Picture credit: ASSA ABLOY

NO COMPROMISE

Paul Thompson *discusses how BIM is enabling doorsets to be specified, installed and managed as a sustainable holistic solution*

Sustainability is critical in the built environment, not just when it comes to the construction of a building, but also its ongoing management and maintenance to reduce cost and the overall impact that it has on the environment.

Whether that involves using renewable and recyclable building materials, reducing energy usage or minimising waste – sustainable processes must be implemented throughout all stages of a building's lifecycle.

However, there is sometimes the misconception that sustainability and being 'greener' means having to make compromises when it comes to security, but that is not the case. By using BIM as a tool to manage buildings as holistic systems, it provides information to design, construct and operate facilities safely and effectively, while ensuring security provisions.

The uptake of BIM technology has been rapid, with awareness and usage rising from 13 percent a decade ago to 71 percent in recent years. The evolution of BIM technology has coincided with the introduction of The Building Safety Act, with emphasis placed on the 'golden thread' approach.

BIM is a tool that reduces waste and risk of error, and facilitates the sharing of detailed information throughout the design, construction and operational phases of a project, which ultimately results in more efficient buildings.

By creating virtual reality simulations that allow workers to experience a construction site before work begins, BIM can revolutionise better ways of working and outcomes, making the process easier and faster.

Having one easily accessible source allows architects and specifiers to update relevant information automatically without having to manually input each specification, saving time and money, as well as keeping those on site informed. At the specification stage, BIM can also help drive efficiency by integrating and linking to fire certifications and energy performance documents.

Contractors and installers can view all relevant information to assess precise quantities, pricing, compliance, links to supplier websites and installation instructions, as well as being able to track the status of installations across the project much more effectively.

After installation, BIM can be used to monitor the performance of sustainable building systems and elements, such as doorsets and access control. It can also help verify that sustainable buildings operate as intended by tracking energy use, water consumption and waste generation.

The ongoing performance and maintenance of a building may also be monitored via QR code asset management, where all documents and certificates are located in a central software hub.

BIM-enabled tools can be used to extract, develop and update all relevant door design information, including configurations, hardware and performance criteria against each door

THE GOLDEN THREAD

Dame Judith Hackett first suggested the 'golden thread' approach to constructing and managing buildings in her report, *Building A Safer Future*. Subsequently, the Building Safety Act was implemented, designed to fix historic and ongoing building safety issues. This now makes building owners more accountable and holds the construction industry to higher standards of building product safety.

BIM enables greater transparency and produces the 'golden thread' of information, allowing building elements such as doorsets to be managed through a single platform – from specification to installation and further ongoing inspection.

However, it is also imperative that holistic systems come from one trusted source responsible for developing and producing complete solutions. Otherwise, there is the risk that suppliers might end up shopping around and piecing the solution together from individual parts, based on cost competitiveness in preference to compliance.

This can not only impact the security provided by an access solution, but it may also make the doorset non-complaint, therefore endangering the occupants of a building in the event of an emergency.

As well as providing access around the property, fire doors are a critical part of the fire compartmentation requirement. New regulations introduced to the Regulatory Reform Order 2005 (Fire Safety Order) contain a requirement for responsible persons in buildings above 11m in height to provide additional safety measures.

This includes things such as providing occupants with fire safety instructions and information on the importance of fire doors. Responsible persons will also be required to undertake annual checks of entrance doors and quarterly checks of all fire doors.

New provisions of the 2022 Building Safety Act came into force on 1 April 2023, including a duty to keep the safety and standard of buildings under review, facilitating improvement in the competence of industry and building inspectors, and a duty to establish a system for the giving of building safety information.

Full implementation of the Act is due by October 2023. So, those responsible for the safety of high-rise buildings in England must register with the new Building Safety Regulator and have their building safety regime in place by this time, or face investigation and potential prosecution.

The 'golden thread' approach provided by BIM is a recommended method to create an effective building safety regime in higher-risk environments such as high-rise constructions.

As well as meeting these new regulations, fire doors are already required to be tested to either BS476 part 22 or BS EN 1634-1, and ideally be certified under a third-party certification scheme, such as Certifire or the equivalent – a position that is fully endorsed by the Door & Hardware Federation (DHF).

IT IS IMPERATIVE THAT HOLISTIC SECURITY SYSTEMS COME FROM ONE TRUSTED SOURCE

Other standards that should be met include BS EN179 Emergency Escape for when the building occupants are aware of the building environment, BS EN1125 Panic Escape for environments used by the general public, and BS EN 13637 Electronically Controlled Escape Systems (for use on escape routes).

When it comes to doorsets and ironmongery, using BIM-enabled tools such as ASSA ABLOY's Openings Studio can truly unlock the full potential of BIM.

Openings Studio provides a direct interface with the building design model and can be used to extract, develop and update all relevant door design information within the model, including configurations, hardware and performance criteria against each individual door.

Utilising this digital collaboration tool enables the specifier to work closely with the manufacturer in real-time to develop the design intent through to a compliant specification.

The application provides visual representations of not only the bespoke product, but also indicative imagery of product in-situ within the 3D model. Each asset carries all relevant technical and design data, and as this is a live working environment it captures and logs progressive design changes throughout design and construction

ASSA ABLOY can seamlessly use this data to provide product specific cost information, but most importantly manufacture and supply the door solution in accordance with the latest design intent.

An extension to Openings Studio has recently been launched, which, through a mobile app, directly accesses this data for capturing production-quality