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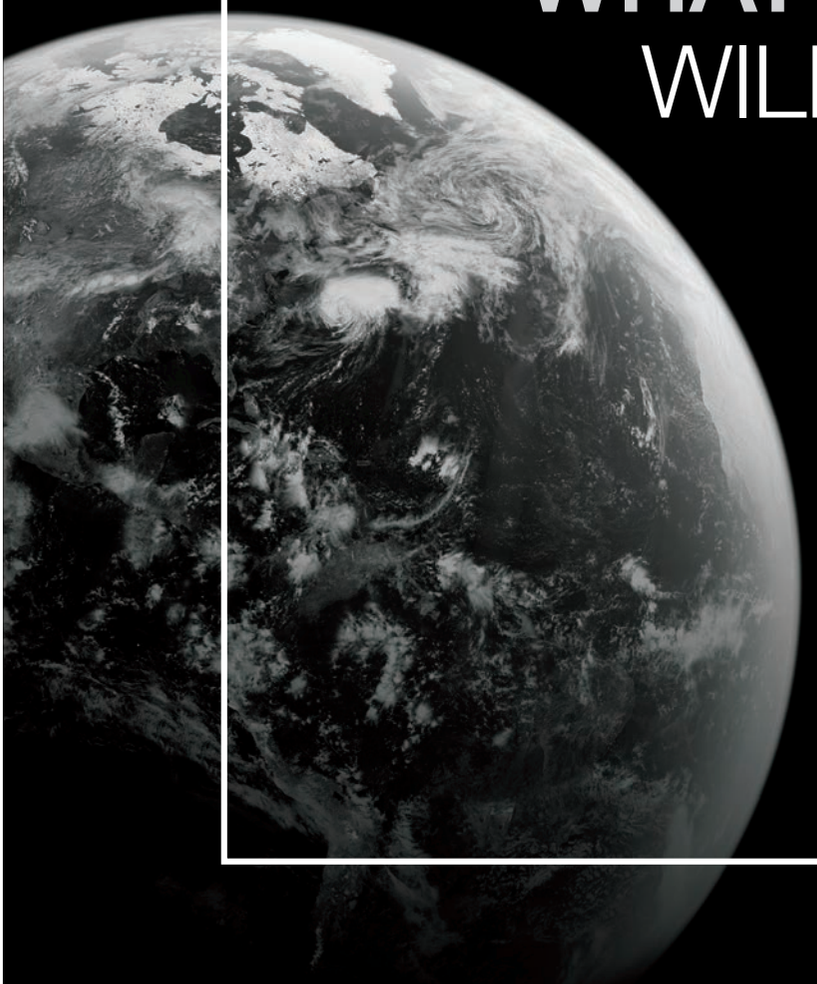

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Going up a level

Building information modelling (BIM) is changing the UK construction industry. Over the next decade, it will combine with data analytics and the Internet of Things – including sensors – to allow built environment professionals to look at assets in operation and make better use of existing infrastructure. This is the next level for BIM – and it's called Digital Built Britain (DBB).

On page 5, CIBSE's Carl Collins says the data generated by building services systems will fuel DBB. Our challenge will be to ensure they create the spine through which data can travel into and out of projects.

Collins also identifies, on page 6, the protocols that will be most useful as the layers of BIM get more and more complex, including guides on security and health and safety. On page 10, meanwhile, we look at how cloud-based BIM collaboration enabled Tate Consulting, and the rest of the project team on the Royal Wharf development in London, to coordinate the design while responding to client changes.

Being a team player is key to ensuring a successful BIM strategy. On page 14, Hurley Palmer Flatt's group BIM manager, Thomas Lindner, explains what he has learned in his role.

LIZA YOUNG, DEPUTY EDITOR lyoung@cibsejournal.com

CONTENTS

Path to BIM compliance

It will come as no surprise that BIM use within the industry is continuing to rise. According to the latest NBS survey, 74% of construction professionals now use it – an increase of 12% since last year and the highest year-on-year growth since 2014.

Making BIM level 2 compulsory on all government projects has helped the building services sector discover this technology, and reap the benefits of working with it. The NBS National BIM Report 2018 stated that the industry is confident of the technology's role in helping reduce costs associated with building and operating assets, while increasing quality and productivity. However, 62% of respondents didn't think the government was doing enough to enforce the Level 2 mandate.

There is so much more that can be done to promote and embed BIM across public sector and commercial projects, by continuing to invest in BIM training and manage cultural change. At the same time, the onus is on manufacturers to engage with – and support – industry professionals as they make the transition to being fully BIM compliant.

Creating easy-to-access BIM files on all products is the first step. The next is to offer BIM models with varying levels of information. Remeha's LOD 3 files, for example, have the appropriate level of information for use at the initial design stage, while the LOD 5 files are more data rich, containing all the details required at the latter stages.

By offering a tailored solution to working with BIM Level 2, manufacturers have a key role to play in enabling a more collaborative work flow, and in smoothing the process from design and build to operation and management. All of which will help businesses get ahead in national and international markets.

CHRIS MEIR, sales director, Remeha

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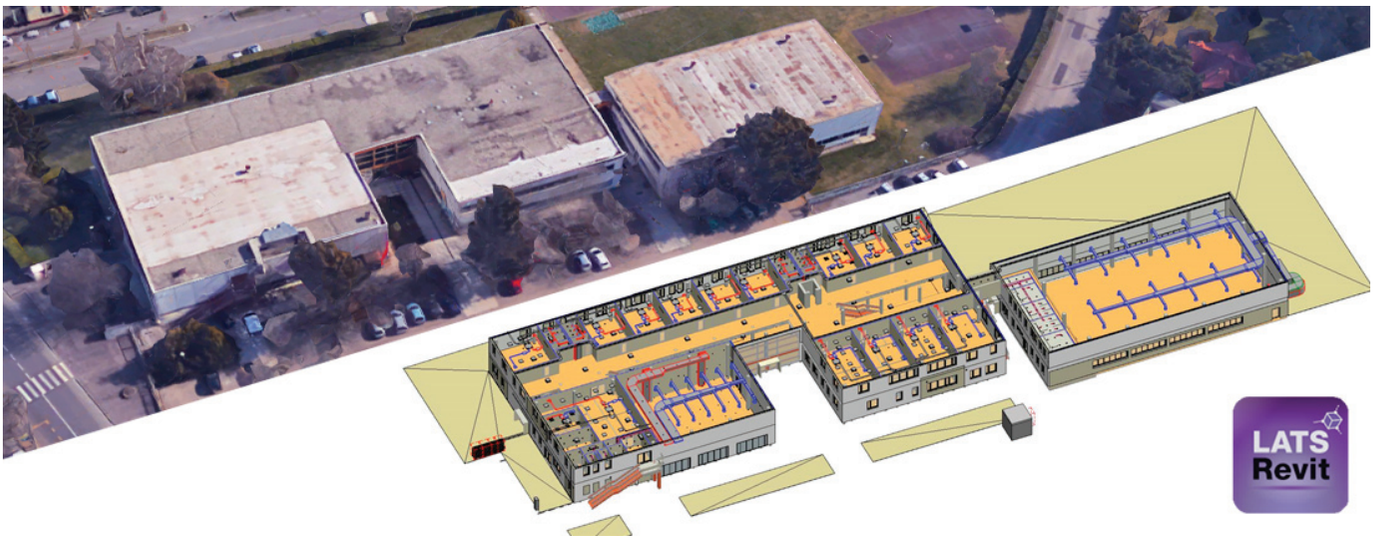
LG BIM tools support the design of the HVAC system of a school in Italy

