



SPECIAL EDITION

Architectural Technology Journal

FROM THE CHARTERED INSTITUTE OF ARCHITECTURAL TECHNOLOGISTS
£5.00 - ISSN 1361-326X - ISSUE #127 - AUTUMN 2018

FINALISTS 2018

DAVID COMISKEY MCIAT
CLAIRE HARLOW MCIAT
DAN ROSSITER MCIAT

HISTORIC ENVIRONMENT SCOTLAND
REIACH & HALL ARCHITECTS
LSI ARCHITECTS
MABER ARCHITECTS
NP ARCHITECTS
PTAL ARCHITECTS
SRA ARCHITECTS

ARCHIWILDISH LTD
JOHN COWARD ARCHITECTS LTD
STUART DAVIDSON ARCHITECTURE
FRANCES AND ASSOCIATES
PIP
ROUNDHOUSE ARCHITECTURE LTD

SCOTT ANDREWS
PASCAL ARQUIER
ELIZABETE JAKOBSONE
WATSON JOSEPH
KAROLINA RZEPKA
TRISTAN SALKELD

GERARD FAY
SIMONE GRAY
PETER JENKINS
DECLAN MORAN
DARREN NELSON
ERIN O'KANE



This time last year I said that the AT Awards will snowball, and they certainly have! What an outstanding array of entries and finalists that we have had this year, all demonstrating at their very core pure Architectural Technology through form, function and performance. Our discipline is something that I am immensely proud of and hold close to my heart — it is all about how we can make a difference to a life, a community or a landscape. With sustainable, forward thinking and innovative designs and solutions, our discipline reigns supreme and our AT Awards celebrate this uniqueness.

What I particularly like is how we not only celebrate the practise of Architectural Technology through the Award for Excellence but also recognise the incredible achievement of our students. This year is ultra-special, with the inaugural Chartered Architectural Technologist of the Year Award which allows the AT Awards to acknowledge the work of our Chartered Members, regardless how they are working within the discipline.

I'm excited for 2019 and what we will be rewarding then.

For those who follow and read my Alex's Insight series, this will be returning in the winter issue.

A handwritten signature in black ink that reads "Alexande Naraian".

Alex Naraian PCIAT
President



FINALISTS 2018

P.04

**CHARTERED ARCHITECTURAL
TECHNOLOGIST OF THE
YEAR AWARD**

DAVID COMISKEY MCIAT
CLAIRE HARLOW MCIAT
DAN ROSSITER MCIAT

P.08

**AWARD FOR EXCELLENCE IN
ARCHITECTURAL TECHNOLOGY**

HISTORIC ENVIRONMENT SCOTLAND
REIACH & HALL ARCHITECTS
LSI ARCHITECTS
MABER ARCHITECTS
NP ARCHITECTS
PTAL ARCHITECTS
SRA ARCHITECTS

P.16

**THE ALAN KING AWARD FOR
EXCELLENCE IN ARCHITECTURAL
TECHNOLOGY**

ARCHIWILDISH LTD
JOHN COWARD ARCHITECTS LTD
STUART DAVIDSON ARCHITECTURE
FRANCES AND ASSOCIATES
PIP
ROUNDHOUSE ARCHITECTURE LTD

P.24

**STUDENT AWARD FOR
EXCELLENCE IN ARCHITECTURAL
TECHNOLOGY (PROJECT)**

SCOTT ANDREWS
PASCAL ARQUIER
ELIZABETE JAKOBSONE
WATSON JOSEPH
KAROLINA RZEPKA
TRISTAN SALKELD

P.30

**STUDENT AWARD FOR
EXCELLENCE IN ARCHITECTURAL
TECHNOLOGY (REPORT)**

GERARD FAY
SIMONE GRAY
PETER JENKINS
DECLAN MORAN
DARREN NELSON
ERIN O'KANE

Thank you to all our entrants

2019 AT Awards opening soon

Save the date:

September 2019, Village Underground

Sponsored by

futurebuild
05-07 March 2019 / ExCel, London



McParland Finn Ltd
INSURANCE BROKERS

Xtratherm
More than insulation

ciat.org.uk/awards.html
#ATAwards



Editor

Adam Endacott
 editor@ciat.org.uk
 +44(0)20 7278 2206

Advertising

Silvia Faggion
 advertising@ciat.org.uk
 +44(0)20 7278 2206

Published by

CIAT, 397 City Road,
 London, EC1V 1NH UK
 ciat.org.uk

Online

/Chartered Institute of
 Architectural Technologists
 @CIATechnologist
 /CIATechnologist
 /CIATechnologist
 /CIATechnologist

President

Alex Naraian PCIAT
 president@ciat.org.uk

Chief Executive

Francesca Berriman MBE HonDTech
 berriman@ciat.org.uk

Practice & Technical Director

Diane Dale
 diane@ciat.org.uk

**Education Director &
 International Director**

Tara Page
 tara@ciat.org.uk

Membership Director

James Banks
 james@ciat.org.uk

Printing

Optichrome

Design

Ascend Studio

Subscriptions

AT is free to all members of CIAT.
 Subscription rate for non-members
 is £24 (UK) and £28 (overseas) per
 annum (4 issues) or £5 per issue.

Publication of an article or inclusion
 of an advertisement does not
 necessarily imply that CIAT or any
 of its staff is in agreement with
 the views expressed or represents
 endorsement of products, materials
 or techniques. Nor does CIAT accept
 responsibility for errors or omissions.
 No material may be reproduced in
 whole or in part without the written
 permission of the publisher. All rights
 reserved. © 2018 CIAT.
 ISSN 1361-326X.



AT AWARDS

04 — 37



CHARTERED ARCHITECTURAL
 TECHNOLOGIST OF THE YEAR AWARD
 04 — Dan Rossiter MCIAT, Chartered
 Architectural Technologist



AWARD FOR EXCELLENCE IN
 ARCHITECTURAL TECHNOLOGY
 08 — The Engine Shed
 10 — Gresham's School Britten Building
 12 — AgriSTEM



THE ALAN KING AWARD FOR EXCELLENCE
 IN ARCHITECTURAL TECHNOLOGY
 16 — Old Gale Farm, Ambleside
 18 — Alterations and
 Extension to The Grange
 20 — Stead Street, Eckington



STUDENT AWARD FOR EXCELLENCE IN
 ARCHITECTURAL TECHNOLOGY (PROJECT)
 24 — School of Architectural Technology
 26 — The David Lloyd Lymington
 Sports Village



STUDENT AWARD FOR EXCELLENCE IN
 ARCHITECTURAL TECHNOLOGY (REPORT)
 30 — In Situ Reinforcement of Timber
 Beams in a Conservation Setting
 32 — An Analysis of the
 Necessities for Inclusion
 34 — Mind the (Performance) Gap

MEMBERSHIP

40 — 49



40 — Addressing Building Failures
 44 — Woman Architectural
 Technologist of the Year 2018
 47 — Obituaries
 48 — Membership News
 49 — AT CPD Register Directory

Winner
2018

THE CHARTERED ARCHITECTURAL
TECHNOLOGIST OF THE YEAR

Dan Rossiter MCIAT

Words by Keith Snook HonMCIAT

Dan is young, has achieved much and will achieve much more. He is demonstrably a credit to CIAT with much of what he does open to wide and critical scrutiny.

He is a recognised industry professional, commanding respect from Chief Executive's and industry leaders.

- His prominence creates a valuable bridge with other organisations.
- Locally, he Chairs the Wales Region and helped in its revival.
- Nationally, he provides BIM-related services at BRE, where he has proven himself to Building Research Establishment's (BRE) Chief Executive and with professionals from many institutions.
- Internationally, as a member of a BSI Standards committee, he is a European and International Standards convenor on BIM and construction information. He has demonstrated an ability to negotiate internationally.

Dan has always been fascinated by how things work and was drawn to Architectural Technology to help him understand how the world is put together. A key aptitude of Dan's is dedication. Dan spent much of his early years as a competitive swimmer; conditioning himself to focus and engage with unrelenting energy. These same traits are apparent in how Dan has tackled his professional development.

He is immensely proud of being a Chartered Architectural Technologist and wears his MCIAT with pride



Early in his career, Dan quickly recognised the importance and role of standards, regulations and legislation, seeing them as a framework within which to be creative and innovative rather than necessary as boundaries to constrain such things. As part of his architectural role at City of Cardiff Council, Dan often produced designs that relied on the subtlety available within these documents. For example, when working on the refurbishment of Fairwater Library, he worked with local building control to design-out the existing stepped entrance so removing the need for any form of step or ramp. He did so through an innovative use of gradients to ensure that the approach was no steeper than 1:40 and so considered as 'level'. Applying an understanding and mastery of a range of different technologies and their interactions he took challenging design criteria, such as applying passivhaus to a primary school and created design details to achieve the required performance, resulting in a design that passed PHPP.

Having become increasingly interested in digital processes, Dan explored building information modelling (BIM) at Cardiff and also became interested in the 'building scientist' roles within BRE.

Did Dan leave the field of design and delivery of built assets too young? Conventional wisdom would probably say 'yes' but Dan is far from conventional and his contribution through his role at BRE, his personal energy and such devices as his award-winning Blog (BIMblog. house) creates a multiplier effect to the benefit of UK construction possibly at a loss to some individual project clients that might have been.

As the Senior BIM Communicator at BRE, Dan is responsible for:

- Writing training courses (Dan is a co-author of BRE Academy's BIM training, a world-leading provider of BIM educational content).
- Auditing of both individuals and businesses in their BIM capabilities, having travelled as far as New Zealand to audit businesses against the BRE Global scheme requirements.
- Research into the use of BIM to support a myriad of initiatives including buildings as a material bank (BAMB) to support the circular economy, BIM energy efficient training (BIMEET) and BIM for vocational educational training (BIM4VET) to support upskilling industry.
- Writing technical documentation to support the understand and industry implementation of BIM.
- Public facing activities such as delivering presentations, speaking at conferences and producing informative articles on BIM.



This year, Dan has also become one of the youngest ISO and CEN Standards committee convenors, managing work on terminology for construction information and BIM. This role perfectly aligns with his ability to present, explain himself clearly; using plain and interpretable language.

Dan is heavily involved in Standards development as an ISO and CEN convenor on terminology, and has in short time has achieved a unification of the ISO and CEN work programmes and a high degree of unification of the detailed work in part facilitated by the introduction of a digital platform. Dan has earned the respect of his peers in the international standards community and is well-known in the industry for his no-nonsense practical approach to Standard implementation, often cited alongside his self-stated *raison d'être* 'simplicity through standardisation'.

In addition to his own work, Dan is keen to support others. As an active member of the UK BIM Alliance, Dan has been working to improve their ability to communicate with industry. An output of this work has been the producing of 'The Constructing Plain Language Pledge' (formally the construction ABCs). A pledge to use inclusive jargon-free language that any professional can commit themselves to. This work has been met with positive feedback and is being disseminated within the UK BIM Alliance and further afield.

Through his work at BRE delivering BIM services and sitting on Standards committees, Dan is introducing the profession of Architectural Technologist to many. Through his energy and professionalism, Architectural Technologists are being recognised globally.

'Professional' is a term much abused in modern society but in terms of CIAT, as well as the general use of the term, the traditional values of professionalism apply through the Code of Conduct. Dan demonstrably meets and supports all the values in the Code. He is immensely proud of being a Chartered Architectural Technologist and wears his MCIAT with pride exhibiting all the qualities one would expect of a Chartered professional whether in his working role his representational role or in his private life supporting his causes and interests.

Time helps but it is not the only factor in gaining balanced experience and expertise and going on to use it to benefit others. Probably Dan's most outstanding quality is the rate of his achievement. He is very self-aware of that and at the same time incredibly respectful to those from whom he has learned and by whom he has been inspired. He either already has or shortly will go on to surpass pretty much all of these people and this path should be encouraged by CIAT. ■



“Excellent, reliable,
professional service”

Tom Green | Greenward Associates

“Having had a two year
break, I now see how good
you are. All my previous
insurers wanted was my
premium.”

Chris Workman | Chris Workman & Co

Providing competitive,
professional insurance
solutions to CIAT members
for over 20 years.

MFL McParland Finn Ltd
INSURANCE BROKERS



0161 233 4497 | info@ciat-insurance.co.uk | www.ciat-insurance.co.uk

CIAT Insurance Services is a division of McParland Finn Ltd. McParland Finn Ltd is authorised and regulated by the Financial Conduct Authority. Registered in England No. 2817700. Registered Office: Barlow House, Minshull Street, Manchester, M1 3DZ

Supporting CIAT as its long-standing insurance partner

McParland Finn Ltd is delighted to support the AT Awards as the established insurance partner of this prestigious and historical institute.

Our exclusive professional indemnity insurance scheme has been endorsed by the CIAT for over 20 years and we are the preferred providers of insurance services to chartered members of the CIAT and their practices.

As well as being regular faces at events where chartered CIAT members can meet and discuss their insurance requirements with us, we have significantly developed our member services over the time MFL has been proudly associated with the CIAT.

It's resulted in a depth of knowledge and

understanding of the profession and we can confidently say that our tailor made PII facility continues to be one of the best available in the market.

A seamless claims service is provided by Barbican Protect Legal Services; a team of highly specialist professional indemnity solicitors will ensure that the policyholder receives the right advice and protection from day one of a claim notification. Often they are able to deal effectively with the claimant's initial complaint so that the threat of further legal action is resolved without delay or significant financial impact.

Plus our range of comprehensive structural warranty products are a viable and pertinent solution for chartered members of the CIAT and their clients involved in the design and

development of both new build and conversion projects.

We're keen to make further advancements to the services we've carefully nurtured over the years and look forward to seeing our relationship with the CIAT grow, keeping chartered members' insurance needs at the forefront of our ethos.



Kevin J. McParland ACII,
Chairman

Our services to CIAT members includes...

Professional Indemnity Insurance

Professional Indemnity Insurance is often one of the largest single items of expenditure a business can incur.

Careful selection of your professional indemnity insurance broker is therefore vital.

We believe that a highly personalised service and absolute professionalism is the key to providing fully for all your professional indemnity needs.

