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Thank you to all our entrants and congratulations to all our Finalists

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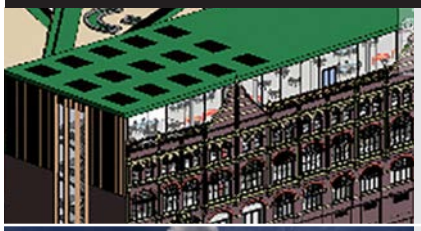

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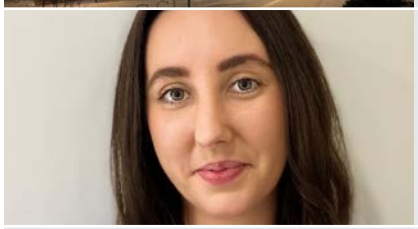

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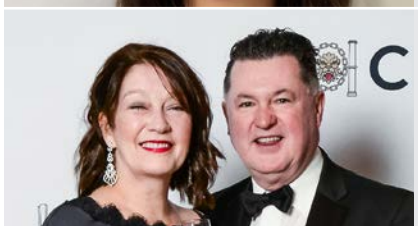

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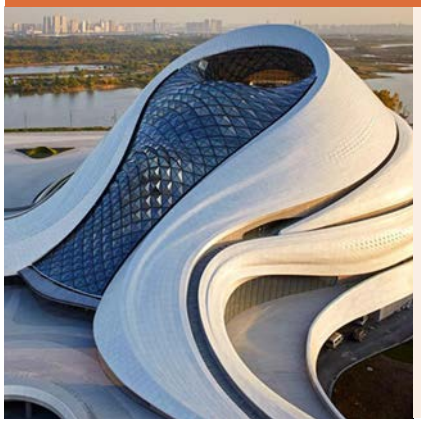

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Here we are at the winter issue already, as we come to the end of what has been a strange and challenging year! I think it is safe to say that 2020 will be a year that will not be greatly missed but then again will remain in the history books of the future!

One thing that has not changed is the love of our discipline, Architectural Technology – this has been demonstrated even more through the AT Awards this year. It was a tough decision by your Executive Board as to whether these would go ahead in 2020 but as always the Institute adapted and we were able to celebrate the very best in AT on 3 December. The online event worked very well and held together by our MC, Matt Allwright with high production values from Voytek, our production company, both of which have become good friends of CIAT. We were delighted to be mentioned in Matt's latest book, *Watchdog: The Consumer Survival Guide*, which came out in August and is available from all good bookshops.

This special edition of the Journal showcases all the Finalists for the AT Awards and you can discover further about their projects and reports. It is also a chance to find out more about our Chartered Architectural Technologist of the Year and recognise the work of David Traynor MCIAT who is one of the most passionate advocates of the Institute – I think CIAT is in his DNA! Whilst it is good to read about the Finalists on paper, you can also experience the projects through a virtual experience which was sponsored by Applecore Design – you can find out more on page 39 and visit applecoredesigns.co.uk/at-awards-2020-gallery/.

It has been an active period with the AGM hosted online also with the President and the Honorary Officers participating remotely via Zoom and a new job for our Chief Executive as she acted as the compere for the day. A report on the AGM can be found on page 53. The President is very active on online platforms at the moment and if you would like him to join your meeting or CPD event then please do get in touch and we can organise this for you.

As technology has become essential during two lockdowns in this country, the Institute took the opportunity to change its website domain to architecturaltechnology.com and emails have changed to ciat.global. This development further demonstrates that we are international and supports our membership globally. The existing domain, ciat.org.uk, and email addresses continue to operate in tandem.

I was saddened by the death of Paul Overton MCIAT in October who was a great character and I would enjoy many a conversation with him on the phone during the past 20 years. There is a tribute on page 54 and I would also like to dedicate this issue to the memory of Paul.

Please do get in touch as I would love to hear from you regarding anything in this edition or if you have any ideas for future articles – this is your Journal and I welcome all ideas and feedback – email me at editor@ciat.global

I hope you are able to enjoy the festive season and send my very best seasons greetings to you all.

Adam Endacott
Editor

CIAT

Certificates of Accreditation and Approval 2020

CIAT is delighted to report on this year's successfully Accredited and Approved programmes.

Accreditation and Approval of academic programmes, as well as Centre of Excellence status, enable the Institute to recognise our important partnerships with educational establishments, and support the development of AT as an academic discipline. All education establishments who offer Approved or Accredited programmes are essential in delivering the fundamental underpinning knowledge which provides a foundation for the AT professionals of the future.

Certificates for Honours degree level Accreditation

Accreditation at Honours degree level is a demonstration of an education establishment's commitment to delivering learning of a high standard by preparing talented individuals to enter the growing Architectural Technology community. The following educational establishments have attained programme Accreditation for the first time:

- Letterkenny Institute of Technology
  BSc (Hons) Architectural Technology
- Middlesex University
  BSc (Hons) Architectural Technology

The following educational establishments have attained programme re-Accreditation:

- Institute of Technology, Carlow
  BSc (Hons) Architectural Technology
- Manipal Academy of Higher Education, Dubai
  Bachelor of Architecture
- University of Salford
  BSc (Hons) Architectural and Design Technology
- VIA University College
  Bachelor in Architectural Technology and Construction Management
- Waterford Institute of Technology
  BSc (Hons) Architectural and BIM Technology

Certificate for Masters Accreditation

Accreditation for Masters level degree programmes is a demonstration of an educational establishment's commitment to delivering the highest standards of postgraduate progression and specialism within the profession.

The University of Derby has attained programme re-Accreditation for its programme: *Sustainable Architecture and Healthy Buildings* while the *Building Information Modelling and Project Collaboration* programme obtained Accreditation for the first time.

Certificate for Accreditation of Apprenticeship

This is a first for the Institute as we recognise those delivering apprenticeships as an alternative route into the profession. The first to attain this is Edinburgh Napier University for its *BSc (Hons) Construction and the Built Environment (Architectural Technology)*.

Certificates for Approval

Approval demonstrates that programmes have been assessed in terms of content, structure and resources. Waterford Institute of Technology attained programme re-Approval for its *BSc Architectural Technology.*

In response to the COVID-19 pandemic, the Institute had to re-think its normal Accreditation process for Honours degree level programmes, and substitute a physical Accreditation visit for a virtual visit. The virtual visits have gone very smoothly so far, and we would like to thank all educational establishments for their understanding and cooperation in regard to this.

Commended 2020

STUDENT AWARD FOR EXCELLENCE
IN ARCHITECTURAL TECHNOLOGY | REPORT

Recognising outstanding research achievement in Architectural Technology – a dissertation or research assignment

Intelligent Assets Tracking with Circular Economy and Blockchain Technology in the Construction Industry to Solve Urban Problems for Sustainable and Equitable Futures

Words by Shehzadi Mohammed, Manipal Academy of Higher Education

The report addresses a vision and an action roadmap to a paradigm shift in the built environment sector industry to create an unsurpassed model that reflects the transition to a circular economy with the help of blockchain technology, by utilizing materials that are salvaged, reclaimed or up-cycled (such as plywood layers, structural panels and salvaged concrete elements) of exceptional strength, dimensional stability and rigidity selected based on performance. It investigates how timber building practices reduces costs and speeds up construction.

The amalgamation of innovations in blockchain technology with material passports in the circular economy for the industry and ecological communities has been traced to generate economic resilience in the built environment sector. By creating a circular system in place empowered by blockchain which is restorative and regenerative by design, achieved by decoupling value creation from finite resources consumption to adopt a sustainable closed-loop growth model. Blockchain technology possibilities have been investigated to implement material passports and fourth industrial revolution technologies to counter construction and demolition (C&D) wastes and create new opportunities and business models to reinvigorate economies globally by creating various sources of value creation in various industries. With sustainable development goals (SDGs), sustainable growth models, internet of things (IoT), big data, data analytics, Building Information Modeling (BIM) and visual design and construction (VDC) it can turbocharge smart and circular economy models to maximise profit margins and revenue or minimise inventory, paving way toward resilient and sustainable infrastructures.

With the proposal of cross-laminated timber (CLT), an addition to conventional materials like concrete and glass, it can be a natural non-carbon product. CLT panels play a crucial role in sustainable architecture used as supporting elements and as finishing building envelopes with prefabrication possibilities and environmental advantages over conventional materials. With 300mm insulation it can provide lower U-values. There is a certain specificity of CLT capacity and inability to use standard wooden connectors to transfer the forces along the thin linear edges where the panels are supported. This renewable construction material saves up to two tons of CO2 with every cubic metre of wood. With better thermal insulation, it insulates five times better than bricks, 350 times more than steel and quickest to erect compared to brick or stone buildings.

These objectives can be achieved with material strategies and documentation methods in existing construction systems. Detecting environmental concerns with indicators for assessing community's environmental impact. Circular economy can reroute asset use by separating value-creation from the utilisation of limited assets to a restorative future for indigenous habitats to re-establish assets, executing circular standards and transform current C&D wastes and expenses into positive businesses and accomplish a circular future coordinating material identifications for a regenerative model. This methodology of creating material passports, as smart

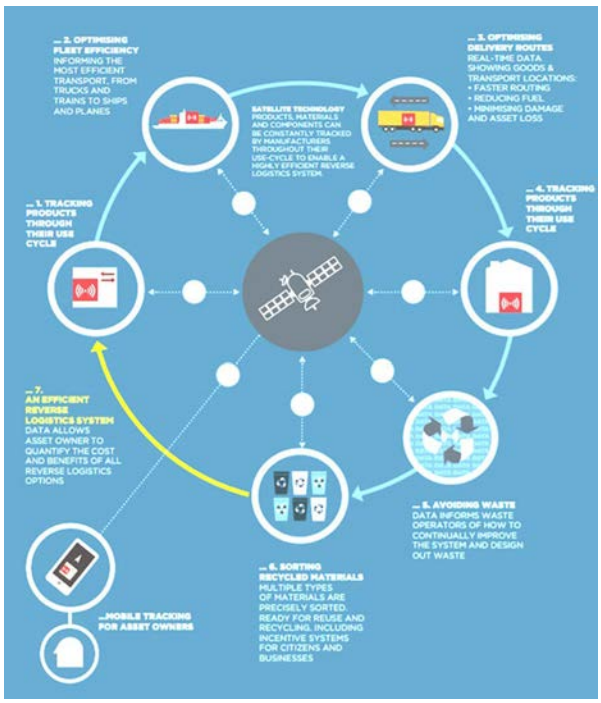
contracts on blockchain, in the design of buildings through construction to demolition and recycling with circular economy is envisioned for the urban realm as a model. Material passports on blockchain can allow re-utilisation of materials wherein blockchain innovation is a decentralised platform customised to record and make various entries.

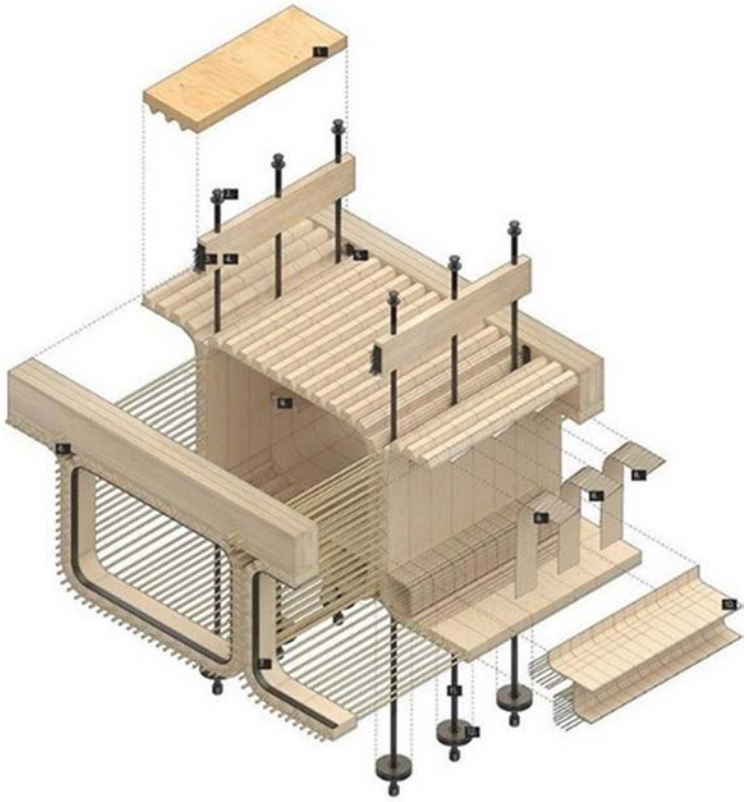
Linear economy degrades the environment, causing material availability problems and large quantities of waste. Some wastes are recycled but mostly end up in landfills. Ideal circular community has buildings designed to have the longest possible lifespan through reuse/repurposing. The introduction of material passports on blockchain stimulate reusability, increase transparency, develop business models and allow material relocation to various stakeholder markets with smart demolition. Reusable products and salvaged materials maintain their physical and economic characteristics. Bio-based construction materials are a part of the bio-composites production market. 3D printing for local building production to increase demand for bio-based plastics and bio-composite production. Modular construction suggests flexibility contributing to cost-effective adaptation for different building functions and optimise building space. A mixed-use development with pedestrian-oriented development, components of live-work-play, amenities and architectural expression to mitigate traffic and sprawl will be a pioneer for a circular model for tomorrow's business and environmental ecosystems

For financial versatility, a circular vision with blockchain innovation for ecological communities, rerouting value-creation from the utilisation of limited assets, for a regenerative closed-loop model, by characterising a vision, a roadmap to circularity for the built environment sector by investigating opportunities for blockchain innovation, execute material passports and effectively coordinate fourth industrial revolution.

This research is backed by qualitative allied and non-allied studies on Dubai Sustainable City, Masdar City-Abu Dhabi and Brock Commons, Australia.

Envisaging to solve urban problems with a powerful trifecta of blockchain technology, material passports and circular economy would empower residents with a highly-secured, urbane incubator core that stages blockchain





technology with computing (artificial intelligence), 3D printing and nanotechnology. This along with residential units with smart home automation systems offer a new living atmosphere to thousands.

Arup's IoT in construction and infrastructure, Dubai Sustainable City, Masdar City, Abu Dhabi, and similar smart townships have enabled circularity of buildings and infrastructure constructions. Internet of things solutions for predictive maintenance has disrupted ownership structures and assets, effectively making buildings flexible, upgradeable and more resource productive. Buildings should be more intelligent about designing out waste and the condition and make ownership of its components fully transparent to frequently circulate certain building components such as façades, interiors and building services to accommodate the changing needs. Resource productivity of design and construction should be optimised from a life-cycle assessment point of view with tools. Analytics software processed data and findings are made available across all platforms through a centralised database that can increase resource productivity, and benefit the environment and economies, all in synergy to make advances in the holistic field of Architectural Technology.

Blockchain technology possibilities were investigated to implement material passports.

Judges' comments

This entry investigated the application of blockchain technology and intelligent asset tracking to improve circular economy principles through the example of ecovillages. Blockchain technology possibilities were investigated to implement material passports and fourth industrial revolution technologies.

The comprehensive range of factors considered with its many fascinating elements led the judges to awarding this as the Commended entry. ■

Highly Commended 2020

STUDENT AWARD FOR EXCELLENCE
IN ARCHITECTURAL TECHNOLOGY | REPORT

GenerATive Design – Redefining Roles Within the Design Process

Words by Stuart Cully, Ulster University

The traditional process of architectural design is undergoing significant change as a result of digital disruption. Generative design processes are beginning to be used within the sector which could potentially lead to a momentous shift in the approach to how buildings are created.

The role of the Architectural Technologist within the design process has traditionally been to link the ideals of architectural design with the realities of construction. By leveraging the data rich processes of digitally driven design and applying them to the specific design goals and constraints of a project, automated design solutions can be generated and evaluated in a process known as generative design. This new focus places an increased value on the intuition and experience of the Architectural Technologist, shifting the dynamic from solving design problems to defining the information needed to generate design solutions. This information can be used to guide analysis and define relationships according to predefined rulesets and allow scripting to further streamline the virtual design process.

The interest and development in the area speaks for itself with Dutch construction company Van Wijnen utilising generative design techniques in urban planning, changing the dynamic of how they design and build sustainable and affordable housing (Villaggi & Walmsley, 2018), Japanese developer Daiwa House developing generative design solutions to optimise land use and maximise efficiency (Daiwa House Group, 2018) and LEO A DALY, an American design firm integrating generative design into their design process.

The COVID-19 pandemic has also heightened interest and challenged designers to embrace technology and new ways of working, with generative design approaches seen as a way of assisting with space layout planning (Walmsley, 2020), building on previous research undertaken for the design of Autodesk's MaRS office in Toronto and Autodesk University Las Vegas 2017, where a generative design approaches were utilised to explore a wide variety of design solutions (Villaggi & Nagy, 2020).

In terms of software, developments include Finch (Finch, 2020), a parametric design tool that can potentially generate parametric floor plans adapted to the constraints of a site, Parafin, a generative design platform built specifically to rapidly generate design solutions for multi-storey buildings in the hospitality sector (Martin & Forneris, 2019), TestFit, a programme that uses parameters and algorithms to generate spatial layouts of buildings in a virtual environment (Harness, 2019) and mimo.ai, a simple mobile application room layout creator (Stacey, 2018), all typified by Autodesk Revit 2021 having an inbuilt generative design workflow (Autodesk, 2020a).

This rapid advancement in the novel area of generative design provides an opportunity to investigate its application in various scenarios and the impact in can have on design professionals. By examining the current state of the art in relation to generative design and critically evaluating the impact of generative design solutions on the role of the Architectural Technologist, this paper aimed to apply a generative design workflow for a medium-scale design proposal for alignment with Stage 2 and 3 of the RIBA Plan of Work 2020 (RIBA, 2020).

The software selected for investigation were TestFit (TestFit, 2020) and mimo.ai (Stacey, 2018) in combination with Dynamo Studio (Autodesk, 2020b) and Autodesk Revit (Autodesk, 2020a). Utilising simple graphical user interfaces to define criteria and generate powerful algorithms, these tools were able to determine the feasibility of a design on a particular site and refine and evaluate design outputs more efficiently. As feasibility

tools, they separate the construction detailing and buildability aspects from the early stages of the design process with "the basic premise being to try to course units perfectly, given the shape of the building and the size of building mass you are attempting to fill with units" (Harness, 2018). Refinements to the process, including algorithms for placing various building elements such as fire walls, stair cores and lift shafts in compliance with the relevant building regulations, allows the platform to offer a more rapid and dynamic feedback loop. By using Dynamo Studio, solutions generated were imported into Autodesk Revit to generate three-dimensional parametric models.

Utilising generative algorithms to create adaptive floor and building plans, generative design tools such as these help to blur the line between the traditional roles of designer, architect and client. By altering variables for budget, room types, room sizes and room layout, the end user can generate new alternatives that are measured against the input criteria and awarded a percentage mark reflecting how well they reflect the desired design constraints.

Using this workflow, a proposed building plan was created within Autodesk Revit. The basic site plan was formed from the geometric data generated by TestFit, with the wireframe imported from Dynamo Studio used to create building elements such as walls and floors, and the floor plans for each room informed by the data generated by mimo.ai.

This workflow allowed 'the designer' to analyse and define the relationships necessary to codify, iterate and evaluate solutions to a potential design problem, incorporating visual scripting tools that enabled data from one piece of software to communicate with and influence another generating design solutions quickly and effectively without needing to have extensive knowledge of coding or programming.

By leveraging this generative design approach, and developing the ideas presented, it may be possible for designers to generate potentially infinite solutions. This could be achieved by defining parametric values and utilising each generative design tool to analyse and iterate, arriving at optimal design solutions that may not even be possible using tradition design methods.

A key challenge in evolving the design process within a virtual environment is the unquantifiable nature of subjectivity that occurs as part of traditional design development. Designers are still required to evaluate design outcomes and modify the design parameters to refine the generative design process. General Adversarial Networks may hold the solution, utilising deep learning to create and analyse designs by curating the data rich output of the generative design process and leveraging this data to refine the design solutions. This process can be used continually, even after practical completion of the project to further refine and adapt the design over time (Newton, 2019).

It is evident that generative design tools have the potential to not just optimise buildings in a meaningful way, but automate the minutia of the design process, improving workflow with the potential to make it more affordable, ecological and efficient.

