuing professional development (CPD) as published by the Institute from time to time'.

CPD and the Institute

CIAT defines CPD as 'the systematic maintenance, improvement and broadening of knowledge and skills for the development of personal qualities necessary for the execution of professional and technical duties throughout the practitioner's working life'. This definition is shared by other professionals in the Construction Industry Council (CIC), of which CIAT is a member. Continuous Professional Development is for the members' own benefit, and for that of the member's client, and is embodied within CIAT's Code of Conduct. Members should also, where possible and appropriate, support the professional development of fellow members and potential members of their profession.

It is worth remembering that any professional qualification gained has a limited shelf life when considered against the length of careers. The knowledge obtained when qualifying does not remain current, but is updated by training and personal experiences, ie by continuing professional development.

How will my CPD be monitored and reviewed?

Every year CIAT will undertake random monitoring of the eligible membership. Failure to reply to this monitoring could result in members being monitored for their CPD for three years to ensure that they demonstrate their compliance. Any failure to undertake the CPD requirements could result in referral to the Conduct Committee for breach of the Institute's Code of Conduct.

The Institute considers that it is the responsibility of the individual to determine the method and content of their own CPD which should be appropriate to their professional obligations. Members are required to develop their own Personal Development Plan (PDP) at the beginning of each year

to identify CPD activities they wish to undertake in support of their own objectives. Both the plan and the card will be provided annually by the Institute.

CPD requirements

The Institute has set the requirement that such members have a professional obligation to undertake a minimum of 35 hours structured CPD per year, from May to April.

How should I complete and record my Personal Development Plan and CPD record card?

Your CPD is personal. You should complete your PDP at the beginning of each year. This will assist you in determining your CPD requirements which should be relevant in your area of expertise or future career. You are encouraged to consult with your employers when developing and reviewing your PDP.

You must keep a record of your CPD activity. You should then indicate the type of activity and the number of CPD hours undertaken on your record card.CPD hours only include those where professional development has been achieved.You should keep a file of all CPD activity undertaken which you can show this to employers and clients. **Unless asked, you will not be required to send your PDP and record card to CIAT.**

CPD should be used as a necessary (and stimulating) experience to develop new talents and skills. It will help you identify and honestly appraise personal shortcomings in your role as a professional in the field of Architectural Technology. You should consider your own interests and responsibilities; appraising your current tasks and related performance, thinking about changes which affect you personally or the profession at large.

You should consider career development or transition to a new role and how you will develop corporate, personal, management and technical skills. When planning your CPD, define your short, medium and long term needs whilst considering the time needed to fulfil the CPD and associated costs. Think laterally — CPD is not necessarily expensive. CPD could be sourced by networking through CIAT and other professional meetings. Record and assess your CPD efforts on a regular basis, whilst checking progress and discussing it with colleagues. Modify and improve your plan as necessary and try to avoid downgrading your CPD to a hunt for CPD certificates.

What types of activity can I do?

Examples of CPD activities:

- 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 research;
- studies leading to a further qualification or academic award;
- teaching — for those in practice;
- practice — for those in teaching;
- examining or tutoring;
- web based seminars;
- 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;
- structured trade presentations; or
- programmes organised by CPD consultants.

CPD within employment

Many employers provide company CPD programmes to ensure employees are kept up to date. Once both your requirements and that of your employer have been identified, your employer should assist, where possible, in allocating time and resources for training.

CPD and retired members

If a member has fully retired from their career in Architectural Technology there will be no 'level of responsibility' and the requirement to undertake CPD would not apply. However, members who have ceased to work as a principal (ie a member who is a sole practitioner, director, partner or limited liability member of a practice; this includes any member offering and/or providing a service) or as an employee, or who have changed their career path choose to keep themselves updated for either their personal benefit or because they wish to participate with and assist the Institute. This includes, for example:

- writing articles for *Architectural Technology*;
- attending Regional/Centre events;
- supporting CIAT at exhibitions;
- promoting the discipline at career based exhibitions;
- responding to consultations;
- acting as Assessors for membership progression;
- acting as mentors;
- applying/sharing their knowledge and expertise to help develop the profession through their local universities and colleges;
- mentoring through their respective Region/Centre, or;
- getting involved with their local community.

In return, CIAT would endeavour to keep the member up to date with the profession and its developments. An objective of the Institute is to ensure that all members maintain a level of professionalism regardless of whether they are practising or not. As well as CIAT representing members, its members represent the Institute and the discipline of Architectural Technology and this must be reflected accordingly.

For further information, please contact the Education Department. Email bonita@ciat.org.uk

'Hill start' for education

Robert Hill MCIAT outlines his vision, as Vice-President Education, for the future of the Institute; in particular, the need to help students progress to Chartered Membership.

In September 2013 I was elected as the Institute's Vice-President Education, a role which I am very excited about. My previous duties for the Institute include holding the positions of Wessex Regional Councillor, Regional Chairman, Trustee on Executive Board and member of the Conduct Committee.

I was very pleased to be elected into my new role especially as I am not an academic, although 23 years as a professional in Architectural Technology, and in particular my job as a Chartered Architectural Technologist and Capital Work Surveyor at The University of the West of England has given me a great understanding of how academia works.

My key objective is to improve links between CIAT's Accredited universities, industry and the Institute. The Institute's life blood is its membership and we must endeavour to ensure that all students join as student members, thereby believing in the ethos of CIAT at an early stage in their career progression and viewing qualifying with the Institute as a rite of passage.