Employer's Liability

Part of our Home, Small and Commercial Office insurance facilities' standard covers, Employers' Liability is legal liability cover for death or bodily injury to employees whilst working for you.

Public and Products Liability

Providing protection for your legal liability to third parties should you injure them or damage their property, this is another standard feature of our Public and Products Liability cover.

Office Insurance

Office insurance, competitively priced and specifically designed with the 'professional' in mind.

Our range of office insurance products provide cover for both small and large businesses, including those professionals working from home.

Comprehensive office insurance will help keep your business on track and protect it.

Structural Warranty

Working in partnership with Premier Guarantee, CIAT Insurance Services can offer a range of structural warranty insurance products to CIAT Members and their clients involved in the design and development of both new build and conversion projects.

Utilising the biggest building control service in England and Wales, our partnership with Premier Guarantee can provide you with a single source to obtain Building Regulations 'plans approval' for developments anywhere in the country.

T: 0161 233 4497 | E: info@ciat-insurance.co.uk



Winner
2018

AWARD FOR EXCELLENCE IN
ARCHITECTURAL TECHNOLOGY

The Engine Shed

Words by Historic Environment Scotland/Reiach & Hall Architects

The Engine Shed is a bit of a mystery. It was built sometime between 1896 and 1913, first appearing on the 1913 Ordnance Survey. Unfortunately, as a military building most of its history has been destroyed or lost. Stirling Country Council were keen to see the Engine Shed brought back to life and offering something to local communities and beyond. In 2015, they sold it to Historic Environment Scotland for the bargain price of one pound.

The materials we used in the restoration of the Engine Shed were selected on the basis of three key criteria: sustainability, promoting traditional skills and materials and supporting locally available materials and manufacturers.

The Engine shed is a simple yet instantly recognisable building. It is a single storey building,

approximately 11m high, 14m wide and 41m long, with sandstone walls, a slate roof and a clerestory lantern that runs the length of the building.

The high level clerestory and the raised roof and uninterrupted metal windows give the Engine Shed its iconic shape and character, and we quickly developed a conservation strategy for the clerestory at the beginning of the renovation project. Hand cleaning took five hours per window, as they were cleaned to a SA2.5 standard by a specialist contractor.

At the Engine Shed we have managed to balance innovation and traditional materials to conserve the character of an old military building whilst improving its environmental impact.

Thanks to analysis and our own analysis in house, we discovered that the stone the Engine Shed was built from came from two different quarries in North Lanarkshire. However, all the quarries in the area are now closed, which made it quite difficult to find suitable replacement stone.

Large sections of timber were needed for the frames of the two wings of our building. Glulam timber from European Larch was considered the best choice, manufactured from smaller, commercially available timber sections. 100% of the larch glulam (about 50.03m³) was 100% PEFC certified. All the timber elements of our project were sourced from well managed forests and/or plantations.



Glulam timber was an energy efficient choice too, as achieving the same structural performance as the glulam in either concrete or steel would have significantly increased the energy cost. Glulam timber is also much lighter than other framing techniques, and we were able to make savings in the foundations, construction and transport of the material.

The base of the columns is secured with 6no internally resin threaded rods thus eliminating the visual aesthetic of fixings at low level. At high level the frames are connected with industrial galvanized bolts. There are a total of 95 Glulam members on the Engine Shed and there are 1640 bolts.

The building was designed to be responsive and adaptable, both now and in the future, and the use of a timber portal frame provided us with a very flexible building. No internal walls are load bearing and we are able to divide spaces within the building to meet all the different needs of our visitors.

By leaving the interior brickwork exposed inside the Engine Shed itself, we are respecting the skill and materials that went into its construction. However, the gables have both been lined with a clay board, a composite material consisting of clay and lightweight aggregates including reed matting, straw, hemp and jute fabric, whilst the laboratory walls were finished with clay paint. A base layer of clay plaster and a

finishing coat of pigmented clay plaster skim were applied to the clay board.

The new sheds are insulated with 300mm of sheep's wool insulation packed between the timber JJI Wall and roof structure making the new sheds thermally efficient with a U-Value of 0.11

Our 'flowcrete' finished floor is chemical resistant and antimicrobial (so controls most bacteria and fungi which come into contact with floor).

The ceilings in our wings meanwhile are made of heraboard, a sustainable material made mostly from wood, water and magnesite. The wood is sourced from sustainable Austrian forestry and the board is recyclable and has a lifespan of up to 80 years. These boards have an extremely low impact on the environment, and their properties complement our clay board and plaster perfectly. By absorbing and reducing background noise, and helping to regulate the humidity and climate of a room, the materials in our ceilings increase visitor wellbeing and improve concentration, efficiency and performance.

We have taken an old, neglected building and turned it into a modern, healthy, comfortable environment for people to come and learn about their built heritage. ■

Judge's comments

An interesting approach to this historically significant building. Excellent conservation practice is demonstrated through the use of traditional materials, technology and sustainability to demonstrate the adaption and reuse of a historic building for a new life. Careful consideration of the existing structure with a non-excessive insertion creates an interesting and contemporary space.

The Engine Shed demonstrates how new and traditional materials create not just an aesthetically pleasing environment to champion the crafts and skills required to complete this project but to showcase the applications of technical excellence in Architectural Technology. With sustainability at the heart of the design, the judges were unanimous in their decision that the project is the worthy winner of the 2018 Award for Excellence in Architectural Technology.



Highly
Commended
2018

 AWARD FOR EXCELLENCE IN
ARCHITECTURAL TECHNOLOGY

Gresham's School Britten Building



Words by LSI Architects

Gresham's School is a co-educational school accommodating day pupils and boarders from across the UK and overseas.

The school required a building that both satisfied the need to strengthen the sixth form provision and provide students with the best facilities for the study of music. The building also needed to create a real sense of place, ideally enhancing that of its neighbouring buildings. It was a primary objective that the building should have radically low running costs and the highest comfort levels.

The two-storey Gresham's School Britten Building development includes classrooms, music practice rooms, a recording studio, a 140 seat auditorium that will be used as a sixth form lecture theatre as well as performing space, cafeteria and social spaces for pupils.

The new building improves the visual connections through to the nearby Auden Theatre, whilst offering a new courtyard and processional route to the buildings from the south, via a brick colonnade. The massing and scale of the new building offers the school significant facilities whilst maintaining a close relationship to the form of the Auden Theatre and remaining subordinate in scale to the Memorial Chapel. This sensitivity to the surrounding context roots the building within the site,



allowing the demolition of the former music building to provide breathing space around the Chapel, reaffirming its status within this area of the site.

The construction utilised a steel frame with SFS infill which allowed for a speedy erection period along with the use of pioneering products, such as the Siniat Weather Defence exterior sheathing board, to create a weathertight building as soon as practically possible. This simple, yet effective, method of construction brings the complex internal fit out of the acoustic practice rooms out of the critical path and thus allowed the contractor to concentrate on the detail, to ensure the high quality of separation required between rooms.

Music plays a significant role in the life of many at the school, so it was important that the school provides students with the best facilities possible. To this end, each aspect of the rehearsal, practice and music rooms were to be designed to promote clear hearing.

A 'fabric first' approach has been adopted in the design to enhance the building's performance. Components, materials and construction detailing – that make up the building fabric – combine to minimise the energy requirements for the building to achieve lower running costs, reduced maintenance requirements and optimise lifecycle costs.

A highly competent and well considered solution to create an excellent learning environment for music



The building was modelled in TAS thermal modelling software to determine building performance and to evaluate the overheating potential of the teaching and other inhabited areas. This allowed the client to target their money at the most effective environmental strategy.

Through the use of a combination of physical models, a CAD model and visualisations, we were able to effectively communicate to the client and the team what could be achieved, giving them a clear idea of the environment that they would be receiving.

Subsequently, floor area has allocated to maximise teaching opportunities, whilst both the café area and concert area gives flexibility in use and a very high standard of accommodation.

3D CAD modelling (Graphisoft Archicad) and Sefaira were used to produce some benchmarking reports around the performance of the fabric of the building. Components, materials and construction detailing were identified and selected to help the school achieve its goals of lower running costs, reduced maintenance requirements and optimise lifecycle costs. This also informed the use of photo-voltaic panels and Air Source Heat Pumps (ASHP), through which it is anticipated that the building will perform significantly better than the government guidelines in terms of renewable energy sources.

The main materials for the buildings external cladding are mixed-red brick and timber, creating a contemporary feel that is also in keeping with the surroundings but also to ensure robustness.

Key interventions from the team of Architectural Technologists has contributed significantly towards the achieving of a high performing acoustic environment. The internal music practice rooms have been located in a manor to reduce flanking sound by lobbying the corridors. By locating more onerous rooms on the ground floor, such as the percussion room and recording studio, this reduces the impact of the structure upon the acoustic performance. Furthermore the 'box in box' construction method was adopted to ensure excellent acoustic separation and provide a quality performance space for the students.

The form is simple and restrained, giving honest representation of the internal functions. Materials selection is well considered and restrained. The design quality continues internally, with robust and high quality finishes. Services integration and acoustics have been achieved to a high standard. The music areas and classrooms function very well within a logical layout. ■

Judge's comments

A highly competent and well considered solution to create an excellent learning environment for music. The use of solid SFS infills within a lightweight steel framed building enabled the design team to erect the project within a highly constrained site and in an extremely tight timescale. Extensive pre-construction tests ensured that the construction team were able to assemble the fabric in a method that was proven to work.

Commended
2018

 AWARD FOR EXCELLENCE IN
ARCHITECTURAL TECHNOLOGY

AgriSTEM

Words by Maber Architects

The AgriSTEM Academy, involved the conversion of a derelict old granary building with water tower, at the heart of South Staffordshire College's Rodbaston Campus. This landmark building, whilst not listed, has significant architectural merit and our sensitive approach to renovation sought to respect its historic stature and retain the original character.



As the granary previously housed pigs and sheep, we took a conscious design decision to incorporate agricultural materials into the architecture. We selected hard wearing materials such as polished concrete. This provided a smooth level floor that allows equipment on wheels to be relocated with ease and is hard enough to cope with the outdoor work boots of students learning in an agricultural environment. We selected sustainably sourced oak for doors, frames, architrave and skirting. As these are not primed and painted they do not chip, become scuffed or show signs of ageing or require redecorating. With a little initial investment at the beginning, the life cycle costs benefit the college budget over time. The internal materials/colour palette were linked to those used externally, e.g. the Corten cladding used to the external fire escape staircase is reflected in the IPS/toilet cubicle laminate. We provided a visual reference to the building's original use, through 'head of grain' manifestations on glazed screens and windows.

The granary, having stood empty for many years, wasn't structurally safe for educational requirements. A steel frame had to be needled into the existing fabric – that meant removing the entire roof. By retaining the queen post roof trusses, and adding the steel in parallel, it avoided the steel dominating the exposed ceiling and preserved the building's original look and feel. A number of recessed brick arches on the ground and first floors we initially thought could be opened up to add windows for natural light within the space. These were in-fact dummy openings and not structural, so we had to work with the structural engineer to design bespoke curved supports. We rationalised the openings and windows to get additional light without adding pressure to the project costs.





Seeing swallows return the following spring to nest in the exposed eaves is satisfying



To accommodate a high number of bats observed in the area, we worked with the ecologist adding brick faced roosts and a bat loft. We avoided using a breathable membrane, as bats can get their claws trapped in the fibres, instead we used traditional roofing felt.

The College drive for sustainability and renewable energy. We always support this ethos and encompass it in design where possible. An energy dashboard was incorporated to display the development's energy use to benchmark against good practice. The granary was thermally upgraded by using a consistent insulated fabric that sealed the roof and walls. Foiled tape joints allow for a low target air leakage rate. Window and door reveals had design consideration whilst maintaining conservation style window frames. We wanted to maintain the thin lines and proportions of the existing single glazed metal windows. After researching and obtaining samples, we found a manufacturer that produced a super thin-line profile that gave us the thermal performance and conservation style window we wanted. The existing floor was removed to install the new steel foundations providing an ideal opportunity to insulate and add waterproofing to omit any damp in the existing building.

Meeting the necessary acoustic standards was a challenge. Existing ground floor ceiling clearance was restricted, requiring careful design coordination of acoustic rafts above mechanical ductwork and equipment. We obtained the necessary requirements, whilst exposed components became a feature that could be serviced, maintained and replaced without disturbing the acoustic panels in the future. At first floor we wanted to retain the original sloped soffit – exposed as a feature. Therefore, the acoustic treatment needed to be

thoughtfully integrated within the ceiling system. With large areas of glazing and exposed brickwork we made a conscious decision not to use acoustic wall panels and baffles that would obscure the original fabric and historic design. By using an innovative perforated timber panelling, that lined the entire underside of the sloped roof, we achieved the acoustic performance.

The client's brief was to design and deliver an outstanding award-winning building they could be proud of. The state of the art facility houses specialist equipment like the mechatronics production line that replicates equipment and systems found in industry, such as Jaguar, Land Rover and local food manufacturers. This high-end equipment contrasts with the traditional aspect of the building fabric and the pair complement each other.

Seeing swallows return the following spring to nest in the exposed eaves is satisfying, knowing the building has been transformed sensitively, respecting its environment and the College can proudly promote their specialist courses and unique facility. ■

Judge's comments

The transformation of this derelict building, together with the extensive ecological research carried out, brought together complimentary disciplines in this innovative project. Simple, but effective detailing together with a well-considered internal layout and a well-insulated fabric has produced a finished project which would compare well with a building construction to today's standards. A key factor in the project was following the client's brief to create a building the college is proud of.

CavityTherm®

It's not just about U-Values

CavityTherm wall insulation delivers not only passive U-Values but also the detailing to combat thermal bridging heat loss.

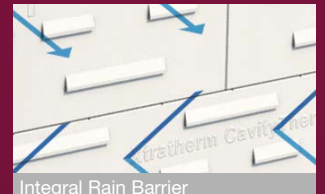
A continuous wall insulation system delivering ultimate thermal performance with the added assurance of inbuilt protection from wind driven rain.