LG LATS REVIT helped us with the selection of the right HVAC components, saving time for drawing and sizing of the VRF system, Stain Engineering BIM manager Alessandro Stefani tells LG's **Andrea De Donatis**



LATS REVIT is an innovative BIM tool developed by LG Electronics Air Solution Business Unit. It accompanies consultants and constructors throughout their pursuit of efficient building and it shows LG's commitment to further investments in total building system solutions. LATS REVIT enables faster and more accurate design of LG's HVAC systems and contains all necessary components. It is not only a time-saving tool for engineering companies that design HVAC building systems, but also a facilitator of objects that otherwise would have to be conceived from scratch, such as the copper pipes. These BIM objects include various information, such as weight, operation limits, power supply, heating capacity, energy consumption and more. Checking and modifying LG VRF systems in BIM is now faster and more accurate than ever before. With one click, system simulation will start checking the configuration for load ratios, temperature conditions, combination ratios, and piping lengths. Upon completion of the simulation, you can be assured the correct equipment has been selected for the job.

Stain Engineering, an engineering services company that operates in Italy and abroad, used LG LATS REVIT to support the design of an innovative and energy efficient middle school building near Milan. The consultant opted for a VRF system for the air conditioning of the school because of its multiple benefits: high energy efficiency (lower operating costs); precise temperature control and zone comfort; great flexibility; easy installation; and sophisticated and user-friendly controls. For this project, the consultant selected and imported into the BIM model new LG Multi V 5 outdoor units and 4-way and 1-way cassette indoor units. A LG Hydro Kit is used to provide high-temperature sanitary hot water for the gym locker rooms and the bathrooms. This unit can maximise energy saving during the hot season, recovering waste heat from the classrooms to heat the water. LG ERVs (energy recovery ventilators) deliver clean, tempered air in all classrooms. New RS3 remote controls ensure the best temperature and relative humidity in each room. LG AC Smart BACnet Gateway combines the advantages of the big touchscreen central controller with the standardised communication protocol BACnet for building automation.

After the selection of LG components, pipework is sized automatically, directly within the REVIT model. The great benefit of this was that it reduced the scope for error and offered greater efficiency. Schedules for repetitive items – outdoor units, indoor units, controls and piping accessories – are created automatically, avoiding any duplication of information. As models were updated or room configurations changed, the calculations and schedules would update automatically.

LATS REVIT is distributed freely by LG Electronics in Europe to support BIM users in their initiative to design air conditioning system.

Andrea De Donatis is spec-in engineer at LG Air Conditioning & Energy Solution Italy

LG
Life's Good

Take it to the next level

Sensors we design into systems will provide the data infrastructure to fuel Digital Built Britain. CIBSE's Carl Collins explains the next BIM stage

Building information modelling (BIM) – and especially BIM Level 2 – has been the catchphrase for new and more efficient ways of working in construction since the government mandate started in 2011. It was referred to as a BIM 'level' because the idea was to carry on making the process better and more efficient.

The BIM acronym, however, has taken on a bit of a specialised meaning in recent years. As a result, the work going on to define what the next iteration will be has dropped the moniker and, instead, is using the phrase Digital Built Britain (DBB).

That's all well and good, but what does DBB mean to people who work in construction? Right now, no-one knows the exact answer to that question – the processes are still being defined – but the basic concepts can be seen in Figure 1. Let's have a look at what that might mean for us in building services.

Generally speaking, BIM Level 2 focuses on design and construction processes, standardising the approach and levelling the playing field for allcomers. It is the starting block for what will come next, which will have a much wider remit and look more closely at built assets in operation – how they interact with people and offer them digital services.

A workshop, hosted by the University of Cambridge in early April, invited practitioners and academics to start fleshing out what processes and projects could be run to make the ambitions of DBB a reality. It was an exhausting two days of intense thought and information exchange – and from these discussions came a bewildering array of possible projects and research ideas. We rationalised these into functional groups and voted for the ones we thought would best serve our industry.

High on the list of topics discussed was harnessing sensors to offer far more than building controls. What would happen, for example, if we made data available from a multitude of built assets – about how they are functioning, where people are, what energy they are using and what energy they could be harvesting? Could we start to understand what triggers are causing spikes in energy demand, and ramp up other energy sources to balance the loads? What would be the security implications of doing that? Who would look after the data and how do we democratise it?

All big questions, but some of the answers are even bigger. We could employ built assets as energy stores, to mitigate spikes in demand. We could use the batteries of parked electric cars to flatten out the load requirement; let unoccupied spaces get a little warmer or cooler to save on air conditioning and heating loads; use sensors in light fittings to find out where – and when –people go in buildings with uncertain occupancy profiles, such as museums, hospitals or schools. We can understand the flow of people through a supermarket to help us better comprehend behaviour and, in real time, make changes that benefit the customer, as well as the store.

> "Our challenge is to offer the spine through which data can travel into and out of projects"

We already have presence detectors at train stations to modulate the volume of announcements – but, if we store and democratise that data, we could let rail companies understand, in real time, how many carriages are required. Taxi companies could predict how much custom they might get from each train – and how late they are going to be. If the connecting bus is already full, more taxis will be needed; this information can help that. The possibilities are endless, limited only by our imaginations; but the point is, without generating data – and, from that data, meaningful information – none of this will be possible.