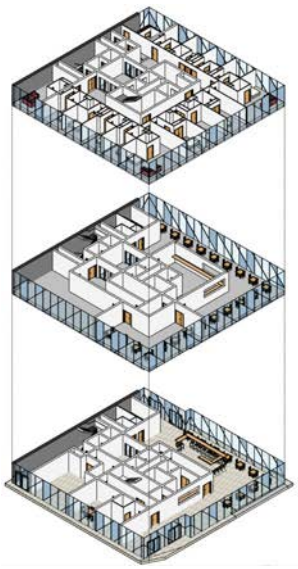
Using these generative design methods will require skills both new and old to help shift the dynamic of how the design process is approached. With a comprehensive knowledge of the use and performance of building elements and the relationships between them, Architectural Technologists already possess an understanding of the fundamental concepts integral to the implementation of generative design, allowing their intuition and experience to foresee technical challenges and evaluate design iterations to be applied to the data rich processes of digitally driven design at even the early stages of a project. Perhaps then, with generative design as their tool and the digital skill required to implement it, the Architectural Technologists of the future may have more in common with the master builders of old than with the architects of today, bridging the gap between the design led approach of architecture with the realities of construction.

There are many benefits to employing a generative design approach.

Judges' comments

This Highly Commended entry explores the significant change currently happening to architectural design as a result of digital disruption. It identifies current generative design tools and applies them to produce a workflow for the design of a hypothetical eco-hotel.

There are many benefits to employing a generative design approach. However, it will require human input and analysis and the role of the Architectural Technologist is fundamental to this process. ■



Winner 2020

STUDENT AWARD FOR EXCELLENCE
IN ARCHITECTURAL TECHNOLOGY | REPORT

Early Design Computational Simulation Tools For Net Zero Energy Buildings

Words by Adeliia Papulzan, Birmingham City University

The worldwide energy consumption reports continuous growth every year on increases in the emission amount of many greenhouse gases in the environment, especially carbon dioxide. The significant energy and natural resources levels consumed by the construction industry is identified as “the industry of the 40%” representing total CO_2 emissions, waste production and consummation of total natural resources.

The Net Zero Carbon Buildings Commitment is planning to encourage all buildings to be Net-Zero Carbon in operation by 2050. However, from 2020 onwards, all newly built or renovated houses will have to comply with Nearly Zero Energy Building (NZEB) standards. In order to design up to Net-Zero Energy building standards, three elements must be considered in the design process which are reduction of energy demand through fabric energy efficiency, the operating phase of a building should not be more than the Carbon Compliance limit established, and any remaining CO_2 emission must be reduced to zero.

Building Performance Simulation (BPS) can be performed during the different stages of design process, including pre-design, schematic and design development stages to design and opt for the most efficient solution. The workflows proposed in the case studies combine parametric modelling and genetic algorithms (GA) to incorporate energy simulation in the early design stage of a building and reduce its lifecycle energy needs to achieve NZEB Standards.

Algorithmic modelling or computational generative design is considered an important tool to determine design potential and enhance the procedure of architectural synthesis. In order to achieve the best energy performance, parametric thermal simulation is frequently utilised for exploring different design alternatives and finding the optimal combination of parameters. The parametric approach that has been applied to analyse building performance is to use a GA software on a visual programming language (VPL) Grasshopper and Dynamo; and optimisation plugins such as HoneyBee, Ladybug, MATLAB to analyse energy performance based on geometric shape and orientation This technique provides dynamic control over geometry and components when designing forms, permitting the designer to pursue suitable clarifications on complex issues with evaluation of multiple variants at the same time. This creative exploration of design space is enabled by parametric modelling, by varying parameters and their relationship to find the most sustainable design decision at early stage. However, this tool is mostly used to improve visual qualities of the model overlooking the greater purpose of this tool.

According to the analysis of case studies, it is clear that the workflow of Dynamo and Grasshopper in these cases similar as both utilises algorithms and optimisation plugins. However, different algorithms are used for optimisation of the building. The NSGA-II utilises better sorting algorithm, integrates elitism, and no sharing parameters needs to be selected providing efficient analysis. Whereas, GA is simpler, but could be time-consuming if there is a large population of input data. The GA requires preparation, setting the objective function, consisting of input chromosome generations, and defining the constraints. Therefore, it is clear that parametric building energy simulation tools optimise building energy performance at early design stage. In order to achieve design up to nZEB Standards, the algorithmic building energy optimisation aids to determine weakness of initial design concept by manipulating parameters to achieve low carbon developments.

The case study results demonstrated that the highest improvement rate of OTTV is occurred in case study

undertaken by Lim et al., 2019 which indicates that NSGA-II is an efficient algorithm for optimisation of the building.

Based on questionnaire results, case study comparison and review of the workflow, it has been identified that the most widely used software package is Grasshopper for Rhino with environmental analysis plugins such as HoneyBee and LadyBug. The reason being these tools are native to industry whereas Dynamo is a relatively new parametric plugin for Revit that is supported only by Autodesk. The other reason could be that the LadyBug optimisation tools were developed initially for Grasshopper use, but recently the version has been realised for Dynamo. Moreover, Grasshopper has more components in HoneyBee and LadyBug than Dynamo.

Despite this fact, Dynamo for Revit is evolving and integrating BPS tool main software package, as well as relatively new optimo package. This VPT integrates with BIM seamlessly enabling efficient workflow and creating and maintaining asset management.

Based on research, the simplified optimisation workflow for Dynamo is proposed in the figure below to enable construction industry that is in lack of resource and skills implement BPS for BIM in early design stage. The process commence with creation of 3D model and extraction of parmeters of building geometry and construction materials. Before optimisation, a sensitivity analysis is performed to reduce the range of parameters, that aids to accelerate the convergence. During the optimisation, ranges of optimal solutions are determined using NSGA-II . Finally, the result applied automatically to produce an optimal building model.

The computational tools illustrated a major contribution into energy use and sustainability that should be integrated into every design process. Therefore, the architectural practises should make BPS mandatory for all projects at early design stages and provide training for staff to undertake this analysis. The large international architectural companies are integrating this analysis to enhance energy efficiency of building designs, whereas smaller companies are not able to incorporate it due to lack of resources, information, and skills. Therefore, the simplified optimisation workflow has been developed for the construction industry to implement BPS at early design stage.

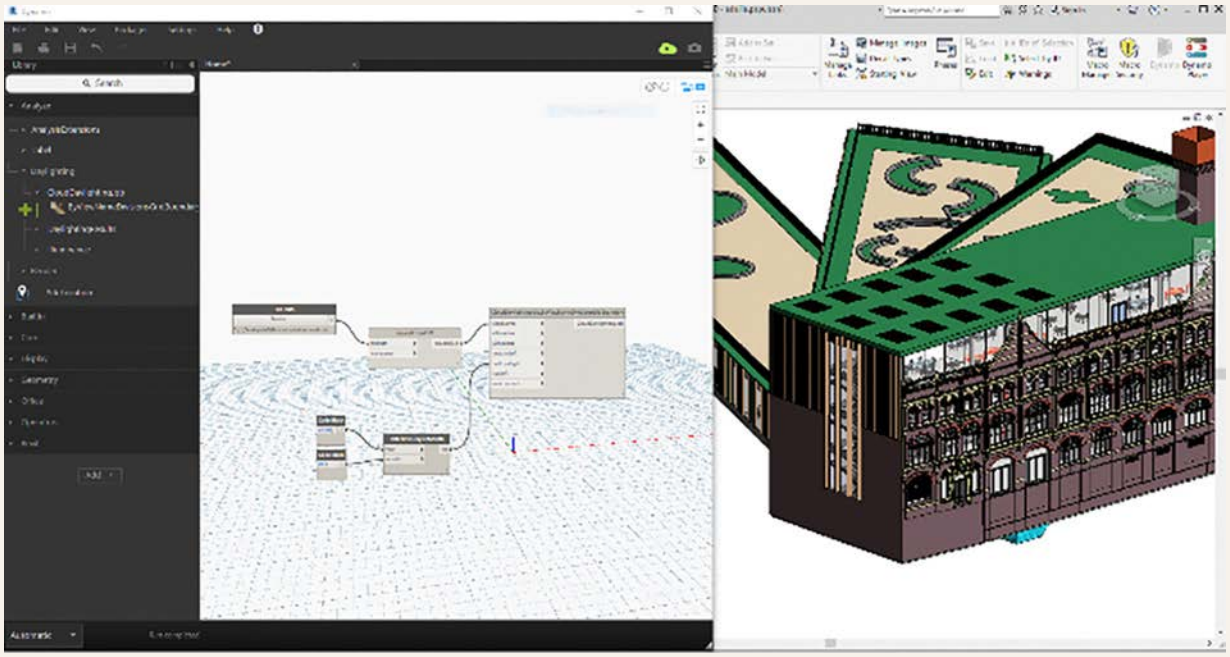
BPS is an important analysis to undertake at early design stage as it contributes to developing energy efficient designs with low-carbon footprint. However, this tool often is underestimated and used only at the late design stage to obtain comprehensive analysis. Parametric design and building energy simulation workflow are integrating Grasshopper and Dynamo with various environmental tools enabling to run optimisation analysis and determine efficient design solution. The questionnaire results demonstrated that Grasshopper and HoneyBee/LadyBug is widely used in industry due to availability of advanced environmental plugins for Grasshopper tool. Whereas, Dynamo is relatively new VPL and requires more development of integrated environmental analysis tools. According to the case study review, NSGA-II with Dynamo has demonstrated the highest OTTV reduction rate which shows efficiency and effectiveness of this process. Therefore, Dynamo for Revit and MATLAB/Optimo plugins should be implemented into practices intensively as BIM implementation is encouraged by Government allowing continuous integration with optimisation tools.

An outstanding report on the relevant topic of net zero energy buildings.

Judges' comments

The winning entry is an outstanding report on the relevant topic of net zero energy buildings.

The comprehensive nature of this technical report showcased many strengths, such as emphasising the impact that early design decisions made will have on the building's environmental performance during its usage. Therefore, the adoption and usage of simulation tools are vital to embed energy and environmental performance as key aspects of a building design, which are well-suited to the Architectural Technology profession.



Finalists

STUDENT AWARD FOR EXCELLENCE
IN ARCHITECTURAL TECHNOLOGY | REPORT

Applying Carbon Neutral Principles to the Resolution of Technical Architecture

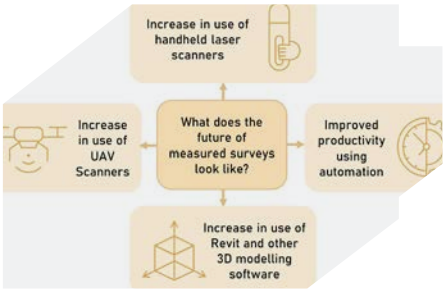
Ben Hall ACIAT,
Sheffield Hallam University

This report investigates the application of carbon neutral principles. A selected 1:20 section was developed to identify the critical junctions, resulting in three 1:5 callout details being produced. The aim of this exercise was to produce a resolved building envelope which addresses the design issues presented at the outset of the report. The section and details technical resolution explore: construction assembly; airtightness; reducing cold bridging; moisture control; u values; and environmental credibility. Three separate themes were selected to inform the design: form; compliance with Approved Document B: Fire Safety; and achieving carbon neutrality.

Achieving a Circular Built Environment: A Critical Analysis of Cradle-to-Cradle

Nick Jones,
University of Plymouth

The concept of the circular economy has arisen from the consensus that the current linear economic system is characterised by unnecessary excessive end-of-life waste and a reliance upon fossil fuels, leading to depletion of natural resources and record level of CO_2 greenhouse gas emissions. This study focuses upon the cradle-to-cradle philosophy, a design methodology which has formed its own certification program to support the circulation of products within the circular economy. The cradle-to-cradle paradigm is beginning to be applied to buildings, aimed at going beyond the typical 'green' and 'sustainable' eco-efficiency approach, to provide buildings with a positive 'eco-effective' ecological impact.



The Future of Technology in Measured Surveying Practices

Lucy Mannion,
Birmingham City University

Surveying technology is constantly evolving, with new developments being introduced to the industry regularly, creating opportunities to enhance the current workflow processes. Many of these developments focus around the equipment used for on-site data collection, however there are many more areas that may have issues that should be addressed. This research aims to evaluate the current technology used for measured building and land surveys and find out how these could be developed and improved in the future of the industry. The purpose of this research is to identify the problems encountered within practices, and to ascertain innovative technological advances that could be integrated into the industry to improve the workflow and increase productivity.

STUDENT AWARD FOR EXCELLENCE
IN ARCHITECTURAL TECHNOLOGY | REPORT

Meet the Judges

Chair:
Dr Matthew Brooke-Peat MCIAT, Vice-President Education

Matthew is a Chartered Architectural Technologist, Chartered Builder and Chartered Environmentalist. Since 1994, he has held positions in construction, architectural practice, academia and technical consultancy. During this time, Matthew has designed and managed new-build, refurbishment, restoration, renovation and conversion projects across a wide range of building types. Matthew is Programme Director for Architectural Technology at Leeds Beckett University. His specialist area of research and consultancy focuses on the thermal performance of building fabric. In addition, Matthew has participated in several scientific and specialist committees for academic conferences and he has acted as a reviewer for academic journals.

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Gareth Alexander MCIAT

Gareth is a Chartered Architectural Technologist and is lecturer and Programme Director for the BSc (Hons) Architectural Technology and Management at Ulster University. He is a dedicated and enthusiastic academic. As Regional Education Officer and Committee member for the Northern Ireland Region, he promotes and champions Architectural Technology in Northern Ireland and beyond. Gareth is a Member Panel Assessor for CIAT and a member of the Membership Group.

He is currently External Examiner for Architectural Technology programme at the University of Central Lancashire and has previously engaged in similar roles at Leeds Beckett University and the University of Wolverhampton.

Brian Dempsey MCIAT

Brian Dempsey MCIAT is programme leader and lecturer on the BSc (Hons) in Architectural & BIM Technology at Waterford Institute of Technology. He is an NSAI approved thermal modeller, certified passive house designer and holds a Masters degree in Sustainable Development. His research interests include building information modelling and building envelope analysis for thermal and hygrothermal performance.

Dr Heba Elsharkawy MCIAT

Dr Heba is a Reader in Architecture, Cluster Leader for Architecture and Design and Programme Leader for BSc (Hons) Architecture at the Department of Architecture and Visual Arts, University of East London. She led the BSc (Hons) Architectural Design Technology programme between 2016-20. As a trained architectural engineer, Dr Heba holds a PhD in Environmental Design and a Fellow of the Higher Education Academy, having achieved a Postgraduate Certificate in University Teaching and Learning (PgCUTL). She has been Principal Investigator to a British Council funded project; Building Capacity for Sustainable Development of the Built Environment (2016-19). She has organised and led two international conferences, four professional training programmes, undertaken world class research and developed international dual degree programmes.

Dr Poorang Piroozfar MCIAT

Dr Poorang is the Subject Lead for the Built Environment and experienced principal lecturer (associate professor) in Architectural Technology at School of Environment and Technology, University of Brighton, with a demonstrated working history in the higher education industry in three continents. Highly skilled in BIM, sustainable design, sustainable development, architectural design and urban planning. Strong professional with an MArch focused on urban regeneration and mixed-use/multi-function design and Doctor of Philosophy (PhD) focused on mass customisation and personalisation in architecture, with a proven track record of research in design, architecture, the built environment and construction.

Dr Jonathan Scott MCIAT

Dr Jonathan joined Robert Gordon University in 1992, completing an HND in Architectural Technology. He went on to complete a first class Honours degree in the same subject, graduating in 1998. Except for a short stint in industry, Jonathan has worked in research and teaching for The Robert Gordon University on a variety of projects, developing his interests in the areas of environmental design, energy monitoring, life cycle analysis, social and occupancy evaluation. In addition, Jonathan is also interested, in a research and educational aspect, in CAD, surveying technologies and historic conservation. He is Programme Leader for BSc(Hons) Architectural Technology degree programmes at The Robert Gordon University.

Commended 2020

STUDENT AWARD FOR EXCELLENCE IN ARCHITECTURAL TECHNOLOGY | PROJECT

Recognising outstanding design achievement in Architectural Technology – a university/ college project

Green City, Residential Development

Words by Reece Scattergood, University of Derby

It was understood from the development of the Derby Masterplan the city was somewhat lacking large open and green spaces for people to visit whilst allowing nature and wildlife to thrive. The development is set to provide a wide variety of high quality apartments with additional co-living facilities, whilst providing open green areas and pocket gardens for the public and residents to use, alongside ensuring the development achieves the best Passivhaus standards for preventing thermal loss, and using natural resources of energy whilst implementing locally sourced materials.

The brief was to provide a large open green space for the public to use, whilst offering a diverse range of sustainable living accommodation such as apartments with private pocket gardens and co-living studios with shared living facilities, all with strong vistas over the Cathedral Green and River Derwent. Additionally, the development will consist of a rooftop restaurant, ground floor retail units, café's, bars, boutique shops and internal and external green spaces for residents and the public to use. These spaces will also allow existing drinking/ eating establishments to spill out onto, providing extra outdoor seating. Parking, a gym and spa and new entertainment facilities will be provided for all residents of the development.

The site is located west of Full Street, Derby, formally a car park, and was surplus to Derby City Council requirements, therefore, not taking advantage of the site's possibilities. The site is located within the Cathedral Quarter Business Improvement District and on the edge of Derwent Valley Mills World Heritage Site whilst

neighbouring the Grade 1 listed Cathedral Church of All Saints. Given this, the location of the development, as well as the aesthetics should work in harmony with existing neighbouring structures whilst providing a contemporary design. The topography of the site provided challenges from the concept though to technical detailing due to the site gaining approximately one storey from east to west. This deemed careful consideration around the design for landscaping to ensure the green space was accessible for all, whilst ensuring any retaining walls were of suitable strength and prevented the ingress of moisture.

The development consists of three buildings, all with bright open central corridors with large apertures within the elevation to allow natural light and air to pass through, fulfilled with nature. Each building is connected with internal winter gardens, allowing for bridges to pass through the tree tops at all different levels, to experience a diverse range of wildlife. The lower ground floor consists of underground parking, resident's gym and highstreet boutique stores. The internal winter garden provides a place to sit, whilst allowing a gentle journey from lower ground, to the upper ground floor, where a seamless transition between internal and external gardens can be found through the perforations of the zinc façade leading to cafés, bars and shops. A grocery store is also located on site, set to reduce the resident's carbon footprint allowing them to reduce traveling to large supermarkets further afield.

The intermediate floors consist of one and two-bedroom apartments with open plan living and private pocket gardens. A separate structure containing co-living studios where tenants will have private bedrooms, en-suites and a kitchenette whilst living spaces such as kitchens, lounge areas and games rooms will be shared between five studios. The glazed lift in the centre of the gardens allows access to the rooftop restaurants with internal and external seating, with vistas across the green spaces.

Architectural Technology has looked into solving a variety of technical problems to enhance the efficiency, safety and design of the building to ensure not only it meets the client brief, but complies with current Building Regulations and British Standards. Simplicity was essential, to keep building cost down but also to provide a minimalist design. The winter gardens, cloaked in perforated zinc, is a simple cladding method but provides a striking building at night when light from the gardens omits through the material.

A variety of modern methods of construction for the external walls were evaluated to address requirements for a high insulated fabric, minimising wall depth, whilst still providing strength for the cantilevering apertures. Steel frame construction has been selected due to being able to insulate in-between and over the structure to provide U-values in accordance with Passivhaus standards. A single skin masonry rain screen, with 440mm linear bricks assisted in allowing the design to fit in with the historic surroundings, masking the steel frame whilst providing contemporary detailing with 'hit and miss' brick work over windows to provide privacy, feature brick lintels and brick soffits within apertures.

Each apartment has a bio-diverse, living green pocket garden to provide diverse wildlife and plant communities. These gardens will reduce sound levels and the ambient temperature, due to absorbing 50% light, whilst purifying the air and therefore increasing occupant wellbeing.

Thermal buoyancy creating differences in vertical pressure forms passive movement of air within the development, creating stack ventilation through the voids within the corridors and apertures.