For more information
contact our Technical Team

T 0371 222 1055
www.xtratherm.com

Accessories:



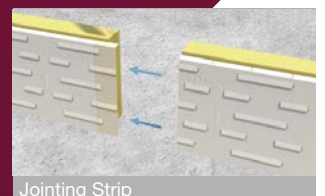
Integral Rain Barrier



Preformed Corner Panels



Service Void Panels



Jointing Strip



Hockey Stick Insulation



Cavity Tray Channel

Xtratherm®

More than insulation



Proud Sponsors
of CIAT AT Awards



applecore designs

-  020 7734 1837
-  0121 447 7747
-  applecoredesigns.co.uk
-  [applecore_d](https://twitter.com/applecore_d)



**VR FOR ARCHITECTURE:
A POWERFUL WAY TO COMMUNICATE DESIGN INTENT**

For VR instructions and to download AT Awards finalists' projects

www.aplcr.uk/atawards

Winner
2018

THE ALAN KING AWARD FOR EXCELLENCE
IN ARCHITECTURAL TECHNOLOGY

Old Gale Farm, Ambleside

Words by John Coward Architects Ltd

Old Gale Farm is a c.17th century farmhouse, now dwelling, located on a steeply sloping site with a long thin garden to the rear. The property is situated in the market town of Ambleside, Cumbria; an area which has recently received UNESCO world heritage status. The three-bedroom cottage is traditionally constructed with local Westmorland Green slate roof covering, roughcast rendered rubble stone walls and slate flagged earthen ground floor.

Our brief was to thoroughly refurbish and modernise the property to create a comfortable indoor environment whilst retaining and being sympathetic to the character and spirit of the cottage. The stunning views from the upper end of the garden were to be revealed and made available in all weathers.

The principal thermal elements of roof, walls and ground floor were thermally upgraded whilst retaining breathability and moisture management. Of these elements, the walls and ground floor were the most challenging.

An insulated lime plaster system was used for the wall finish at a nominal thickness of 40mm. The plaster being lime based is breathable, tolerant of moisture movement (both from penetrating/rising damp and as a buffer to vapour from the internal environment) and included sustainable cork insulation. The plaster followed the characteristic undulations of the wall and therefore character was maintained. The insulation value, although relatively modest on paper, is fully achieved as the material is in contact with the exterior wall and continuous with no gaps. With a more sympathetic insulation value to the traditional wall construction, we were confident that there would be no adverse effect on the dew point in the wall leading to future issues with interstitial condensation.

For the ground floor, we avoided the use of a concrete slab and DPM that may introduce a rising damp problem at the walls and instead used a limecrete floor slab system incorporating a recycled glass insulated sub-base. The limecrete slab is breathable, does not significantly change moisture movement, allowed re-laying of the existing slate flags (lime mortar bedded and pointed) and had the added advantage of less formation depth than a modern concrete slab/insulation solution, which in turn reduced the need for underpinning of the existing walls. Underfloor heating was incorporated within the slab for comfortable and discreet space heating.

At the far end of the garden, the existing prefabricated garage and timber deck were removed and a new predominantly glazed single storey pavilion constructed with attached masonry garage. The pavilion was sited and orientated to capture the stunning views of the surrounding Lakeland fells. The pavilion consisted of two internally stone-faced masonry walls with the remaining elevations predominantly glazed

The team worked brilliantly to transform the cottage and pavilion into a modern comfortable home whilst retaining its historical character. We are thrilled with the result and look forward to spending more and more time there.



with minimal interruption via the use of a steel frame. Further unobstructed views were achieved by setting the columns back from the external corner and cantilevering the roof structure over. Due to the unique shape of the room a flat roof was chosen in the design formed of a single ply membrane over warm roof insulation to negate any need for roof space ventilation.

The double glazing was fitted within a thermally broken aluminium frame. Standard aluminium framing was used but detailed so that this was concealed at floor and ceiling level. At the external corner, the frame was omitted and the glazing butt jointed. The entire installation gave a very open feel to the interior and an unbroken view.

The pavilion and garage are designed to respond to the sloping site which led to a series of retaining walls through the site and along neighbouring boundaries. Structural waterproofing was carefully detailed and installed so as to provide full protection from damp issues. ■

Judge's comments

The extensive renovation of this 17th Century farmhouse created a unique opportunity to demonstrate the use of traditional construction techniques to overcome modern environmental concerns. Sustainability was addressed by the use of locally sourced materials and labour. Innovative and creative construction techniques were used to reinforce the existing structure. Careful consideration of the breathability of existing structures shows an excellent understanding of how to combine traditional methods of construction to meet the demands of modern living. The extent of understanding and detailing that was required underpins the technical excellence that is apparent in the final design, making it an outstanding winner for the Alan King Award.

Highly
Commended
2018

THE ALAN KING AWARD FOR EXCELLENCE
IN ARCHITECTURAL TECHNOLOGY

Alterations and Extension to The Grange

Words by Stuart Davidson Architecture

The concept of the project was to reinvigorate a dated traditional dwelling house and create a contemporary 'family hub' section for our clients growing family to enjoy mixed internal use and also create a direct interaction point with their garden.

This was achieved by creating a simplistic contemporary insertion to the private garden façade of the dwelling, utilising a mixture of traditional materials such as slate roofing with VM Zinc clad fascia's and posts along with high performance aluminium clad windows forming the main exterior fabric. The original kitchen was absorbed into the new 'hub' with the large-scale removal of the former external walling, in addition the former structure was stripped out with new super insulated walls, along with the full replacement insulated floor accommodating a new underfloor heating system.





The design creates a large multi-use and adaptable space providing a mixed kitchen/dining/lounge, with a simplistic link to the main dwelling, forming an open light and spacious area utilising mixed solar gains. The main frame was formed from a simple steel frame built from poured concrete pads which created a quick construction timeframe further protecting the existing dwelling, all being clad externally with folded seam zinc cladding prior to installation of new high-performance windows and sliding door screens.

The original building was formed from large stone wall abutting suspended timber floors and open roof space, we identified this as a serious performance issue and removed the main leakage points re-forming both floor and walls as highly insulated and airtight structures, as well as over insulating roofscapes and sealing against existing new adjoining structures. Due to the nature of the project we had to carry out on site adjustments to the main junction points once these were uncovered, ensuring that the changes had a nil effect on cost but maximise the performance. The new sections of structure were fully taped and sealed to further ensure they were built using tested methods utilised on previous projects as a benchmark.

The large vaulted section creates both volume and also a temperature control zone allowing the heat to be collected in the upper area and if required the controllable high level rooflights can act as a stack vent.

The floor designed to accommodate the underfloor heating system has been designed with the aim of lifetime gain that a concrete floor being utilised as a heat sink, the floor was formed with rigid insulation to the underside of a concrete slab and full contact flooring, the large expanses of glazing both in wall and roof ensure that even in colder seasons the floor maximises the heat gains and further retains overall heat, creating a lower demand on the heating system, releasing over an extended period.

The overall sustainability and lifetime worth of all elements were well considered through the design process, the overall aim to construct and finish the property in long term durable materials, we also ensured as previously noted the waste and ultimate landfill costs were reduced by around 90% of what would be expected from a project of this kind.

The original dwelling provided a complex and largely inaccessible property, as you would expect from a dwelling of its age, one key factor though not required by regulations was to create a fully accessible entrance route to the dwelling, which would let our client's parents who have increasing mobility issues a simple route to also enjoy the property. This included re-modelling the external garden space creating an interconnecting terrace from the garden entrance allowing for an accessible route to be landscaped into the garden aesthetic, all sliding screens are provided with level access thresholds which remove any structured division between external and internal spaces, this also removed the need to rely on the original stepped entrance doors and formed a clear flow into the main body of the dwelling. ■

Judge's comments

By exceeding the client's expectations this simple, yet creative, extension is not only considerate to the host structure but has also succeeded in overcoming access constraints for construction, providing an accessible solution for the main dwelling. The entrant clearly understood the judging criteria and addressed each of the categories in a well-considered manner.



Commended
2018

THE ALAN KING AWARD FOR EXCELLENCE
IN ARCHITECTURAL TECHNOLOGY

Stead Street, Eckington

Words by France and Associates

The Stead Street project responds to the clients demand for a contemporary building within its setting and area, contributing to amenity. The client's requirements of the home being inclusive of her needs for a partially sighted person, and the family members she lives with, has been met with fantastic client satisfaction. As the client is likely to remain at home more than other homeowners, due to both circumstances and the running of a business from home, the building was also designed and constructed to accommodate potentially large energy consumption running costs and is therefore highly insulated.





The dwelling incorporates a modern design within a traditional Edwardian street scene. The dwelling features contemporary use of hardwearing and low maintenance materials, yet reflects design principles of both surrounding buildings, and the original dwelling it replaces.

This was achieved using a mix of modern and traditional materials and making use of colour changes and design details to highlight key building features.

In order to optimise the best use of the narrow site, balanced with key client requirements, a highly insulated traditional system was used with a silicon render finish. The surrounding building are in part render finished with brick, so it was important that the new building reflected this.

Timber frame construction was considered, but as the new building had a requirement for a basement, with substantial retaining walls put in place to support neighbouring buildings, it was considered more appropriate to retain traditional building methods. This then allowed us to retain existing trade onsite, to reduce complication and delay and to accommodate the complex 'tiered' design to the rear of the property.

The building has been designed to the rear to be 'tiered', with the largest footprint in the lower ground floor being 17.5 metres long, with each floor above set back by an average of three metres. This makes best use of north facing light, to achieve natural light in what would otherwise be dark rooms, through the use of light wells of flat roof areas. This was a key point for our client, as there are times when she is able to see objects and have moments of enjoyment, when rooms are brighter.



The dwelling incorporates a modern design within a traditional Edwardian street scene



This posed an issue, however, to meet the technological requirements of the building and therefore accredited details coupled with a close working relationship with specialist flat roof manufacturers and installation companies simplified this process.

A contributing factor to the success of the project was the design and planning that went into the project prior to development. The project was planned carefully to consider the removal of the existing building and excavation of the site, with timed pickups for lorries to take away, along this narrow one-way street.

Finally, the buildings inclusivity was clearly a key point, to meet all demands of our client and her family. The building was designed to accommodate her needs both now, and in the future, albeit changes.

As a teenager at the initial designs, there was a requirement for smart technology for use as a young person and to alleviate access issues. The design incorporated features such as keyless entry into the building, sensors and a range of different alarms to communicate different messages. A range of different textures and finishes were thoughtfully considered, to 'communicate' to the client as to where she is in her home, which floor, which room or where she is externally. This allows her to regain a degree of normality, being independent in her own home.

The bedroom layout was designed such that an alternative layout could be easily provided through the removal of none-loadbearing walls, to provide an additional bedroom. This in fact was implemented shortly before completion onsite, due to the client receiving the exciting unexpected news of expecting a child. The impending arrival of an additional family member meant that what had been previously designed for years in the future was seamlessly incorporated prior to practical completion. ■

Judge's comments

Careful consideration and understanding of the end users' unique needs required a thoughtful and sensitive approach together with an element of lateral thinking that has created and delivered a lifetime home that both meets and exceeds the client's current and future needs.

The future of the built environment



Introducing Futurebuild 2019

Futurebuild is the evolution of ecobuild. It brings together opinion-shapers, decision-makers and product innovators under a common purpose to explore the latest technologies and approaches, and debate the biggest issues facing the built environment – now and in the future – both in the UK and overseas.

Futurebuild is home to six focused Hubs dedicated to knowledge sharing across key elements of the built environment and an industry-leading content programme driving meaningful debate on the biggest industry issues.

**Be part of
the future**

+44 (0)20 3011 2540
info@futurebuild.co.uk
www.futurebuild.co.uk



@FuturebuildNow



/FuturebuildNow



/FuturebuildNow

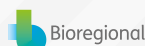


/FuturebuildNow



FuturebuildNow

Strategic Partners





Following a successful first event under new ownership, Futurebuild Events has announced that from 2019 onwards, ecobuild will be named Futurebuild. Here, Martin Hurn, Managing Director of Futurebuild Events Ltd, explains how the CIAT-supported event is evolving to unite the built environment in exploring the latest thinking and debating the biggest issues affecting us all, now and in the future.

When we made the decision to evolve ecobuild into Futurebuild, we had the opportunity to reflect on the past few years and ensure the event is completely focused on giving our audiences, such as Architectural Technology professionals, exactly what they most want and need to experience when they attend an event.

Futurebuild 2019 will continue to be the industry platform for the fresh thinking, new innovations and leading partnerships and exhibitors that made ecobuild so well-respected for over fourteen years. However, under the new banner, it will have even more focus, impetus and purpose. It will be an event for the industry, by the industry, and 100% committed to championing innovation and sustainability for the future of the built environment

The decisions we make today will shape the built environment, communities and natural habitats of tomorrow for years to come. At Futurebuild 2019, Architectural Technology professionals will come together to seek true innovation and the types of big thinking that can drive positive change, and address the issues set to dominate how we live and interact in the future.

The ecobuild conference

Central to Futurebuild 2019 will be the ecobuild conference, which will act as a truly inspiring ideas arena.

At Futurebuild, the ecobuild conference will push further still in turning the ambition into action by tackling head on the most urgent issues impacting us all. This inspiring ideas arena will encourage cross-sector collaboration, to not only work through the 'knowns' but also identify the 'unknowns'. To achieve this, it will challenge industry to 'think the unthinkable' with a programme of inspiring speakers and game-changing discussions – all focused on examining and sparking action on the most important, far-reaching societal and environmental issues.

Leading thinkers and professionals will come together at the conference to discuss vital issues such as the housing crisis, sustainable development, climate change and the role of government, amongst others.

The Futurebuild Hubs

Surrounding the ecobuild conference will be six Futurebuild Hubs – each focused on a different aspect of the built environment. The Hubs will provide focused education, research and inspiration from the leading brands. The different critical areas are Building, Urban Infrastructure, Materials, Offsite, Energy and Interiors.