As highlighted by Professor Sam Allwinkle, PPBIAT MCIAT in the Membership Futures Project he led, there is continued work to be done to improve the Institute's retention of its student members and Architectural Technology graduates post-completion of their academic qualifications. We need to support them, welcome them into the fold and convert them into Associate members or profile candidates.

It is our duty as members to help encourage and develop them in their specialist sphere of Architectural Technology, with the objective being progression to professionally qualified Architectural Technician or Chartered Architectural Technologist status.

It is my intention to concentrate on this area in my term of office and improve the rates of progression and levels of support for those student members who have recently completed their course of study.

We must at first tackle the question of why they should want to upgrade, qualify and be pro-actively involved with the Institute. Therefore, we must be absolutely clear with the Institute's message of what membership gives members. Key areas for improvement to students include:

- Status and profile
- Networking and guidance
- Support
- Mentoring
- Specialist information
- Job notifications
- Contacts

We must be absolutely clear with the Institute's message

The above points tie in nicely with the Institute's Strategic Plan* launched in 2013.

CIAT staff work tirelessly to improve the services provided by members and all members should work tirelessly to support our Institute. There is room for improvement and with assistance from the staff and my colleagues and contacts, I plan to push this forward in my term of office, wherever possible.

My aim is to build up a group of members who are willing to give some time to support student and Associate members, to encourage them to progress through the relevant qualifying stages to Chartered Membership. I am aware of many members who already do give a great deal of time to the Institute, but others feel that they cannot spare the time or just don't feel that they have anything to give.

Too often members undervalue themselves and underestimate what they have to offer. Help can be given in many ways but could include the following:

Work placements including 'year out', summer work or ad hoc experience. All experience is good experience so opportunities should be available to our student members. We can assist with guidance and support to employers and students.

Robert Hill MCIAT is Capital Works Surveyor for the University of the West of England (above).

Shadowing – occasional days to get a taste for what Chartered Architectural Technologists are doing - I had one work experience student simply carrying out defects inspections of painting contracts. This sped up my output and helped the student gain some understanding.

Mentoring in the form of:

•Contacts for assistance and guidance

•Arranging site visits or giving CPD presentations

•Professional Interview advice

•Checking and critiquing their portfolios and CVs

•POP Record and Professional Assessment advice

•Dissertation, research or project advice

•Active practical involvement in Architectural Technology programmes

•Visiting lecturers. I am in no doubt that CIAT Accredited universities would welcome practical sessions for their students, showing theory being put in practice.

•Seminars – giving some time to assist academics by putting things into context.

•Site visits – Assuming students have CSCS cards then why not take a group around some local sites?

•Any other involvement that will demonstrate commitment and support to our Accredited universities. These links could have a direct impact on Regional events and attendance.

At the very least we can take the opportunity to encourage all students to become student members. If you feel you could assist in any of the areas above, please contact Tara Page, Education Director (tara@ciat.org.uk) or James Banks, Membership Director. (james@ciat.org.uk) and we can build up a network of members willing to give something back to the profession. We look forward to hearing from you.

* The CIAT *Strategy Document* may be downloaded here: www.ciat.org.uk/en/media_centre/news_and_events/index.cfm/stratdoc

At the very least we can encourage all students to become student members

Off the Record

Continuing his series of interviews with members, James Banks, Membership Director, spoke to Jamie Renton MCIAT about his progress to Chartered Membership via Professional Assessment rather than the POP Record.

Tell us about your career so far.

I was fortunate enough to have been taken on as a trainee, through a Skillseeker's apprenticeship upon leaving school. I worked at Richard Amos Ltd, a small rural architectural and surveying firm based in my hometown of Duns in the Scottish Borders. I worked four days a week and attended a day release course for four years at Edinburgh's Telford College and attained my HNC in Architectural Technology. I have been employed with the same firm for over 15 years.

What sort of work are you involved in?

The majority of my work is in the private residential sector carrying out new build design, extensions, conversions etc but as we work in a rural area we work with a lot of farms and estates. This has been most recently involving large scale solar arrays and large straw biomass boilers.

Why did you decide to become a Chartered Architectural Technologist?

I have progressed through the company from a trainee to drawing office manager with several members of staff to coordinate and assign workloads. I wanted to further my career by joining CIAT and attaining Chartered Architectural Technologist status to affirm my professionalism and standing in Architectural Technology.

How did you progress your membership?

I have been an Associate member since January 2008 and I started to complete the MCIAT POP Record the following year. I found the layout and format to be confusing and overwhelming, it seemed to be geared towards Architectural Technologists employed in architectural practices, which ran projects in a traditional format. I was a little disheartened by the task in hand and put it to one side, while I progressed other areas of expertise and tried to build up my experience to complete the areas I felt I was lacking in.

An increase of workloads and increased working hours meant that the next few years passed quickly. It wasn't until I read about the Professional Assessment route that I reinvestigated the process and felt confident that I had the knowledge and experience to apply for Chartered membership.

What did you prefer about the Professional Assessment route?

I felt that the Professional Assessment route was much clearer and user friendly in relation to the information required and it allowed Architectural Technology professionals practising in different areas of the profession the chance to advance their status. I feel that this was enhanced by the variety of examples provided by CIAT to show that you needn't be exclusively a director of a company or running projects to show your competence and professionalism towards the built environment.

Becoming a Chartered member has already given me greater recognition

How did you compile your evidence?

I initially drafted out the format I wished to undertake and then pulled together a variety of projects I could use as evidence that were relevant to those sections. I then selected the projects that meant most to me which would be easier to talk about and started writing out the context of the sections. I had initially written far too much and had to go through the document and reduce the text in some areas.