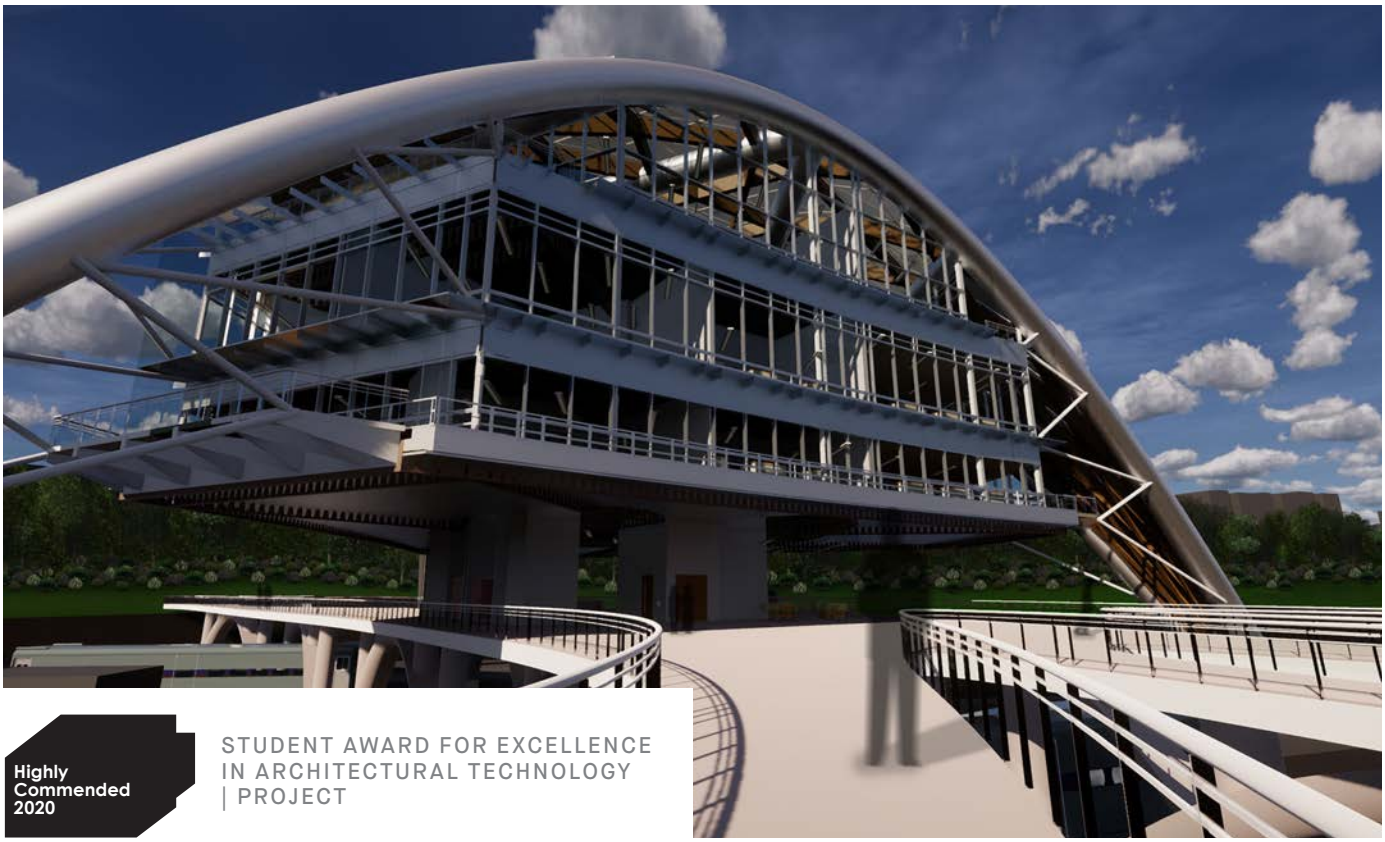
Water can be harvested from rainfall on the zinc roofs, and stored within treatment tanks, to be used within wash basins, etc. The water can then be filtered/treated further to provide potable water. Sewage treatment plants and soakaways have also been implemented within the development grounds. These measures will therefore reduce the amount of water needed from a commercial water supply and omitting the environmental impact of implementing a water supply and waste infrastructure.

Electricity will be sourced from photovoltaic panels integrated within the roof design. These panels will generate energy and store it in high efficiency batteries to provide electricity, therefore reducing the amount of electricity drawn from the national grid. Due to the excavations for the underground carpark, it has been economical to implement a ground source heat pump, to provide warm water for underfloor heating throughout the development.

Overall, the development has used a simple construction methods integrated with modern technology to provide a fully sustainable development with a large bio-diverse area where nature and wildlife can develop within the centre of Derby. This allowing residents of all ages to live sustainably and not have a detrimental impact on the environment, without having a high upfront cost.

Judges' comments

This entry presents a realistic mixed-used project that fits the location well, and the wider plans that Derby Council has for the city. The proposal is focused around bringing residents the opportunity for green living. The entry showcases very good 3D visuals to communicate the design that are supported by proficient technical detailing. ■



Highly Commended 2020

STUDENT AWARD FOR EXCELLENCE IN ARCHITECTURAL TECHNOLOGY | PROJECT

Sheaf Valley Link Project

Words by Henry Yang, Sheffield Hallam University

The Sheaf Valley Link building project is intended to promote development within Sheffield with the advent of the HS2 high speed rail. The building is to be situated over the Sheffield train station and provide a link from Sheffield city centre to Sheaf Valley Park. The building will serve as a location to promote commercial growth in the city.

The project requires a mixed-use building to facilitate different opportunities for businesses. The building required office spaces, exhibition spaces and other ancillary facilities including bookable meeting rooms, management offices and a cafe. Each space is to be divided but accessible from the main entrance. Another important aspect of the project is to provide 24-hour pedestrian access from the city centre to Sheaf Valley Park. The only existing ways to cross the train tracks are either through the train station, which is a security concern for the train station, over an old run-down pedestrian bridge, or over a bridge much further to the south. The pedestrian bridge will hopefully provide a safer alternative to the run-down bridge and alleviate the security concern of the train station.

The design of the building draws inspiration from one of the most fundamental connections in the human body, neurons. Neurons form connections in many different directions and are used to transfer electrical signals in different directions. Using this idea, the pedestrian bridge connects in four different directions to form connections for people across the train station. The connections link to the four different directions people may come from to access the bridge.

The structure of the building mimics conventional through arch bridge design, using large arches to carry the loads to the ground and structural members under tension to transfer load from the building to the arches. The structure of the building reaches down to the ground at three points, minimising the contact of the building with the ground. Many of the structural members are manufactured off-site and assembled on-site to allow for faster construction. By designing in this way, the impact to the operation of the train station is minimised. The number of foundations required is minimised to reduce excavation of many areas and the use of off-site manufacturing reduces construction time on site. After the bridge and arches are fully assembled it is possible for the train station to operate without being disrupted by the construction. Disruption to the operation of the train station is a major concern with this project as it would cost the train companies a lot to accommodate the

construction of the building, thereby increasing the overall cost of the project.

This design provided a unique challenge as most building use a structure that carries the load downwards to the ground, while this structure carries the load upwards to the arches before transferring the load downwards. Steel tension rods were used in place of columns to carry the load upwards from the beams. Lateral stability is achieved for each floor by tension rods connecting the corners of each floor to the arches.

The arches are constructed of large circular hollow section members to avoid the industrial appearance of the steel trusses typically used in bridges and the building serves a more commercial purpose. The design of these arches was carefully considered, using CAST CONNEX® Diablo™ Bolted Splice connections to allow quick assembly on site without compromising the appearance of the curve of the arches which would be affected by the flange of typical CHS splice connections.

As the arch would form part of the building envelope, insulation of the arch was also an issue which was addressed. Rigid insulation would be adhered to the inside of the CHS of 150mm thickness to reduce heat loss. The CHS is formed in two halves and bolted together to allow for easier application of the insulation and allow the insulation to be formed in such a way that the two halves would be thermally isolated from each other. The design of the Diablo™ Bolted Splice connection was also altered to allow for insulation so that the arch could also be insulated and thermally isolated at the connections which form part of the building envelope.

A lot of effort went into utilising various methods to improve the sustainability of the building. These methods include an internal atrium used for daylight and stack ventilation, a double skin façade which acts as a thermal and noise buffer while also assisting in heating in the winter and cooling in the summer, geothermal piles to reduce the cost of heating, hollowcore slabs which double as part of the mechanical ventilation system, and a highly insulated building envelope.

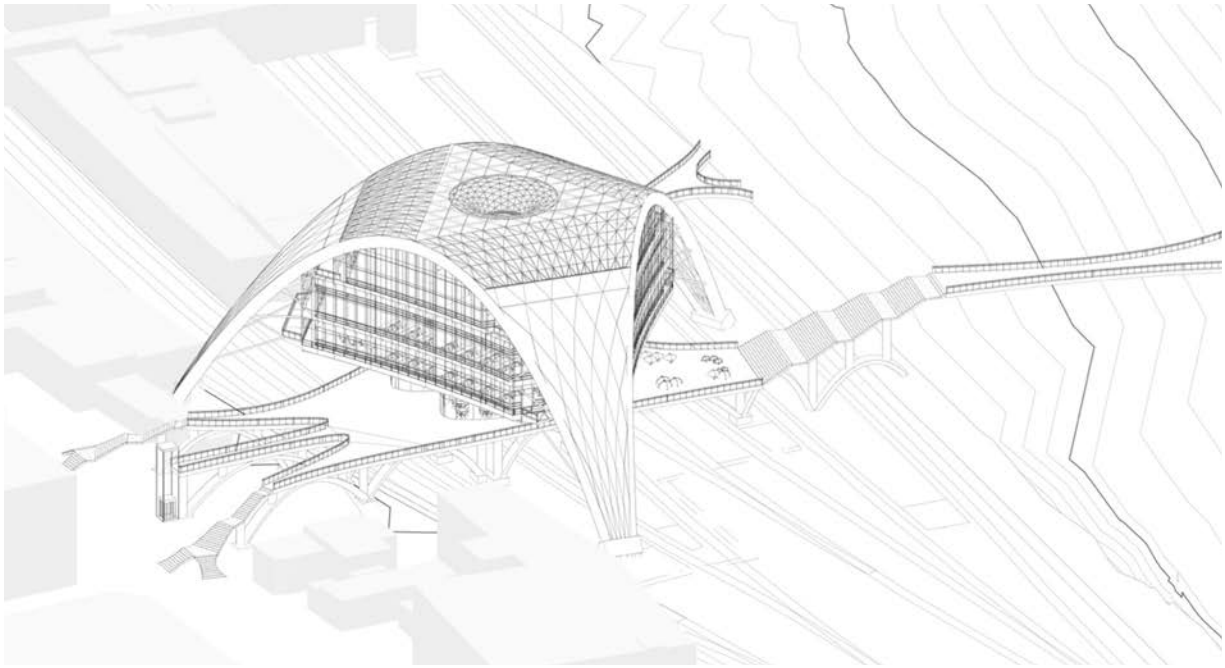
Ventilation of the building uses a mixture of natural and mechanical systems. The double skin façade and atrium provide vertical spaces for ventilation via the stack effect. The ventilation in the atrium is controlled by the opening skylight at the roof to release the hot air from the building and draw in cool air as it leaves. The ventilation of the double skin façade varies with how much the air is heated by sunlight, the hotter the air is, the faster the ventilation. At the parapet of the third-floor balcony there is a mechanically controlled opening to adjust the ventilation rate of the double skin façade as the sunlight heating the air may cause the ventilation to become unpredictable. Air is drawn into the double skin through mechanically controlled openings between the inner skin and the internal spaces. This adds an additional level of control for the users to adjust the natural ventilation in each space. The mechanical ventilation is served through the hollowcore slabs which act as ducting for the air to be distributed. The ventilation system has a heat recovery system which minimises heat loss through the exhaust air.

This building provided a significant challenge in many aspects due to the nature of the design. From the unconventional structural system to the array of systems used to improve the sustainability of the building, a lot of learning was necessary to resolve the technical issues that arose in this building. It is by far the most complex building I have designed in my education and I believe that it highlights how I used this opportunity to challenge my understanding of Architectural Technology. This building has pushed my knowledge much further beyond my previous capabilities and more importantly than my learning, this building has opened my mind up to other possibilities of using creativity in Architectural Technology to create a design which would not be possible strictly using conventional construction methods.

A lot of effort went into utilising various methods to improve the sustainability of the building.

Judges' comments

An imaginative design project for a building adjoining Sheffield's train station to promote commercial growth within the city. The solution combines sustainable measures with a mix of structural elements on a very challenging site. The effective resolution of geometry delivers the concept to provide a striking form that was Highly Commended by the judges. ■



Winner 2020

STUDENT AWARD FOR EXCELLENCE IN ARCHITECTURAL TECHNOLOGY | PROJECT

Integrated Project

Words by Karaan Sabherwal ACIAT, University of Derby

Wellbeing is at the centre of this design for a mixed-use (office, restaurant and leisure) building at the heart of the redevelopment of Sadler Square. The Derby city centre conservation area has a strong architectural character and historical narrative, so the design seeks to be sympathetic towards this by encompassing tectonics consummate with the architecture of Middleton House (a listed building the development is in the curtilage of) and materials that are contemporary but complementary. The biophilic design credentials of Victorian era architecture are echoed, with fractal geometry and organised-complexity visible within elevational treatments utilised as a contemporary analogue to Victorian ornamentation.

The journey through the building's green spaces rewards the occupant by increasing in appeal as they progress to the terminus, a rooftop biophilic space with views over the civic space below. The civic space itself is designed in accordance with biophilic design principles to create a mentally and physically restorative environment that is a safe and inclusive space for people to connect with each other and nature.

The many disciplines Architectural Technology incorporates were utilised for this project in order to realise the conceptual axioms of the design, including the exposed structural glulam frame incorporating biophilic design credentials, the biophilic spaces and wellbeing enhancing spaces nested within the journey through the building and high sustainability credentials. The exposed glulam frame in particular demanded innovation as there were few precedents for such a system. The solution demanded use of cutting-edge materials in an innovative structural arrangement.

High rates of natural-ventilation are achieved by

combining cross-ventilation and stack-ventilation. Improved ventilation increases worker productivity, due to improved indoor air quality and thermal comfort and worker wellbeing. Considering Derby's climate emergency (Derby City Council, 2019), the quality of the natural ventilation is important; the design's clean air strategy combines air-purifying planting (common ash, field elm and moss cultures) with titanium-dioxide coatings to reduce air pollutants.

The technical design creates a wellbeing enhancing environment for users of the hospitality spaces; by constructing the building with a glulam frame that visually runs seamlessly from indoor to outdoor spaces this threshold is softened, engendering a visceral connection to the nature views outside, whilst maintaining a sense of refuge within the building. Leaving the internal faces of the glulam frame and SIP panels exposed enhances this.

Glulam constructed of laminated Accoya lamella has been specified through the technical design of the project because:

1. Accoya has outstanding durability (Accoya, n.d.), strength/stiffness versus larch (Construction Manager, 2013) and resistance to UV light/insects/fungi (Schaffitzel, n.d.).
2. Being exposed to external conditions, and thus variable moisture and thermal environments, dimensional stability is important; Accoya is 75% more stable than comparable timbers (Accoya, n.d.).

By utilising offsite manufactured building components and SIP panels, which are air- and vapour-proof, air leakage pathways are reduced from first principles. Further, offsite manufactured materials are hygrothermally superior, with reduced initial moisture loads at the point of construction, allowing more precise designs and jointing (Morrison, n.d.), resulting in a highly airtight building (NHBC, 2009).

Despite the dimensional stability of Accoya, it is unlikely to be sufficiently stable to allow upper floor and roof beams, which are within a thermally and moisture controlled environment, to connect and be supported directly by glulam columns that are exposed to the external environment as the differential dimensional movement would make the structure unstable. There are few precedents for buildings that create the aesthetic of an exposed glulam frame that runs from inside to out. The closest was a glulam portal frame kindergarten in Guastalla designed by Mario Cucinella Architects, where the inner and outer frame are mechanically joined with flitch plates and there is a visually apparent gap between inner and outer glulam frames. Thus, although the closest, even this precedent does not achieve the desired seamlessness of a glulam frame that runs from inside to out.

The solution was to utilise two glulam columns, one wholly exposed to the external environment and one wholly exposed to the internal environment, which could support the aforementioned glulam beams. Avoiding moisture induced micro-stresses within the glulam columns would still require thermal and moisture separation between the columns (Angst-Nicollier, 2012). To create this separation, a non-porous structural thermal break material is mechanically fixed to the full length of the external facing side of the internal glulam column. It was decided to mechanically fix rather than glue laminate the structural thermal break material to avoid micro-stresses in the glulam caused by differential thermal movement in conjoining materials of different thermal dimensional stabilities. A 10mm gap, sealed with EPDM expansion strips, was left between the external glulam column and the structural thermal break material to allow to moisture/temperature related expansion of the external glulam column. The joint between the two columns is concealed by the depth of the brick infill panels or curtain walling.

The sustainability strategy within the technical design took a fabric first approach. The topography of the intensive green roof over the level 3 office is constructed using tapered rigid insulation (with constant substrate depth for drainage) rather than firrings (insulation depth=120mm-320mm); average roof u-value is ~0.10W/m².K, excluding insulative effects from the green roof system. The glulam walls achieved a high level of thermal performance, with U-values of 0.13 W/m².K (brick-slip panels), 0.234 W/m².K (glulam frame) and 0.8 W/m².K (curtain walling). The building is highly airtight as most built elements are pre-fabricated and joints sealed with air-sealing tape.

The project is comprehensive in its approach and demonstrates a strong environmental strategy.

Solar-control strategies facilitate winter solar gains and prevent them in summer. These strategies include Pilkington Solar Control glass, canopies/walkways shading glazed areas and internal shading. The natural-ventilation strategy encompasses cross-ventilation, purge-ventilation and stack-ventilation, minimising the use of mechanical ventilation. If mechanical ventilation is required, MVHR units with summer bypass option are specified, ensuring high efficiency.

Accoya is highly sustainable, being manufactured from timber sourced from FSC certified forests, forming natural ecological habitats and acting as a carbon sink (Accoya, 2020). Due to the non-toxic, naturally sourced substances used in the acetylation process, accoya can be recycled in the same way as untreated timber (Accoya, 2020), ensuring excellent cradle-to-cradle sustainability credentials.

Judges' comments

A well planned and balanced project for a mixed-use development, which considers air circulation within the building across the seasons. The project is comprehensive in its approach and demonstrates a strong environmental strategy throughout with appropriate use of materials. The technical resolution displays and rigorous technical detailing makes for a functional building with good thought given to buildability. These combined makes the project outstanding as the Winner.

Finalists

STUDENT AWARD FOR EXCELLENCE IN ARCHITECTURAL TECHNOLOGY | PROJECT

Playing with Music

Maeve Corke Butters,
Mackintosh School of Architecture

This final year project involved designing a residential music retreat with a performance hall, situated in the town of Balloch in West Dunbartonshire on behalf of Sistema Scotland, a charity aiming to improve social skills and community integration of disadvantaged children through music education. The brief was to design a new Sistema Centre according to a prescribed spatial programme and develop a wider public space and landscape strategy. A brown field site was chosen for its close connections to public transport and existing public buildings key to the local community's fabric. The two buildings are close together to allow for diversity in the urban fabric however, strategic positioning of walls and green spaces has been used to define the difference between the public and the private realms.

Intersections

Ben Hall ACIAT,
Sheffield Hallam University

The brief was to provide a mixed-use development, a building which will be a hive of activity and commerce which will be built to the benefit of local businesses in Sheffield. This building will provide primarily flexible exhibition and office space of varying sizes. The site is at the heart of Sheffield city centre; an existing footbridge stands over the railway lines which are to be demolished as part of the works and replaced with a wider, more accessible bridge. The short stay car park presents the only opportunity to site a building which would connect directly to the ground.

Passive Design Hub

Bradley Harding,
Anglia Ruskin University

The project brief was to design a multidisciplinary office that allows construction and design professionals of CIAT, RIBA, iStructE etc. to all work under one roof, boosting productivity and on/off site relations between professionals. The brief asked for a 'model' of a building that sets an example for future schemes, showing how the construction industry can move forward with a green mindset in construction and design, accompanied with a strategy showing how people can travel to and from work using green means of transport.

