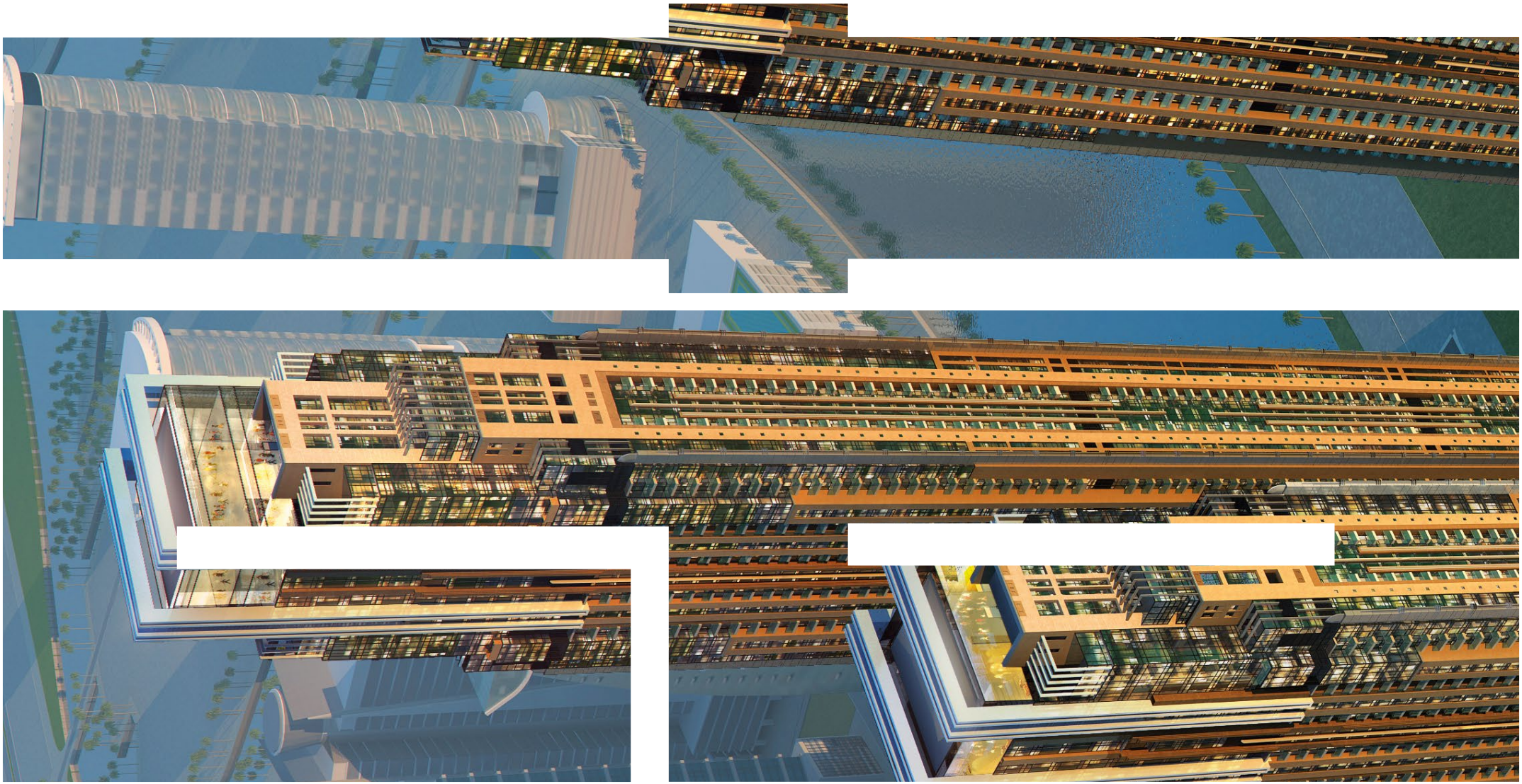
Architectural Technology

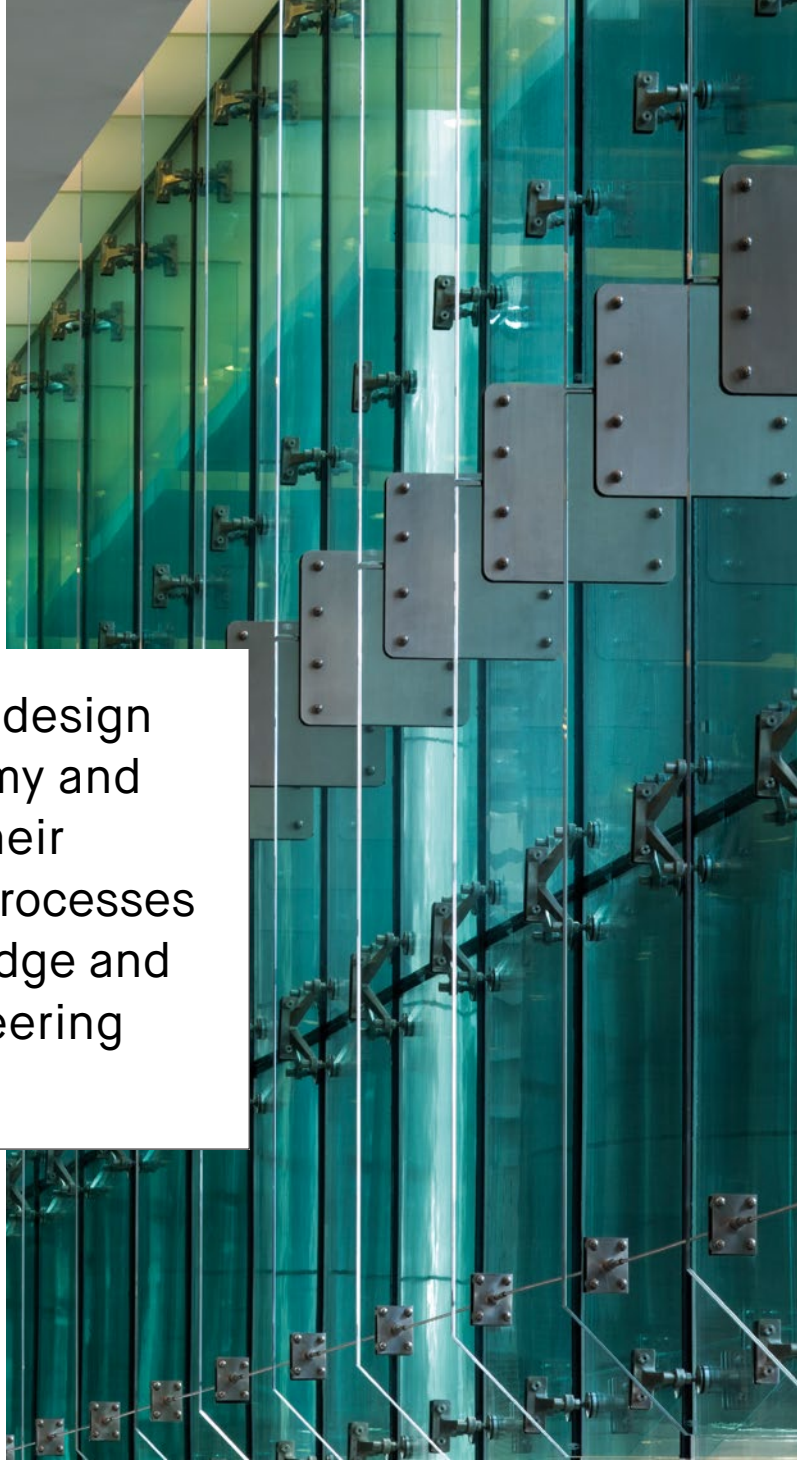
# Building Information Modelling

CIAT



# Architectural Technology

**An essential design function**



Architectural Technology, as a design function, relates to the anatomy and physiology of buildings and their production, performance and processes and is based upon the knowledge and application of science, engineering and technology.

**This is linked to robustness and the life span characteristics of building systems, materials and components to achieve long-term durability. It is fundamental to the retrofit design of existing buildings and the methods of assessment needed to evaluate structures through the use of building diagnostics and pathology.**

### Building Information Modelling and Architectural Technology

Architectural Technology plays a significant part in the project and design management process, linked to the building life cycle through the integration of technology and collaborative working and creating new communities of practice.

Those working in Architectural Technology have a crucial role in the design process through the use of Building Information Modelling (BIM) relating to production, performance, environmental sustainability, economic efficiency and effectiveness.