A lot of the data from building assets will be generated by the building services systems. We design into them all sorts of sensors already and these can provide the data infrastructure that will fuel Digital Built Britain.

Our challenge is to offer not only the building services, but the spine through which data can travel into and out of our projects. This must happen securely, in real time, and in a format that is consumable by the apps that will turn it from noise into meaningful insight. How will we do this? I have no idea, but it sounds cool.

CARL COLLINS
is a digital engineering consultant at CIBSE

Flow of information

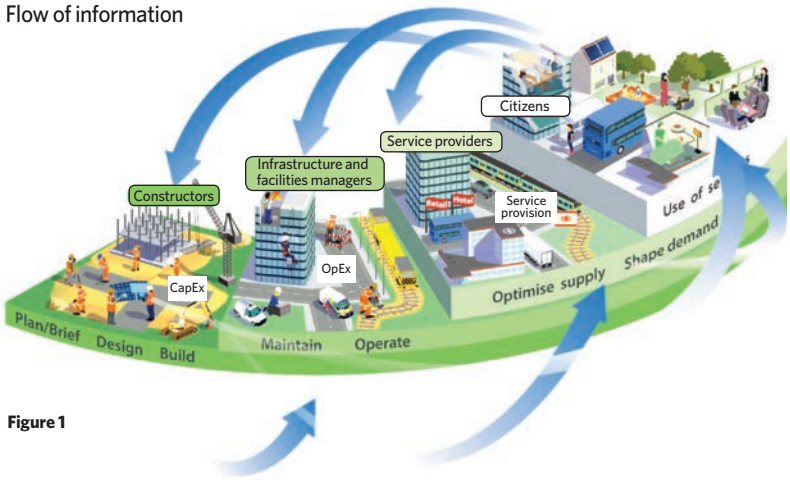


Figure 1

Setting the standard

As the layers of BIM standards get more and more complex, it is important to identify the most useful protocols. CIBSE's Carl Collins examines two new guides on security and health and safety

We often hear people talking about BIM standards, but what is included and which of those publications is actually a standard? This may sound like a daft question, but – if you look at it in a little more detail – you'll see there is more to this than meets the eye.

What is a standard and, more importantly, what isn't – and which standards and non-standards should we be applying to say that we are 'doing BIM'? The set of publications surrounding BIM is growing and some are morphing into full international standards (more on that later).

But first, we have to make a confession. People often talk about BIM Level 2 compliance, as if there is a load of stuff that we do and, by doing it, we are doing BIM. Well, that would imply there is definitive agreement on what BIM Level 2 is – but there is no such definition... yet.

What is a standard?

In the UK, a standard is a document published by the British Standards Institution that has a prefix BS. This may be followed with an EN and/or ISO, which indicates the standard is also adopted at European and/or international levels.

Some 'BIM standards', however, are prefixed PAS – a publicly available specification. This means they are privately sponsored, written much more quickly than full standards and are the starting point from which we hope to move on to standardisation. So, they are not standards and should not be treated as such.

PAS 1192-5 deals with security of information in the digital environment

What 'standards' are required for BIM?

Most people will have seen the 'Bew-Richards BIM maturity wedge'. This diagram includes a list of standards and shows at which stage of BIM maturity – or Level of BIM – they should apply.

If you have done a BIM project, you will be familiar with the numbers 1192 – the main 'standards' and PAS documents referred to: PAS 1192-2 is cited for just about every BIM project. But each of these documents has 'normative references', which are other standards you must apply to comply with the clauses of the standard you are reading.

This can create a problem, because the referenced standards also have normative references... and so on and so on. Soon, the pile of standards is huge and we are all none the wiser.

The set of standards around BIM is also expanding – and that is what I would like to look at next.

What are these new standards all about?

The growing list of documents underpinning standardisation already includes BS 1192:2007, PAS 1192-2, PAS 1192-3 and BS 1192-4, and the next in line are PAS 1192-5 and PAS 1192-6.

PAS 1192-5 – Security

This PAS (not standard) has a much longer title, but 'Security' just about covers it. This is not about putting up CCTV cameras or concrete bollards – it is about security of information in the digital environment.

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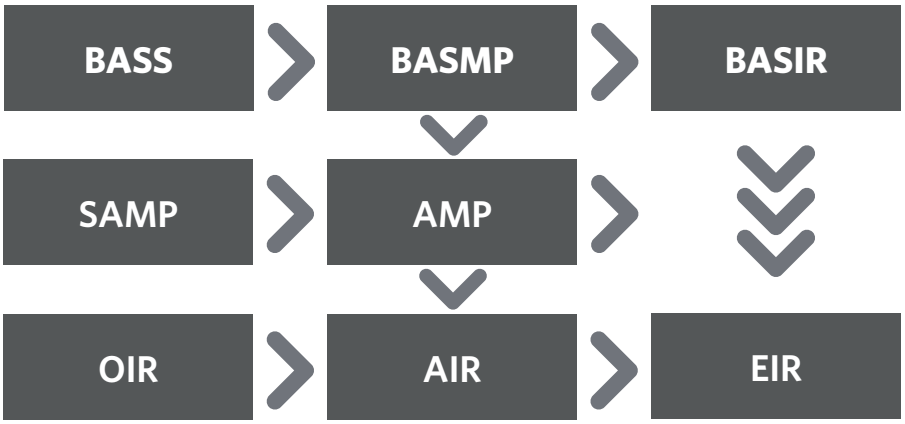

Abbreviation	Expansion	Meaning
AIR	Asset information requirements	Information about a built asset, used to run it effectively
AMP	Asset management plan	Tactical plan for managing an organisation's infrastructure and other assets, to deliver an agreed standard of service
BASIR	Built asset security information requirements	Plan of requirements for the secure handling of asset data
BASMP	Built asset security management plan	Management plan for implementing the strategy on security
BASS	Built asset security strategy	Strategy for security requirements
EIR	Employer's information requirements	Information an employer should request in relation to the building of an asset
OIR	Operation or organisation information requirements	Information that is used to assist the running of an organisation
SAMP	Strategic asset management plan or policy	Strategy setting out the asset-management objectives

Figure 1: The flow of documents and information

In these times of heightened security awareness, it is a useful thing to consider in the BIM and digital engineering context. We are throwing large quantities of data around to people we don't necessarily know. We are much more guarded about our personal data these days, but buildings have loads of data too, and this can be just as valuable. We need to keep it safe and away from those who would misuse it.