STUDENT AWARD FOR EXCELLENCE
IN ARCHITECTURAL TECHNOLOGY
| PROJECT

Meet the Judges

Chair:
Dr Matthew Brooke-Peat MCIAT, Vice-President Education

Matthew is a Chartered Architectural Technologist, Chartered Builder and Chartered Environmentalist. Since 1994, he has held positions in construction, architectural practice, academia and technical consultancy. During this time, Matthew has designed and managed new-build, refurbishment, restoration, renovation and conversion projects across a wide range of building types. Matthew is Programme Director for Architectural Technology at Leeds Beckett University. His specialist area of research and consultancy focuses on the thermal performance of building fabric. In addition, Matthew has participated in several scientific and specialist committees for academic conferences and he has acted as a reviewer for academic journals.

He has been actively involved with the Institute at both local and national level since 2005.

He is a member of the Education Board and the Regional Treasurer for Yorkshire. Matthew has participated in many MCIAT and CEnv Professional Interview Panels, represented CIAT when interacting with the UK Green Building Council, been a member of the Membership Futures Working Group and Climate Change Taskforce.

Dean Bieganek MCIAT

Dean is a Chartered Architectural Technologist with 30 years of combined experience in the built environment sector. He has two qualifications from Canada – a Poly-technical Diploma in Architectural Technology from the Northern Alberta Institute of Technology (NAIT) and a bachelor's degree in Environmental Studies – Architecture, from the University of Manitoba.

Following his degree, Dean initially worked in architectural practice and after 16 years of working in industry, he made a bold move to shift career direction and enter the world of academia. He is currently the Academic Programme Leader for the BSc (Hons) Building Surveying programme at University College of Estate Management.

Joe Healey MCIAT

After seven years in London and nearly five years in the Middle East, Joe relocated to Melbourne, Australia in September 2019 and was working for an international architect in the CBD, before moving onto specifications with NBS Australia. As a Chartered Architectural Technologist and with his technical expertise, both combined to be a crucial factor in securing the job, and he has developed particular interest for heritage conservation projects, as well as stadia and sporting buildings.

Paul Laycock MCIAT

As a Chartered Architectural Technologist and Chartered Builder, Paul specialises in excellence in technical design of all types and sizes of buildings with a special interest in sustainable solutions, healthy indoor environments and successful buildings for all users at all stages of a building life cycle.

His involvement with CIAT has spanned many years and many tasks and roles. Previous Vice-President Education, Member Panel Moderator, Professional Interview Assessor and Accreditation Panel Chair amongst those.

As an academic, Paul's main role is in inspiring and shaping the future professionals that will be the next generation of the built environment sector.

Carl Mills MCIAT

Carl is a former practitioner that now leads the building programmes for external engagement and is Programme Director of Architectural Technology at Coventry University. Within CIAT, he sits as a Trustee on the Executive Board, a Committee member of the Membership Group, Accreditation Panel member, Professional Interview Assessor and an active member of the West Midlands Regional Committee.

Virginia Rammou MCIAT

Virginia Rammou is a Chartered Architectural Technologist and Chartered Architect. She was formally the Programme Leader for BSc(Hons) Architectural Technology programme at the University of Westminster. She has extensive experience in practice and is interested in the relationship and cross fertilisation between architecture and technology. Her research focuses on the relationship between architecture, health and palliative care. She is currently Senior Lecturer for Liverpool School of Architecture.

Commended 2020

AWARD FOR EXCELLENCE IN ARCHITECTURAL TECHNOLOGY | SMALL TO MEDIUM

Projects up to the value of £2 million (or equivalent for international entries) and have demonstrated outstanding achievement and excellence in the practise of Architectural Technology. Formerly known as The Alan King Award

Extension & Renovation, Dore, Sheffield

Words by Natalie Rodgers, France and Associates

France and Associates was instructed by solicitors administering the trust of a 24-year-old man – 'JR' – who sustained a catastrophic brain injury at birth. His legal case, JR vs. Sheffield Teaching Hospitals [2017], was heard in the High Court and (at the time) was the largest court award of compensation to a disabled claimant. A large part of the legal argument related to the accommodation needs of JR.

We began by providing initial concept designs of making best use of the property, ensuring future property value, providing statutory requirement drawings in the form of planning application and building regulation applications. Our role then progressed to acting as contract administrators and project managers to oversee the works. Other roles included acting as Principal Designer and assisting the client to choose materials and designs of fittings and fixtures. We continue to support the client throughout the *"rectification period".*

Our brief was to provide a design that was contemporary and modern yet incorporate the numerous high-level care requirements of JR. A key factor was to make the two-storey home wheelchair accessible and form the basis of continued rehabilitation and maintenance of present bodily strength and function.

The large-detached residence featured a large cinema room on the first floor, several double bedrooms, along with living accommodation and kitchen areas on the ground floor, with pool room and changing facilities and a large integrated, triple garage.

The client had requirements for a significantly larger specialist bedroom (18m²), specialist bathroom (12m²), therapy room, aquatic therapy space, bedrooms for family members including parents, siblings and separate carers accommodation. A key factor in providing accommodation for JR is that he was able to increase his independence using smart technology through a smart tablet, so

specialist design was required to provide controls for automated vehicle gates (for visitors), automated external and internal doors, automated opening windows, curtains, blinds, heating controls, air conditioning units and lighting systems. This provided with much needed independence in his home environment.

JR was involved throughout the entire design process, explaining what he wanted, what worked and choosing colours and materials.

JR has interests in technology, social media, he loves cricket and has been out to watch England in the West Indies, is a lifelong season ticket holder at Sheffield Wednesday and enjoys watching his wheelchair football team, Nottinghamshire Powerchair Football Club. JR leads a very active social life.

At the outset of the design, it was apparent how important his home would be, to ensure JR could improve his independence within his home and lead a life to the full. He has one of the most advanced wheelchairs on the market, which allows him to be both seated and transform in to a "standing" wheelchair. One of his earliest experiences of using specialist wheelchair was in his "local", where his father commented that JR proudly stated that he could "finally stand at the bar and have a pint with my dad". It is stories like these have created a great sense, as a design team, to achieve a design for a property for JR that allows him to live life to the full.

Understanding JR's basic accommodation needs, along with the equipment he had and the social requirements he enjoyed – all formed a basis to consider and include within the design of his adapted accommodation.

Ramped pedestrian bridge

The first floor of the extension that had been previously built, housing the garage and the pool space, was 300mm lower than the floor level of the original house providing bedroom accommodation.

Connecting these two spaces required a ramp. With the design of the new entrance extension, we designed and managed the installation of a curved, ramped pedestrian bridge connecting the two first floor spaces. The fall of the bridge is such that it is not noticeable that there is a fall across the space. It forms a fantastic feature for the homeowners on entering their home, and connected the first floors together, highlighting the staircase within along with the central, through floor lift location.

The key aspect of the design is central to providing JR with access to the different floor levels and reflects the focus of the design of JR's home, his needs taking centre stage.

Hydrotherapy pool

The property already had a pool, but this was upgraded to a hydrotherapy pool, which provides pool temperatures of 35+ degrees, making water-based therapy more accessible to JR and provide daily pain relief.

The existing property posed technical issues that needed to be overcome. We had to give careful consideration to the technical design needed to accommodate the increased size of plant services to both the property and the original pool space. This meant larger ducts and ventilation systems, all of which required structural alterations to existing roof components within the original roof structure, and in some cases replacements of oversized steel beams to substitute for smaller structures. This necessitated careful thought to the technical design of the structural wall locations, whether new or original below on the floor plan – coupled with meeting JR's expectation for more accessible spaces.

We overcame this hurdles by working closely with the structural design team, the pool designers and installers and assisted them in whatever way possible to meet their requirements without impacting on other trade teams, or importantly, compromise on JR's requirements.

Automation

Another complexity was collaborating with the Control 4 specialist, to provide automation to doors, windows, curtains, blinds, heating, cooling and lighting controls. The amount of plant room space, cable ducts and service voids required to facilitate this need was of epic proportions. It required strong communication requirements between various trades onsite, largely lead by us to keep the project on track.

Carefully matching the specific client requirements, the new extension is in harmony with the original character of the host structure.

Design and installation of specialist equipment

Finally, a further feature collaboration complexity was the design and installation of specialist equipment, including the design around the internal lift shaft; structural and technical implications of ceiling track hoists (some of which required alterations due to existing property features); along with technical design around height adjustable baths, sinks, kitchen worktops and wash dry toilets.

We worked closely with the various suppliers and trades to ensure our drawings reflected their requirements, as well as JR's.

Project overview

Contract Value:	circa £1mil
Building Contractor:	Terry Huggett Developments
Design Team:	France + Associates
Quantity Surveyor:	France + Associates
Structural Engineer:	Paul Rose Consulting
Hydrotherapy Specialist:	David Hallam Pools
Specialist Contractor:	Innova Care

Judges' comments

A thoughtfully designed extension and renovation of an existing home to provide inclusive living accommodation in Sheffield. Carefully matching the specific client requirements, the new extension is in harmony with the original character of the host structure.

There was careful consideration of the existing structure and integration of the technical design throughout the whole process that is reflected in the final design and use.

The reconfiguration includes a curved floating ramp but the home is not dominated by the accessible features. Fine sympathetic restoration of original design features. ■

Highly Commended 2020

AWARD FOR EXCELLENCE IN ARCHITECTURAL TECHNOLOGY | SMALL TO MEDIUM

Formation of STEM Hub

Words by Stuart Davidson MCIAT, Stuart Davidson Architecture

sda STUART DAVIDSON ARCHITECTURE

Our clients appointed us to create a new STEM teaching and learning hub as part of a larger re-development project for their campus. Located to the east of the anterior A7 trunk road forming a long slither of flat land with a large steep bank to the east, the chosen location was pre-formed as a tarmac area formerly used for external learning and bin storage. The benefit of this allowed us to simplify the initial site works. The overall aim was to utilise the Hub to support the campus regeneration as a sustainability and development hub for the overall college.

The existing college building and its narrow site controlled the available space and site location with only two available sites an initial feasibility carried out by ourselves clarified that only one site was suitable for use, though still restricted by a large bank to the east restricting solar gains though using the benefit of the existing structure to the north to reduce chilling of the building.

The brief for the building was to ensure full connectivity with the existing college, though be able to be used as a separate entity for training and seminar use out of college hours.

The structure was also to be designed to allow for continual monitoring and testing of the structure including fabric and airtightness over the lifetime of the building.

Our aim initially was to create a building which used all of the ethos of Passivhaus at a simplified cost effective level which should ideally not require any form of heating, though after initial assessment due to the restricted orientation of the build we designed the addition of a single 200W electric heating panel, which gains power from the PV solar panels located on the roof.

The location was chosen for its simplistic initial build and suitability for site traffic ensuring that initial costs and ongoing site manoeuvrability was controlled. The site levels allowed minimal excavation prior to forming the new passive slab with tarmac cut back to allow for the formation and re-dressing afterwards. The single skin kit formation was initially designed to be factory casements, though due to extended lead times and limited access for cranes due to the location, the structure was site built with additional inspections to ensure structural and performance compliance by ourselves.

Though the site was fully accessible the working space was restrictive so controlled trades working areas were paramount to make sure that each dovetailed into each other such as the interaction between green roof and

solar installations or the sealing of services with insulation and roofing.

The building's prime function is a teaching/learning space as well as a "testable structure" as the floor level is raised some 400mm from FGL the linkage to the main college was paramount to ensure that full accessibility is obtained at all times, the addition of a link lobby allowed this to be formed whilst also providing an environment lock between the two buildings.

As noted the building has to be testable at all times, this was factored in from the design stage with blower door testing locations designed in, additional doors formed to allow testing of separate elements of the structure, removable sections of internal finishes such as unscrewable skirtings, exposed wall/roof junctions to inspect the performance of airtight membranes between differing materials and structural items.

Future proofing maintenance to suit our clients needs were designed into the structure. Service voids were formed internally to all walls and ceilings to allow retro fit services without damaging the fabric, pre-determined and sealed ducts installed for any external monitoring and full connectivity with a similar STEM facility in Dumfries pre-installed. It was found that previously "fall assists" on the existing building had not been used so the addition of raised parapets to the new building and cherry picker accessibility was designed into future maintenance plans to ensure safety is paramount.

The building though not ideally located for solar gains were designed to accommodate for this, a simplistic mono pitch roof with parapet wall with additional high performance rooflights providing solar gains, with automatic thermostatic controls to ensure that no overheating,

Timber louvres have been provided to westerly facing windows due to known overheating issues to the existing building and southerly mounted PV solar panels installed to the roof provide an over allowance for pre-determined energy use within the building, this coupled with internal monitoring infrastructure allows the clients to assess the usage and feed back to the main building.

The structure overall incorporates a passive concrete slab used as a heat sink, with walls and roof formed from a single skin oversized I beam structure insulated with pavatherm insulation within and outside the kit. It was sealed using proclima variable airtightness membrane and clad with scotlarch cladding to match the existing building.

The roof is finally finished with a low maintenance wildflower blanket forming significant thermal mass to retain all embodied energy within the building.

The building as a whole as been tested to an "as built" measured air permeability of 1.24m³/(h.m²) which almost exactly matches the design performance target. This was provided by the marrying of the mixture of overlapping insulation methods, specific taping both internally and externally with guided "toolbox talks" by ourselves on site, high performance windows and doors to remove any points of weakness.

At design stage all details were focused to ensure that maximum performance was maintained with simplified detailing at junctions to make on site construction simpler.

A single MVHR unit was pre-designed to suit the performance of the building, again to aid teaching this is fully exposed including ductwork maintaining air quality and movement. This is also powered by the solar panel supply with monitoring software assessing usage.

Educational in both design and use, the Hub is a robust submission.

Cost: £275,000
Contractor: Ogilvie Construction

Judges' comments

Clever detailing with attention to detail is a stand-out for this formation of a STEM Learning Hub, which is an extension to the existing campus at Borders College in Roxsburghshire.

Educational in both design and use, the Hub is a robust submission with good architectural technology and design aspects which result in a building that is simple in form and function. It acts as a good test bed and educational learning tool for environmental design and construction and has used the ethos of Passivhaus throughout. The recording of performance during construction and design is a useful asset for future developments and as a learning resource. ■

Winner 2020

AWARD FOR EXCELLENCE IN ARCHITECTURAL TECHNOLOGY | SMALL TO MEDIUM

Buchanan House

Words by Paul Conn MCIAT, PJC Architecture

PJC ARCHITECTURE

This fantastic commission came from a client who had previously purchased a PJC designed house as a second home. Our original appointment was to design an eco-type bungalow on our client's tennis court, as they are a retired couple and wished to downsize from a large, old, thermally inefficient stone house.

We designed the bungalow and submitted for planning, the application was progressing nicely until the case officer flagged up a concern regarding sustainability due to the distance to the nearest bus stop and local town. It progressed that the original design was going to be refused due to distances to local amenities.

We met with the planning personnel at Durham County Council to discuss a plan B, they were very helpful although it was going to be difficult for them to support a new build house in this location – unless our client took a bit of risk and explored the NPPF Paragraph 55 route.

This Para 55 Policy (now para 79) states the house "has to be of high architectural quality and/or innovative". We put our thinking caps on and looked at our client's land ownership as a whole – the thought process was quite different to how we normally think. Before planning legislation was invented, a client who wanted to build a bespoke house would consider the views, topography, services, access, shelter from trees, drainage, setting etc.

So that is what we did and went backwards and forward to the Planning Department with sketch designs and made steady progress until we agreed on a house design that could be supported under the exemplar Paragraph 55 Policy

The new house and site were only 200 metres away from the original application tennis court site but sits higher with better views over the Derwent Valley.

Remarkably there was not any objections to the proposals and the planning application was approved under delegated powers without the need to go in front of a planning committee, which was great.

The house design is very striking but relatively simple in form, helping with the overall budget cost.

Due to the sloping nature of the site the foundations

were rafted with concrete retaining walls on the high side, which took care of the lower ground level.

The upper ground floor level was a steel frame structure which made the construction fairly simple.

The external walls and roofs were made up with recycled TJI type timber joists which were quick to erect and eco-friendly, they also allow services to be accommodated very easily.

Externally, lower sections were faced in natural stonework sourced from a local quarry. Upper levels were faced with cedar timber vertical cladding.

Certain areas were clad in a dark grey composite board on elevations which do not receive much sunlight, avoiding the timber to discolour maintaining the fresh design.

There are lots of large, glazed elements on this house which were supplied and fitted by a local company, this area helps with the modern look and also provides wonderful views for the occupants over the surrounding fields and valley.

The function of this house offers the occupants a total different experience to their former house.

Our client amazingly changed during the project and the son, his wife and young family decided to take over with the projects as the parents felt the design was getting too modern for them. With Paragraph 55 (79) houses the site often dictates the design and not the client.

They previously lived in an old stone house with single glazing, which was difficult to heat and small glazed areas. Their last house always requiring lots of maintenance given its age.

This modern house offered a whole new world for the family, it is light and airy, gives superb views, well insulated and provides such a huge feel good factor for its occupants.

There is little wasted circulation space as the front door opens into the kitchen/dining area to provide a massive wow factor and a splendid view over the valley and beyond!

The building is entered from the high side of the sloping site, which provides level access into the building. The house has been designed to be a 'forever home' therefore a bedroom and bathroom occupies the same floor as the living space, effectively a bungalow.

The lower ground provides further bedrooms and bathrooms for the family and children. The layout of the house is very functional, no space has been wasted.

This house is very innovative as it obtained planning permission under the Paragraph 55 Policy, it was the first one to be approved in County Durham.

The house has the following technologies:

- geothermal heating
- mechanical heat recovery ventilation system
- thermal mass storage retaining wall
- photovoltaic panels on the roof to provide electricity

- sustainable drainage system
- smart home automation system

The materials used in the building were sourced locally to help with sustainability, as was the labour. Wildlife flower meadow planting to field in which the building sits, which has visual and ecological benefits. Sub-basement walls provide thermal mass heating and cooling. Newton membrane internal tanking system was provided in sub-basement with floor drains. All external areas were highly insulated to help with the low running costs of the building.

Underfloor heating was provided at both floor levels together with insulation – it runs at a lower temperature than conventional radiators and much more efficient.

Plant room provided within house to house heat pump, MVHR unit, cylinders, etc with easy access for maintenance. Heating running costs are very low due to the geothermal heating supplemented by the photovoltaic panels on the roof.

The whole team – builders, planners, suppliers and in particular the client, should be commended for their efforts – this is the first house in County Durham to be approved and built under Paragraph 55 and sits fantastically in its setting. One of the senior planners commented that this is worthy of being a "Listed building of the future" – now that is an accolade!

It has recently gone on to win the Northern Region LABC Award 2020 for Best New Individual Home. – the best thing about this home is the family who live in it, love it!

This is a showcase for demonstrating how Architectural Technology has supported the design.

Judges' comments

This individual home in County Durham, classified as a 'Paragraph 55 House', functions for its occupants with clever use of the site and innovative design. With sound technical detailing and selection of materials it utilised available resources onsite to overcome site conditions.

Whilst simple in its form, the well-executed design and construction ensured a clean and well thought through scheme. Use of technologies included the geothermal heating, mechanical heat recovery ventilation system, thermal mass storage all whilst retaining wall-photovoltaic panels and a sustainable drainage system.

This is a showcase for demonstrating how Architectural Technology has supported the design, making it an outstanding winner for the Award for Excellence in Architectural Technology, small to medium projects category. ■

Finalists

AWARD FOR EXCELLENCE IN ARCHITECTURAL TECHNOLOGY | SMALL TO MEDIUM

Claremont Senior School – Beaumont Building

Tom Gray MCIAT,
Robert Shreeve Associates Ltd

The concept around the design of the Beaumont Building was to create a building which was inclusive to all and provided a safe and secure teaching and learning environment. The beating heart of the school campus, it is situated in the centre of the site and nestled within a courtyard setting, encapsulating the dynamic and flourishing school environment – what was once a staff and minibus car park is now an open communal area with seating and sensitive planting. Part of the client brief was set around the parameters of functionality, in particular end-users and the ability to create flexible teaching spaces. One key aspect of the design is the large full width sets of acoustic moveable walls which divide the three main teaching and library spaces on the ground floor and the art department to the first floor. These mixed spaces provide the staff with an array of teaching possibilities whilst also creating an inclusivity for all students.