*City of Lights*, Brewer Smith Brewer Gulf, CIAT Group Membership Practice

## Design futures

There are unprecedented opportunities in design for Architectural Technologists being central and integral to the adoption of BIM.

Procurement, practices and roles are evolving and diversifying within an industry that is going through major change, seeing a need for a growth in specialisation, specialisms and for specialists. Architectural Technology will increasingly benefit industry through its professional diversity, adaptability, agility and basis for specialisation.

BIM and its influence on the design process should not be understated. It ensures that buildings are economic, efficient and effective in terms of scalability, replication, robustness and reliability as major characteristics of this design function.

## Relevance and importance of Architectural Technology and the application of BIM

Architectural Technology is an essential design function and through the application of BIM will ensure that design solutions result in economic buildings that can perform efficiently and effectively within the context of user needs and environmental, regulatory and budgetary requirements.

Construction accounts for 40% of Europe's energy consumption and 36% of CO2 emissions in the EU[1]. According to the Energy Performance of Buildings Directive (EPBD), all new buildings should be nearly zero-energy by the end of 2020.

Reducing the use of resources throughout the life cycle of buildings to lessen environmental impact is vital to achieving sustainability targets. The effective management of design information, through BIM will have a critical role in attaining key EU sustainability policies by assisting in the reduction of costs and meeting delivery targets by offering greater resource and energy efficiencies and improving accuracy to meet project delivery timescales.

## Chartered Architectural Technologists

Chartered Architectural Technologists are qualified to offer design services and manage projects from inception to completion. They lead the technological design of a project; forming the link between concept, innovation and realisation. They:

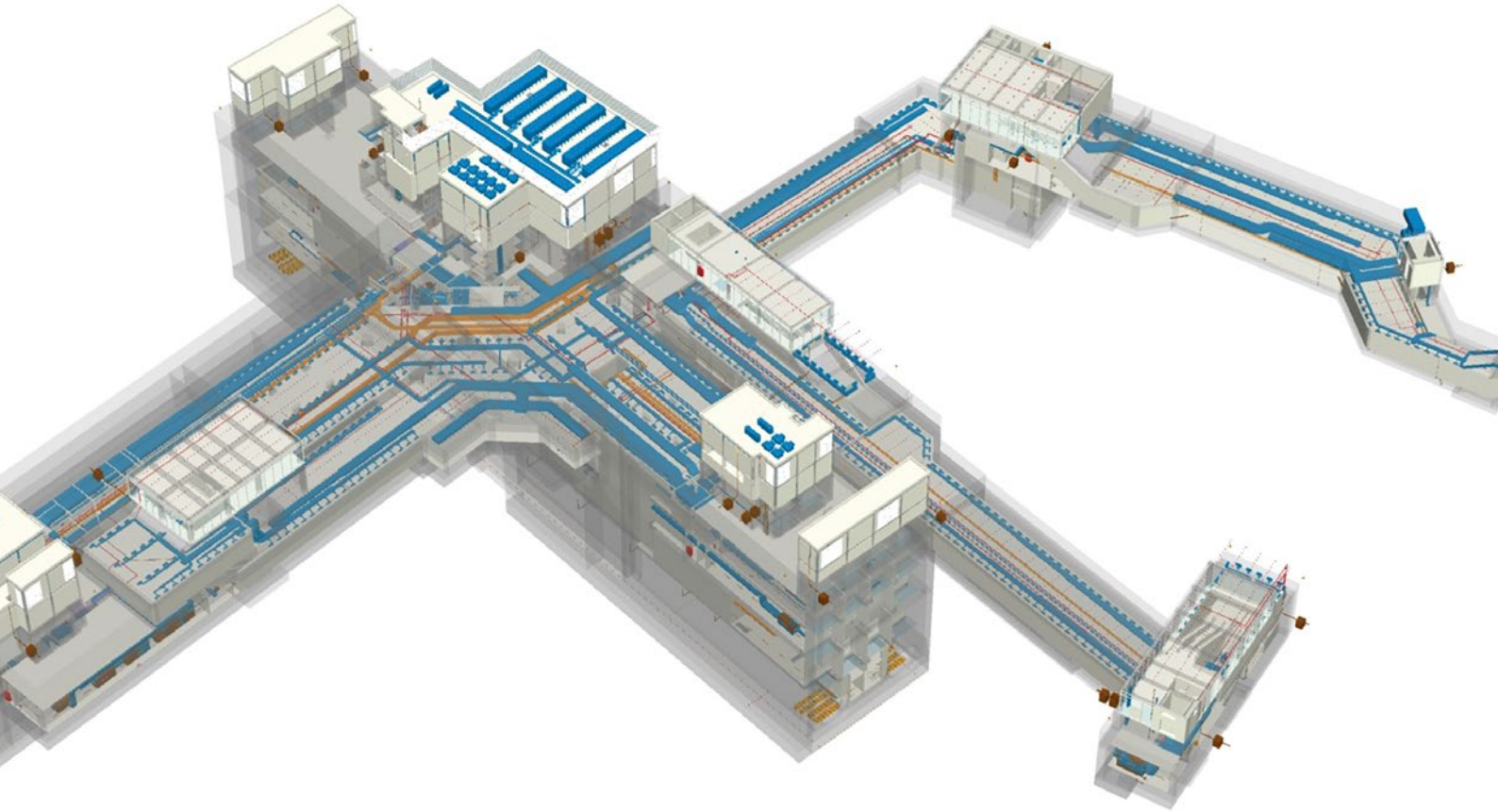
- specialise in design, underpinned by building science, engineering and technology applied to architecture within projects, playing a pivotal role in project and design management;
- design and manage all project types from small scale to large commercial, industrial, residential and public projects; they range from being sole practitioners to working in multinational and multidisciplinary practices;
- work collaboratively with other professionals such as architects and engineers and are recognised on a par with all Chartered professionals in the built environment sector; and
- hold a valued, respected and regulated professional qualification and protected designation, which is transferable and recognised across borders and can only be awarded by the Chartered Institute of Architectural Technologists, whilst abiding by a set of professional ethics in the Institute's *Code of Conduct.*