PAS 1192-5 states that you should:

- Have a strategy for your information security
- Have a management plan to implement this strategy
- Define your information requirements to satisfy the management plan.

The strategy is called a built asset security strategy (BASS), the management plan is the built asset security management plan (BASMP) and the information requirements are the BASIR.

The information requirements from the BASIR should then feed into your employer's information requirements (EIR). The flow of documents and information is shown in Figure 1.

This PAS deals with the security requirements for digital information exchanges, but there are other aspects – not within the scope of this document – that should be considered, such as the cyber security of building services products and systems.

As many products can now communicate much more freely with building management systems and the world around them – Internet of Things (IoT) devices, for example – the security of these things should also be considered. Take a look at the CIBSE Digital Engineering Series publication, »

» DE6 – Security, for more information on these issues.

PAS 1192-6 – Health and safety

As with the previous document, I have abbreviated the title of this PAS, too. It is talking about the digital exchange of information, not the root topic of health and safety, which is well covered elsewhere.

Again, I won't go into detail about the clauses and requirements, but will talk more about the generality and usefulness of this publication.

The issue of health and safety needs to be taken extremely seriously by the construction industry. We have come a long way from the dark days of flat caps and hobnail boots to the hi-vis, hard-hat-wearing site workers of today, but accidents still happen, and lives are changed – or even ended – by site-related activities.

Wouldn't it be great if all that site safety information was in a predictable, readable and available form? Well, that's the purpose of this PAS.

One of the ongoing issues has been how to collate data at the design stage, recognise potential risks and design them out, or highlight those that we can't mitigate fully. Sometimes, this is done by a virtual walk-through of a 3D model; it is possible to place hazard markers in the model, with data attached to them, and schedule that data as a starting point for your construction design management (CDM) duties. That's a time and cost saving, and helps to identify problems before site work begins, giving the designers an opportunity to design-out the problem.

The information can then be stored and shared – and, importantly, recycled into other projects, so we learn by doing and share those experiences. This won't change the world overnight, but it will go some way to reducing accidents and fatalities on building sites further.

> "We have come a long way from the dark days of flat caps and hobnail boots… but accidents still happen, and lives are changed"

International standards

Most people are getting used to the 1192 suite of standards and PAS documents, but work is going on to transfer these concepts into the international arena, with the development of ISO 19650 parts 1 and 2 (others are to follow). These are based on BS1192:2007 and PAS1192-2.

The first and most important corollary of this is that all we, in the UK, have learned about BIM will become an exportable skill – putting UK construction companies at the forefront and, hopefully, increasing our competitiveness. As long as we don't make a complete mess of Brexit… CJ

CARL COLLINS is a digital engineering consultant at CIBSE

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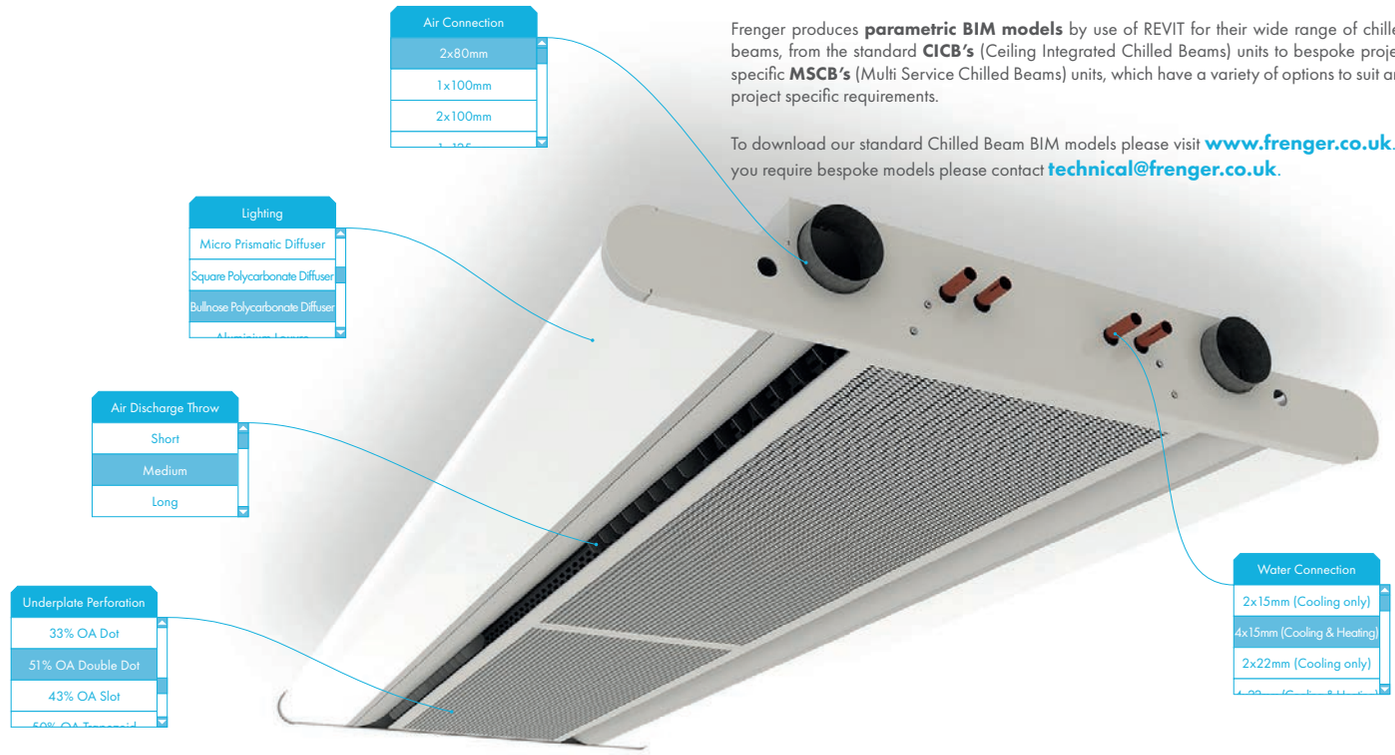

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Cloud pleasing

Cloud-based BIM collaboration is helping to deliver the Royal Wharf development in London's Docklands, as Phil Lattimore reports

The Royal Wharf development, in east London's Docklands, is one of the country's largest residential and commercial projects, located at the heart of a £3.5bn regeneration of the Silvertown district of the Royal Docks.