How long did the process take?

It took me around four months to complete the Professional Assessment application from reading the guidance and examples provided, to submitting the final document for Assessment. This was mainly done at the office during lunch breaks, staying late and the occasional Saturday morning, as I needed access to the project files.

Who was your referee?

My referee was Kris Amos, an architect at Richard Amos Ltd. He is a director of the company and

son of the owner Richard. I have known Kris from a young age and we have both taken different paths in similar careers. Kris went down the academic route to qualify as an architect, and I worked as an apprentice upon leaving school, gaining my qualifications and experience via the practical, hands on route.

Kris worked for the company on a regular basis through semesters and re-joined the company in 2009 as a Director. As I have worked with Kris throughout my working career and he has witnessed the work that I undertake and contributions to the practise in time and effort, I felt that he would best understand my knowledge and experience.

How soon were you offered a Professional Practice interview?

I was surprised at how quickly the decision was made from posting the assessment on the Friday, and I heard back the following Wednesday that I had passed and that my interview was in six weeks' time. I received a great deal of information and advice from the Membership Department; it was reassuring to know that someone will deal with your questions.

How did you find the Professional Practice interview itself?

The build up to the interview was more nerve wracking than the interview itself. I was grateful that the interview was held in Edinburgh, as I was only 50 miles away, rather than London, which was 380 miles away. I was put at ease straight away by the interviewers and I have to admit I came out of the interview having enjoyed it.

The interview Assessors were interested in my portfolio and my niche in producing planning and building warrant applications for large scale straw boilers, district heating systems and grain drying set up for farms and rural estates. We also discussed a barn conversion project which I was recently involved with from inception to completion and we discussed the elements of design and difficulties encountered throughout the project.

Do you have any advice for other candidates?

Don't be overawed by the content of the assessment, write about your specific areas of expertise or niches that you may have created in your career. If you do have an area that is lacking, ensure that you are proactively addressing that or know how to remedy it, if you would be required to undertake that aspect of work in the future.

How do you think Chartered status has benefited you so far?

Becoming a Chartered Architectural Technologist has already given me greater recognition in my current role and the Chartered title enforces the professionalism and quality of service I provide. It also opens other doors for me such as Chartered Environmentalist status, which is my next goal.

Success on the menu

The Freemasons Lodge in the heart of London was the venue for the Institute's Awards Presentation Luncheon held on 29 January. Over 130 guests joined to celebrate excellence within the discipline of Architectural Technology. Report by Adam Endacott, Public Relations Director.

Award winners from across the UK and Republic of Ireland were present amongst notable names from within the built environment sector and senior Members from CIAT. Held over a three course luncheon, it was a memorable day for those receiving Awards and one which highlighted and showcased outstanding achievement in the world of Architectural Technology.

A special moment in proceedings was the presentation of Honorary Membership to David Cracknell HonMCIAT MCIAT who is the twenty-fifth recipient of this highest honour that the Institute can bestow. Upon receiving his certificate, David went on to make a short speech:

To be recognised by one's peers is an honour, a privilege and immensely humbling. I am grateful for the many people I have been privileged to serve with over the years – fellow members and members of staff. In retirement and on receiving this wonderful award, may I leave the Institute with three brief valedictory thoughts - perhaps even challenges? The 3 Cs.

First 'Competence'. I spent the second half of my career in the education world. But I was privileged to be in at the start of the competence movement. It emphasised the competence of the individual to carry out the job in the workplace to the standards required by industry. I've spent much of the last 20 years developing and maintaining those standards – and hopefully that has benefited the Institute.

The Institute has made dramatic progress in developing world class educational programmes – long may that progress. But the gold standard is competence – and the system that the Institute has evolved with open access, regardless of background, that enables individuals to meet the same rigorously assessed standards is something that is very special and needs to be held onto at all costs – maintain that gold standard.

Secondly, two words 'Coordination' and 'Cohesion' - what makes architectural technology so vitally important to this industry. It was my great privilege in 1983/4 to lead a small group to write a book which SAAT published: Architectural Technology – the Constructive Link. It helped to focus the development of what we have come to know as Architectural Technology – not that it didn't already exist, but it revealed its significance both in organisational terms and technological terms.

I was so pleased when the people responsible for devising our present coat of arms produced the drawing and column held together by the chain link. Architectural Technology is the link, the glue that holds the design – construction process together. So pleased also, that Building Information Modelling is starting to provide the mechanism to support greater coordination and cohesion – whole life process. If there was ever a

role that the Constructive Link was meant to fulfil, it surely lies in this direction. Maintain the Architectural Technology ethos.

Thirdly, 'Collaboration'. The greatest lesson I have learnt over the last 20 years in my CISC/CIC roles, is how vital it is for the industry to work together. It is so immense, so diverse, so continually fragmented. There has been enormous progress made through organisations such as CIC to bring the sector around the same table. Understandably, with long established professions, there is a tendency to think that each is special, separate, unique. This is absolutely true – CIAT rightly believes that.

But there is so much that is common to us – certainly I have discovered through the standards work, there is so much that unites us as a sector. The jury is still out with the public perception of the industry and its ability to perform. Final plea is to collaborate, collaborate, collaborate. By all means maintain and develop the discipline of architectural technology, but take a leading role in helping to make this industry collaborate – the whole is greater than the sum of the parts.