New Low Energy Dwelling

Stuart Davidson Architecture

This project involved the formation of a low energy, minimalist dwelling house. The building was specifically designed to provide both privacy at ground floor and a sense of space and views to the upper floor. To create this, the living spaces were ‘flipped’ with two bedrooms at ground floor accessed from an accessible multi purpose hall/utility space and a simple accessible shower room. The first floor is accessed from a minimalist stairwell with walls futureproofed for whole life living, giving access to the first floor ‘living hub’ with a small roof terrace allowing clear living interaction. All areas are provided with natural light and raised ceilings, with ground floor rooms flowing into the private garden and covered “pend” parking/access.

The Padua Room

Ian Riches MCIAT

The Padua Room is a detached new build small meeting room/multi-function hall and was funded predominantly by donations from the congregation at St Anthony of Padua RC Church and fund raising initiatives. The site was located due to its dominant position near the entrance to the church, and the main road. The Padua room’s design uses a conventional masonry cavity wall construction, which is inherently robust, and designed to have a long lifespan, as is necessary with a church designed to endure through the ages, along with a traditional cut timber roof. This proved to be the most economical form of construction given the choice of external facing materials being brickwork and sandstone components, and a profiled concrete tile roof. The Glulam arch is the central striking feature of the interior. The material is perfect for its sculptural, structural, sustainability and aesthetic characteristics. The arch is left exposed and sealed with a clear lacquer to bring out its natural beauty, and express the laminations of the curved timber.

AWARD FOR EXCELLENCE IN
ARCHITECTURAL TECHNOLOGY

Meet the Judges

Chair: Mark Kennett PPCIAT MCIAT CEnv CIAT-Accredited Conservationist

Mark is a partner in a private practice based in Harrogate, North Yorkshire, Wilson Kennett Partnership, and has a wide knowledge and experience in the discipline of Architectural Technology, specialising in such areas as conservation and sustainability. Mark is qualified as a Chartered Environmentalist and as a CIAT—Accredited Conservationist.

As a Member of the Chartered Institute of Architectural Technologists since 1980, Mark has been actively involved with numerous Committees and Taskforces relating to membership, education and technical issues. Mark has also been a consultant on several books related to the industry and has spoken at numerous seminars across the UK.

Dr Gihan Badi MCIAT

With more than 20 years of experience and background in the built environment sector and academia in both the UK and the Middle East, Gihan is a Chartered Architectural Technologist and a Fellow Member of Higher Education Academy with Doctor of Philosophy degree in Planning, Housing and Human Geography. Gihan manages her own architectural practice, GB Atelier.

In addition, Gihan is an Assessor for CIAT and a member of the Yorkshire Regional Committee and actively involved with her professional institute at local and national levels. In 2017, Gihan was a Finalist as Best Architectural Technologist in the European Women in Construction and Engineering.

Steven Hedley MCIAT

Steven is an experienced Managing Director of his own practice with a history of working in the architecture and planning industries. He is skilled in CDM, ecological design, feasibility studies and specialising in the technology of architecture. A strong business development professional and is now in his second term as Vice-President Technical.

Sophia Kee MCIAT

Sophia is an enthusiastic and communicative individual with a proven track record in global design studios working on projects from concept through to completion. She is an innovative and creative consultant with experience in large/complex projects, including sustainability strategies, rating systems, green innovation and project management. Project sector experience includes mixed-use, aviation, residential, master-planning and commercial buildings. Sophia has worked in the UK, Hong Kong, Singapore and United Arab Emirates.

As well as project experience, Sophia holds an MSc in Energy and Sustainable Building Design and is an LEED accredited professional, and holds Estidama and BREEAM certifications.

Justin Kelly MCIAT

Justin is a partner at BPTW, an award winning CIAT Chartered Practice which is design-led with over 125 Architectural Technologists and architects with studios in London and the Midlands.

He acts as the lead Architectural Technologist at BPTW and has been an examiner at the Architects Registration Board, Secretary at the RIBA South East London Society of Architects (SELSA) Branch and is currently a Professional Interview Assessor for CIAT.

Having previously lived and worked in Rotterdam, Justin has gained experience on various residential led developments in both Rotterdam and Amsterdam. He completed a Diploma in Sustainable Urban Design from the International Institute for the Urban Environment in Delft, the Netherlands.

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During our 26 year relationship with CIAT and its members, nothing we have witnessed has been as significant as the impact of tragic events at Grenfell Tower, on both the construction and insurance industries and this continues to cast a long shadow over Construction Industry professionals.

As a reaction to the issues highlighted by the Grenfell Disaster and the Hackett Report, the majority of insurers have used the opportunity to impose immediate and dramatic alterations to the cover available, which have included:

- Withdrawing from the market completely;
- Offering cover at much-reduced limits, or imposing Aggregate limits of indemnity;

- Substantially increasing premiums with no justification;
- Implementing onerous and unnecessary terms, exclusions or restrictions.

From an insurance perspective, the situation is bleak and, unfortunately, it does not appear that things will improve in the short term.

In light of the current insurance market conditions, ensuring you deal with a specialist insurance broker such as CIAT Insurance Services is paramount in getting the right advice and guidance.

A little light in the dark - CIAT Insurance Services, in conjunction with CIAT and Insurers, have taken steps to try and limit the impact that the shifts in the market will have on Members. Unfortunately, while we've been able to provide some shelter from the turbulent market conditions, no one can completely escape the impact of recent events.
The shifts in the insurance market will impact on CIAT Members in two ways

For some smaller practices, a number of you will have noticed an increase in the premiums being charged, although we are managing to maintain reasonable levels compared to the increases sought by other insurers.

The second impact is a shift in the way Insurers consider the risks that could arise out of previous work. As a result, Insurers will be looking to obtain further and more detailed information about past projects, especially anything concerning cladding. To effectively manage this, given the nature of the Services your practice may provide, we have adopted a two-stage process.

The first step is contained within the proposal form, which includes questions about the type of work you have undertaken. Depending on the answers on the proposal form, additional information may be required.

If further information is required, as claims can be made some time after the work is done, Insurers will ask for details on projects involving fire safety work undertaken on buildings over 11m. While we can assist in determining what information may be required, we appreciate that this may not be a simple task. If you think you may need to provide further details, we would recommend that you start reviewing records as soon as reasonably practicable. Once this information is available, we will use all reasonable endeavours to achieve the best possible outcome in terms of the cover being provided under your Professional Indemnity policy.

Why CIAT Insurance Services?

We are the only insurance broker endorsed by the Chartered Institute of Architectural Technologists (CIAT)
McParland Finn Ltd trading as CIAT Insurance Services has been looking after the business insurance interests of CIAT Members for over 25 years and understands your profession inside out, we also know the challenges you face every day. We deliver peace of mind by providing access to the only CIAT endorsed Professional Indemnity insurance policy, created specifically for the needs of the profession.

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CIAT INSURANCE SERVICES

Commended 2020

AWARD FOR EXCELLENCE IN ARCHITECTURAL TECHNOLOGY | MEDIUM TO MEGA

Projects over the value of £2 million (or equivalent for international entries) and have demonstrated outstanding achievement and excellence in the practise of Architectural Technology.

Paxman Academy

Words by Concertus Design & Property Consultants

Concertus DESIGN & PROPERTY CONSULTANTS

Essex County Council procured the project to replace the former Alderman Blaxhill High School, which had been closed and was to be demolished as part of the project. The brief was for a new 6FE, 900 place secondary school with associated external areas. Alderman Blaxhill High School was originally built in the 1950s and had reached the end of its useful life. In recent years, the school became problematic and the poor state of the building was affecting overall pupil performance.

The new Paxman Academy was constructed over three floors, with distinct areas for sports, admin and teaching. With functionality in mind, the design allows for flexibility and adaptability to meet growth and curriculum changes. The use of a ground bearing slab on the ground floor and concrete rib deck floor on upper levels, along with a lightweight metal stud wall system, means the building is very flexible and able to accommodate future changes. This steel frame construction has been combined with brick and rain-screen cladding facades. Incorporating features such as curtain wall glazing has allowed the use of natural daylight to be optimised.

By using the full functionality of our 3D modelling software, we developed a co-ordinated BIM model to run clash detection simulations at the design stage, thereby reducing clashes and queries on-site. This provided a more efficient and collaborative working environment in planning, technical design and construction, thus overcoming the challenges of design co-ordination. The 3D model also allowed us to produce a series of visuals to present at public consultation events and client presentations, enabling a greater understanding of the design concept, thereby reducing the number of design changes.

The new academy has a welcoming presence on the street scene and provides a vibrant hub within the community, contributing to the health and wellbeing of people living in close proximity. Use of the sports facilities is encouraged, inspiring and facilitating healthier lifestyle choices, by providing access to a variety of leisure activities. Careful consideration to the positioning of the

building generated a net gain of open space, allowing existing tennis courts to be re-used. Provision for cycles also helps to encourage healthy lifestyles.

The SEN suite offers pupils with different abilities dedicated facilities within the mainstream school environment and enables full integration into the school community. Keeping this facility within the main school offers SEN pupils the same opportunities for sport and leisure, as well as access to educational resources. The culture of inclusion of all abilities reflects the diversity of the local community.

As the client's budget was very tight, we had to be selective with the areas we spent more money on to achieve a higher level of performance and robustness. Having assessed the usage of the different elements of the building, we specified a range of products to meet the client's requirements and the building's needs. A cost-effective solution which directly linked to the performance and robustness of the product was using aluminium framed doors and windows in high usage areas externally, and the use of UPVC windows (of a smaller scale) in external areas which are more closely monitored. The inclusion of a 750mm brickwork plinth around the building provided a robust base which can withstand pressures, such as being kicked. A more lightweight, decorative cladding was used higher up the building.

In addition to providing flexibility, the ground bearing slab (on the ground floor) and 150mm rib deck floor (on the first and second floors) present a cost effective and robust finish. The lightweight metal partitions also allow for maximum flexibility. Having these lightweight metal stud walls internally clad with plasterboard also ensures the necessary fire, acoustic and robustness requirements are easily achieved. The use of a hot rolled steel frame with a cold rolled steel frame system to infill the external walls provides a robust but lightweight construction that is both energy efficient when infilled with insulation and robust when clad with plasterboard/cement board.

GreenBook LIVE and the Green Book Specification were used to ensure sustainable materials were selected, with all timber sourced from sustainable resources. Three trees were planted for every tree removed as part of the project. Bird and bat boxes were installed across the site and lighting was designed with consideration to the impact on bats. The SUDS design retains surface water on site and minimises the risk of flooding in the local area.

Thermal modelling was carried out to inform the design and U-values lower than those required by Building Control Part L and good air tightness levels resulted in less energy use and cost savings. To further reduce air pollution, a combination of hybrid and natural ventilation were incorporated into the design. A warm roof system laid over a metal deck and finished with a three-layer bituminous felt provides a minimum lifespan of 20 years and allows the roof plant to be accessed without risk of puncture. The insulation included can also be varied in thickness to achieve the required u-value. Bicycle shelters, new cycle routes and footpaths encourage green travel.

With the existing school falling out of use, the regeneration of this derelict site has had a positive impact on the local community. The scheme was delivered within the £14m budget and below the EBDOG national average cost per m². Value management and design efficiencies generating savings of approximately £400k were key to this achievement.

By adopting a collaborative approach to project delivery and establishing a clear communication strategy for exchange of information we established a good teamworking ethos, which contributed to the positive outcomes of the project. Our proactive approach meant the scheme was delivered within the original programme, and within budget. The replacement school has given the community a brand-new facility which is inclusive, and open for use by the wider community.

Lyn Barton, Liberal Democrat Councillor, said: "I like the design. It blends well into the surroundings, and I know the residents welcome a new school to serve the community." Students previously travelled 1 mile to reach their nearest school, but they now have a fantastic academy on their doorstep. The School Hall accommodates community activities, placing the school as a hub for the community.

The project has been successful for the client, Essex County Council and the end users. Essex County Council has adopted Paxman Academy as an exemplar school, because of the economic design and functionality of the building. Mrs. Moffat, Head Teacher at Paxman Academy commented: "The building takes my breath away, it's stunning".

BIM during the design phase to run clash detection simulations at the design stage.

Client: Essex County Council
Project value: £14m
Contractor: Barnes Construction

Judges' comments

The Paxman Academy makes great optimisation of an existing school to enhance occupant comfort in Colchester as a functional new six form and 900 place secondary school. Architectural Technology was demonstrated through a fine level of details and use of BIM during the design phase to run clash detection simulations at the design stage. This enabled a reduction in clashes and queries onsite. Sustainable design principles which integrated well with the surroundings. Materials selected will perform well and make it robust for future use. ■

Highly Commended 2020

AWARD FOR EXCELLENCE IN ARCHITECTURAL TECHNOLOGY | MEDIUM TO MEGA

Norwich City Football Club Lotus Academy

Words by LSI Architects

Norwich City Football Club wishes to be seen within the football world as a genuine leader in developing young talent and as a club that provides pathway and opportunity. The Club believes that the new home for the Academy will become a magnet for the best talent and developers of talent.

The new Academy building provides a dynamic, contemporary and professional facility befitting of the Academy's category one status – a place where young players find inspiration and receive world class coaching.

The new facility provides eleven player changing rooms for players aged 10-23, two match official changing rooms, a player lounge, three training rooms with support offices, a match analysis suite and an open plan administration base for up to 40 staff.

A new gym block, used by the First Team and the Academy, sits perpendicular to the academy building and has views out across the pitches. This facility houses new state of the art gym equipment and significantly upgrades the existing on site provision, providing much needed internal and external training space.

A glazed link joins the existing first team building to the gym, connecting all first team activities, this route through deals with level changes through ramped access, allowing step free transitions between all parts of the campus to make the new facilities accessible.

The project was delivered to a challenging, phased delivery programme, phase one (academy changing rooms) commenced in March 2018 and was complete prior pre-season training for the 2018/2019, and phase two (academy training, gym and link) commenced in November 2018 and was delivered prior to the beginning of the club's preseason training for the 2019/20 season in July. Quick, effective decision making made possible through the use of a local design and construction team meant that the project was successfully delivered to programme.

The new building will enable the Academy to become more productive and develop more players capable of playing at the highest level, as an outstanding platform for the clubs young players where previously the facilities were sub-standard, modular and seen as a hindrance.

"With the timing of the facility being opened it felt

like the players left the football league and turned up in the Premier League with a facility to match! It has helped a lot in working flow through the day which in turn has helped with productivity. Recruitment has also been aided with the facilities and made it a lot easier when trying to sell the Club vision to potential players and staff. The current staff have also had a big lift as a key value for us is GROWTH and this demonstrates the club growing and investing in them." – Stuart Webber, Sporting Director at Norwich City Football Club

Natural materials have been used throughout the scheme which follow the principles of biophilic design, an approach that responds to humans' innate connection to the natural world. By designing to be in tune with humans' affinity to nature, we can create spaces that are 'people-centric', that reduce stress and promote health, wellbeing, productivity and creativity.

For example, the timber cladding utilised externally also referenced throughout the interior, which can be seen as you progress through the building. When users arrive into reception they are greeted by a timber clad reception desk.

The modestly sized building makes efficient use of space in order to maximise the useable area. This has served to solve wider, legacy issues on the campus by opening up areas in the new building to house activities and operations previously situated in parts of the campus which were unsuitable.

The potential for new ideas and innovations to change the way players are coached meant that flexibility and adaptability was key. Flexibility has been designed in to many areas of the scheme, for example through the use of moveable partition walls in the classroom spaces and the open plan nature of the office and gym spaces.

The energy strategy for the development proposals at NCFC Academy has, at its core, the reduction of energy use through effective 'fabric first' energy efficiency measures and efficient (low power) services solutions.

A mixture of air source heat pumps coupled with mechanical ventilation heat recovery have been incorporated and LPG hot water heating, complimented by an array of photo-voltaic panels. This was considered the most viable and practical option for the development and provides 20% energy contribution across the whole campus site, a 100% increase on the minimum 10% required by policy.

The design team was mindful to balance the solar energy transmittance and light transmittance values of the external glazing in order to control solar gains and to maximise daylight respectively. The scheme was also designed and constructed to achieve low fabric air permeability.

As part of the work to provide new pitches, rainwater is collected through filtration and is subsequently re-used to water the pitches.

Given the working nature of the facilities and the variety of types of space; from changing rooms, office, through to medical physio rooms, the design response in each room/area is specific to the performance requirement and demands of each space.

Externally the building utilises a light grey vertical stack bonded blockwork at ground floor (a lift on traditional half lap blockwork and to reinforce the concept of verticality) to ensure robustness and resilience for longevity.

Above the blockwork the (clear treated) vertical larch timber provides a softness and character to counteract the largely monolithic plinth and references the rural setting.

Internally, fair face painted blockwork is deployed in changing rooms and gym spaces to negate any potential impact damage and all plumbing is concealed within IPS systems (incorporating access as required). Whilst obscured, we have taken the opportunity to bring in diffused natural daylight into the changing rooms in every instance, making the FA standard changing spaces feel light and airy.

"The response from players and staff to the new facilities has been excellent, exactly what we wanted. In terms of realising our vision, this gives us a best in class facility to work with our staff and players in and create a no excuse environment in our aim of producing top class talent both on and off the pitch."
– Stuart Webber, Sporting Director, Norwich City Football Club

The response from players and staff to the new facilities has been excellent, exactly what we wanted.

Judges' comments

Norwich City Football Club's new Lotus Academy building provides a host of facilities with its design and structural approaches responding to humans' innate connection to the outdoor environment and promotes health, wellbeing, productivity and creativity, integrating many natural materials in the design.

Architectural Technology was demonstrated by control of solar gains, maximising daylight, a fabric first approach and heat pumps. These with the use of P, efficient services and an analysis using thermal dynamic simulation software enabled this building go beyond its performance expectations. ■

Winner 2020

AWARD FOR EXCELLENCE IN ARCHITECTURAL TECHNOLOGY | MEDIUM TO MEGA

The Catalyst

Words by GSSArchitecture

GSSarchitecture

The Catalyst is a new build commercial, educational and research project constructed on the Helix development within Central Newcastle. This landmark building was produced for Newcastle University to house the National Innovation Centre for Ageing and the National Innovation Centre for Data. The building also provides accommodation for the University's innovation leaders and the new National Institute for the Health Research Innovation Observatory.

Our approach to Architectural Technology for this project ensured retention of creativity and integrity, driving efficiency and accuracy from inception to completion. This was achieved through primary discussion sessions involving team members, allowing evolution of all design and detail factors, in addition to further communication with the wider project team, using BIM to form the integrated response.

Through client engagement we determined that the external façade of The Catalyst needed to be highly distinctive and address the notion of a signature building as it represents the innovation centres work on a global platform. The curved triangular design of the building was born by designing inside out, centred around the core of the collaboration workspaces. With the need for publicly accessible ground floor facilities and exhibition space, in addition to high-quality commercial office space, it was clear that there was a need for larger upper floor footprints compared to the public space below. The 8° adverse inclining curtain walls create this additional space for the private floors above, maximising the space created within the footprint of the building and creating an engaging covered entrance exhibition space.

The external diagrid, with its contrasting gold against the darkened glass, provides a vivid visual embrace as you approach the building from Science Square and Wellington Street, assisting in the building becoming an iconic, signature building as the home to the National

Innovation Centre for Ageing and the National Innovation Centre for Data. Rather than connection through to main structure, the diagrid could be compared to a brie soleil system, where connection back to external capping of the curtain walling system ensures the envelope provides a solid thermal barrier to the elements, thus minimising any potential of cold bridging.

The iconic design of this external gold diagrid led to the remodelling of the steel frame, in order to emulate the design, providing not just a visual impact but an economic solution in terms of tonnage, together with opening internal spaces for flexibility of design and function. The large span over exhibition space provided the opportunity for the diagrid to be extended down to ground level, forming another key feature of the building known as the tree and providing weather protection for the public to engage with the activities within the building.

The precast concrete plinth, providing contrasting pediment upon which the building sits, was manufactured off-site for speed and ease of installation works, assisting in the collaborative goal to design a more sustainable building.

The project team promoted core virtues, such as district energy, fabric first, reducing air leakage and thermal bridging, leading to a betterment of 89.9% over estimated parameters for thermal bridging. Overall, this led to a design that appears seamless whilst also maximising performance. The use of lightweight, sustainable structural steel for the frame was agreed due to its durability, strength, and ability to be reused and recycled, whilst allowing a more efficient internal layout. High performance glass was selected to reduce solar gain in the building, minimising the need for energy-intensive air conditioning during summer months.