A joint venture between Ballymore Group and Singapore-listed Oxley Holdings, the 161,874m^2 development will deliver 3,385 residential units and 10,000m^2 of retail and commercial space. According to the developers, almost 45% of the 40-acre site is planned as public open space, including a 2.4-acre park and a riverfront promenade. The development will also feature a piazza, leisure facilities and a high street.

At the end of 2015, building services engineering firm Tate Consulting was appointed by the joint-venture development partners to provide a full mechanical, electrical and plumbing (MEP) design service in BIM for Phase 2B of the project.

Central to the project was the use of cloud-based BIM, employing a shared environment online BIM development and modelling tool (DMT) combined with a cloud-based file collaboration and integration system (Tate employed Autodesk Collaboration for Revit with BIM 360 Team software).

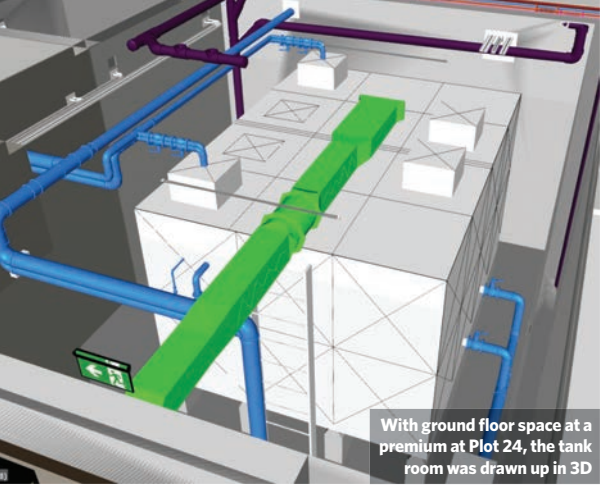
Tate has worked closely with architect Whittam Cox, structural engineers OCSC and contractor Roundstone Construction Services to coordinate the design. The firm's appointment was extended in November 2016 to cover Phase 3 of the development, which is currently scheduled for completion in December 2020.

Jeff Bearcroft, managing director at Tate Consulting, explains why cloud-based BIM was chosen. 'We were very familiar with Autodesk software and were comfortable it could deliver what we needed quickly and efficiently,' he says. 'We considered our own server for the BIM modelling tool, but were attracted to a cloud solution because of the speed of deployment.'

Before Tate came on board, says Bearcroft, the client advised that it was planning to increase the use of offsite building prefabrication – supplied by Netherlands-based specialist Hurks – on later phases of the development. As a result, the design team had to produce fully coordinated designs more quickly than had been the case in earlier phases on the Royal Wharf site – which meant that, if design clashes were not picked up in time, rectification would be more difficult and time consuming. 'Doing the design in BIM for later phases was an important step forward in addressing these issues,' Bearcroft adds.

Sustainability

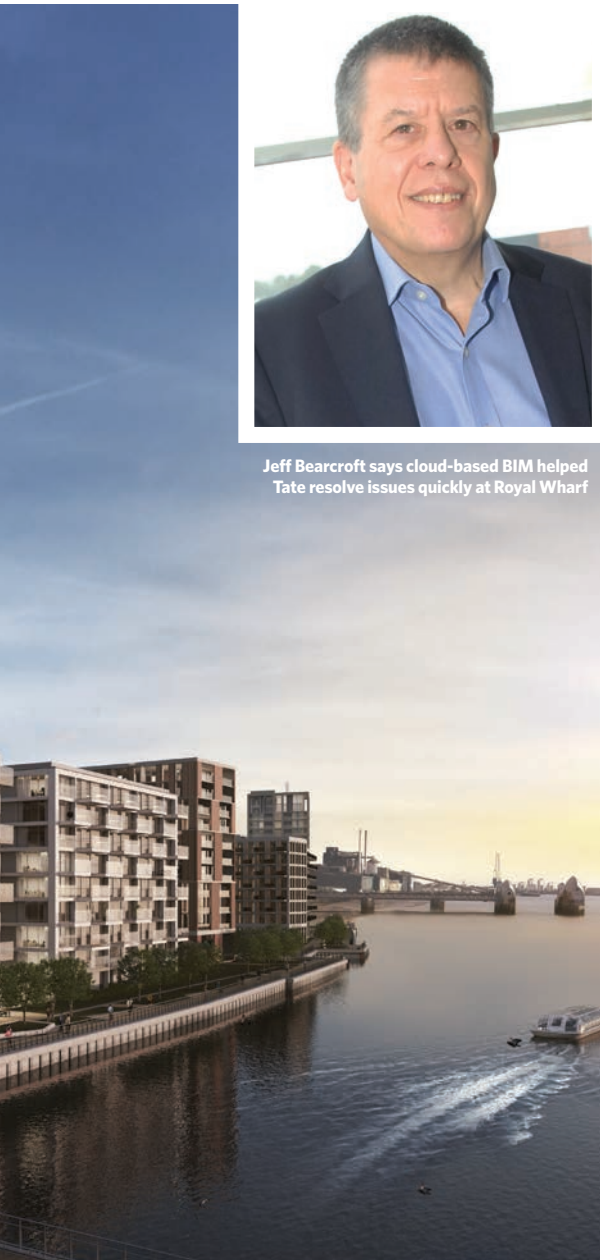
The project included around 1,960 apartments and townhouses. There was a 'fabric first' philosophy to the building design, with the energy-saving measures focusing, initially, on maximising the performance of the thermal elements of each plot to reduce use. This was supplemented by: high-efficiency mechanical



With ground floor space at a premium at Plot 24, the tank room was drawn up in 3D

heat recovery units to each apartment; full LED lighting in apartments and landlord areas; automatic lighting controls in common areas; extensive energy submetering of landlord services; and variable speed drives for fans and pumps. The development also made use of a large-scale combined heat and power (CHP) plant – located in the dedicated energy centre – to serve the project's district heating network. A large proportion of the site's thermal energy demand for heating and domestic hot-water generation is served by the CHP.