Certificates of Accreditation were presented for the first time to University of Brighton and University of Northampton for their BSC (Hons) Architectural Technology degree programmes. Receiving Accredited status for learning and teaching in Architectural Technology, for the Honours degree, is a demonstration of the university's commitment to delivering the highest standards of graduate progression and employability within the profession. It also symbolises the positive and mutually supportive relationship between CIAT, the university, staff and students. The following universities received this accolade for an additional five years:

Birmingham City University BSc (Hons)
Architectural Technology

Edinburgh Napier University BSc (Hons)
Architectural Technology

Guernsey College BSc (Hons)
Architectural Technology

Highlands College BSc (Hons)
Architectural Technology

London South Bank University BSc
(Hons) Architectural Technology

Southampton Solent University BA
(Hons) Architectural Technology

University of Central Lancashire BSc
(Hons) Architectural Technology

University of Derby BSc (Hons)
Architectural Technologyand Practice

University of Ulster BSc (Hons)
Architectural Technology
and Management

University of Westminster BSc (Hons)
Architectural Technology

University of Wolverhampton BSc (Hons)
Architectural Design Technology

An added highlight was the presentation of Centre of Excellence status to Edinburgh Napier University, The Robert Gordon University and University of Derby. Centre of Excellence status for universities demonstrates commitment to the academic discipline of Architectural Technology and the professional development of Chartered Architectural Technologists. This requires demonstration of the necessary learning environment, staff, links with industry and CIAT and promotion of the Institute and the discipline of Architectural Technology both nationally and internationally.

Presentations were also made to the Gold Award recipients, Student Award for Excellence in Architectural Technology (Project and Technical Report), The Alan King Award and Open Award for Technical Excellence in Architectural Technology winners. All of which were in the previous issue of *AT.*

The 2014 Awards are now open for entries – please see information on page 10.

The event was kindly sponsored by Buildingtalk/Koru Media Ltd.

Clockwise from top left:

Andrea Obremski ACIAT receives the Student Award (Technical Report) from Karl Grace PCIAT.

Scott Kyson MCIAT receives the Alan King Award.

Simone Ceccato receives the Student Award (Project).

Paul Durrant (right) of LSI Architects receives the Open Award with sponsor Kevin McParland of McParland Finn Ltd.

Annual General Meeting 2013

Chain of command... Karl Grace PCIAT receives the Chain of Office from Immediate Past President Colin Orr PPCIAT MCIAT.

Left: Uel Marcus MCIAT receiving his Gold Award from Colin Orr.

Below: Barry Le Beuvant PPCIAT MCIAT (centre) shares a joke with delegates including Grant Steer MCIAT (left) and Doug Fewkes MCIAT.

Voting Delegates, Regional and Centre Councillors, Honorary Officers, Past Presidents and members attended the Institute's AGM held at Kings Place in Kings Way, London on 16 November.

The agenda was a short one which saw the approval of last year's minutes and also the accounts as at 30 April 2013. Four resolutions were received and passed by the congregation which were changes to the Code of Conduct – these changes can be found in this issue. All the Award winners were announced and the recipients can be found in the previous issue of AT magazine. See page 34 for a feature on the Awards Luncheon.

With the close of the AGM, Colin Orr's tenure as President ended and he handed over the Chain of Office to Karl Grace who became the Institute's 26th President. Colin was presented with his Past President medal and Karl then proceeded to outline his aims over the next two years which are aligned with the Institute's Strategy.

Arthur Thomas Lappage HonMCIAT MCIAT 1922-2013

By Adam Endacott, Public Relations Director

There are many great characters in life and it is true to say that Arthur was one of them. It was always a great joy to be told that Arthur was on the other end of the phone and to hear his news and his remembrances from the past. Arthur served with the Corps of Royal engineers during the Second World War and I will always remember the wonderful couple of hours that we spent together when Arthur brought all his old war papers and drawings in and meticulously went through every bit, remembering where and when they had been produced and the stories that went with them. Arthur's memories were of a great help to me when I wrote the Institute's history in 2005.