[1] EU Commission, https://ec.europa.eu/energy/en/topics/energy-efficiency/buildings

# Case study: Simon Gallagher MCIAT

**BIM Project Coordinator**
**Atkins China Ltd**

Simon Gallagher is a Chartered Architectural Technologist who works as a BIM Project Coordinator at Atkins, a multinational engineering, design, planning, architectural design, project management and consulting services company.



*Station Design,* Simon Gallagher MCIAT, Atkins China Ltd


*Station Design*, Simon Gallagher MCIAT, Atkins China Ltd

**With the increase in the use of BIM in Hong Kong, a perfect synergy has formed between the analytical mind of the Architectural Technologist and the specific demands of the new methods and workflows associated with BIM.**

This is how Simon came to find himself employed by Atkins China Ltd, with the unfamiliar title of BIM Coordinator, working on the Doha Metro Gold Line project in Qatar.

Simon Gallagher MCIAT

Before long, he was seen as a leading figure on the project, which has subsequently resulted in his addition to the Global BIM Technical Excellence Group. Simon has since been involved in the development of innovative delivery tools, such as Atkins' DCM (Design Coordination Manager) and various associated exercises through their Autodesk Enterprise Agreement, such as experiments with CDE (Common Data Environment) solutions or clash avoidance methodology.