'This and the other energy-saving measures have allowed the targeting of a 25% to 50% reduction in carbon emissions over Building Regulation minimum values to each apartment,' says Bearcroft. Several plots also incorporated 'green roof' construction to encourage biodiversity.



Jeff Bearcroft says cloud-based BIM helped Tate resolve issues quickly at Royal Wharf

Working in the cloud

Adopting the cloud-based BIM solution offers a more streamlined and efficient approach to the project, says Bearcroft: 'Cloud-based design environments have changed the whole way of working at Tate. We are now able to design more quickly, and coordinate our work with the architects and structural engineers to a much higher level of precision than is the case in a 2D design environment.

'The key benefits are that it enables the whole design team to work more collaboratively and across multiple offices, allowing the design to be coordinated quickly and securely between the MEP, architectural and structural engineering models.'

Between 10 and 15 BIM development and modelling tool technicians and engineers were involved on the collaborative design process for the Royal Wharf project, with cloud-based BIM integral to the seamless coordination during the building design process, from concept to completion. 'The cloud-based environment makes it easier for us to maintain an overview of all incoming streams of project information and enables us to cut out errors, while working to very tight deadlines,' Bearcroft says.

'Previously, we had to use FTP [file transfer protocol] sites and Dropbox to share models, with the risk that design changes were not up to date and information could be lost between various people and their different systems.'

> "Cloud-based BIM design has changed the way of working at Tate. We are now able to design more quickly, and coordinate our work with the architects and structural engineers to a much higher level of precision"

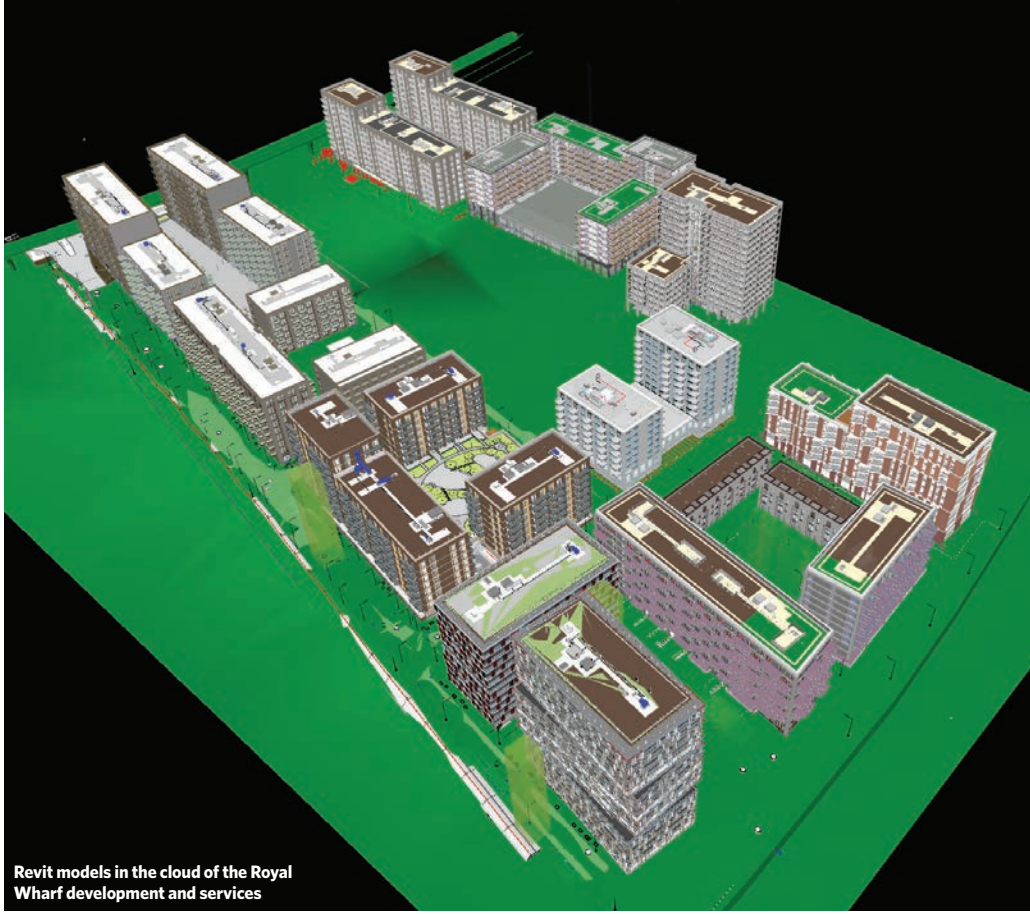
Using a cloud-based file collaboration and integration system allows design engineers to access the models and interact directly with DMT technicians online by onscreen marking up of changes, and logging issues for resolution. Previously, all changes were logged with the BIM manager using hand mark-ups for onward communication to the DMT technicians. 'This means the design team is able to react more quickly to client design changes, but – at the same time – the company has full visibility on the development of the design,' says Bearcroft.

As a result, engineers have been empowered to solve issues directly and have been able do this with the client on site, via their laptops and mobile phones – creating a more efficient and responsive collaborative environment.

While some firms may be reluctant to commit to a cloud-based BIM solution because of concerns about security, this was not a problem for the Royal Wharf development. 'We have not encountered any significant security issues,' says Bearcroft. 'We are able to control who has access to the cloud-based models. We also have our own IT systems to back up all cloud-based models in case of any disruption to the service.'

Resolving issues

The extensive collaboration through cloud-based BIM has had a significant impact on the speed with which design issues and clashes have been identified and resolved, so reducing construction delays and enabling an ambitious »



Revit models in the cloud of the Royal Wharf development and services

» construction programme to be met.

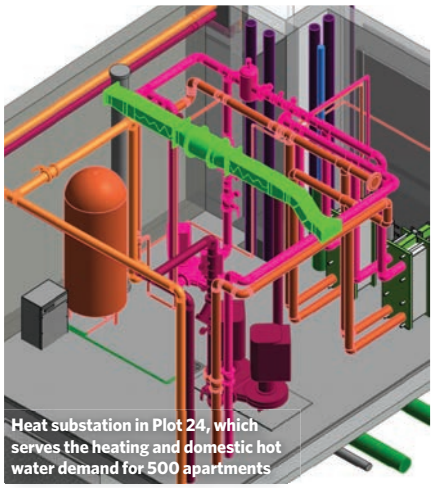
'Coordinating designs for architects, structural engineers and building services engineers is a challenge,' says Mark Brunette, BIM manager at Tate. 'Without regular online collaboration, there can be significant delays in detecting any issues – which, in turn, can result in considerable problems for the contractor further down the line.'