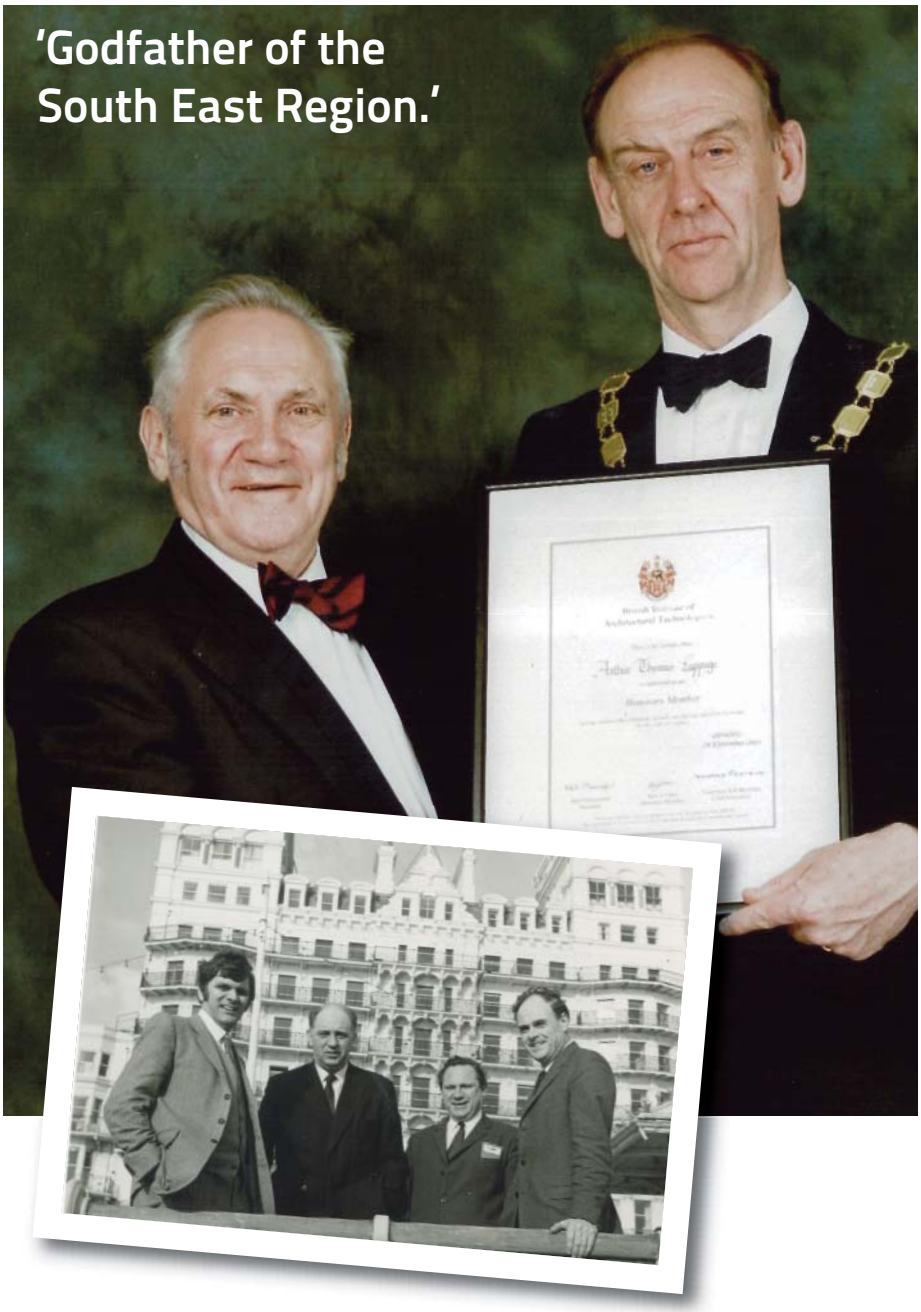
Arthur was a true gentleman with an ever engaging passion for the discipline and Institute and was the lead in forming links with the Royal School of Military Engineering for membership with CIAT. From joining the Institute in 1968, Arthur was also involved with CIAT, whether it was at Regional or national level, including long periods on the Membership Committee and Admissions Committee.

He was a popular and dedicated member of the South East Region and took on many roles over several decades. His commitment, enthusiasm for and dedication to the Institute that he loved was recognised in 2001, when he was awarded the Institute's highest honour – Honorary Membership. The citation read that Arthur was a stalwart and Godfather of the South East Region.

The Institute has lost one of its valuable and distinguished members and I have lost a good friend. We thank his widow, Silvia and family for sharing him with us.

Here are just a few of the tributes received from fellow members:

Arthur was a great ambassador for the Institute and a shining example to us all, not only as a Chartered Architectural Technologist but as a human being, a kind courteous and caring man who was always supportive of the young membership. His contribution to the South East Region will never be forgotten. It was a privilege to have known and served with him.
Colin Midgley MCIAT (Former South East Region Chairman)



Arthur receiving Honorary Membership in 2001 from Neil Dransfield PPBIAT MCIAT
Inset: Arthur (third from left) with fellow members at the 1970 AGM in Brighton

A gentleman who was softly spoken but always managed to hold an audience. Although making an immense contribution to our Institute, I found his life outside CIAT to be more interesting, particularly his love of music. He will be missed.
Professor Sam Allwinkle PPBIAT MCIAT

I was one who was not privileged to have met Arthur, but from those on the Regional Committee who did know him, I am aware of nothing but respect and kind words ever being said about him. This is testimony of the type of person he must have been and I believe I would be correct in concluding that this world will be a lesser place without him.
Alex Naraian MCIAT, Councillor, South East Region

Fond memories of a very dear colleague. I found his life outside of CIAT fascinating – in particular his DJ activities! A sad loss to everyone who had the privilege to have known him.
Paul Newman PPSAAT PPBIAT MCIAT

Register at
facilitiesshow.com
/CIAT

Uniting the facilities management industry

17-19 June 2014, ExCeL London

FACILITIES Show

FACILITIES & ESTATES MANAGEMENT

17-19 JUNE 2014 EXCEL LONDON UK

PART OF PROTECTION & MANAGEMENT 2014
UNITING PROFESSIONALS ACROSS SECURITY, FIRE, SAFETY, FACILITIES, ENERGY, ENVIRONMENT & SERVICE MANAGEMENT

15 years at the heart of the facilities management industry

As the role of the facilities management professional evolves, keeping up to date with the latest legislation, issues and challenges across a range of disciplines is essential. Facilities Show is dedicated to bringing you together with suppliers and specialists to share knowledge, debate current issues and find best-fit solutions and products for your organisation's needs.

#FACSHOW @Facilities_Show

Air Conditioning | Parking | Buildings Management | Interiors | IT | Safety | Security | Recycling & Waste Management | Vending Machines

Organised by
UBM

Play your cards right

CSCS cards can bring real benefits to CIAT members says Graham Wren, the scheme's Chief Executive.

Most CIAT members will be familiar with CSCS, the construction industry's leading card scheme, which certifies that individuals working in the built environment have the necessary training and qualifications to carry out their job. Indeed many have used their membership of the Institute as recognition of their professional credentials and a route to gaining a CSCS card.