For the first time, Futurebuild will host a dedicated area focused on interiors where visitors will have the opportunity to meet with leading institutions and manufacturers to discuss innovative products and collaboratively explore the impact of design on end users. The focus of the Hub will be firmly placed on design with purpose, with discussions including the benefits of biophilic design, the WELL Building Standard, designing for dementia, water saving solutions, the Healthy Building Agenda and the impact of colour and light.

The Buildings Hub, meanwhile, will cover all aspects of building, including new build, retrofit and refurbishment. It will be the place where Architectural Technology professionals can find innovative brands working across all aspects of building construction and maintenance – including roofing and cladding, metals and glazing, insulation, renders and bricks – and engage in conversations around the latest technology and legislation.

Another new Hub will be Urban Infrastructure, where those specifically interested in blue, green, grey and social infrastructure can explore the latest solutions.

The Materials Hub will act as a concentrated platform where Architectural Technology professionals can find the latest products and solutions. From concrete and timber to steel and masonry, a spotlight will be placed on the most exciting and emerging new materials that are available to them.

The Knowledge Forum

In addition to the ecobuild conference and Futurebuild Hubs, the event will play host to the Knowledge Forum – a dedicated area where the industry's leading partners, researchers and professional bodies will offer an even deeper look at the issues facing the built environment.

Here, Architectural Technology professionals will have access to workshops, networking and large-scale events, exclusive academia and institution research, with sessions focusing on: Digital construction and quality in construction; Skills and delivery; Built environment research and education, leadership and professional practice – looking at subjects such as behaviour change and professional contracts; and Working with manufacturers.

Each session will offer Architectural Technology professionals the solutions and practical guidance across a range of subjects that they can take back to the office and implement as part of their work.

Winner
2018

STUDENT AWARD FOR EXCELLENCE IN
ARCHITECTURAL TECHNOLOGY (PROJECT)

School of Architectural Technology

Words by Elizabete Jakobsons, Institute of Technology Carlow

The aim of this project was to design an environmentally friendly building on IT Carlow campus for Architectural Technology students. Located on Kilkenny Road, Moanacurragh, Carlow, Republic of Ireland.

The proposed design of the institute is with an inside-out concept – as well as outside-in, in relation to the surrounding context where welcoming urban spaces provide possibilities for outdoor work and teaching.

The new building design offers the students to be more creative, with additional facilities focusing on optimal learning and sharing their work with fellow students. The building is three storeys in total with gentle slope elevation that gives double high one-storey level, two-storey level and three-storey level across the length of the building. The south side is single storey with double height ceiling for the architectural technoelect workshop, which then goes to a two-storey high entrance with void to cafeteria and studio rooms below. Lastly to the three-storey side of the building which provides an atrium with central circulation stairway space with seating surrounded by studios, seminar rooms, a lecture theatre which is combined with the library space, meeting rooms on the top floor and WCs. The whole building is about 6000m² of floor area including the courtyard on the roof level.

The designs of the building aim to achieve the best passive standards for heating and cooling, ventilation and daylighting using natural resources and studying the microclimate of the site, as well as implementing locally used materials.

Ireland's climate is influenced most by the Atlantic Ocean. As a result, it doesn't have the extreme temperatures that other countries at similar latitude would have. The average temperature is a mild 10°C.

The materials used for the building were carefully analysed for best performance using BIM and life cycle assessment. Throughout the project, the materials were analysed and compared using a tool called Tally which is an add-in tool for Revit software. All materials were chosen locally within a 800km radius and are EPD approved.

This building features glue-laminated wood, cross-laminated timber (CLT) and a wood-concrete composite structure that replaces the traditional steel/concrete construction type that is common in the area. This system structure reduces this building's carbon footprint and maximises the use of renewable materials.

To ensure users are comfortable within the building, I've used the right combination of passive and active design strategies.

Passive design strategies use ambient energy sources instead of purchased energy like electricity or natural gas. These strategies include daylighting, natural ventilation, and solar energy. High-performance buildings use the right blend of passive and active design strategies to minimise energy, materials, water and land use.

Active design strategies use purchased energy to keep the building comfortable. These strategies include forced-air HVAC systems, heat pumps, radiant panels or chilled beams and electric lights.

Hybrid systems use some mechanical energy to enhance the use of ambient energy sources. These strategies include heat recovery ventilation, economiser ventilation, solar thermal systems, radiant facades and even ground source heat pumps might be included in this category.





Demonstrated excellence in Architectural Technology with a creative, innovative design solution

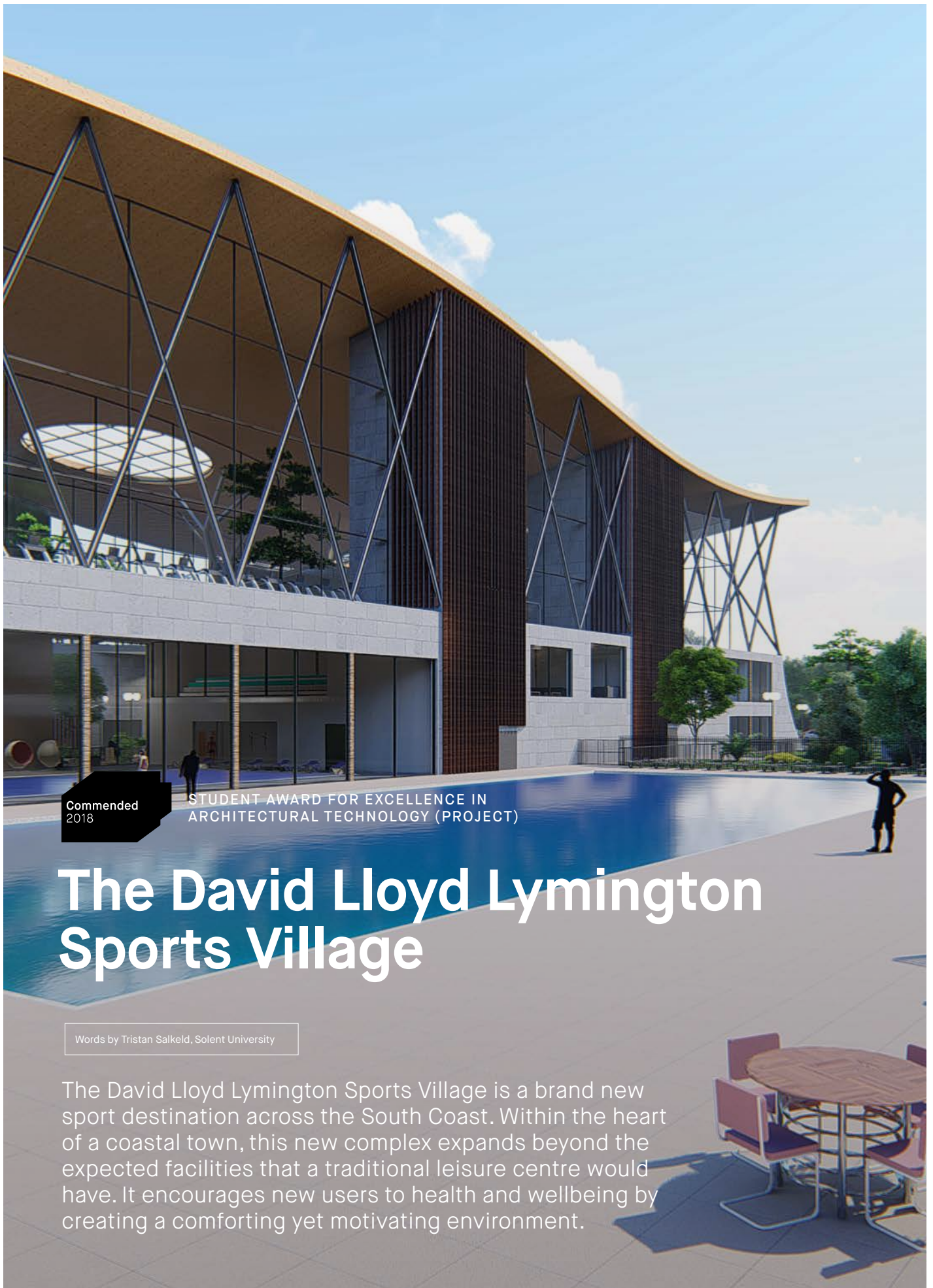


The outside façades are different depending on its orientation and for aesthetics towards the public view. The façade showcases how the construction, sustainable initiatives and installation principles are fully adapted and integrated with the architectural concept. The glazed facades features an integrated movable louver facade that provides shading for the facade architecture, which plays on the sun orientation and combination aluminium shutters which add warmth and variation to the composition. ■



Judge's comments

This project was based upon the design of a new school of Architectural Technology in Carlow and demonstrated excellence in Architectural Technology with a creative, innovative design solution underpinned by the application of science and engineering. The student used passive strategies for heating, ventilation, daylighting and used meteorological data in an attempt to profile the dynamic characteristics of environmental and sustainability criteria to create an innovative yet workable design solution. The rich text within the report coupled with the quantitative analyses provided an objective focus for the context and concept and grounded the design and creativity in reality and workability. All the design categories were addressed to a high standard including accessibility and inclusivity, buildability and assembly, performance and durability and environment and sustainability. An exemplary winner for the 2018 Project Student Award.



Commended
2018

STUDENT AWARD FOR EXCELLENCE IN
ARCHITECTURAL TECHNOLOGY (PROJECT)

The David Lloyd Lymington Sports Village

Words by Tristan Salkeld, Solent University

The David Lloyd Lymington Sports Village is a brand new sport destination across the South Coast. Within the heart of a coastal town, this new complex expands beyond the expected facilities that a traditional leisure centre would have. It encourages new users to health and wellbeing by creating a comforting yet motivating environment.

David Lloyd Leisure continues to welcome sports for both the competitive and the casual user. The complex has an Olympic sized pool, tennis grounds, sports hall, squash courts and boxing facilities. There is space for training and events to be held within the grounds, with large spectator zones for each. If casual sports are more desired, an indoor pool allows the more relaxed swimmers to enjoy their time, as well as a ping pong studio, mini golf course and entertainment lounge.

To coexist with the location, certain architectural implications allow the structure to relate to Lymington's heritage. The curved roof design inherits the form of a yacht found within one of the nearby marinas, a nautical inspired concept that continues the nautical history. The curved sections of the ground level structure also form the shape of the vessel's bow and stern, and the large open atrium found within became inspired from that within a cruise ship. In addition, the exposed cross braced column system allows the core structure to be embraced as an aesthetic asset, rather than being hidden from sight, and has become a key addition to the unique style of the finished structure.

However, what separates the sports village from other leisure centres is the focus to create a link between design and environment. The design of the structure introduces a natural but contemporary

style that comfortably sits within both the site and its surrounding landscape. The site itself blossoms with greenery that spreads all across the campus, but also with interior greenery scattered within the atrium, allowing users to have a sense of the outdoors even when inside. At top floor level, where curtain walling becomes the external structure, the boundary becomes recessed to form a green roof perimeter. This allows users on the floor to have complete views of the landscape from eye level.

Within the complex, a large open atrium allows all facilities to be met with a central hub, where users can roam freely through the entire centre, being met with internal landscaping, natural light and curving bridges crossing from the above floors.

David Lloyd strives to achieve leisure centres with low environmental impact and this objective continues in the design of the Lymington Sports Village. The curved shape of the roof allows for rainwater to be natural collected and used throughout the complex. Large areas of curtain walling provide the use of natural light for internal spaces. All roads and car parks on site have been constructed using resin bound permeable paving, reducing significantly the amount of concrete on site.

Low impact environmental aid continues to be a priority in modern construction and the aim for this project was not only to create a campus users enjoy to visit, but also to present the use of eco-systems and more sustainable materials as a benefit to a project, rather than an interference. ■

A sports village complex designed on the principles of sustainability and environmental performance



Judge's comments

A sports village complex designed on the principles of sustainability and environmental performance utilising passive ventilation shading and natural lighting as the key features within the design solution. The iconic roof is an excellent example of innovative design based upon the principles of sustainability to create a green roof and the ability for water harvesting. The outdoors has been brought inside by an elegant tree-like steel column which supports the atrium roof.



UK CONSTRUCTION WEEK | 2018



9-11 OCTOBER | NEC | BIRMINGHAM

THE UK'S LARGEST BUILT ENVIRONMENT EVENT

EVENT HIGHLIGHTS INCLUDE:

- ▶ 100+ product launches and creative ideas that will inspire architects and specifiers
- ▶ 10,000+ innovative products and services will be showcased by 650+ exhibiting companies
- ▶ 300+ hours of content via CPD Hubs, Offsite Theatre, Regeneration Hub, Digital Construction Hub & UKCW Stage

9 SHOWS UNDER ONE ROOF



ukconstructionweek.com

EXHIBITORS INCLUDE





650+ EXHIBITORS

35,000+ VISITORS

10,000+ PRODUCTS
AND SERVICES

300+ HOURS OF CPD
CONTENT

#UKCW2018 @UK_CW

ASSOCIATION PARTNERS



RIBA #
Architecture.com

FIS



**REGISTER
FREE**



Winner
2018

STUDENT AWARD FOR EXCELLENCE IN
ARCHITECTURAL TECHNOLOGY (REPORT)

In Situ Reinforcement of Timber Beams in a Conservation Setting

Words by Darren Nelson,
University of Central Lancashire

Conservative repair is a philosophy associated with William Morris and the manifesto he co-wrote in 1877 when the Society for the Protection of Ancient Buildings (SPAB) was formed. The premise is for repairing buildings rather than restoring so that its entire history is preserved.

In conservation, it is important to leave in place the historic fabric of the original building and therefore, with the assistance of retro-fitted in situ reinforcement, a minimal amount of intervention to the historic timber would occur allowing more to be retained for future generations.

By utilising the near surface mounting method the amount of existing timber to be 'lost' to allow the reinforcement to be installed is small when compared to the possibility that whole sections of authentic timber might need to be replaced as they are not strong enough to meet the current loading demands or need replacing due to deterioration of the building structure (rot, etc.).