The cloud-based BIM approach allowed many issues to be overcome more quickly. The leisure centre at Royal Wharf, for example, involved a highly challenging coordinated design of large ventilation ducts associated with the full-sized swimming pool and gym. It was a particularly difficult project because the services required had to fit within a condensed ceiling and riser void, and with a very complicated structural model.

There was potential for design issues to cause major problems with the rest of the development if they were not addressed quickly.

Some of the issues identified early and resolved through BIM included:

- Ceiling heights and wall locations modified by the architect during the design development process, which required rerouting of the ductwork and pipe systems to resolve clashes
- Detailed builders' work drawings fully modelled in 3D early in the design process, to allow clash detection
- The required duct and pipe structural penetrations reworked and modified to suit structural design requirements and avoid clashes with columns and beams.



Heat substation in Plot 24, which serves the heating and domestic hot water demand for 500 apartments

Clash-detection software was employed as part of the cloud-based collaboration process. 'This offered easy 3D walk-through and problem analysis to the whole team, including MEP, architects and structural engineers,' says Bearcroft. 'It allowed the whole design team to review design changes across multiple office locations using screen-sharing via Skype. This enabled easy and fast 3D clash detection and problem identification of coordination issues between all services and the architect and structural model.'

Conclusion

The speed in resolving design issues that this cloud-based BIM collaboration project delivered was central to helping the firms working on the Royal Wharf meet the developers' ambitious programme dates.

'The Royal Wharf project is on a very fast development programme, requiring the architects' structural engineer and ourselves to be able to coordinate the design while responding to client changes – for example, as a result of planning matters,' Bearcroft says.

'If we had to rely on previous design methodology, it would inevitably have led to unacceptable delays and less design efficiency.'

For Bearcroft, using cloud-based BIM has had very positive benefits – so he would like to encourage greater use of it on future projects. 'There have been a lot of lessons learned and we believe there is much more that can be achieved by even closer working and communication with clients, architects and structural engineers. We hope to develop these ideas as we go forward.' **CJ**

- To find out about CIBSE's Society of Digital Engineering, visit **cibse.org/sde**

PLOT 24 TOWER BLOCK

Tate Consulting has recently provided a full-duties MEP design for a pre-cast construction, 198-unit, residential tower block at the Royal Wharf development in London. The building services for Plot 24 were modelled in 3D to ensure spatial fit and coordination, and to allow the main builders' work penetrations to be cast during the structural façade panel manufacture, off-site. After a recent site visit, the MEP installation is progressing, with the first fix well under way.

Seven benefits of BIM for heating

Building information modelling (BIM) can help design, create and maintain plantrooms that are more energy efficient and cost-effective to run.

The UK government recently announced that it is investing £5.4m in a new centre of excellence for digital solutions in the built environment, to help "better plan, build, maintain and use infrastructure". A central element of this is the focus on digital tools, standards and processes that make up BIM.

What is BIM?

BIM is a means of designing, building, operating and maintaining a building using a collaborative, shared, up-to-date system of 3D models. Since April 2016, UK centrally procured projects are required to use BIM level 2 as part of the Government Construction Strategy. Through widespread adoption of BIM, the government intends to reduce capital costs by 20% while improving efficiency and collaboration throughout the lifetime of an asset and building.

Seven benefits of BIM

Early engagement

BIM allows all relevant parties within the design, build and maintain process to get involved at the design stage on new buildings, and have a real impact on the building outcome. This can enhance the end result, as well as actual performance and operation of a building.

Greater collaboration and visualisation

The 3D environment of BIM makes it easier to visualise the heating equipment and its location. Manufacturers, with their specialist knowledge and expertise, can advise on where best the HVAC equipment can sit in an overall design.

Robust data

BIM models provide one central point for all data. This ensures all parties have access to the latest and correct information.

Clash detection

BIM also brings benefits when replacing dated equipment. It can help with the additional design factors that need to be considered, and enable pipework runs, flues and pumps to be sized accurately and quickly. BIM can also flag clash detection and encourage best use of space within the plantroom. This ensures time management and accuracy are improved, making the outcomes of the project more predictable.

Improved use of space

The visualisation of BIM helps to identify where space could be used more efficiently. In terms of heating, this may mean relocating a plantroom or reducing its size as heating equipment such as boilers become more compact. At the design stage, early visualisation may flag issues such as space restrictions into the plantroom or boiler access.

Prefabrication

BIM is seen as central to more effective design for manufacture and assembly. In this way, it supports the use of off-site prefabricated heating equipment – such as bespoke designed rigs systems for multiple boiler installations – reducing onsite labour and costs on refurbishment.

Asset management

BIM allows for the integration of all sorts of data relating to a building, so that end users can better manage assets. They are able to make more informed decisions about heating equipment and planned maintenance.

BIM files are now available for all Remeha boilers for free. Visit Remeha.co.uk for more information.

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Becoming 'the normal one'

Being a team player is important in BIM. Hurley Palmer Flatt's Thomas Lindner shares his reflections as a post-heroic building information manager

Over the past year, I have become an unlikely supporter of Liverpool Football Club. I had no prior knowledge of Jürgen Klopp or his successes, but he has demanded my attention ever since introducing himself as 'the normal one' in the world of high-profile sports personalities. The way he expresses himself on the pitch – and his compassion towards the struggles of his squad – also caught my eye. During press conferences, he avoids discussing the performance of individual players.

Applying these observations to my own field – building information modelling (BIM) and management – I, too, witnessed many heroic, trailblazing 'star players', using language that nobody appeared to understand. With model-based delivery of design and engineering information becoming mainstream, the BIM 'Premier League' and its A-teams appear outdated. Instead, post-heroic leaders who can galvanise a team above – and below – their own pay grades, are on the rise.

"The BIM 'Premier League' and its A-teams appear outdated"

Alain Waha, of business services company Cogital, argues that it is time for 'post-heroic BIM'. But what does a post-heroic manager look like? What does it take for me to become 'the normal one', like Klopp? Since starting as group BIM manager at Hurley Palmer Flatt, I am finding out – and I would like to share my observations.