People who are MCIAT, TCIAT or ACIAT may apply for a CSCS Professionally Qualified Person (PQP card). Profile candidates with an academic qualification recognised by CSCS can apply for an Academically Qualified Person (AQP) card and student members or profile candidates without a recognised qualification may apply for a Technical Supervisory and Management Trainee CSCS card.

The CSCS Board comprises representatives from the industry, including the Construction Industry Council of which CIAT is a full and active member. It is this Group's responsibility to ensure that the scheme continues to evolve to meet the needs of the industry and is the driving force behind two recent changes.

Academic qualifications

CSCS now recognises a range of construction related qualifications namely HNC, HND and Degrees. A full list of the qualifications accepted is at www.cscs.uk.com/aqp. People with these qualifications will be eligible to hold a CSCS Academically Qualified Person (AQP) yellow/white card. The aim here is to provide a stepping stone into the scheme for graduates and holders of higher academic qualifications while they gain vocational qualifications or membership of a recognised professional body such as CIAT.

Becoming smarter

If you have gained a CSCS card since January 2010 you will have noticed that they contain smart chips. This technology was added for several reasons, all of which can benefit CIAT members.

Firstly we were aware that the number of fake CSCS cards in circulation was increasing. This had the potential to put them and others working on a construction site at risk because it would be assumed falsely that they had demonstrated their competence in order to gain a CSCS card. Adding smart technology to CSCS cards means that they are more difficult to copy, therefore significantly reducing the ability for fraudulent cards to be produced.

Secondly we encourage contractors and their clients to check the CSCS cards of everyone who is entering their sites. They need to verify not only that everyone on their site has a current and valid CSCS card, but that it is also appropriate for the job they do. This can be done simply by the site manager looking at workers' cards as they enter site however many have found this to be a time consuming process and is likely to miss the increasing numbers of fake cards that are seen on sites as work levels start to increase. With smart technology cards can be swiped using an enabled Smartphone or tablet making it a quick, easy and foolproof process. This technology also brings other benefits. Using in-house or third party expertise, relatively straightforward IT development work can be undertaken so that CSCS cards can be used as a key to access other databases.

CSCS has also developed apps to record on-site information

There are many applications where the technology can be used but a typical example is the ability to access training records so that site managers have up to date information on the additional training a worker has received. They can also be linked to other systems, for example access control, so that contractors can determine the criteria relevant to allow workers to go through site gates and other safety critical areas.

CSCS has also developed a number of Apps designed to record on-site information. For example they can be used to check the validity of CSCS cards, record time and attendance and capture training attendance records including toolbox talks and inductions. They can be used by virtually all NFC enabled Android smartphones or tablets and can be downloaded free of charge from GooglePlay.

We strongly believe that these changes are strengthening the scheme and reinforcing its credentials as the most appropriate and suitable way for people who work in construction and the built environment to demonstrate their suitability to carry out the work for which they are employed.

For more information please visit the 'Benefits of membership' section at www.ciat.org.uk

New Code of Conduct

At the AGM in November 2013 delegates voted to amend the Code of Conduct. Changes were made to a number of Clauses. The new Code of Conduct becomes effective on 1 May 2014 and to assist members in familiarising themselves with the changes, the new Code is reproduced below:

Clause 1: Professional Conduct

The members shall at all times:

a) act with integrity so as to uphold the standing and reputation of the Institute;

b) act faithfully and honourably in their professional responsibilities;

c) rely only on merit or fair competition to secure commissions and appointments;

d) not seek directly or indirectly to injure the professional reputation of another;

e) not knowingly misrepresent the views of the Institute;

f) not knowingly misrepresent their professional qualification;

g) describe themselves factually and/or in good faith.

Clause 2: Descriptors

a) Only Chartered Members may use the suffix MCIAT and describe themselves as Chartered Architectural Technologists, unless:

i) the Board approves either generally or specifically the use of any other description: or

ii) they possess other qualifications or perform other functions which allow the use of other descriptions.

b) Only those members awarded the suffix TCIAT may describe themselves as professionally qualified Architectural Technicians, unless:

i) the Board approves either generally or specifically the use of any other description; or

ii) they possess other qualifications or perform other functions which allow the use of other descriptions.

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.

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

i) obtain and maintain formal registration of their practice with the Institute; and

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

Clause 4: Professional Indemnity Insurance

Chartered Members or profile candidates who:

a) provide services directly to a client shall obtain and maintain adequate professional indemnity insurance;

b) are principals of a practice providing services directly to a client shall ensure that adequate professional indemnity insurance is obtained and maintained by that practice;

c) were principals but who have ceased to provide services directly to clients shall take all reasonable steps to either:

i) ensure that adequate run off professional indemnity insurance cover is effected; or

ii) discharge their duty whilst protecting the interest of their client;

d) are or were principals shall on request by the Institute provide the necessary evidence to demonstrate compliance with clauses 4a)-4c) above.

Clause 5: Offering and/or Providing Services Directly to a Client

1) Only Chartered Members may advertise their membership of the Institute as a professional qualification to secure commissions directly from a client.

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

a) before commencing work on any commission, endeavour to ensure that their terms of engagement have been given in writing to the client;

b) satisfy themselves that those terms have been accepted;

c) endeavour to ensure that the services offered and/or provided by their practice are appropriate to their client's requirements;

d) endeavour to ensure that the client's existing professional advisors (if any) have been consulted and endeavour to ensure that all responsibilities to those persons have been appropriately discharged;

e) not misrepresent the services available by their practice; and

f) decline to offer and/or provide a service to their clients if they knowingly lack adequate resources or if appropriate, advise or recommend the necessity of assistance from a suitably qualified professional.