The plant spaces were efficiently designed to allow for an improved hybrid green roof and PV array to maximise biodiversity and on-site energy generation. The inclusion of rain gardens, fed by the Siphonic drainage system, further enhance The Catalyst's sustainable approach by providing an urban drainage solution.

Sustainable construction practices were epitomised through improving upon design requirements across areas such as air permeability, thermal losses, increased PV provision and reduced CO_2e emission rate from building operation. Connected to a District Energy Scheme, the building also has minimal grid-energy consumption. More than just a construction project, The Catalyst was also a hub for sustainable development learning and community engagement and support. The scheme was also used to trial and test embodied carbon methodologies, to support client ambitions and develop innovative practices within the industry.

As a result of the sustainable features incorporated within the building, the overall CO_2e emission rate from building operation is a betterment of 27% compared to design-stage targets (based on modelled predictions which will be reviewed against live data when available). Additionally, the embodied carbon (structure) has been improved on by 9.5%.

A fantastic scheme which demonstrates the very best in Architectural Technology ...

Whilst designed with the overall sustainability of the building in mind, the low e glass is tinted to all facades except the North elevation undercut, where it is clear to maximise connectivity and accessibility into the building. This choice was made in order to address another key feature highlighted by the client, with the building intended to be a truly collaborative space, promoting the idea that this space was available to both the public and the tenants within the building.

The full height clear glazing to exhibition space promotes interaction between external and internal space. The ceiling lighting scheme highlights pedestrian routes that continue through the façade, into feature exhibition space internally, which again is a continuation of connection from within to outside the building, increasing the sense of connectivity and inclusion.

Internally, the double-height public exhibition space boasts a main feature staircase, together with over-sized circulation and collaboration spaces for public use. Meanwhile, the upper floors benefit from commercial rooms to the perimeter, with a central hub allowing ease of flow between the floors, via a central staircase, this allows the area to benefit from the natural light that floods the open plan break out spaces from the large glazed rooflight. The office space consists of a 60:40 split between office and common areas, which is a significant variation to a typical commercial development, allowing for greater collaboration space and ease of circulation for those with disabilities or visual impairments.

The detailing and integration of technology has resulted in fantastic spaces with extensive great use of BIM for reduction in construction time, clash detection and buildability

As a part of the core brief and coming out of extensive stakeholder engagement, came the desire to create a truly accessible space without the feeling of clinical or commercial only spaces. Due to the nature of the work carried out by the National Innovation Centre for Ageing, design decisions included the subtle inclusion of designing around the core principles of dementia accessibility and guidance, including oversized lifts to omit mirrors, indicators for level changes on staircases and a palette of materials that was consistent and warm.

The collaborative approach and focus on sustainable development has resulted in The Catalyst achieving a BREEAM 'Outstanding' rating, over and above the requirements to achieve 'Excellent'.

Construction value: £30.9 million

Professionals/contractors involved:

Role	Company
Client	Newcastle University
Architect	GSSArchitecture
Main Contractor	Bowmer & Kirkland
QS/PM	Turner & Townsend
Structural Engineer	SHED
M&E Engineer	Desco
M&E Contractor	NG Bailey
Interior Designers	Design North
Building Control Advisors	Blue keep
Landscape Architects	Gillespies

Judges' comments

The Catalyst is a new build educational and commercial project constructed on the Helix development within Central Newcastle. This landmark building was produced for Newcastle University to house the National Innovation Centre for Ageing and the National Innovation Centre for Data. The detailing and integration of technology has resulted in fantastic spaces with extensive great use of BIM for reduction in construction time, clash detection and buildability.

Incorporating solid eco credentials, it attained the highest level of BREEAM and has nonstandard shapes and forms which deliver sound technical solutions. A fantastic scheme which demonstrates the very best in Architectural Technology with BIM modelling through design, construction and delivery demonstrating a technical excellence in the delivered product and an outstanding winner of the Award for Excellence in Architectural Technology in the medium to mega category.

Finalist

AWARD FOR EXCELLENCE IN ARCHITECTURAL TECHNOLOGY | MEDIUM TO MEGA

Station Square

Words by Stephen Nixon MCIAT, Stanley Bragg Architects

Stanley Bragg ARCHITECTS

Station Square is a prominent building located adjacent to Colchester Station. The property was once home to the brokering side of Equity Insurance Group. The primary (southern) facade faces North Station, which is an important transport hub and gateway to the town. The site is accessible on foot to the rail station. Employment opportunities and leisure/sports facilities are all within a 15-minute walking range.

Our design modernised and refreshed the existing palette of materials while keeping as much of the existing structure as possible. Windows were replaced with new double-glazed units, with modern section designs and colouring. To reduce the impact of the new rooftop extension and provide a counterpoint to the solid mass of the existing building, the extension was constructed using visually lightweight materials, with extensive use of glass and polyester powder coated aluminium.

By converting the existing building to residential, we upgraded thermal elements as necessary for compliance with the building regulations conservation of fuel and power. High performance glazing, mains heating gas boiler and radiators, room thermostats and TRVs. Air permeability 3.8 $m^3/h.m^2$ (as tested). Third floor timber frame achieving an energy performance rating B. This benefited the development, by reducing heat loss through the roof structure from the existing floors below.

We utilised metal stud partitions throughout (except top floor). Dependant on locations these were either twin frame or single stud design. Mineral wool insulation provided both sound and thermal performance. The benefits of steel studs for a development of this size outweigh timber. They do not wear and tear over time, and they are not affected by moisture or humidity. They weigh less than wood and are fire-proof. Mineral wool Insulation scores an 'A' rating in the BRE group's Green Guide. It generates little waste when made, can be recycled and fed straight back into the manufacturing process. It is also fireproof and achieves a high thermal and acoustic performance.

Wood is effectively a carbon-neutral material (even allowing for transport) and timber frame has the lowest CO_2 cost of any commercially available building material. For every cubic metre of wood used instead of other building materials, 0.8 tonne of CO_2 emissions are avoided. Timber also has some of the best insulating properties of any construction material, helping keep us naturally warm and achieve energy efficiency targets, with a thermal conductivity (lambda (λ) value) of 0.13 W/mK.

A standalone lightweight steel frame was designed to support the weight of the new lifts. We encapsulated the steel within a lightweight stud partition system, with large openings for full height glass. At basement level masonry provided a more robust wall for areas of vehicular traffic. The existing slab required openings from the basement level up. Careful design and consideration taken from the structural engineer provided strengthening to both the existing and proposed works. Making the trip from lower ground to penthouse is a visual experience with views through the glazed lift enclosure through the courtyards and beyond.

Client: Crown House Homes
Planning: Pomery Planning Consultants:
Contract: Design & build
Build cost: Circa £5m
Structural engineer: JP Chick & Partners
Building Control: Colchester Borough Council
Completed July 2018 ■

Winner 2020

CHARTERED ARCHITECTURAL TECHNOLOGIST OF THE YEAR AWARD

Róisín Ní Chatháin MCIAT

Words by Justin Kelly MCIAT, Chartered Architectural Technologist

The Award is for an individual's contribution in achieving excellence as a Chartered Architectural Technologist in the profession and discipline of all areas of Architectural Technology.

Róisín achieved a BSc. in Architectural Technology at the Galway-Mayo Institute of Technology in Ireland, before going on to complete her studies at Edinburgh Napier University. She moved to London and joined BPTW in 2011 before becoming a Chartered Architectural Technologist, MCIAT in 2016. At BPTW, Roisin's role encompasses a range of responsibilities; as well as being solely responsible for a team of fifteen, Róisín works closely alongside me in running my architectural group of 22 and she is integral to fee reviews, resourcing decisions and invoicing as well as individual staff appraisals and business development activities. With Róisín as an integral leading member, my group successfully delivers around 1.5-2 million turnover – the equivalent of a small architectural business.

As a Chartered Architectural Technologist and director at BPTW, Róisín plays a leading role in the delivery of large scale residential, mixed-use and regeneration projects. Her ability to manage multiple projects, successfully lead design and consultant teams, and her strong understanding of the technical aspects of projects has led Róisín to develop excellent working relationships with clients, contractors and consultants.

Róisín has led her team in delivering a number of high profile planning and delivery projects such as Blackwall Reach in London Docklands and New Road, BPTW's largest project in a single phase which received planning approval earlier this year for 717 homes.

On New Road she co-ordinated the full multidisciplinary team of consultants and overcame the complex technical challenges to unlock the site. This included challenging levels, contamination and dealing with the flood risk from the River Beam whilst working within the constraints of the Rainham and Beam Park Planning framework which was very challenging. Working alongside Róisín is an absolute pleasure. She is dedicated and hard working an excellent role model for the profession, serving as a prime example of what can be achieved within our industry.

Commitment to teaching and development

Róisín's strengths lie not only in her strong technical ability, but also in her commitment to teaching and development, both at BPTW but also within the wider industry. As well as managing a team of architectural staff, she is an integral member of the BPTW training group, responsible for identifying potential CPD opportunities and arranging them for all staff.

Róisín is a leading member of our Design and Technical Quality Strategic group. She conducts project reviews to promote the continual improvement of BPTW's technical work and enhances design quality. Not only does she ensure technical perfection in her team's work but she is committed to ensuring technical excellence is upheld across the practice. She is regularly involved in internal and external communications ranging from CPD's, client events, practice interviews and speaking to architectural technology students about career progression.

Working alongside Róisín is an absolute pleasure. She is dedicated and hard working an excellent role model for the profession, serving as a prime example of what can be achieved within our industry.

University AT programme

Róisín was responsible for setting up the BPTW Architectural Technologist placement programme and works to maintain strong relationships with both UK and overseas universities. She has been actively involved in facilitating many of BPTW's placement students. Last year she enrolled two AT students from the University of East London who joined her team for a three-month work placement. Róisín ensured that an exciting, informative programme was produced for the two students and their feedback was extremely positive. Through the BPTW placement programme she has developed links with VIA University College Aarhus where in February 2019 Martina Markulin joined for a 20 week placement which developed into full time contract at BPTW. In February 2020 another student from Aahrus joined the BPTW placement programme and is currently progressing towards full time employment at BPTW. The success of the programme and its longevity is testimony to Róisín's hard work and dedication.

Róisín was responsible for imparting her knowledge of the industry to numerous students through face to face speed mentoring in small groups. Her participation was so well received by the students. UEL have maintained contact with Róisín and she has continued to support them.

As well as being an integral part of several university initiatives across London, Róisín is also actively involved with shaping the curriculum taught and carried out within AT programmes. Most recently Róisín has been involved

with creating connections between London South Bank University, the University of East London and Galway Mayo Institute of Technology in Ireland, working to open up collaboration between AT programmes.

Advancement in design technology

Throughout her career Róisín has always been at the forefront of the changes and advancements in design technology. At BPTW she has been instrumental in aligning our working practices and delivery technologies to provide a seamless transition from 2D AutoCAD to all our designs being undertaken in 3D Revit. This has not been easy as our clients have demanded the same high level of quality regardless of the digital platform we are using. The transition from 2D to 3D has been immense however Róisín's expertise in delivering technical information coupled with her knowledge and expertise in 3D Revit and BIM has made the transition seamless, albeit internally at BPTW it was a huge challenge and key business move. As a practice we are now fully geared up to deliver our projects to BIM Level 2 – a process Roisin was integral to.

Coupling this advancement in technologies with research, recently with our project at Blackwall Reach Róisín was instrumental in coordinating the design and redesign of the façade whilst ensuring the project was delivered in 3D Revit. Róisín has been instrumental in working with our contractors and developers in advancing façade design and construction taking on board the complexities of offsite manufacturing, aesthetics and costs. She has been leading research at BPTW into non-combustible façade design and specification taking on board the industry's response to the Grenfell fire, the Hackett Review and how we implement the Golden Thread into our processes.

Giving back

Throughout her career Róisín has dedicated her time to ensuring others are benefiting from her experience and knowledge and this knowledge sharing is invaluable for those who work with her. Róisín is an advocate at 'giving back' to society. An example of this is her involvement and strong connection to Galway her home county in Ireland. As well as maintaining a strong relationship with her University GMIT and providing them with opportunities to collaborate with London and Danish universities, she also previously offered her services to a local project in her home village of Carna in Connemara Galway. Since qualifying as a Chartered Architectural Technologist, she has returned to assist the local community with the building of a local arts centre to commemorate and celebrate local emigrants and their success around the world. As a local emigrant she shares the platform with the Mayor of Boston and many others who emigrated from this part of Ireland. She has been instrumental in the design and construction of the Emigrants Commemorative Centre. This is a great example of how Róisín devotes her time, knowledge and expertise to others and from the letters of support this is clear to see the positive impact she has and how much of an ambassador she is for CIAT and the advancement of Architectural Technology.

I have high admiration for Roisin; she is outstanding across so many levels and can be counted upon for her professionalism, commitment and dedication to progressing and advancing Architectural Technology and the industry. ■

Finalists

CHARTERED ARCHITECTURAL
TECHNOLOGIST OF THE YEAR AWARD

David Comiskey MCIAT

David's passion for Architectural Technology is infectious. He exhibits all that is good in the profession and is an exemplary ambassador and role model for any aspiring Chartered Architectural Technologist. His contribution to the advancement of the discipline in relation to research, teaching and civic engagement has been nothing short of transformational, including:

- undertaking pioneering research related to technology assisted inspection
- driving innovation in the pedagogy of Architectural Technology
- raising awareness of mental wellbeing within the Architectural Technology student, graduate and early career community
- inspiring the next generation of Architectural Technologists

Being a leader requires providing a model for emulation. David is the epitome of this, an excellent communicator who possesses the right mix of professional skills and personal characteristics to develop and extend his subject area. He is tenacious, approachable, considered and responsive and proudly uses his profile to promote the Architectural Technology discipline at every opportunity.

Adam Parry MCIAT

Adam has developed the healthcare sector in Wales for Stride Treglown, delivering specialist health facilities for the benefit of patients where they need it most. Becoming the youngest Divisional Director in the company's history his enthusiasm for best practice is contagious. Always approachable and encouraging of others to focus on delivering the best possible results, his generosity of character, particular focus on high quality and endless patience reflects his core values. Not afraid to roll up his sleeves and get involved with the detail, he's equally happy to be involved in all aspects of the technologist's role where he consistently places people at the heart of everything he does. With an extensive depth of specialist knowledge and a natural skillset for delivering unique, complex, often multi-phased solutions he forms a valuable asset to any design team whilst earning the trust and respect of his peers and clients alike.

Alex Tsotos MCIAT

Alex consistently exemplifies the tenets of a Chartered Architectural Technologist. He shows unswerving commitment to his role by pushing the boundaries of his technical, design and delivery capabilities. His willingness to learn and develop himself sets him apart, and he selflessly shares his knowledge and enthusiasm for technical innovation with his colleagues, which brings enormous value to those project teams he works with.

The quality of work produced by Alex epitomises the values of the MCIAT designation he has so deservedly achieved. His interpersonal skills ensure engagement with industry professionals at all levels and this continues to impress colleagues and clients alike. He is widely recognised for his enthusiasm and commitment to client service, as seen in the attached testimonials.

The experience gained during his work abroad has given Alex a wide understanding of international building standards and how other countries operate in the field of architecture and design.

CHARTERED ARCHITECTURAL
TECHNOLOGIST OF THE YEAR AWARD

Meet the Judges

Chair: Gary Mees PPCIAT MCIAT

Gary has 47 years working in the industry and has been running his own practice for 19 years, a Past President of CIAT and now holds the position of the Construction Industry Council's Health and Safety Champion along with this, Chairing Keeping Pace With Change Working Group which is a Construction Industry Advisory Committee (CONIAC) initiative.

His contributions externally have included a presentation at the Association for Project Safety 2013 Convention, in Belfast, on the potential implications of the CDM Regulations on designers and as part of a Panel for The Build Show held in October 2015. He has been a judge on the APS Student Award Scheme and an External Examiner for Robert Gordon University.

Paula Bleanch MCIAT

Paula studied Architecture and Construction Project Management and her main field of expertise is in design management. Much of her work in industry concerned the design and build of large PFI (private finance initiative) projects, including award winning schools, offices, hospitals and library buildings. In 2008 Paula left industry to join the teaching team at Northumbria University where she was final year tutor. She is now based in Denmark.

She has previously undertaken mentoring training as part of a scheme set up by the National Association of Women in Construction and has particular experience working as a female in the built environment sector.

Bharat Gohil MCIAT

Bharat is both a Chartered Architectural Technologist and Charted Construction Manager. With over ten years in design and construction, Bharat specialises in offsite superstructure design and manufacture for construction and DfMA. His solid technical background has assisted his development in the built environment sector leading him to consulting designers and engineers in best practice for offsite design.

Bharat is Chair of the Wessex Region and has helped develop the Committee and welcomes new faces and new ideas. Along with spearheading numerous social events for the Region, Bharat is now leading the Committee in providing useful online CPDs to help maintain members learning despite COVID-19 restrictions.

Alex Naraian PPCIAT MCIAT

Alex is Head of Architecture and Building Surveying at Private Property Projects, who are a part of Strutt and Parker, BNP Paribas Real Estate. He possesses a broad knowledge of traditional and classical architecture. His career has seen him deliver many projects for new build, refurbishment, conservation, retail, institutional, educational, leisure and commercial buildings.

He studied at Southampton Institute of Higher Education and started his career in the late 1980s and was privileged to be awarded an Honorary Fellowship of Solent University in 2016. He has sat on various Accreditation Panels for universities offering Honours Degree programmes in Architectural Technology. He has been a judge for the Building Innovation Awards, the WICE Awards, Association of Project Safety Awards and the LABC Awards. He speaks publicly on a variety of industry related subjects at universities, exhibitions and events, in the UK, the middle East, Europe and Asia. As an author, his articles continue to be published in various industry publications.

Chris Yorke MCIAT

Chris made the move into architectural practice in 1988, initially working on large scale housing rehabilitation projects and later widening his experience to schools, sports pavilions, children's care facilities and heritage projects. Working up through the ranks, he ran countless successful projects from inception to completion and was a team leader (Principal AT) before leaving in 2006.

He worked as a client aide advisor and facilitator on larger housing regeneration projects involving affordable housing and mixed development. This included working alongside senior representatives of the Commission for Architecture and the Built Environment. He now runs his own practice in Worksop, Nottinghamshire.

Xtratherm: Putting the design and build industry at the core of what we do

Xtratherm is proud to be associated with the Chartered Institute of Architectural Technologists in promoting excellence in the construction industry. Over the past 20 years, we have worked directly with CIAT to understand and support Architectural Technologists throughout CIAT's Regions and Centres in closing the gap between design and as-built performance.

Our links are deep, providing regional Specification Support, online Technical Guidance and networking opportunities.

Xtratherm's support combines both the Technical Team, and on-the-ground local Specification Managers along with the ability for members to manage their own training on our purpose-built learning management system.

Technical Team Support

We provide technical services throughout Ireland and the UK. Our competence and expertise is built on our engagement with the UK Construction Industry over the past two decades.

Our Technical Team are qualified to the highest standards of competency in U-Value calculation and condensation risk analysis. We have 3D Thermal Bridging and WUFI analysis covered also; being the first company in Ireland and UK to be assessed and certified under the NSAI and BRE thermal modelling competency scheme.

Our Remote Support has become increasingly popular as members seek responsive, technical solutions to their build and design questions.

Xtratherm Sales Team

Our team are certified through the following certification bodies:

- TIMSA BBA competency scheme for U-value calculation and condensation risk analysis
- BRE Thermal bridging modelling competency certification
- NSAI Thermal modelling competency scheme
- BBA and NSAI certification of the Xtratherm insulation boards, as well as full European certification and CE marking
- SAP and DEAP energy assessment

Specification Manager Support

Xtratherm have 7 dedicated Specification Managers throughout the UK and Ireland.

Online Training Support

Our interactive learning system, specifically developed for the use of CIAT and Aspiration Group members, is available free on xionlinelearning.com. It provides self-directed training – when and where you need it.

Xtratherm.com

Xtratherm academy

Support where and when you **need us**

While we won't have the opportunity to gather together in person at the AT Awards this year, Xtratherm remain committed to supporting CIAT as an organisation and you as an individual member.

CIAT's annual AT awards are testament to the importance of identifying potential and developing talent within the industry. Xtratherm are delighted to be part of this success story.