Alternative methods, like wrapping the timber in carbon fibre, similar to the way concrete columns/ beams have been strengthened, have seemingly been discounted. This is believed to be down to the inconsistency of a timber beam as it changes

A research area that is topical and important for Architectural Technology, retrofit design, conservation and sustainability



in size in relation to its water content (timber is a hygroscopic material, meaning it absorbs water). In other words, should the beam be wrapped when it has a high-water content, the reinforcement would become loose and not work effectively once the timber shrinks. Correspondingly, beams with low water moisture content would cause excessive strains on the reinforcement material if the timber absorbs more moisture and swells in size.

The aim of this study was to evaluate material for reinforcing timber beams from a conservation point of view. The materials used for the comparison are:

- carbon fibre rod
- glass fibre rod
- steel threaded bar

To replicate awkward on-site conditions where there is the possibility of only partial sections of timber joists being accessible, the experiment involved 1.2m lengths of plain square edged timber (44mm x 146mm) which were machined with a groove 14mm deep x 14mm wide x 1m long. Nine sections of the timber were machined, with one length being left untouched to be used as a base strength model for correlation against the reinforced versions.



A thixotropic two-part structural adhesive was used to retain the reinforcing material in the slots. Thixotropic adhesive is particularly useful on overhead applications as the two parts, when mixed together, get thinner allowing easier application. The downside to the adhesive is the curing time of around 21 days.

The adhesive was first applied into the groove to fill it approximately three quarters full, the rod inserted and pushed to the bottom of the groove and then covered over with another layer of the adhesive.

Each timber joist had only one reinforcing rod inserted. There were three 10mm diameter glass fibre rods, three 10mm diameter carbon fibre rods and three M10 threaded steel bars in total.

After the joists had cured the strength testing took place in the university's workshop using an Instron 5985 which is a universal, static testing system that can perform tensile, compression, shear, flexure, peel, tear, cyclic and bend tests. Each joist was supported at each end with measurements being taken at the mid span.

The results showed that the reinforcement increased the structural loading capabilities by an average 22.18% and the load deflection by 72.75% over the three materials. However, following the literature review, where it was expected that the carbon fibre reinforced joists would show the greatest increase in loading, a threaded rod example produced the highest loading results achieving 40.12KN. When compared to the glass fibre (37.43KN) and the carbon fibre (38.25KN) samples, it is unclear as to whether the additional cost for the glass fibre or carbon fibre rods can be justified, although this experiment did only use a very limited number of samples and further testing might generate different results.

The experiment also proved that the shape of the reinforcement material is important to create a strong bond with the structural adhesive and that the method of applying the adhesive could be open to variations. With smooth rods (glass fibre and the carbon fibre) the adhesive has only the circumference to adhere to whereas the threaded rod has the helical shape of the threads which dramatically increases the available area for the adhesive to 'hold' on to. It was also noted that several of the timber joists had knots close to the loading points which would affect the results.

In summary, physically conducting the experiment has improved my understanding of how reinforcement works and the reinforced near surface mount method provides sufficient structural improvement with a low risk of harm to the timber and therefore would be viewed as a positive action for conservation of historic timbers. ■

Judge's comments

A research area that is topical and important for Architectural Technology, retrofit design, conservation and sustainability Clearly articulated with research methodology, aims and objectives and detailed robust and well-conceived experimental methods. A broad range of tests and materials deployed and an excellent presentation of all aspects of the report. An interesting subject and the use of experiments is very promising.

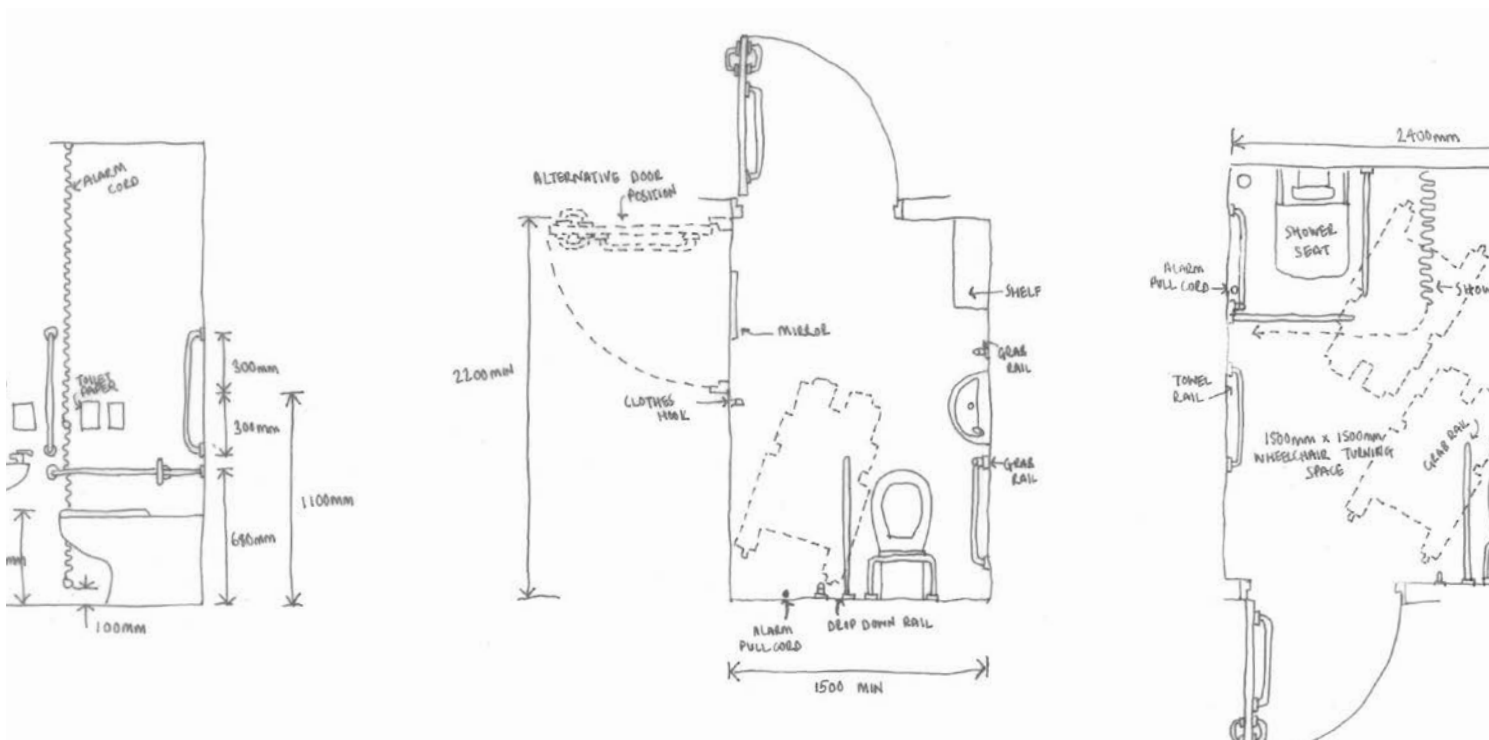
Highly
Commended
2018

STUDENT AWARD FOR EXCELLENCE IN
ARCHITECTURAL TECHNOLOGY (REPORT)

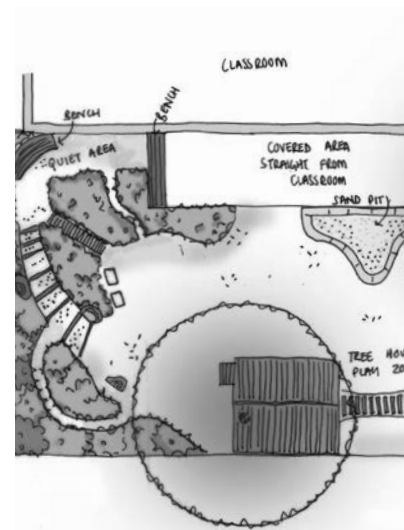
Special Educational Needs Facilities –

An Analysis of the Necessities for Inclusion

Words by Simone Gray,
City College Plymouth



One of the modules I had to undertake as part of my foundation degree in Construction was 'Research Project'. For this I had to write a mini dissertation, the decision to look at SEN facilities in schools came after seeing the struggles my parents went through trying to find a suitable school for my younger brother who has been diagnosed with autism. The limited number of schools with special education needs places in Plymouth made me question why all schools, especially new ones being built, were not to a standard that would be acceptable for students such as my brother.





The report itself is a study of the main elements that need to be incorporated into a mainstream school that are necessary for the inclusion of children with special educational needs. To find out what those main features were and to determine end user requirements a study was undertaken by carrying out questionnaires of different teaching professionals along with semi-structured interviews of two schools within Plymouth. Once the highest impacting elements were discovered they were critically analysed and the report finishes with suggested guidelines for how to create a mainstream school that would be inclusive to all students.

The features that were investigated further included; layout of a classroom, acoustics of a classroom, facilities including hygiene and learning resource areas and finally outdoor space.

It was concluded that the layout of a classroom is important due to the impact it has on how a child feels, functions and learns within that environment. There is a need for classrooms to be large enough to ensure accessibility to all students and the use of zoned areas breaking up the space to ensure ease of use and understanding of activities for the end user. Conclusions were made from the results of the questionnaires and interviews along with constant reference to government approved guidelines to ensure that any recommendations would be compliant. Illustrations were used within the report to give examples of different design proposals and examples of feedback received such as visual timetables.

The acoustics of a classroom were analysed with both technical and aesthetical aspects in mind. Published guidelines were used to determine the correct indoor ambient noise level and reverberation times of an 'ideal' classroom. These levels are important within a learning environment to ensure clear speech intelligibility and an ambient noise level that suites the end user. SEN pupils are more sensitive to sound and

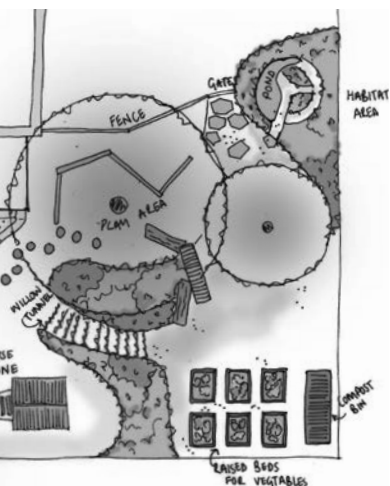
therefore require shorter reverberation times, and lower indoor ambient noise levels. Reverberation times can be controlled with the use of acoustic absorption materials. These materials are graded A to E, A being highly absorbent and E almost fully reflective. The absorbent materials can come in different forms including ceiling tiles, acoustic beams/ceiling panels, wall panels, perforated/slatted wooden ceiling strips. Acoustic panels can also be used for aesthetical purposes as they can be produced in a wide range of colours, shapes, sizes or patterns. However, depending on the end use this may cause too much of a distraction but this can be decided through the design proposals.

When analysing facilities, care was taken to consider the recommendations received from the teaching professionals who undertook the questionnaire including clear labelling, easy access and the need for space and discretion when required. However, most conclusions for hygiene and toilet facilities came from information published within government guidelines including BB104 and Approved Document M to ensure that all design proposals were compliant.

Outdoor space was the final area that was reviewed with studies identifying benefits to children with SEN helping them to develop and grow. Having the ability to take a classroom outside, for exploration and learning can be sensory inspiring especially when combining natural stimulators like wind, grass and trees with play equipment. A multi-sensory environment can promote interaction, communication, overcome boredom, reduce stress and relieve excess energy that a lot of SEN children have. Sandpits, musical instruments, play equipment and planting beds combined can create a natural, sensory outdoor space for teaching and play. Along with these design considerations there is a need for a small transition area for children from leaving the classroom to entering the outdoor space. Many children with SEN struggle with change and making the transition a smoother, simpler process will reduce stress and anxiety for the child. Having the covered outdoor space also means children can still attend outdoor classes when the weather is not good.

If all of these design elements were incorporated into compulsory guidelines when designing a mainstream school, more children with autism and other additional needs would not feel isolated and would receive the education they deserve and need. Social interaction, communication and relationships could be improved, meaning that the school life of 1,244,255 pupils could be improved. ■

The acoustics of a classroom were analysed with both technical and aesthetical aspects in mind



Judge's comments

This research focused upon inclusivity and wellbeing linked to special need facilities and the design of spaces for people who would benefit from such an environment. An interesting subject area – academic and well researched with good context and clear aims and objective. A very relevant topic with thorough analysis, well presented and clearly illustrated. The section on acoustics is the most developed and technically relevant section.

Commended
2018

STUDENT AWARD FOR EXCELLENCE IN
ARCHITECTURAL TECHNOLOGY (REPORT)

Mind the (Performance) Gap

On-site verification, BIM, digital technologies, building performance – these are all terms that raise interest and sometimes even red flags within the construction industry today. Over recent years not only has the demand for low energy buildings increased but also the drive to improve the image of the construction sector, not just in Northern Ireland, but globally.

Words by Erin O’Kane,
Ulster University

This has become a hugely important factor, especially in relation to building performance. Potential clients and homeowners are becoming more informed and aware of new and improved energy efficiency measures within the construction industry in relation to performance related aspects. Low energy design calls for a reconsideration of how buildings are designed and constructed, with materials and detailing being a key part of the process.

A performance gap has been identified in this sector which has gone on to cause certain inconsistencies between the predicted performance of buildings at the design stages and how they actually perform once construction has been completed. Potentially this can occur for a number of reasons including poor workmanship and on-site practice, substitution of materials from those originally specified and a lack of inspection and validation in terms of what is being constructed. This is an area which requires urgent consideration and attention, mainly to ensure clients are getting the standard of building they pay for and that the carbon emission targets are achieved.

With the building regulatory process lacking necessary rigidity, due to the inadequate nature of periodic inspections this creates a difficult yet critical area of the construction industry which requires immediate improvement. This form of methodology currently within the construction sector results in details and materials chosen in terms of achieving a certain building performance are potentially not being constructed as per the previously approved or as-designed drawings.





This study highlights the performance gap from a Northern Ireland perspective



This can be due to a number of factors such as the building contractor substituting materials, not fully understanding the importance of the detail or being unaware of updates or changes to legislation. Due to familiarity, some building contractors will want to construct certain details in the same way as they have done on previous projects, and there is always the possibility of poor site conditions meaning that important details are not constructed as intended.