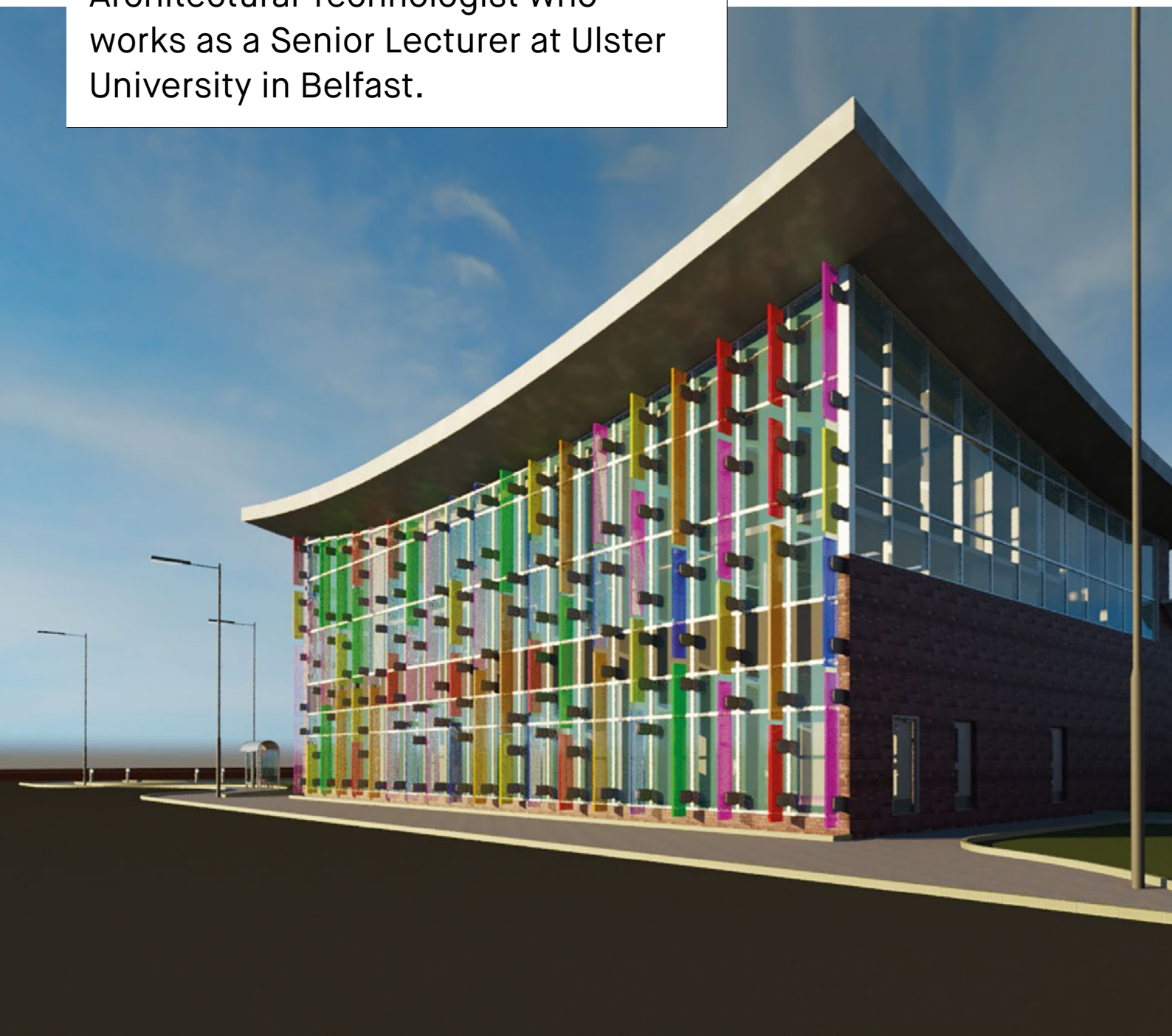
Simon's role has grown considerably from his initial appointment and now has a portfolio of projects under his watchful eye. These range from local government infrastructure BIM projects, for DSD (Drainage Services Department) and WSD (Water Supplies Department) to entire new passenger railway lines in Singapore (JRL) and delivery of the superstructures for Hong Kong International Airport 3rd Runway project (3RS).

As a valued member of an international engineering consultancy, Simon has worked at their Global Design Centre in Bengaluru, India, and their offices in Doha, Qatar. He has also been sent to Las Vegas, USA, for the Autodesk University annual technology conference. Being even a small part of something big does have its advantages!

# Case study: David Comiskey MCIAT

Senior Lecturer Ulster University

David Comiskey is a Chartered Architectural Technologist who works as a Senior Lecturer at Ulster University in Belfast.



David Comiskey MCIAT

*Student work*, University of Ulster

**Architectural Technology as a discipline is perfectly positioned to lead in the area of BIM, with graduates having the skillset required to drive the change currently taking place within the built environment sector.**

At Ulster, the Architectural Technology and Management programme aims to simulate real world scenarios for students in the teaching of good design and construction processes, as part of an integrated project team.

The work undertaken at Ulster has been internationally recognised. Students from the programme have displayed their skills on a global stage, with two being key members of a team awarded a prize at the prestigious Build Earth Live Competition in 2016.