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New CPD: SustainABILITY in design

How to build greener: the role of passive design

In 2019 the UK Government committed to reducing the UK's total carbon emissions to net zero by 2050. This followed the 2017 industrial strategy which included the Clean Growth Challenge and led to the mission to at least halve the energy use of all new buildings by 2030.

These are ambitious targets and will require substantial changes to the way we plan, design, construct and maintain our buildings.

Ways to address these challenges include:

- Supporting 'long life, loose fit and low energy' ideas;
- Choosing sustainable, locally sourced materials;
- Recycling more and re-using waste materials;
- Building and retrofitting better-insulated homes and offices;
- Implementing passive methods of heating and ventilation where possible;
- Applying these principles to cities as well as individual buildings.

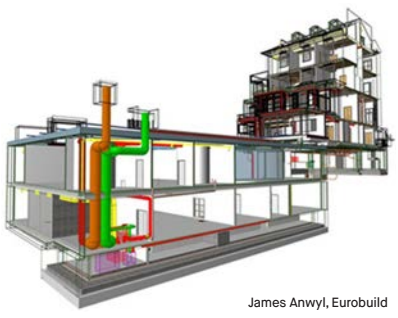
Applecore Designs' new online CIAT certified CPD, provides Architectural Technologists with an insight into the role of passive principles when designing more sustainable buildings.

Below is a brief introduction to the elements covered in the CPD.

Eight steps to passive design

Passive design is central to creating more sustainable, energy efficient buildings. The following aspects all affect thermal comfort and therefore the building's sustainability.

1. **Context, culture and climate.** Consider the position of the sun throughout the year; potential over-shadowing from nearby buildings; and weather patterns such as rainfall, humidity and wind strength.
2. **Building orientation.** A building should be positioned to make the best use of the sun as it moves throughout the day, to benefit from the sun's natural warmth and light while also avoiding overheating.
3. **Natural ventilation.** Natural ventilation provides fresh air without relying on mechanical strategies such as fans and extractors. While some mechanical systems will likely be needed as well, prioritising natural ventilation will reduce the energy requirements.
4. **Shading systems.** Shading systems such as louvers, balconies and overhangs impact the thermal comfort of the building.
5. **Integration of vegetation.** Adding plants and vegetation both inside and out improve the air quality in a building. Outside vegetation can act as a buffer zone by breaking the wind and can also help to prevent over-heating.
6. **Water collection.** Rainwater should be collected, purified and re-used as grey water in the building. Systems can be a combination of passive design solutions (pitched roofs, etc.) and mechanical solutions for harvesting the water and pumping it back into the building.
7. **Façade design and smart materials.** Recyclable, energy efficient materials available at low cost should be the first choice.
8. **Thermal mass.** Consider both the thermal mass and the carbon footprint of the material. For more information, the BRE website includes a comprehensive guide to sustainable products and materials.



James Anwyl, Eurobuild

Tools to help you design greener

There is a wide range of software on the market to help designers apply passive design techniques and understand the thermal characteristics of a building. Key questions to ask are:

- How easy is the software to use?
- How well does it integrate, or can it collaborate with other software?
- Can it render high quality images?
- Can it render in real time?
- Can it do native thermal simulations?
- Does it do daylight analysis?

For example, Graphisoft's Archicad Solo and Teamwork versions include energy evaluation which provides most of the above functionality. For those designers that require full analysis, then the EcoDesigner STAR extension is available to perpetual licence users at an additional cost.

There is no doubt that the ambition to create more sustainable buildings and to reduce energy usage throughout the built environment is challenging. However, by starting with the strategies outlined above, we can work towards designing buildings that are both environmentally friendly and comfortable.

In addition to the new 'SustainABILITY in Design' CPD, Applecore Designs are also running online AT Academy CPD certified courses on 'VR for Architecture' as a follow on from the Virtual Project Gallery provided at this year's AT Awards.

For further details on both courses and to register your free place(s), please visit the events page on their website applecoredesigns.co.uk/core-events ■

David with his wife Lucy

Gold Award 2020

GOLD AWARD | CELEBRATING AN OUTSTANDING MEMBER

David Traynor MCIAT

The Gold Award recognises and celebrates the dedication and commitment of Chartered Architectural Technologists who have demonstrated a significant contribution or outstanding service to the Institute.

There is a maximum of ten Awards presented annually to Chartered Architectural Technologists who have changed, developed or advanced the Institute, by solid, demonstrable and outstanding achievement.

The 85th recipient of the Gold Award is David Traynor MCIAT for dedicated service to the Northern Ireland Region and the Institute.

David first joined our Institute on 7 December 1994. He has been an inspirational member and role model of CIAT and the Northern Ireland Regional Committee for more than 20 years.

He has served our Institute with impeccable integrity and adoration and served as the Northern Ireland Regional Councillor from 2004–19. During his term of office, he totally reformed and restructured the Northern Ireland Regional representation by providing the encouragement, guidance and foundation to develop the Region into the huge success story it is today.

The consequences of David's devoted efforts have resulted in that he has enhanced CIAT's presence and recognition throughout the province and within the construction industry. This has contributed in illustrating the high level of professionalism and recognition in which CIAT members currently receive from its peers and wider industry circles.

David's contribution to his institute continued in 2010 when he was elected on to the Finance Committee, a position that he held until 2019. During this period, he became ATSL Director and from 2015–18 the ATSL Chair. He continued to serve in these roles until 2019 clocking up an incredible 15 years on Council. His hardworking selfless attitude and passion for his profession and his Institute has brought together a strong and extremely proactive Regional membership and committee, where his fellow members are aspiring to follow his example.

David continues to give his time freely to the Institute and unremittingly attends events were he continuously promotes the discipline of Architectural Technology and CIAT. He has been influential and instrumental in the Northern Ireland Region's efforts to host two of the Institute's most successful AGMs in Belfast and worked tirelessly to go the extra mile to help create some of the most popular AGM weekends for CIAT.

David is a hugely respected and admired member of CIAT and the Region 15 membership and he is held in the highest esteem from the wider Architectural Technology profession. The unmatched dedication he provides and the personal way in which he applies it is remarkable.

He is a true and selfless advocate for CIAT and thoroughly deserves to be a recipient of this Gold Award.

Brexit | Updates

With the countdown to Brexit on 31 December 2020, we provide a brief update on where the industry currently is with standards, products and regulatory alignment. All updates on preparing for Brexit are featured on the website which provides a broad overview on how it may affect you in business and as an Architectural Technology professional: architecturaltechnology.com/brexit.html

Movement of People | Architectural Technology professionals

Words by Tara Page, Education and International Director

Working in Europe post-Brexit

In the UK, the provision of architectural services is not regulated and there are a range of qualified, recognised professionals, including Chartered Architectural Technologists, who are able to practise without restriction. Elsewhere in Europe and the world, the practice of architecture may be regulated and restricted to specific professions, or those with particular qualifications.

The EU Directive 2005/36/EC on the recognition of professional qualifications was established to make it easier for EU/EEA countries to recognise each other's professional qualifications, and the Chartered Architectural Technologist is currently recognised within the Directive 2005/36/EC as a regulated profession. This recognition implies that a regulated professional is able to offer a range of services in their own country, but it does not mean that they will be deemed qualified to offer the same services in other EU/EEA nations, due to national legal or regulatory restrictions.

After the Brexit transition period, the Chartered Architectural Technologist will no longer be regulated under this Directive, as the UK will be treated as a third country. A third country in this case may be defined as any country outside the EU/EEA (excluding Switzerland) and outside of the single market and the customs union.

To establish whether you will be able to practise as a Chartered Architectural Technologist in the EU/EEA, or undertake the same activities, the first port of call would be to visit the EU's professional qualifications database. Some activities normally undertaken by the Chartered Architectural Technologist in the UK may be restricted to other regulated professionals, such as architects or engineers in EU nations. This can be checked on the database and if regulation exists in a specified EU country, the relevant competent authority for that country should be contacted to ascertain the requirements to practise.

For members outside of the UK seeking to work in the UK, a Tier 2 visa would need to be obtained and more information can be found on the UK Government's website. For members from the Republic of Ireland seeking to work in the UK, the Common Travel Area (CTA) protocol will remain in place, which allows free movement of British and Irish citizens between the UK, Ireland, the Channel Islands and the Isle of Man.

Standards, Products and Regulatory Alignment

Words by Kevin Crawford MCIAT, President Elect and Steven Hedley MCIAT, Vice-President Technical

Standards

As Architectural Technology professionals, we are constantly using and referring to standards which, for the past 40+ years, have been harmonised with European Standards. One of the consequences of Brexit is that consideration needs to be given to all of our regulations (Building Regulations etc.) which make reference to standards.

An example would be within English Building Regulations, Approved Document B, where fire classification is defined by European Standards. The reason for standardisation is self-explanatory but with the coming changes, the UK will soon have to operate under its own standards' framework. This does not mean that European Standards are lower or higher, it just means that the testing and certification for products for use within the UK will no longer be able to carry the CE mark. Products will have to be tested and approved by a UK testing authority. It is hoped that any potential duplication or confusion will be minimal with cooperation between the relevant bodies.

The critical issue for Architectural Technology professionals is the matter of legislation and specification. We and our clients have become used to specifying standards and writing specifications making reference to British and European standards without thinking twice. Our standards, contracts, specifications and regulations all have European standards hard wired into them and we will have to start referring to new UK standards, although EN standards will always be there

It is hoped that legislation will provide 'grandfather' rights/transitional timeframe to all designs and specifications that were created prior to 31 December 2020, that have not yet been contracted or started on site; as it appears that without an agreement that once we leave the EU, we may not be able to make reference to a European Standard.

As part of CLC Standards and Regulatory Alignment Group, there have been a number of meetings to discuss the effects of movement and transportation of goods and materials in and out of the UK after 31 December 2020. CIAT is represented on this Group, but there is currently no certainty on the concerns that we have.

Products | Use of CE marking

From 31 December 2020, the UK manufacturing sector will no longer be a member of the CE conformity marking scheme and will not be able to use the CE mark for sale of goods within the UK. There will be a UK notified body that will be responsible for all relevant conformity marking. There are to be other arrangements for Northern Ireland which will (currently) be covered by CE marking.

All testing that is certified in the UK by UKAS (ukas.com) will no longer be part of the CE scheme. Any testing that is based in the UK will only be able to certify products for sale in the UK and any products for export to the EU will have to be tested on 'European' soil.

Transitional arrangements are that from 31 December 2020 until 31 December 2021, materials and manufactured items which already have CE marking will continue to be able to be distributed without having to be re-branded with a UK conformity mark. As it currently stands, no agreement has been reached on new products that will be manufactured in the UK for domestic or EU export after 31 December 2020 and will require a conformity mark.

Regulatory Alignments | Movement of goods and materials

Another issue which will affect the way in which we work is the movement of materials and goods.

COVID-19 has had a far-reaching effect on the UK's stock levels of construction goods and building materials. This time of year would normally give merchants an opportunity to restock materials but a combination of factors are restricting this. Manufacturers have been slow to react to the reinvigoration of the construction sector and keep up with demand, whilst other goods are being sold elsewhere across the world at higher prices.

Brexit will no doubt create a 'different' strain on the procurement of goods and materials with new tariffs being introduced that were not present before. This will directly affect prices for import and export. Items, including any component parts, that you currently specify from abroad may be cost prohibitive come 1 January 2021.

What do we need to do as Architectural Technologists?

Definitely be aware of transitional arrangements coming into force on 1 January 2021. Many projects will only be entering the design stage in 2021 with construction programmed for 2022. We need to keep one eye on the proposals for conformity marks and UK standards for the following year.

With the looming tariffs and logistics for movement of goods from the EU to the UK and stock levels, we may need to start looking closer to home for the specification of materials and products coming from local manufacturers.

All CLC Brexit groups meet regularly and CIAT will keep you posted on developments across all groups into Brexit and 2021. ■

To keep up to date with all the latest information on Brexit, please visit architecturaltechnology.com/brexit.html

International Fire Safety Standards: common principles

UN approved standard for safety in buildings

Words by Dr Graham Smith MCIAT and Professor Sam Allwinkle PPBIAT MCIAT

Following the establishment of the International Fire Safety Standards (IFSS) Coalition at UN in Geneva, July 2018 there has been significant progress with the development of international fire safety standards and the development of common principles that can be used globally irrespective of location and legal jurisdiction.

The *International Fire Safety Standards: Common Principles: "Safe Buildings Save Lives"* document was approved by the UN as a global standard in November 2020. It will be published as a UN ECE standard and invited representatives of national and local governments and stakeholders are to apply the common principles to promote the safety of buildings.

Three Chartered Architectural Technologists were selected to join the Standards Expert Panel and Writing Committee for this new venture; Professor Sam Allwinkle PPBIAT MCIAT, Dr Graham Smith MCIAT and Frances Peacock MCIAT.

Following the Grenfell fire, there have been numerous initiatives and workshops. The IFSS is large group of regulators, institutions and bodies from across the world coming together to bring about universal and consistent fire safety for our shared built environment globally, given that fire safety is a very high societal concern.

The Coalition did not identify any singular, pre-existing overarching fire safety principles that would be suitable for adoption on a worldwide basis and would work in conjunction with other guidelines.

Through collegiate collaboration the standard applies fire precaution layers of safety through five principal layer of building cycle:

Stage 1 – Design, Stage 2 – Construct, Stage 3 – In use, Stage 4 – Change and Stage 5 – Demolish.

Applying prevention, detection and communication, occupant protection, containment and extinguishment at each stage.

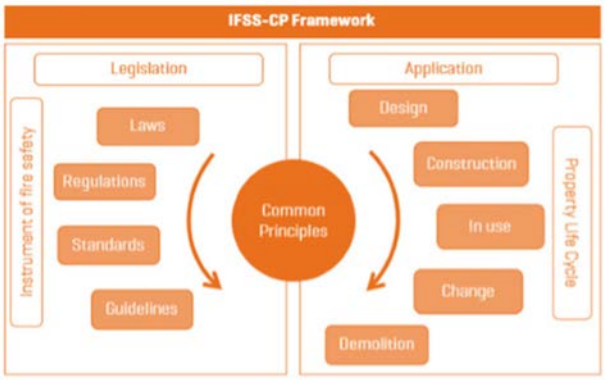
The Standards Writing Committee soon recognised that fire safety relates to several of the UN's sustainable development goals, in fact there is a strong case for fire safety prevention to be its own sustainable development goal.

As the standard notes: "sharing knowledge of the principles of fire safety that have been adopted around the globe represents an important opportunity to educate stakeholders and improve protection for people and Buildings from the risk of fire and could help drive improvements in safety in both developed and developing economies".

Education for professionals, for facility and portfolio owners and for the wider community is essential for filling gaps in knowledge to bring about a world more prepared and better informed about fire safety.

The IFSS aims to serve the public interest and be primarily concerned with life safety from fire but, where practicable, also aim to limit or prevent the loss of buildings and by extension protect the business operation and increase resilience.

The standard creates a framework that permits comparisons to be made on a like-for-like basis across countries. This framework is set out below:



The prevention principle objective was defined as safeguarding against the outbreak of fire and/or limiting its effects. High occurring ignition risks were identified through all stages of the building life cycle with focus at the design stage on product safety, through behaviour of construction workers, through storage approach for the in-use state. Change and demolition have similar philosophies to design and construct.

The detection and communication principle was defined as investigating and discovering of fire followed by informing occupants and the fire service. This was considered through the building life cycle with fire alarm and wayfinding strategies at design stage, language barriers at construction and integration of existing and new thought through during use and change.

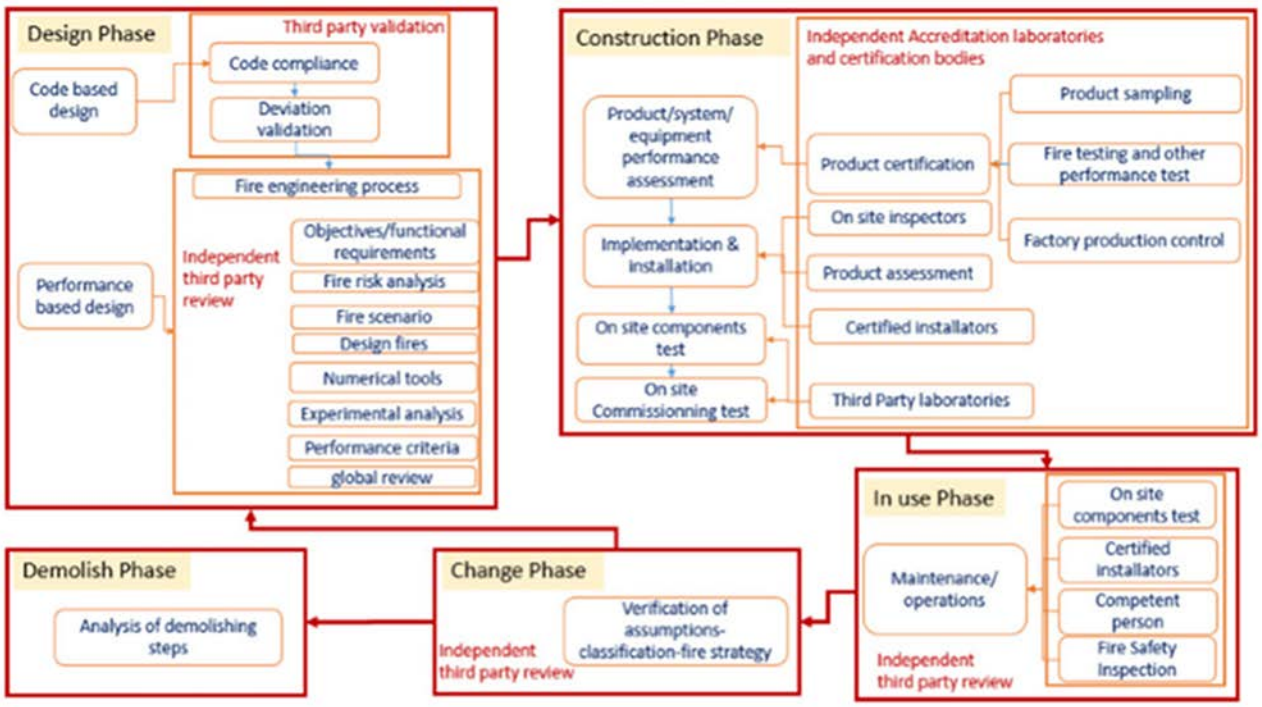
The occupant protection principle was defined as facilitating occupant avoidance of and escape from the effects of fire. Evacuation strategies were a key aspect of design and construction, with other fire precaution measures such as fire suppression and smoke control also relevant. In use testing and maintenance of systems was deemed important and the change and demolition phases had similar considerations to earlier parts of the life cycle.

The containment principle was defined as limiting of fire and all of its consequences to as small an area as possible. This created an emphasis on compartmentation and openable items in such like fire doorsets and dampers. Smoke control also featured since in airports and shopping centres, compartmentation is not present whereas smoke extract and downstands control smoke spread. Linings and cladding are also important considerations during design. For construction and use, inspection was a key theme. Change focussed on the varying magnitudes of refurbishment with ever increasing controls commensurate with the scale of renovation. Demolition took concern with removing containment and more active management of the site.

Lastly, the extinguishment principle was defined as suppressing of fire and protecting of the surrounding environment. Firefighting systems such as wet and dry risers featured during design with access a key consideration during construction. Firefighting cores, as required by a building, are best constructed as early as feasibly possible. The in-use phase concerned inspection of these systems and local extinguishment whilst the change phase reviewed temporary signs and systems and the need to integrate them with retained systems. Demolition measures were similar to the construction phase.

Accountability and the verification/validation of each life cycle stage was deemed of utmost importance with different routes for code (prescription) and performance based design. The construction phase included testing and certifying products and systems with the in-use phase considering competence of individuals. Change required validation of assumptions with demolition thinking though the programme steps to ensure fire safety is always prioritised.

This is not the end of the journey. Next steps are planned for a global directory of standards, a delta for fire precautions in complex buildings and a far-reaching implementation strategy. For latest updates please visit ifss-coalition.org/ ■



CPD during lockdown: an update

Words by Professor Steve Scaysbrook MCIAT, Chartered Architectural Technologist

The popularity of the new CPD website, at-cpd.co.uk has grown since the autumn issue with around 840 hits from around the globe! The content is continually being updated and reviewed. A new section is 'What I am reading?' and will showcase my own current reading, both technical, and perhaps social, with other suggestions being added from reader input.