This study highlights the performance gap from a Northern Ireland perspective, investigating issues with low energy design via a case study methodology. The study identifies issues in relation to on-site practice, verification and lack of communication between design team members before investigating how technological advancements and BIM processes can potentially assist.

The building design process has evolved to become more focused on science and materials, however the principle of separation between design and construction still very much exists. When a particular design reaches construction stage the inspection visits are intermittent and laid out at specific phases of the project, it is impossible to assess all aspects of on-site construction compliance as some of the work will inevitably be covered up by the time the surveyor visits the construction site. This is a common problem.

Whilst in some instances the changes made on-site may still achieve compliance, in others, changes to the approved designs or details could have a negative impact on the performance of the building in terms of its energy efficiency and performance in relation to fire. Taking the worst case scenario into account, such practice could potentially have a catastrophic effect on safety, endangering lives. This is the scale of importance I am trying to convey with my report.

Whilst the actual legislation, in terms of required outcomes, and the approved technical guidance documents would generally appear fit-for-purpose, the lack of a standardised and robust methodology to ensure compliance and consequently building performance has been identified. If higher performing buildings are to become the norm this needs to change, advancing more intelligent design, regulatory and validation processes.

This creates an opportunity to be rectified through the use of a technology driven solution. There are many BIM related technologies which could be used to aid this, each with their own strengths and benefits, these are merely a fraction of the technology available out there which could be used in closing the performance gap. As knowledge and understanding of BIM processes has advanced, the wider benefits created by such new technologies and approaches to building design and management are beginning to be realised.

The allegation against current standards of on-site verification has been validated recently in the United Kingdom (UK) by the publications of both the Independent Review of Building Regulations and Fire Safety Interim Report in the aftermath of the Grenfell tragedy (HMSO, 2017) and the Independent Inquiry into the Construction of Edinburgh Schools (City of Edinburgh Council, 2017). These publications were inspiring in that they generated the initial concepts of my report and also highlighted issues within current regulatory processes and quality assurance respectively.

The paper concludes by proposing a scaffolding approach which could allow for a more robust design and inspection system, potentially closing the aforementioned performance gap. ■

Judge's comments

An interesting and relevant subject to Architectural Technology identifying the problems between designed performance and as built performance alongside the lifespan characteristics. The dynamic nature of the position and placement of materials and components plus their assembly are identified and is theoretically promising with a clear method and structure. Intelligent, informative and a professional introduction with clear aims, objectives and good analysis.

The AT Awards Finalists

ATJ takes a look at the other finalists in all the categories

THE CHARTERED ARCHITECTURAL TECHNOLOGIST OF THE YEAR AWARD

*extracts from the testimonials

David Comiskey MCIAT

David's passion for Architectural Technology is infectious. He is unique in not only being able to 'do' and 'teach' but author, research, practice, manage and generally inspire. He is a multi-award winning innovator and utilises technology-enhanced learning to push the boundaries of the discipline and its pedagogies.

Claire Harlow MCIAT

Claire provides exceptional support to and is an inspiration and role model to others, not only to the younger architectural technologists within her office but in the wider industry. Her talent and commitment have earned respect and promotion within the sector.

THE AWARD FOR EXCELLENCE IN ARCHITECTURAL TECHNOLOGY



Reflections
NP Architects

The development comprises of five houses which replace a former public house, situated within the local conservation area. The dwellings, with their simple gable-ended forms and large openings facing onto the river, are intended to reflect the design of boathouses nearby.



Reigate Parish Church Primary School
PTAL Architects

The expansion of Reigate Parish Church School provides the school with a brand new junior school alongside their existing infant school. It delivers a better environment for the children and families and much needed school places for the local authority.



141-143 Park Drive East, Milton Park
SRA Architects

141-143 Park Drive East is a development of three buildings and forms part of a highly adaptable speculative development at Milton Business and Science Park in Oxfordshire – part of the Science Vale UK Enterprise Zone. It is a mix of CAT A offices, shell and core offices, laboratory and warehouse spaces.

THE ALAN KING AWARD FOR EXCELLENCE IN ARCHITECTURAL TECHNOLOGY

The Hall, Cherington, Stourton and Sutton under Brailes
ArchiWildish Ltd

A new hall to be smart, functional and adaptable to a multitude of uses. The design appears as though it was a converted traditional stone barn, whilst remaining an attractive and appealing building.

Belmont Place
PiP

This Grade II listed former coach house, owned by Jesus College, Cambridge, was transformed by PiP into a building suitable for its own growing architectural practice. The design was carried out in such a way that will allow it to be reversed in the future back to its former use.

Scarth Craig
Roundhouse Architecture Ltd

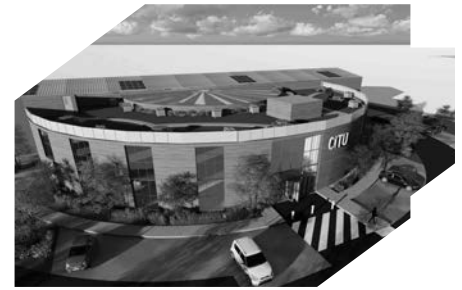
A former telephone repeater station building comprised of a main square block with two lesser height and smaller rectangular wings redesigned as a unique family home. The left wing of existing building was demolished to allow for a larger timber frame extension to be added.

STUDENT AWARD FOR EXCELLENCE IN
ARCHITECTURAL TECHNOLOGY (PROJECT)

**WJC – ‘William Julien Courtauld’
Sports Centre**

Scott Andrews, Anglia Ruskin University

The general design for the sports centre seeks to reflect architectural elements of the arts and crafts style that characterises the local area as well as the design of an existing pavilion but with a more contemporary approach that is reflective of the modern era.



WesQuay II

Karolina Rzepka, Solent University

A complex to bring a new attraction to the local community as well as indoor and outdoor entertainment. Design and creativity have been demonstrated by the unusual shape. The building’s design and inclusivity of the landscape provides an encouraging outdoor common space.

Care Community for the Elderly

Pascal Arquier, Solent University

The aim was to design a high-quality care home for the elderly with the commitment to ‘making a positive difference to the residents, in every way’. A number of elements have been added to the design utilising space and use of light.

CITU Headquarters Scheme

Watson Joseph, Leeds Beckett University

The site provides a flagship building for the company with the philosophy behind the design adopted from Christopher Alexander’s theory of ‘the battle for the life and beauty of the earth’; the purpose of all architecture is to encourage and support life-giving activity, dreams, and playfulness.

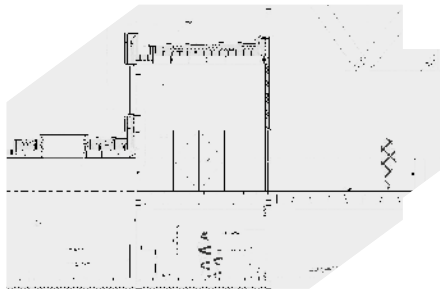
STUDENT AWARD FOR EXCELLENCE IN
ARCHITECTURAL TECHNOLOGY (REPORT)



An Investigation into the Deep Retrofit of an Existing Roof of a Protected Structure to Achieve EnerPHit Standard

Gerard Fay, Galway-Mayo Institute of Technology

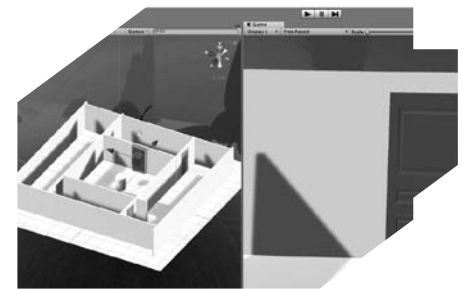
This report outlines the identification and examination of deep retrofit options for a protected structure pitched roof upgrade meeting the EnerPHit Standard. It analyses three technical design solutions and their subsequent thermal and hygrothermal effect the design of an existing pavilion but with a more contemporary approach that is reflective of the modern era.



An Investigation into the Sustainable Construction of Wide Span Buildings

Peter Jenkins, Sheffield Hallam University

The overall aim of the report was to explore and appraise the options in optimising the proposed sustainable construction of a wide-span building.



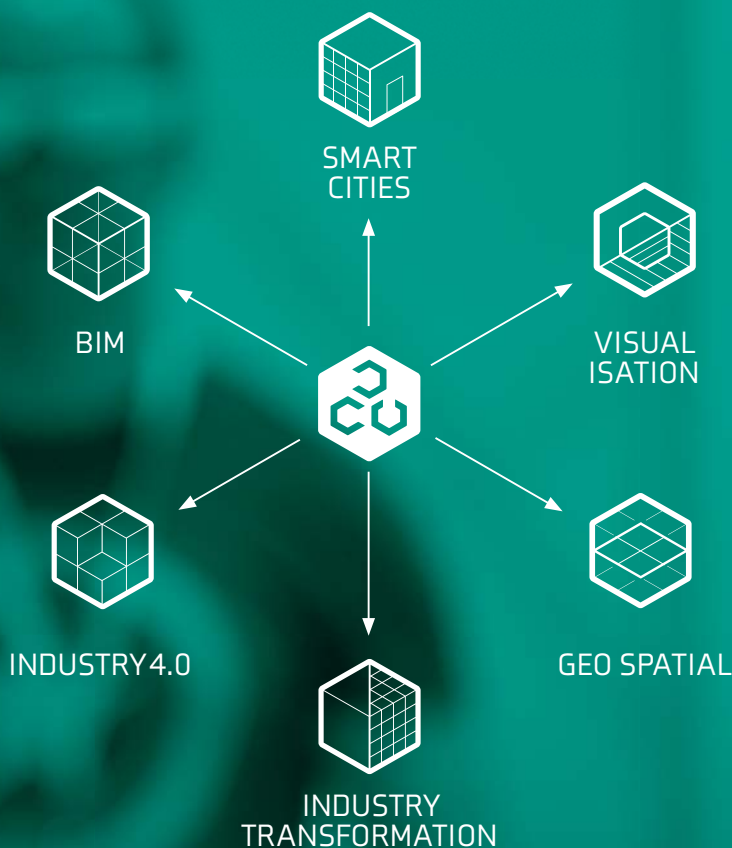
To Investigate the Regulatory and Legislative Issues Around Disabled Access and Universal Design in Protected Structures

Declan Moran, Galway-Mayo Institute of Technology

This report investigated the Irish regulatory and legislative constraints for disabled access and the adaptation of universal design requirements for protected structures, by analysing the current Irish and European legislation for disabled access.



DIGITAL CONSTRUCTION WEEK LONDON 17 - 18 OCT 2018 INNOVATION IN THE BUILT ENVIRONMENT



Experience the future of construction at #DCW2018. Join innovators from across AECO and see first hand, the latest products and services that are digitising the construction industry and supply chain. Try the latest technologies in BIM, visualisation and design, and products created to support architects and technologists in creating amazing buildings and spaces. Hear from industry leaders and tech providers across 8 stages, providing 120 hours of CPD accredited talks and workshops, and over 150 exhibitors.

Register for your **FREE** expo ticket at www.digitalconstructionweek.com/register
Get an exclusive **25% discount** for CIAT members to upgrade to the #DCW2018 Leadership Conference by using the code **CIAT25** on checkout.

HEADLINE PARTNERS



GOLD SPONSORS



INNOVATION PARTNER

LIBRARY PARTNER



SKILLS PARTNER



BIM SPONSOR



GEOSPATIAL SPONSOR



REGISTRATION SPONSOR



APP SPONSOR



London Build, Olympia



London's leading construction and design show London Build will return to the Olympia London between 23-24 October.

Since its launch four years ago, London Build has established itself as the largest construction show for London, covering all sectors within the built environment. After reaching full capacity in the Central and West halls, London Build will be moving to the Olympia's National Hall for this year's show.

The extensive exhibition will feature over 300 exhibitors, including Bentley Systems International Limited, Daikin UK, Kingspan, G-SMATT Europe, Powerday, Topcon, British Steel, Blok N Mesh, Aedas, RedSkyIT, Johnson Controls, Ideal Standard, Procure, Trimble and Catnic. Hundreds of leading suppliers will be showcasing their latest innovation, products and services across 9 specialised zones: Buildings, Infrastructure, BIM & Digital Construction, Fire Safety, Interior and Fit-out, London Design, Product Innovation, Site Machinery & Equipment and Sustainability.

The London Design Zone, attracts thousands of Architectural Technology professionals to source new products and innovations, to participate in business meetings, learn of the latest architectural projects showcased on the 'Architect's Wall', access 20 hours of CPD accredited conference sessions & workshops within the London Design Summit, and to connect with other industry professionals.

Each zone acts as the focal point for eight 'Summits' – with over 200 hours of free CPD conference and workshop sessions discussing the latest developments, challenges and opportunities across the UK's built environment. This is your one-stop-shop to gain all over your CPD points over two days.

Speakers include senior representatives from Greater London Authority, Crossrail, Homes England, Heathrow Airport Ltd, Tideway, Mace, Laing O'Rourke, Costain, HS2, Skanska, Land Securities, Bal-four Beatty, Transport for London, Clancy Docwra, TateHindle, L&Q, Space group, Sir Robert McAlpine, David Miller Architects, Sweco UK, HKR Architects, Zaha Hadid Architects,

Royal Docks Team, Paradigm Housing Group, Mott MacDonald, Arup, AECOM, Kier Group, Mace Group, Scott Brownrigg, Bouygues, Canary Wharf Group, Vinci, Interserve, Wates, Skanska, BPD and many more.

London Build is extremely active in the promotion of inclusivity, diversity and equality in the industry. The annual Women in Construction Morning Networking session, now in its third year will take place on 24 October, attracting thousands of empowering women working in construction. This is the largest gathering of women in construction in the UK.

This is not your average construction show, there will be loads of entertainment, competitions, networking parties, including the construction industry's very own Oktoberfest and Festival of Construction Hour. The involvement of 100+ high profile partners such as Constructing Excellence Club, Construction Meet the Buyer, BIM Open Mic and Passivhaus, enables London Build to continue delivering on the exciting content and high-level networking for all in attendance.