Clause 6: Conflicts of Interest

a) Chartered Members or profile candidates offering and/or providing services directly to a client shall take reasonable precautions to ensure that no conflict of interest arises between their clients and themselves.

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

c) Any members perceiving a potential conflict of interest shall report that conflict in writing to either their clients or employer as appropriate at the earliest opportunity.

Clause 7: Continuing Professional Development

The members (excluding student members) shall:

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

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

Clause 8: Breaches of this Code

The members shall:

a) report to the Institute any alleged breaches of this Code by themselves of which they become aware;

b) not at any time seek to dissuade, penalise or unreasonably discourage any person from bringing or pursuing a complaint against a member; and

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.

Clause 9: Bankruptcy and Insolvency

A member shall report to the Institute within 28 days, 35 days if resident overseas, if they are:

a) made the subject of an order of court disqualifying them from acting as a company director; or

b) made the subject of a bankruptcy order; or

c) a director of a company which is wound up (other than for amalgamation or reconstruction purposes).

Clause 10: Cessation of Membership

Immediately upon ceasing to be members of the Institute, the members shall:

a) cease referring to themselves as a member of the Institute;

b) return their certificates of membership and membership card to the Institute; and

c) take all reasonable steps to prevent third parties describing them as members.

Conduct

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

GC/020198/F3539 – Mr Richard Smith (profile candidate)

Mr Smith was found in breach of Clause 1a) and Clause 4b) from the Code of Conduct effective 1 May 2011:

Clause 1: Professional Conduct

The members shall at all times:
a) act with integrity so as to uphold the standing and reputation of the Institute.

Clause 4: Advertising

b) Profile candidates may not make reference to their membership of the Institute in advertisements, other promotional activity or to their clients or associated third parties.

Disciplinary action
In accordance with the Conduct and Disciplinary Procedures Schedule 1, Item 17 (c), Mr Smith was suspended for a period of one year in respect of each breach and each period of suspension will run concurrently. Therefore, the total period of suspension will be for one year.

RIBA CPD events programme

Members are reminded that RIBA has a programme of CPD events throughout 2014, to which they are cordially invited. The programme consists of structured seminars in locations across England. The events are supported by CIAT and attendance will go towards fulfilling members' CPD requirements.

Events can be paid for individually, or a special club ticket is available which provides entry for all 10 seminars. CIAT members are offered the discounted rate of £370 plus VAT.

Members in Wales can benefit from a separate programme; for details please contact the Royal Society of Architects in Wales on +44 (0) 292 022 8987 or email rsaw@riba.org.

For more information please visit www.architecture.com or telephone +44 (0)20 7580 5533.

Elections for CIAT honorary officer positions 2014

The following honorary positions are open for election by secret ballot at the Council Meeting to be held on 6 September 2014:

- President Elect
- Honorary Treasurer
- Vice-President Technical

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 2014 AGM, to be held in Nottingham on 29 November 2014.

Following approval by Council in September 2014, the President Elect will become President from the close of business at the 2015 AGM.

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.

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 and makes recommendations regarding finances to the Executive Board and Council.

Vice-President Technical
The Vice-President Technical chairs the Taskforces which address the technical issues relevant to the Institute, which ensure the maintenance and improvement of standards within the built environment. This embraces current issues and the Institute's Awards.

Guidelines
Nominations must be received by the returning office no later than 10 April 2014. Any Chartered Member is eligible to propose a candidate. Nominations must have the prior consent of the nominee.

Any Chartered Member is eligible to stand. The returning officer is the Chief Executive, Francesca Berriman MBE, who will:

- Invite the nominees formally to accept or reject the nomination, and to prepare a manifesto for publication in *AT* magazine.
- 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 that item of business.

For further information on what the posts will involve, please contact CIAT. Nominated candidates will be profiled in the summer edition of *AT* published 16 June 2014. Please note that both positions include automatic election to Council and Executive Board.

The CIAT weekly Ebulletin

All members with email addresses receive the CIAT weekly Ebulletin featuring the latest Institute and industry news.

Non-members can subscribe too – email info@ciat.org.uk with your details.

NEW MEMBERS

We are delighted to congratulate the following individuals as Chartered Members:

023763	Luke Adin	East Midlands
018671	Steven Anderson	Scotland West
013902	Ajmal Ashraf	Yorkshire
022972	Hannah Bird	Western
021633	David Bird	East Midlands
012199	Martin Blake	Wessex
014462	Mark Bristow	Channel Islands
025231	Richie Butler	Rep of Ireland
019008	Kevin Campbell	Overseas
011441	Michael Carey	West Midlands
023759	James Cliffe	East Midlands
028313	Graham Connor	Scotland East
018525	Charles Cooke	N Ireland
026032	Martin Cregeen	Yorkshire
016525	James Cromarty	Northern
009069	Neil Cucksey	East Midlands
013150	Colin Dalton	N Ireland
017802	Carlos De Oliveira	South East
024066	Ryan Doran	West Midlands
021809	Kevin Dorrington	Wales
019170	Donald Duncan	Northern
028136	Karl Elliott	South East
023758	Richard Else	East Midlands
018795	Damian Ferguson	N Ireland
024691	James Forbes	Central
015670	Martin Fox	Yorkshire
027871	Nellie Geldenhuys	Gr London
012842	Simon Gibson	N Ireland
023518	Matthew Gray	North West
024189	Phil Grover	Central
012279	Richard Hague	Yorkshire
019634	Christopher Hall	E Midlands
020813	Wayne Hall	N Ireland
025904	Christopher Hamlett	North West
022072	Jonathan Hargreaves	North West
028109	Joe Healey	Gr London
020670	Paul Heron	N Ireland
015856	Neil Homer	West Midlands
024232	Jonathan Hunter	North West
024129	John Hutchinson	Central
020318	Nicolas Jauncey	Yorkshire
019871	Ben Jurin	North West
025934	Seamus Kelly	N Ireland
020683	Richard Keys	N Ireland
025708	Graham Lancaster	Yorkshire
015062	Alasdair MacMillan	Scotland West
020860	Paul Marsh	North West
027230	Leslie Martin	Central
025105	Ross McArthur	Gr London
027941	Gerard McPeake	N Ireland
018428	Alistair Milne	South East
017665	Jordan Mitchell	N Ireland
020599	Barry Mullen	N Ireland
022173	Noel Murphy	Rep of Ireland
018360	Christopher Nash	South East
023524	Gavin Nash	East Midlands
013101	Richard New	South East
026905	Fergus Nugent	Rep of Ireland
025482	Patrick O'Donoghue	Central
027040	Raymond O'Reilly	Rep of Ireland
012827	Glyn Owen	N Ireland
017250	George Papageorgiou	South East
018259	Christopher Pickard	Yorkshire
022333	Andy Pickup	Yorkshire
024277	Alan Prior	South East
015069	Timothy Quin	N Ireland
020603	Joseph Reilly	N Ireland
021870	Jamie Renton	Scotland East
012158	Carl Roberts	South East
014916	Ian Sherlock	Gr London
024624	Keith Sibthorpe	Wales
027063	Victor Smith	West Midlands
016639	Julie Staunton	South East
028148	Alex Sykes	Yorkshire
023020	Jeremy Thurlby	East Anglia
025757	Emmett Tolan	Rep of Ireland
018304	Ian Tullett	South East
017831	Benjamin Tunbridge	Central
024919	Jose Tweedie	West Midlands
027110	Ann Vanner	North West
033910	William Veitch	Scotland West
024453	Tom Williams	East Midlands
014221	James Winter	Yorkshire
020578	Stephanie Wynn	South East

Congratulations to the following who have re-entered as Chartered Members:

010628	Carl Lockwood	East Anglia
011670	Philip Parr	Yorkshire
009622	John Russell	Scotland West

Region and Centre News

Yorkshire Region 02

24 April. Yorkshire Region members are invited to a CPD event and factory visit at the production facility for the Kingspan TEK Building system, at Sherburn Enterprise Park, Enterprise Way, Sherburn-in-Elmet, North Yorkshire LS25 6NA, from 6.30 to 8.30pm.

20 May. An event will be held on ABM and CPD Environmental strategies and thermal imaging at the Half Moon, Elloughton, East Riding, HU15 1HU at 6.30pm for 7.00pm. Come early for supper of pie, chips and peas.

To book for either event please contact the Regional CPD Officer, Mark Kennett PPCIAT MCIAT.
Email markk@wkpartnership.co.uk

West Midlands Region 05

James Roberts receives his Award certificate.

The picture shows Doug Fewkes MCIAT presenting the certificate for the CIAT Outstanding Graduating Student Award to James Roberts of Coventry University. Doug said 'James is an extraordinarily courageous and talented individual. The disability he suffered as a result of a severe illness at the end of his first year has not prevented him achieving excellence in all he has set his mind to do, as well as taking on additional challenges such as representing the university at the CIAT student forum. In addition to his university studies he has represented Great Britain in the wheelchair rugby team playing in the European championships this summer. It is without exaggeration to that this year's award has gone to a uniquely talented individual'.

Republic of Ireland Centre 2

In 2014, the Department of Arts, Heritage and the *Gaeltacht* are making available a fund of €5 million to local authorities to assist owners of protected structures with works safeguarding these structures.

Local Authorities in Ireland are administering this fund, 'Built Heritage Jobs Leverage Scheme 2014; in respect of buildings contained on the relevant Authorities Record of Protected Structures'.

The minimum award for funding under the Scheme will be €2,500 up to a maximum of €15,000. The successful applicant will be required to fully match the funding required. For more information visit www.ahg.gov.ie/

BLUEPRINT

SUBSCRIBE TODAY

AND SAVE 35%

—

Celebrating 30 years of the finest architecture and design coverage, Blueprint has evolved into a premium 260-page magazine

—

Get your 35% discount as a CIAT member. Quote BLUCIA13. Subscribe online at www.designcurial.com OR contact us
E: cs@progressivemediagroup.com
T: +44 (0) 845 0739 607

AN IDEAS & INSPIRATION
EVENT ON A **GRAND SCALE**

GRAND DESIGNS LIVE LONDON

Proudly sponsored by Anglian Home improvements

3 – 11 MAY • EXCEL

3 – 11 MAY 2014 • ExCeL • LONDON

CLAIM YOUR FREE TICKET*

QUOTE 'CIAT14'

CALL OR BOOK ONLINE

0844 854 1348

www.granddesignslive.com

*Offer valid on standard admission tickets only, offer ends 30/4/14, tickets must be booked in advance, max 2 tickets per household, non transferable, all tickets will be checked and verified on entry, print at home tickets only, tickets valid on weekdays only (6-9 May only), subject to limited availability, tickets allocated on a first come, first served basis. Organised by Media 10 Ltd. Grand Designs is a trademark of FremantleMedia Limited. Licensed by FremantleMedia Limited. www.fremantlemedia.com

Miele RENAULT KIDS GO FREE

A Media 10 Event