I would like to focus on the section for podcasts which has been updated and expanded – this is the most convenient way of getting into any particular subject whilst on the move.

Some podcasters are making a video recording of their chosen subject, that will be in both camps; a video podcast and voice podcast. Podcasters are now making new episodes that fit into both camps with a single YouTube video, altering delivery to describe any pictures or visual content. I use podcasts a lot, both as a listener and also pushing certain excellent podcasts to students as almost reading material, Sidewalk Labs being the best, but equal to Ted Talks.

Refining any article or post into an academic paper and sending to one of the many peer review sites is a daunting task but so worthwhile doing.

There are so many ways to produce a good podcast, Anchor is an easy way to produce and also distribute. I currently use ScreenCastify that makes all my lecture videos and has the ability to make audio-only of any recording.

I use Google podcast listener, as my main app, but also Stitcher and can search for podcasts by subjects and podcaster. Stitcher displays any show notes, this I find particularly interesting for students, listing other reading and perhaps my slides plus they promote some very interesting podcasts you might not thought of looking at. YouTube is another very interesting player, I use this a lot, once you start the video, switch off the phone and the podcast continues. This allows videos to be both audio and visual, this together with playlists makes it an interesting podcast medium.

The Institute are looking to start their own Architectural Technology based podcasts which is why I am focusing on this particular area. If you have any interest in podcasting and would like to be a part of this project then please contact Adam Endacott, Communications Director – a.endacott@ciat.global

Metadata is becoming a very interesting side of life and with podcasts you can see so much, time duration, number of replays, what was played and any links used – the list is quite large – and part of a larger academic paper entitled *Lifting the Humble PowerPoint*. The general use and production of podcasts will be the subject of my next article and will delve into the production, listening and benefits to CPD and feedback

A new section is being added to the site to encourage academic papers and articles to be added, this might encourage readers to write about projects or new ideas on construction. There is no way to peer review these here but a link and brief abstract are all that is needed and a link to the site publishing the article. As a methodology, outlining the post and forwarding it to this Journal is an excellent way to start.

Refining any article or post into an academic paper and sending to one of the many peer review sites is a daunting task but so worthwhile doing. Drop a note to the AT-CPD email hello@at-cpd.co.uk and your paper will be listed as an academic paper. Many academics around the world are using ResearchGate (researchgate.net/) to publish papers – it is free and easy to use.

As an example the list below is a list of some of my current papers:

Comparison of Global Building Regulations

It is going to be a long old haul – almost every country has its own Building Regulations or codes. I am using a Google spreadsheet, with a view to adding columns to compare basic sections. If you would like to contribute based on your location please get in touch.

Lifting the Humble PowerPoint Slides to a New High

COVID-19 bug is causing so much disruption and this is evident in the way slides are used for online teaching, so I have looked for ways to lift the presentation.

Podcasts and CPD

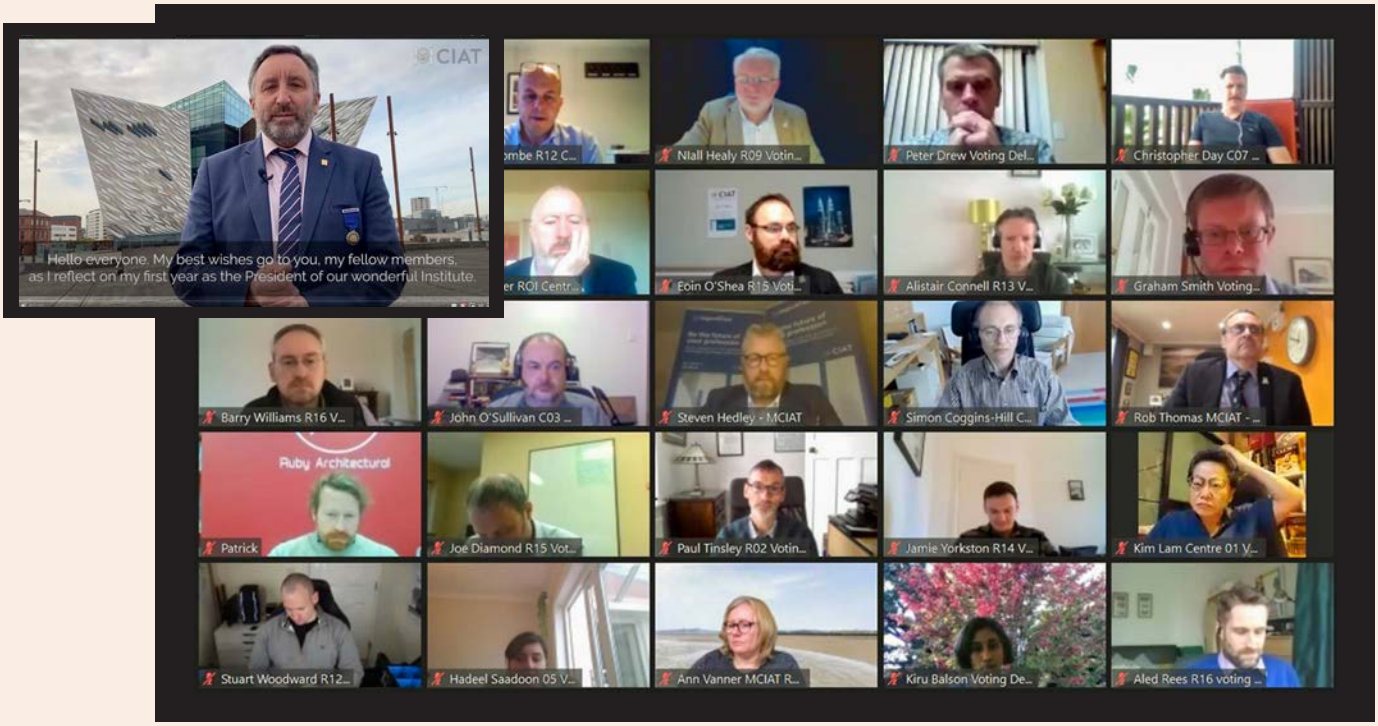
There is as you can imagine many podcasts to choose from, what do they give in terms of your CPD? Are they well produced? And many more. I have several papers and articles planed but any feedback then please drop me a line.

So a final addition will be for Videos series I like or being suggested. Playlists are an excellent way of podcasters to link a series of youtube videos into a single link, the playlist is easy to sort and play orders can be subject, date, or bespoke. As I develop my Academic slides, I am adding video presentations for each individual slide, these I collect into a playlist, with the thought that students can both watch and or listen.

An alternative approach to video production is the use of OBS or Open Broadcast Software, described in my article on lifting the humble Powerpoint. Now being expanded into an Academic Paper. But will form part of the Video section in some small way. ■

AGM 2020

The AGM took a different guise for 2020 as it became an online event broadcast from a studio via Zoom and YouTube on 14 November 2020. This allowed for a record number of members and affiliates to join and attend across the globe – a first for the Institute and the most that have attended an AGM in our 55 year history.



The Institute's 15th Annual General Meeting included the approval of the minutes, the accounts as well as the authorisation to Council to appoint the auditors. There were two Resolutions voted for by the Voting Delegates, made up of representatives from the Regions and Centres. The following were approved:

Resolution 1
To amend the membership of the Conduct Committee:

a) to remove the voting rights from the Honorary Secretary; and
b) to state that a Trustee is ineligible to sit on the Conduct Committee.

Resolution 2
That the Conduct & Disciplinary Procedures be amended to delete Clause 15a).

The President, Eddie Weir PCIAT, made his Presidential address via a short film which can be viewed on our YouTube channel: youtube.com/ciatechnologist

In his closing President's address, Eddie thanked Alex Naraian PPCIAT MCIAT on behalf of the Institute for his work and time over the past four years as he completed his year as Immediate Past President. He also welcomed Kevin Crawford MCIAT as President Elect.

Eddie confirmed that next years' business will continue in line with the Strategic and Corporate Plans 2018–23 which are still relevant in this current environment. He also reconfirmed to members that they are not alone and that the Board, together with the team at Central Office, are here to support them. Most particularly as the Institute is very aware that next year may be just as difficult for many and we will be doing all we can to respond to these difficulties.

The President reiterated that he hopes that during his second year of his Presidency, that the restrictions are relaxed and he can engage with members physically by visiting the Regions/Centres; especially at the AGM next year held in Manchester (COVID-19 permitted). ■

Thanks to CIAT for challenging this global pandemic using technology to deliver our AGM remotely. As usual, these great online platforms wait until the big day to give some trouble but once overcome, the result has been an excellent quality annual meeting where we all had our say and where we had the opportunity to engage with these amazing professionals from all around the world! Words cannot tell how proud I am being part of this fabulous community! Thanks for a very well organised event! Cannot wait for the AT Awards!

Raquel Castro MCIAT, Greater London Region

Membership news

Chartered Members

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

019841	Timothy Erkiert	Yorkshire, 02
023625	Amy Hines	Yorkshire, 02
029845	Tevin Nyansimera	Yorkshire, 02
029169	Chris Brearley	North West, 03
027703	Adam Johnson	East Midlands, 04
026171	Tom Riozzi	East Midlands, 04
035186	Angela Barbosa Gonzalez	West Midlands, 05
034992	Lalinda Colombage	West Midlands, 05
017056	Christopher Tweed	West Midlands, 05
029283	Tom Welch	Wessex, 06
034878	Manjiri Kulkarni	East Anglia, 07
034877	Katarzyna Mazurek	East Anglia, 07
032995	Zoe Reeve-Jones	East Anglia, 07
034875	Eve Waldron	East Anglia, 07
045999	James Roberts	Central, 08
029943	Matthew Morris	Greater, London, 09
029042	Joshua Slingsby	Greater, London, 09
032419	Gnanatheepan Thirugnanabalan	Greater, London, 09
017994	Lorraine Bennett	South East, 10
013571	Peter Jooste-Brown	South East, 10
018343	Alex Porter	Western, 12
026733	Craig McIntosh	Scotland West, 13
021493	Andrew Jones	Wales, 16

Welcome back

We would like to welcome back the following Chartered Members:

024728	Vaseema Hussain	Central, 08
032142	Seyed Sajjadian	South East, 10

CIAT-Accredited Conservationist

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

012912	Darren Bailey	Yorkshire, 02

In memoriam

We regret to announce the death of the following members:

006353	John Mawson	North West, 03
033629	Peter Dalton	East Midlands, 04
006784	Kenneth Humpherson	West Midlands, 05
006415	Paul Overton	West Midlands, 05
016166	Graham Cowe	Western, 12

Obituary
Paul J Overton MCIAT
13/10/1945-27/09/2020

Paul joined the Institute in 1967 and studied at Dudley Technical College and Warley College of Technology gaining an ONC in Construction and an HNC in Building (Architectural). His working career began in 1963 at the Bowley Regis Borough Corporation as a Junior Architectural Assistant. During his professional life he worked at several architectural practices and for Borough Councils until he set up his own practice, Overton Building Consultancy Services Ltd.

For the Institute, Paul acted as an Assessor for membership interviews and was active in his own Region, West Midlands. During his long association with the Regional Committee, Paul was Chair, Vice-Chair and Technical Development Officer. His support and tenacity led the Institute's long campaign and success in gaining an amendment to the Ecclesiastical Measure which has been extended to all competent professionals, who can now undertake quinquennial inspections of churches within the Church of England.

Obituary
Graham V Cowe MCIAT
01/03/1946 – 20/09/2020

The Western Region was saddened to hear of the recent passing of Graham, a former Western Region Councillor who worked tirelessly to re-invigorate the Regional Committee when he took on the role in 2008.

Alongside other longstanding Committee members Graham Fox MCIAT and Alan Haworth MCIAT, Graham attended the Hong Kong AGM in 2008, and came back full of stories from this trip - a key event in CIAT's history.

Graham Fox recounts *'I recall how Graham took on the role of Regional Councillor from Alan. As Regional Chair, finding a suitable replacement for this demanding role is always a challenge and I was so grateful that Graham had put himself forward for the job. Graham held this position until 2011 having participated in various Institute activities over the period. He actively promoted the 'new technology' of BIM and Revit to CIAT both locally as well as at Council.*

It is to this end that I was saddened to learn of Graham's passing, his contribution to the Region's activities was especially valued by me, as well as all other Committee members, who had the privilege to know him over this time'.

Aside from being a talented and experienced Chartered Architectural Technologist, Graham loved to bestow the virtues of Revit and was always willing to impart and share his valued knowledge,.

Looking back, Ian Newcombe MCIAT, the current Regional Councillor notes that *'in reality Graham was ahead of the game and had the vision and foresight to realise how BIM would eventually become so necessary and embedded within the discipline. He exuded enthusiasm and was always happy to help and support his fellow members. It was recognition and perhaps a nod to Graham's pursuit of new technologies, that a moments silence was held for him and other sadly departed members, during the Institute's first virtual AGM'.*

In tandem with his grasp of technology was a passion for conservation projects and contemporary developments, some of which can be seen every day in Plymouth and in the beautiful South Hams area of Devon, where his practice was based.

Paul Chapple MCIAT, a former Chair and Councillor recalls that *'on a more personal level, at his home in South Devon, Graham mentored and helped me to develop me as a new Chartered Member offering his advice when needed and encouraging me to become more involved with the Institute'.*

Alongside former and current and Western Region Committee members, we offer our sincere condolences to his family, friends and colleagues.

Conduct Hearings | Disciplinary Sanctions

Member 014108, Thomas Crossley: Conduct Hearing: Case 1

At the Conduct Hearing, Thomas Crossley was found in breach of Clauses 4d), 8c) and 9c) from the *Code of Conduct* effective 1 March 2019:

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

Clause 8: Breaches of this Code
The members shall:
c) when subject to an investigation by the Institute of an alleged breach of this Code use their best endeavours to assist in that investigation at their own cost.

Clause 9: Bankruptcy and Insolvency
A member shall report to the Institute within 28 days, 35 days if resident overseas, if they are:
c) a director of a company which is wound up (other than for amalgamation or reconstruction purposes).

Disciplinary action
In accordance with the *Conduct & Disciplinary Procedures* Item 20b), Schedule of Disciplinary Sanctions, Thomas Crossley be excluded for a period of **one year** in respect of the breach of Clause 4d).

In accordance with the *Conduct & Disciplinary Procedures* Item 20a), Schedule of Disciplinary Sanctions, Thomas Crossley has been reprimanded in respect of the breach of Clause 8c) and Clause 9c).

Member 014108, Thomas Crossley: Conduct Hearing: Case 2

At the Conduct Hearing, Thomas Crossley was found in breach of Clauses 1b), 3b)i), 4d) and 8c) from the *Code of Conduct* effective 1 March 2019:

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

Clause 3: Practice Registration
b) Chartered Members and profile candidates acting as principals shall:
   i. obtain and maintain formal registration of their practice with the Institute.

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

Clause 8: Breaches of this Code
The members shall:
c) when subject to an investigation by the Institute of an alleged breach of this Code use their best endeavours to assist in that investigation at their own cost.

Disciplinary action
In accordance with the *Conduct & Disciplinary Procedures* Item 20b), Schedule of Disciplinary Sanctions, Thomas Crossley be excluded for a period of one year in respect of the breach of Clause 1b).

In accordance with the *Conduct & Disciplinary Procedures* Item 20b), Schedule of Disciplinary Sanctions, Thomas Crossley be excluded for a period of one year in respect of the breach of Clause 3b)i).

In accordance with the *Conduct & Disciplinary Procedures* Item 20b), Schedule of Disciplinary Sanctions, Thomas Crossley be excluded for a period of two years in respect of the breach of Clause 4d).

In accordance with the *Conduct & Disciplinary Procedures* Item 20b), Schedule of Disciplinary Sanctions, Thomas Crossley be excluded for a period of one year in respect of the breach of Clause 8c).

For Conduct Hearing: Case 2, the Conduct Committee agreed that these periods of exclusion run concurrently. The total period of exclusion for this case is **two years**.

Member 014108, Thomas Crossley
Exclusions to be concurrent
The Conduct Committee agreed that the exclusions from Case 1 and Case 2 should run concurrently; the total period of exclusion from the Institute be **two years**.

Member 020834 – Jacob Russell

At his Conduct Hearing, Jacob Russell was found in breach of Clauses 3b)i), 4b) and 4d) from the *Code of Conduct* effective 1 March 2019:

Clause 3: Practice Registration
b) Chartered Members and profile candidates acting as principals shall:
   i. obtain and maintain formal registration of their practice with the Institute.

Clause 4: Professional Indemnity Insurance
Chartered Members or profile candidates who:
b) are principals of a practice providing services directly to a client shall ensure that adequate professional indemnity insurance is obtained and maintained by that practice;
d) are or were principals shall on request by the Institute provide the necessary evidence to demonstrate compliance with clauses 4a)—4c) above.

Disciplinary action
In accordance with the *Conduct & Disciplinary Procedures* Item 20a), Schedule of Disciplinary Sanctions, Jacob Russell has been reprimanded in respect of the breach of Clause 3b)i).

In accordance with the *Conduct & Disciplinary Procedures* Item 20b), Schedule of Disciplinary Sanctions, Jacob Russell be excluded for a period of one year in respect of the breach of Clause 4b).

In accordance with the *Conduct & Disciplinary Procedures* Item 20a), Schedule of Disciplinary Sanctions, Jacob Russell has been reprimanded in respect of the breach of Clause 4d).

CPD COURSES

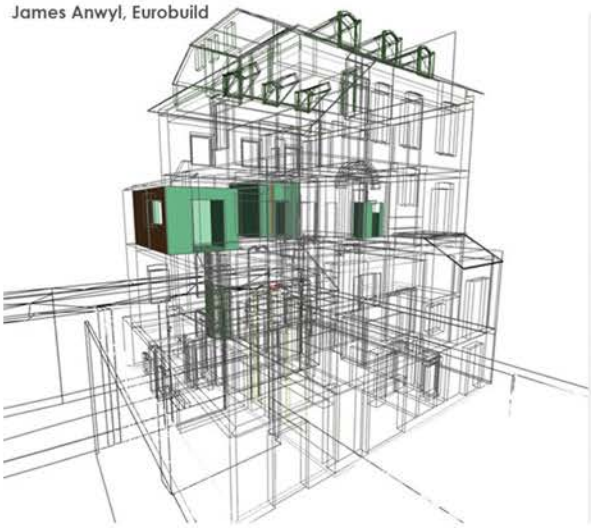
VR FOR ARCHITECTURE

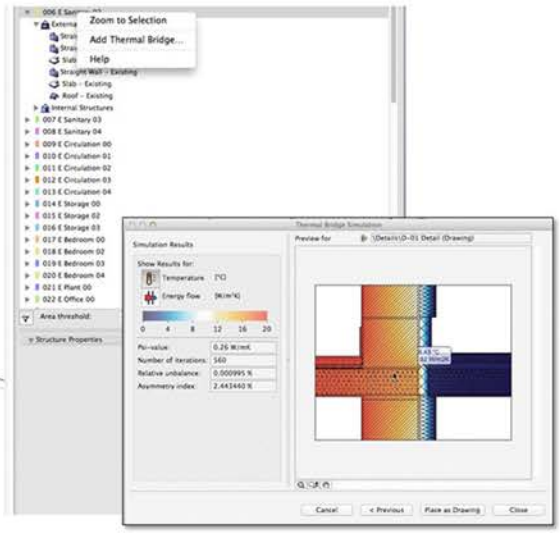
The aim of this course is to demonstrate how the sensation of actually being inside a building makes VR a powerful tool for communicating design intent. *(VR viewer provided).*

Some of the objectives covered on the course are as follows:

- **History of VR.**
- **To understand the benefits of adopting model based design, including mobile communication via iOS and Android.**
- **To demonstrate the benefits of portable virtual reality to architectural technologists.**

James Anwyl, Eurobuild





SUSTAINABILITY IN DESIGN

This course outlines a number of passive strategies to consider when designing more sustainable buildings.

Some of the objectives covered on the course are as follows:

- **Sustainability challenges for the construction sector.**
- **The key elements of Passivhaus design.**
- **Sun studies and building orientation.**

Courses are delivered online with questionnaire assessments leading to CPD certification. For further details and to register your free place(s), please visit our events page:

applecoredesigns.co.uk/core-events

applecore designs