Feeling the pain: Before marching in with my own ideas, I found it helpful to ask people in the company what came to mind when 'BIM' was mentioned – and the answers were not always pretty. They included: 'Being in for a rough ride'; and taking 'three times as long as anybody could predict'. All this is now in the past, but it is important to 'shut up and listen' before coming up with solutions.

Get that commitment: An information management policy statement is the company's pledge, and it needs to be published to ensure that better information management is everybody's responsibility. Managing information better during the design-authoring process includes how: bids are being put together; notes are taken and tasks assigned in management meetings; competency assessments are carried out; and structured learning is provided.

Be accountable: With an information management policy in place, I can hold myself – and other stakeholders, including my supply chain – accountable on the journey to a shared commitment to improve. When I'm asked to 'quickly send attachments', I, instead, issue cloud or server links, because that's better information management. The same BIM principles apply – keep all your data in a single place, accessible and up to date, and with a common suitability status. The BIM for engineers may be Revit or ArchiCAD, but for managers it is Deltek or SharePoint.

Know your purpose: Not long ago, I worked at the BRE with Keith Snook, who published *BIM – it's about the planet* (**bit.ly/2LlWigT**). He helped me appreciate that BIM is, essentially, about managing our planet's limited natural resources – and an ever-increasing population – more responsibly and diligently. Although cutting waste from inefficient processes and adding value to gross margins are significant, I am more satisfied that my work in information management may be essential to realising the circular economy.

Measure performance: An actionable IT asset register (all the hardware and software with licences assigned) with effective use monitoring (the extent to which the hard- and software is being used by employees) remains elusive to most construction companies. How do you know where you are going if you don't know what you have and who is using it? Subscription utilisation reports are nearly impossible to come by from some of the biggest software companies today. For BIM adoption to accelerate, it is critical to have full visibility of your IT infrastructure.

Learn from your peers: It is paramount to share knowledge to advance innovation in our sector. I implore colleagues working in building services today to join CIBSE's Society of Digital Engineering and get involved in conversations beyond company boundaries. InnovateUK's Knowledge Transfer Network, I3P, also encourages sharing across the UK's most ambitious infrastructure projects.

Take care of your team: I can't build a high-performing team unless I understand what makes every player tick. Tony Llewellyn, collaboration director at Resolex, speaks about construction as a social process because people can achieve the impossible when they use their complementary strengths to work together. Creating challenging, but attractive, spaces of opportunity and stepping into the unknown are the art and practice of becoming 'the normal one' when managing organisational change and building winning teams.

THOMAS LINDNER
is group BIM manager at Hurley Palmer Flatt

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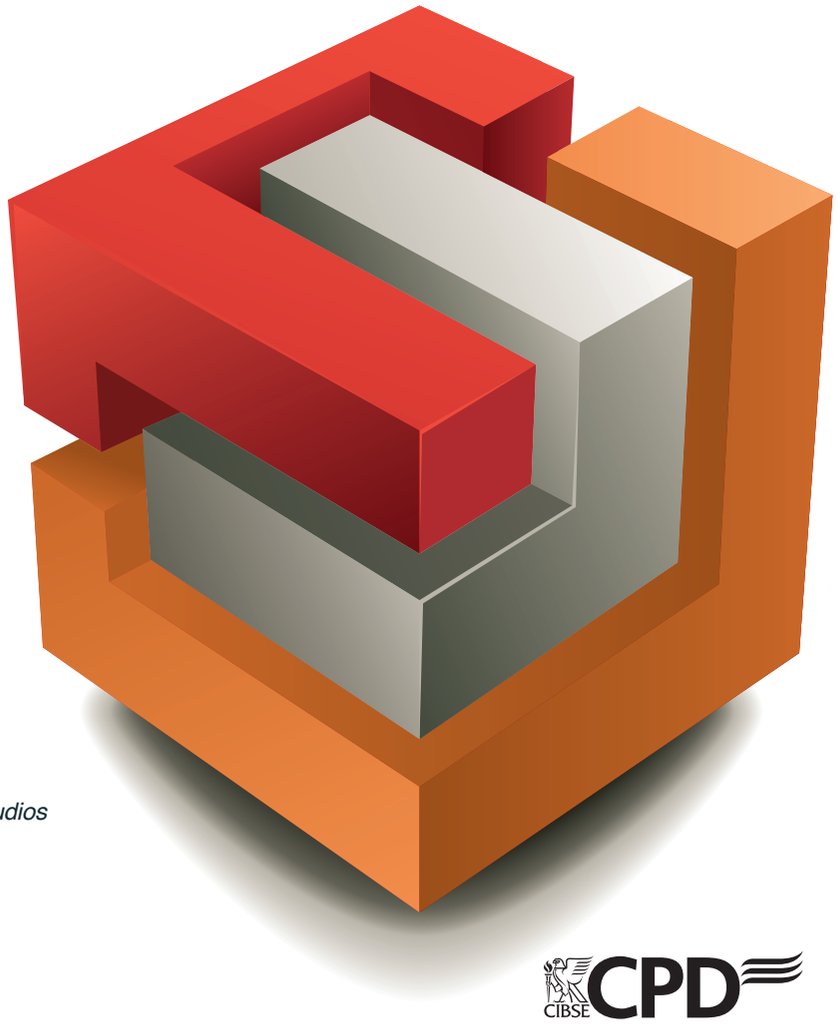
A sneak peak at some of the 2018 programme topics:

- **Acoustic issues in relation to Natural Ventilation**
  Jack Harvie-Clark, Apex Acoustics Ltd
  Dr Owen Connick, Breathing Buildings
  Ze Nunes, Institute of Acoustics
- **NatVent in non-domestic buildings (AM10)**
  Dr Ben Jones, Nottingham University (Chairman of AM10 Revision Group)
  Dr. Abigail Hathway, Sheffield University
  Prof Gary Hunt, Cambridge University
  Dr Chris Iddon, Deeley Construction
- **Building performance in schools**
  Chaired by: Helen Taylor, Scott Brownrigg
  Dr Matthew Bray, Breathing Buildings
  Jeremy Climas, Max Fordham
  Ian Knight, K2Energy/ Cardiff University
  Dr Joe Jack Williams, Feilden Clegg Bradley Studios
- **Lighting & FM**
  David Stevens, Vice-Chair, CIBSE Facilities Management Group



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