The Built Environment Networking Hub will host free-to-attend exclusive networking events across two whole days. Build your connections, gain inspiration from industry thought-leaders and win business at the show which offers it all.

Join 20,000+ industry professionals at London's leading construction and design show and register today for your free ticket:
londonbuildexpo.com/ciat



Addressing Building Failures: Grenfell and Edinburgh Schools

Words by Francesca Berriman MBE HonDTech

It seems that the biggest concerns facing the built environment sector today are investigating what has gone wrong with our systems leading to building failures which have resulted in a tragic loss of lives. Members have been at the forefront in attempting to resolve these issues and improving procedures and standards from education to practical implementation.

Notably, CIAT is actively participating through Construction Industry Council Working Groups and directly with Government to review the results of the Hackitt Report on Building Regulations and Fire Safety as a result of the Grenfell Tragedy and are prominent in the outcomes of the Cole Report, instigated by the failure in Edinburgh Schools buildings. The similarities in issues that need addressing are quite evident.

Building a safer future: Hackitt Report

The Institute fully supports the Hackitt Report's scope to review, as a whole, the regulatory systems and procedures. However, it considers that discussion on the developing narrative following this wholesale review is necessary since certain particulars are promoted at the expense of others. This might not deliver the future envisioned due to industry capacity at various pinch points in the approval and assurance process.

CIAT considers that the emphasis of an entire system not fit for purpose should be qualified by management in use issues together with poor maintenance and inspection. The widely accepted rarity of major fires would suggest a healthy degree of incongruence between the two positions of wholesale problems and exceptionally few incidents. This is not attributable merely to fortune, it is because the industry has ambitious and dedicated, qualified and competent, educated and articulate, people designing and constructing our built environment: there are discrete issues that have led to safety gaps caused by poor fire safety assurance processes through design, construction and management in use, and the Report diligently looks at these in some detail. However, the narrative of incompetent designers

and contractors attempting to circumvent safety is not recognised in the design process. It should be understood, however, that profit margins can influence contractor behaviour, and sub-contractors are unlikely to understand the wider building issues: they are on-site to perform a particular task, and it is essential that they are trained to a competent standard, including the reason for undertaking certain jobs in a particular way and understanding the ramifications of incorrect installations. It is also not uncommon for jobs to be rushed at the last minute because pressure is applied due to various factors, external and internal.

The Institute further advocates the use of existing systems that work, such as robust details. In addition, fire safety assurance can be improved by being delivered in practice using the QDR process (as outlined in BS7974), itself informed, as appropriate, by desktop studies. In this respect, desktop studies must be promoted and interrogated. The absence of the QDR process from the Report is unfortunate and one which CIAT has asked to be reconsidered.

In saying that, it is equally true that any QDR is only as strong as the team assembled: thus relevant competences are important, provided they are supported by experience. Sector specific expertise is evident in the industry already – in rail, airports, nuclear and shopping centres. We certainly agree that a similar robust sector specific expertise process needs to be developed for high-rise.

In Appendix B of the report, resolution of improved fire safety assurance can be mitigated by developing a model assurance procedure, thereby improving the change control process and record keeping.

The role of Government in setting outcome-based criteria is not clear – the Building Regulations would already appear to accommodate this. It seems that the failings are a result of a lack of understanding and the following of procedures and processes that are already in place.

It is implied that the Building Regulations are unfit for purpose. There is no explanation given for this conclusion. There is a definite misunderstanding between Regulations and guidance, the latter could be clearer.

The safety case is for high hazard – low population industries. Some ALARP tests are not suitable for high-rise residential or other buildings where mobility and vulnerability issues arise, such as in care homes and hospitals. A serious re-think on ALARP is required in connection with cost-benefit analysis thresholds, gross disproportion tests and probabilistic analysis studies (PSA). The Channel Tunnel PSA is often held as an



Our dedicated Members who are experts in these fields are contributing to effecting positive change to protect the public and the sector for future generations

example of the shortcomings: a 1 in 400-year event has happened five times since the tunnel opened in the mid-1990s.

Gross disproportion thresholds arise from the Sizewell B enquiry from evidence given by John Locke. This has never been tested in law. The value of preventing a fatality in actual fact is not representative of the evidence provided at Sizewell, because the assessment is too narrow. It excludes parliamentary time for legislation, further enquiries, bureaucratic broadening, more guidance documents, new training/monitoring, and management time at all levels of organisations. What needs to be clarified is the application of either 'deemed to satisfy' or 'ALARP' to high-rise residential. If ALARP is to apply, are the disproportionate thresholds of between 3 and 10 times the value of preventing a fatality correct? Is it actually the right way at all in the new safety case proposed – at Grenfell ten times preventing a fatality would result in it not being adopted if the cost was £1.4BN (using £2M per fatality).

What will the JCA change from BS-9991 and BS-7974? How will JCA competency be assured? The main benefit of the JCA is based on the interim Report's excellent recommendations, which shrewdly drew out some key concerns relating to client power with respect to the Local Authority/Approved Inspector roles (also an issue in other countries reviewed) and the premise of a non-worsening condition not necessarily handing back a building which is 'safe in case of fire' – the words of the existing Building Regulations.

The building in use safety case is a positive approach as many tower blocks are still run-down. The intent of the JCA approach will meet reality and it will take a great deal of time to get all buildings over 10- storeys to an ALARP condition. Providing this is in electronic format is a positive improvement as relevant parts can be uploaded to a cloud where residents have access.

The Institute's full response can be found by visiting <https://ciat.org.uk/resource/building-a-safer-future-independent-review-of-building-regulations-and-fire-safety-ciat-s-response.html>

Actions from the Hackitt Report Competence for building a safer future:

Within the Report there is a recommendation to review competence for building a safer future. From this, a range of working groups have been established and of the ten, CIAT is involved in the following areas reviewing competence.

- Fire Engineers
- Building Control and Standards
- Building Designers
- Building Safety Managers
- Site Supervisors
- Project Management
- Procurement

These working groups are being headed up by a Steering group which feeds back to the Ministry of Housing, Communities and Local Government (MHCLG) The Institute has also responded to consultations which have been issued by the MHCLG and we have an established Fire Taskforce. If you wish to become involved on the Taskforce, please do contact us to receive information on the process.

CIAT is also dedicated to participating as far as possible in mitigating the issue of building failures and hopes to have the positive influence needed to instil workable solutions.

Professional indemnity insurance: survey

Members will have seen the recent survey in AT Weekly asking members to submit their experiences in securing PII to CIC. CIAT has responded to this research and would caution members to scrutinise their policies to ensure that they are adequately covered in line with the Code of Conduct.

Cole Report: Edinburgh Schools

There have been several recurring themes that the industry has become accustomed to hearing over the past couple of years, being that of poor communication, poor workmanship, inadequate level of detail etc. Whilst these statements are not inaccurate, what they do not do is promote what is and has happened as a result of these incredibly harrowing events.

After the publication of the Cole Report in February 2017, the Minister challenged the industry to work together, to look forward and, in effect, change the way that the procurement and delivery of buildings was carried out to such an extent that the mistakes and errors should never appear again.

So, what has the Scottish industry done and what input and influence has CIAT had in moving things forward?:

Construction Scotland has set up a professional Consultants' forum which will be a long-term partnership between the professional bodies (of which CIAT is an active member) to provide guidance to the ministerial working groups.

There is currently a major review of the compliance and enforcement legislation in relation to the Building Regulations. CIAT is an active member of the review group and our voice is being heard and listened to.

There is also a major review of fire safety in buildings – Section 2 of the Regulations (running concurrently with the compliance and enforcement review). CIAT is also an active member of this working group.

What this shows is that Chartered Architectural Technologists have a unique and highly sought-after skillset and, at Government level, CIAT is a well-respected organisation, whose Chartered Members are actively sought out to assist and provide advice. ■

RegAI



DEMAND THE HIGHEST STANDARDS

Architectural Ironmongers (AIs) support architects, interior designers, contractors and others to schedule and specify the hardware for every door and window in a building.

An elite group has taken their education further, achieving Registered Architectural Ironmonger (RegAI) status, proving their commitment, expertise and professionalism through a programme of CPD.

The Institute of Architectural Ironmongers (IAI) is the leading professional body representing the interests of individuals working in the industry.

RegAI status is the benchmark standard for architectural ironmongers.

If you want an AI who is completely up-to-date with industry standards, regulations and legislation, you need a RegAI.

Find your nearest RegAI at www.gai.org.uk/RegAI-locator

To find out more contact us today **T: +44 (0)20 7033 2480 E: Education@gai.org.uk**



HOMES

28-29 November 2018 | Olympia, London

Registration is now open!

HOMES is the premier event experience for those working at a high level in residential development, strategic asset management and procurement. It is THE forum for government and the sector to meet and discuss how to build more homes and ensure a high quality standard of housing.

120
EXHIBITORS

100+
SPEAKERS

4000
VISITORS

5
THEATRES

REGISTER FOR YOUR FREE PLACE TODAY! HOMESEVENT.CO.UK

Organised by

Media Partners

Event Partners



AGM and fringe events

Aarhus, Denmark 2018

Saturday 10 November



Book now
to secure
your place

09:30

Annual General Meeting

VIA University, Campus C
Dress: Smart attire

**free for members to attend*

The Annual General Meeting is the yearly business meeting for the Institute. The AGM is followed by a lunch for delegates at the University canteen. In September, following the Council meeting, timings for the AGM will be confirmed.

10:00

Partners Tour

10:00 (2.5hrs approx.)

Dress: Casual with appropriate footwear
Tickets: £12 per person

A city walking tour open to guests and partners to attend.

19:00

President's Ball

Aarhus Concert Hall,
Thomas Jensens Allé 2,
8000 Aarhus C, Denmark
Dress: Black tie and evening gown
Tickets: £95 per person

The President's Ball is the annual Institute celebration, this year hosted by President Alex Naraian. The Ball is attended by delegates, industry guests and members. Tickets include a pre-dinner drinks reception, three course dinner and entertainment with a live band and dancing. This is a wonderful evening of networking and socialising to celebrate another successful year of CIAT.

Information

Accommodation

Radisson Blu Scandinavian Hotel
Single Occupancy B&B: Approx. £133.00*
Double Occupancy B&B: Approx. £145.00*

**Rates are approximate and are subject to the fluctuation of exchange rates*

Check in: 15:00
Check out: 12:00

Friday Centre-hosted event

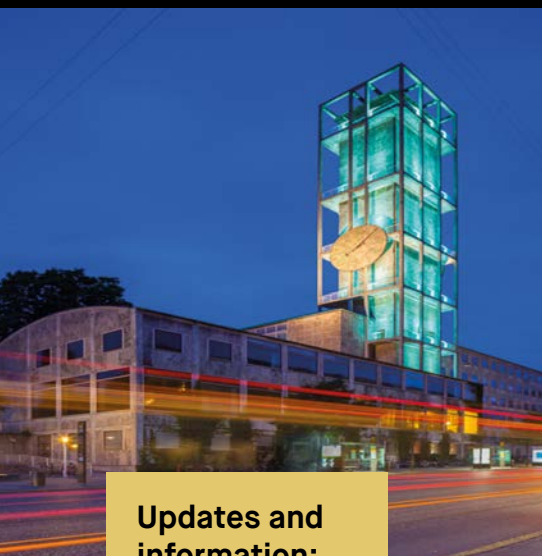
Friday 9 November

17:00-19:00
Welcome reception at the City Hall, Aarhus

19:00-23:00
Organised by the Europe Centre Committee, dinner with entertainment.

Tickets: £35 per person
Open to all members and their guests (subject to space).

There will be a drinks reception at the City Hall with an exhibition of student work, followed by a dinner.



Updates and
information:
ciat.org.uk



Woman Architectural Technologist of the Year 2018

Words by James Evans, Communications Assistant

In April, Claire Harlow MCIAT was shortlisted in the 'Woman Architectural Technologist of the Year' category by the 2018 WICE (Women in Construction & Engineering) Awards judging panel. She was pleased but convinced she wouldn't win. The judging process was demanding, involving a day of interviews and presentations for all the shortlisted candidates.

One month later, she attended the ceremony with three colleagues nominated for different awards. Their categories were announced first. One by one they learnt their result. The awards on Claire's table started to stack up. Claire's category was announced. She won.

'I could not believe it!' she tells me on the phone, adding 'it did take quite a while for it to sink in!'

Claire is an accomplished Chartered Architectural Technologist. She started her Architectural Technology degree at Northumbria University in 2005. In 2007, she took a placement year at FaulknerBrowns Architects. When she graduated in 2009, she was offered a job at the practice and has been there ever since, working her way up to the role of Senior Technologist.

It is a role that has allowed her to take on various interesting projects. 'One of the projects I'm most proud of is Derby Arena' she says. A 'revolutionary building typology' that features an elevated indoor velodrome track with a twelve court sports hall at its centre, surrounded by terraced spectator seating.

Claire tells me getting the geometry of the building right was tricky. The façade is not only curved to follow the shape of the velodrome track, but it also varies in angle as it wraps around the building. 'Just to set out that sort of building was a real challenge' she says. The team were able to do just that and the arena opened in 2015. Claire attended the opening night and has cycled on the track herself.



Try to learn as much as possible from those around you

I'm keen to learn about the changes Claire has seen take place over the course of her career. 'The challenges we face as an industry are as significant as ever' she tells me. Clients want to see greater innovation and often seek to make their project 'landmark', 'but often the budget does not adequately reflect this ambition. We therefore have to work extremely hard with the client and the project team to find a solution which delivers both design quality and value to society, within the budget available.'

During her relatively short career, the advent of new technologies has been significant. Claire has seen design via 2D 'coloured lines on a black screen' replaced by advanced 3D models. There is a 'fully integrated way of working now' where you can conduct clash detection exercises on software such as Revit or Navisworks before they happen on site, save time and coordinate more effectively.

Claire is a member of FaulknerBrowns' highly professional Architectural Technologist team. However, it seems that that sometimes isn't enough. Being a woman in the male-dominated construction industry has presented challenges her male colleagues do not face.