David has worked to upskill Northern Ireland construction professionals on BIM processes by jointly delivering BIM professional development workshops at Ulster University. He was also a key member in a research project investigating Geospatial Data Capture for BIM in Retrofit projects, using this to inform his teaching and his discussions with construction professionals. David is also a member of the BIM Region Northern Ireland Steering Group, and acts as Regional BIM Expert for CIAT in Northern Ireland.

## BeIMCraft

David is a co-founder of BeIMCraft, a game based learning initiative for primary school children that has been developed to promote the built environment sector and related professions to the next generation.

The game is a modification of the Minecraft platform, building on it to highlight the emerging role of digital technology in the construction sector.

It reflects the interdisciplinary nature and requirement for collaboration with the built environment's supply chain by challenging young gamers to consider planning issues, health and safety risks, structural aspects, sustainability and cost when creating their three-dimensional world. This is all done within a collaborative working environment.

# Chartered Institute of Architectural Technologists (CIAT)

**Setting the standard**

## CIAT is a membership organisation that:

- leads and promotes the discipline of Architectural Technology;
- sets and maintains the standards of education through Accreditation of qualifications at Honours and Masters degree level;
- sets and maintains the standards of practice through professional qualifications, the *Code of Conduct* and continuing professional development;
- collaborates with similar bodies to improve knowledge, skills and professionalism within the built environment (see back page); and
- recognises excellence in Architectural Technology through its Awards.

## Formal recognition:

- Royal Charter bestowed by UK Government's Privy Council;
- protected descriptor 'Chartered Architectural Technologist';
- competent Authority for Chartered Architectural Technologists in the EU;
- specific educational standards developed by UK and Irish governments in recognition of the distinct nature of Architectural Technology;
- principal member of the Association of European Experts in Buildings and Construction (AEEBC);
- licensed to offer the Chartered Environmentalist qualification to suitably experienced Chartered Architectural Technologists, on behalf of the Society for the Environment;
- member of the International Ethics Standards Coalition;
- full member of UK's Construction Industry Council; and
- member of the UK Green Building Council (UKGBC).

*JVC Tower,* Atkins

# Chartered Architectural Technologists, MCIAT

## Recognition and reputation

- Recognised as a regulated profession by the EU Commission.
- Recognised in UK Government's Standard Occupational Classifications document alongside architects and surveyors.
- Recognised by UK funding agencies and Council of Mortgage Lenders to monitor building work and provide the lender's Professional Consultant's Certificate.
- Recognised by the UK public sector on an equivalent basis as other Chartered professionals.
- Participate in UK Government's Building Regulation Advisory Committee and other influential committees and groups.
- CIAT-Accredited Conservationists, who must also be Chartered Architectural Technologists, are recognised by UK grant funding bodies as the project lead on building conservation and heritage projects.
- Awarded direct access to the Construction Skills Certification Scheme in the UK.

*Al Habtoor City*, Atkins

# CIAT and BIM

## Influence and impact

*City of Lights*, Brewer Smith Brewer Gulf, CIAT Group Membership Practice

### The Institute is influential in the development and implementation of BIM, and as such participates in:

- British Standards Institution (BSI) standards, which includes PAS1192, the underpinning standard for BIM;
- UK BIM Alliance: a collective of professionals who promote the benefits of a digitally enabled industry;
- construction Industry Council — BIM Forum: this group addresses the BIM Strategy paper published by the Department of Business Innovation and Skills;
- BIM4Communities: a collaboration of special interest groups who work together and champion BIM in their specialist area;
- BIM4Heritage: a special interest group to champion BIM within the historic/ conservation sector;
- construction IT Alliance (CITA): an Irish based organisation, which actively encourages those in the sector to take advantage of current and emerging information and communications technologies; and
- in conferences, exhibitions and seminars, with members representing Architectural Technology and BIM together.

### CIAT also has:

- an established BIM Virtual Group for its members; and
- a suite of films on BIM Level 2.

### The European BIM Summit (EBS)

EBS is one of the largest annual international congresses on BIM. CIAT is a key sponsor and a member the EBS Strategic Committee. The Summit objective is share good practice in the use of BIM, as well as share BIM methodologies and international alignment. CIAT has a range of Chair and speakers from around the world participating at the event.

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# Collaborations

## Umbrella Bodies

## Centres of Excellence

## Business

## Professional Institutes