She recalls an occasion when a senior member of a construction firm referred to her as 'Little Miss' during a site visit. 'It wasn't in a jokey way' she adds.

'Further comments he made were quite intimidating, undermining the professional support I was providing to the project'. Unfortunately, this isn't an isolated incident in our profession.

Claire has built resilience. 'Believe in yourself and your abilities, and when the next challenge comes along, you can deal with it.'

She is keen to add that the majority of the people in the industry that she works with treat her with respect and that there are 'great people' in her studio that encourage and support her: 'FaulknerBrowns have been very supportive throughout my career, they have encouraged me to step out of my comfort zone and do things that I wouldn't necessarily have done by myself.'

With that in mind, I want to know what else can be done to encourage women into the industry.

Claire highlights the importance of promoting a career in the construction industry to girls in schools where she is herself involved in careers days. If young girls don't know about the industry and the 'breadth of opportunities available' they may assume 'it's for men, it's not for me'.

She was recently invited to help with a local initiative arranged for young girls who were studying for their GCSEs. 'They felt they could ask me anything about the industry and my role in it' she tells me.

As our interview draws to an end, we return to the subject of the WICE Awards. 'The experience itself was invaluable and empowering', Claire says. 'To be in a room full of the best women in our industry was extremely inspiring, and it was fantastic to learn so much from the experiences of others.'

Claire was also a finalist for CIAT's own Chartered Architectural Technologist of the Year Award this year (see page 36).

I ask her what advice she would give young Architectural Technologists. 'Try to learn as much as possible from those around you' she says. 'I've learned so much from my peers through asking questions and watching them and seeing how they do things.' ■



Derby Arena

SURFACE MATERIALS SHOW

9-11 OCT 2018
NEC | BIRMINGHAM

FREE
CPD CERTIFIED
WORKSHOPS

SURFACES AND MATERIALS AT THE FOREFRONT OF DESIGN

- ▶ Exclusive new product launches
- ▶ CPDs
- ▶ Live product demonstrations

surfaceandmaterialsshow.co.uk

#SMShow2018 @smshowUK



PART OF
UK CONSTRUCTION WEEK 2018

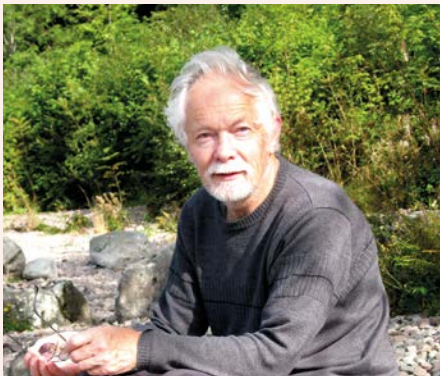
EXHIBITORS INCLUDE:



**REGISTER
FREE**

Obituaries

Words by Adam Endacott



J Iain D Elmslie MCIAT 18/01/1941–11/07/2018

CIAT was saddened to lose one of its founding members and stalwarts with the death of Iain Elmslie in July. Iain was very much involved in the formation of the Institute, representing the Manchester sector before and at the inaugural meeting on 12 February 1965. Sitting on the Steering Committee, he helped guide the formation of SAAT and became the very first National Education Committee Chairman (now titled Vice-President Education) until 1967. Iain wrote and compiled the first *Regional Education Officer's Handbook*, helped to form the North West Region and acted as Chapter Secretary. He was the Institute's representative to the joint SAAT/RIBA Education Committee from 1969–70, sat on the Examinations Board (1987–88) and the Membership and Education Committee from 1965–70.

Throughout his time with the Institute, Iain took a great interest and pride in the Institute until the end of his life; on hand with his knowledge, wisdom and stories. I would always look forward to his letters or phone calls with interesting stories about the Institute's formative years with snippets from his diaries kept for over half a century. I am proud to have called him a friend and he will be greatly missed.

Born in Carlisle, Cumbria, Iain studied at Preston College and at the College of Building in Manchester and was among the first year of Technicians to emerge from the course in 1964. Moving to Inverness, he did freelance architectural work and was involved with the Inverness Civic Trust. In 2007, he was presented with the Gold Award at the AGM Weekend in Manchester. He leaves a widow, Jacqi and two children.

Albert Marks 13/11/1928–27/07/2018

Although lapsing his membership in 2014 due to illness, the name Albert Marks is a familiar one to many and remembered with fondness for this forthright opinions expressed in his strong Geordie accent! He held the record as the longest serving Regional Councillor from 1983 until 2008 – 25 years – for the Northern Region. Joining the Institute in 1968, Albert would be an active member and sat on numerous Committees including Appeals, Membership and Education, Finance and Innovation and Research. For the Region, he was Chairman for 18 years and received the Gold Award in 2000. He always showed great enthusiasm and was very passionate about his Institute.



Tributes

He served with me on the Education Committee and, of course, Council and returned North with him on the train on many occasions. The phone call would always be Sam...pause...what are we going to do about...in his strong Northern accent. His Geordie wit, humour, passion and honest endeavour will always be remembered and were his hallmark. One of SAAT, BIAT and CIAT characters that helped firm our Institute.

Professor Sam Allwinkle PPBIAT MCIAT

I will always remember our long phone calls and discussions ranging from suggesting a good business proposal for my practice to his family to horses running this week to BIAT/CIAT issues to the state of the world to a piece of land he had his eye on. He always offered to give me a share in his winnings as he was sure he would win the lottery each week! He was to me always friendly, chatty and I considered him my friend in the Northern Region.

Mark Kennett PPCIAT MCIAT

He was a founder member of the Northern Region and always had the Institute at heart. We celebrated Albert's 80th at Gosforth Rugby Club in 2008 and was a memorable evening!

Phil George MCIAT

Albert was a committed member of the Institute, passionate about the profession and during his time as member on the Education Committee, wanted to see the re-introduction of apprenticeships to get youngsters into the Architectural Technology discipline, something which CIAT (with trail blazers), the Government and the built environment are currently embracing. Albert was a character and will be remembered by a large number of the membership.

Colin Orr PPCIAT MCIAT

Robin C Marley 15/07/1943–29/06/2018

Robin was an active member of the Wessex Region before lapsing his membership in 2004 due to retirement. For the Institute he was Surveyor to the Fabric (1982–88) and was part of both Finance and the Premises Group Committee.

As Surveyor to the Fabric, during which he learnt a lot, one of his biggest tasks was managing the complicated project of replacement of all of the windows in the City Road building, the home of Central Office



Membership News

Chartered Members

We would like to congratulate the following members who sat their Professional Interview and have attained Chartered Membership, MCIAT:

026224	Matthew Carter	Yorkshire, 02
025365	Joshua Catt	Yorkshire, 02
027784	Joseph Barrowclough	North West, 03
032396	Stephen Coate	North West, 03
027489	Veronica Chipasha	East Midlands, 04
024745	Mohammed Khaliq	East Midlands, 04
031411	Ian Walton	East Midlands, 04
022512	Shaun McCloskey	West Midlands, 05
024254	Scott Walker	West Midlands, 05
011799	Jacqueline Walton	West Midlands, 05
031360	James Bieganek	Wessex, 06
031911	Hend Ali	East Anglia, 07
032272	Alexandros Michalitsianos	East Anglia, 07
022607	Aaron Worley	East Anglia, 07
020215	Simon Griffith	Central, 08
032204	Jenna Sugars	Central, 08
019986	Matthew Fitzpatrick	Greater London, 09
029100	Gabriel Oshevire	Greater London, 09
024103	Ashley Rogers	Greater London, 09
011299	Gareth Sewell	Greater London, 09
032284	Alex Vousden	Greater London, 09
025826	Timothy Coombes	South East, 10
017175	June Grinstead	South East, 10
026541	Benjamin Kilgore	South East, 10
022786	Daniel Kincaid	South East, 10
032142	Seyed Sajjadian	South East, 10
031513	Jason Singh	South East, 10
032277	Andrew Turner	South East, 10
019447	Lloyd Brewer	Western, 12
031453	Darren Henderson	Western, 12
025491	Darren Mayne	Western, 12
030244	Jason Caddy	Scotland West, 13
024564	Roderick McEwan	Scotland West, 13
017302	Linda Simpson	Scotland West, 13
025423	Magdalena Blazusiak	Scotland East, 14
018876	Gerwyn Jones	Wales, 16
033211	Jonathan Morris	Wales, 16
023751	Gavin Roberts	Wales, 16
032562	Paul O'Sullivan	Republic of Ireland Centre, C2

Technician members

We would like to congratulate the following member who has successfully progressed as an Architectural Technician, TCIAT:

031547 Daniel Sherriff Western, 12

Welcome back

We would like to welcome back the following Chartered Members:

020484	Yaqoob Malik	North West, 03
020482	Christopher Davies	East Midlands, 04
012953	Sharon Ross	East Midlands, 04
019791	Kenroy Hylton	West Midlands, 05
014891	Ian Crowther	East Anglia, 07
028602	Elysia Dooley	South East, 10

017372	Brian Bourgaize	Channel Islands, 11
008265	Lee Cochran	Western, 12
019172	Caroline Fallow	Scotland West, 13
015666	Adrian McAshea	Northern Ireland, 15
024308	Jon Paul Elms	Wales, 16
013955	MOK Yuk Tong	Hong Kong Centre, C1

In memoriam

We regret to announce the death of the following members:

012839	Eduarte Caldeira	Channel Islands, 11
033093	Peter Cass	Scotland West, 13
004129	William Davies	Wales, 16
001424	J Iain D Elmslie	Scotland West, 13
000009	Ivan Haste	East Anglia, 07
010132	Paul Hiatt	East Midlands, 04
004885	Archibald Petrie	Scotland East, 14
002518	Tom Uttley	North West, 03
000107	F Donald Whitfield	Western, 12

Conduct

Member 011489 – Carl Thornton

Mr Thornton was found in breach of Clause 6c) from the Code of Conduct effective 1 May 2011:

Clause 6: Offering and/or Providing Services Directly to a Client

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

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

Disciplinary action:

In accordance with the Conduct & Disciplinary Procedures Item 18c), Schedule of Disciplinary Action, Mr Thornton was to be excluded from the Institute for a period of one year in respect of the breach of Clause 6c) from the *Code of Conduct* effective 1 May 2011.

Plaque presentation for AT Awards 2017

The plaque presentation for the winner of the Award for Excellence in Architectural Technology took place on 20 July 2018 to FaulknerBrowns Architects for The Word, National Centre for the Written Word.



Pictured is Councillor Ken Stephenson, Mayor of South Tyneside, receiving the plaque from Alex Naraiian PCIAT, President.

AT CPD Register Directory

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

CDM

JRA CDM

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

Cost/fee for attendance: £150.00

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

BIM

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

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

Cost/fee for attendance: £600 per module

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

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

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

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

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

Building Regulations

Reducing the Performance Gap Through Fabric First

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

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

U-value Calculations and Condensation Risk

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

Cost/fee for attendance: free to groups/practices

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

Rainscreen Cladding: Compliance with BR135

Topic areas for this CPD course include Rainscreen Cladding, BR135 and Fire Performance of External Thermal Insulation for Walls of Multistorey Buildings.

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

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

Section 6 2015 Scotland - Fabric Performance and Towards Passive

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

Conventions for U-value Calculations - In accordance with BR443

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

Contact: Linda Smith
E: marketing@xtratherm.com
T: +353 46 9066079
xtratherm.com

Materials

Low carbon GRP daylight solutions for the metal building envelope

The seminar delivers an understanding of how rooflight choices in relation to key performance requirements can impact on the overall contribution rooflights can make to the metal building envelope.

Cost/fee for attendance: free

Contact : Nicola Hancock
E: nicola.hancock@ncsservices.co.uk
T : 07956 847533
hambleside-danelaw.co.uk

Other

Using Drone Technology within architecture

This half-day, interactive, introductory course will equip delegates with the knowledge and understanding of how the latest advances in drone technology are changing and enhancing traditional architectural working techniques.

Cost/fee for attendance: £49.00

Contact: Ian Tansey
E: ian@prodroneworx.co.uk
T: 07805 864642
prodroneworx.co.uk

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

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

Cost/fee for attendance: free

Contact: Dave Raval
E: cpd@loftzone.com
T: 01483 600304
loftzone.co.uk

BREEAM Associate

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

Cost/fee for attendance: £195
breeam.com

CIAT members can save 15% on selected courses and publications



To claim your discount, enter code **CIAT15** at the checkout

BRE Academy's training and education programmes reflect BRE's prestigious legacy and is one of the main dissemination channels for our research findings.

BRE is at the forefront of research in the built environment, providing a range of online and classroom-based training. To support progress and learning in this skilled industry, we offer recognised industry qualifications, accredited CPD hours and certificates upon successful completion of our courses.

BREEAM Associate

BREEAM is the world's leading sustainability assessment method for master planning projects, infrastructure and buildings. It recognises and reflects the value in higher performing assets across the built environment lifecycle, from new construction to in-use and refurbishment.

Our BREEAM courses will take learners on their journey into BREEAM, by way of interactive content and technical modules, building their knowledge and understanding. Discover how to assess projects and provide a sustainability rating, learn how to reduce running costs and improve the environmental performance of buildings, and find out how to integrate BREEAM into your pitches and projects, and meet client requirements.

Find out more about our **BREEAM Associate** course at <https://bre.ac/course/breem-associate/>

BIM Level 2

Our BIM courses equip learners with an understanding of BIM and BIM best practice, which, when adopted, leads towards efficient delivery, driving excellence, preventing accidents and saving time and money – both now and in future years. Courses also support learners on their journey to becoming BRE BIM Certified Professionals.

Begin your journey with our **BIM Essentials** course available at <https://bre.ac/course/bim-essentials/>, or develop your knowledge further with our **BIM for Information Managers** course <https://bre.ac/course/bim-information-management/>

BRE Bookshop

With over 40,000 publications, you will find a wealth of material to support your learning and understanding of the built environment from BIM to BREEAM and much more. Visit the Bookshop at <https://www.brebookshop.com/>

To find out more or book a course, visit www.bre.ac, call us on +44 (0)333 321 8811 or email breacademy@bre.co.uk