



BALANCING ACT

Paul Thompson discusses the issue of security versus aesthetics and explains how BIM software can aid collaborative working and create the essential 'golden thread' of information

Maintaining a strong design identity without compromising on product performance is crucial during the specifying process of any office. When it comes to doors and ironmongery, there are several conflicting factors to balance such as how best to harmonise the balance of security features and aesthetic appeal.

Doorsets have several functions within a building, such as providing security, offering fire resistance, improving acoustics and enhancing aesthetics. When specifying a doorset for a particular application or environment, specifiers must ascertain which of these

important features is the priority, and the defining performance criteria required.

For access control, security is often the primary function, and doors play a vital role in keeping people, assets and data safe and secure. Compromising security when specifying these types of products is simply not an option, and we have to make sure security is of the utmost standard.

Fire safety has also been more front of mind than ever before, in the wake of Grenfell and the introduction of the Building Safety Bill. Although compliance should be paramount with fire and emergency escape doors, it doesn't mean specifiers

have to compromise completely on aesthetics. So, what considerations should be made during door specification, and what tools are available to make the process easier?

To verify the protection offered by a doorset, it is important that the type of door chosen, including its hardware components, are tested by means of physical attack. The Loss Prevention Certification Board (LPCB) is a globally recognised third-party certification body, and sets the standards needed to make sure that fire and security products and services perform effectively.

Testing under their standards such as LPS 1175 – which is the most widely recognised security door standard and the one most commonly specified in the UK – can demonstrate a door's capability to withstand physical attack.

LPCB LPS 1175 security ratings range from SR1 to SR8, with SR8 offering the highest protection. SR1 is the lowest level of security recognised by the LPCB, and to meet this standard products must be able to withstand opportunistic attempts at forced entry using minimal tools.

SR2 testing simulates a three-minute attack from an assailant equipped with items such as claw hammers, hand drills and junior hacksaws. SR3 testing simulates an attack lasting five minutes with larger hand tools, such as crowbars, hacksaws and hammers, as well as items such as cordless drills and gas torches.

Doorsets certified to SR4 and SR5 can resist a 10-minute attack from cordless disc grinders, drills and jigsaws, alongside manual tools such as sledgehammers, plate sheers, circular and reciprocating saws and a cordless disc grinder.

Products rated SR6, SR7 or SR8 offer the ultimate protection, with repeated entry attempts made using a range of different mains-powered tools such as circular saws, disc grinders and drills to replicate professional attack attempts.

Although LPCB standards (under LPS1175 SR classification) offer an indication on the level of physical security offered by a doorset, they are in no way connected to fire compliance. Some doors may provide both performance criteria, but it is not guaranteed, and additional standards will need to be met in relation to fire safety.

For fire compliance, doors should 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 – this is a fully endorsed position by the Door & Hardware Federation (DHF).

For CE marking, fire doors must comply with EN16034, which incorporates two standards – EN14351-1 External Doors and EN14351-2 Internal Doors. The latter is not yet a harmonised standard, therefore CE Marking cannot yet be applied to internal doors. It is, however, a legal requirement to CE mark all doors placed on the market for external purpose, and to satisfy EN16034 the doors must be tested in accordance with BS EN 1634-1 only.

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 specifying a doorset, it is crucial that a balance is struck between advanced protection and discreet designs that don't attract unwanted attention.

Often the key to good design is a seamless solution, ensuring products blend into their surrounding environment. By considering the material of a door and its finish, a specifier can create an unassuming appearance that also offers robust security performance.

For instance, installing a high-security timber doorset can be particularly beneficial for high-profile buildings at risk of attack, such as government and military organisations, where maximum security doors must be provided, but need to be inconspicuous. Similarly, it is important that door hardware blends into the doorset and complements the surrounding design of the room or building.

Often architects and end users want their projects to be finished to a high aesthetic standard, which fits into one coherent design theme, and this is where the finer details such as locks, hinges and door closers starts to come into play.

IT IS VITAL THAT THE TYPE OF DOOR CHOSEN HAS BEEN TESTED BY MEANS OF PHYSICAL ATTACK

Good product design allows for these types of products to be integrated into a specification to make a finished design look seamless, yet also unique in its own right. This can also be achieved by ensuring that all the products specified are from the same supplier, which should then have a unique look and feel.

To create a holistic approach, more specifiers are utilising Building Information Modelling (BIM) software. The uptake of BIM technology has been rapid, with awareness and usage rising from 13 percent in 2011 to 71 percent in 2021.

BIM can be used to extract information to give an overview of a building, which includes performance criteria against each individual door. This means the specifier can work with the manufacturer to develop the specification and create a digital collaboration tool where the architect can view the data, information and technical data sheet around the products suggested.

The technical datasheet will carry any aesthetic variations available, and the live working environment can be seen by all parties who can make selections and changes where required.

This supports the 'golden thread' approach – outlined by Dame Judith Hackett in her report, Building a safer future – to manage buildings as holistic systems. This allows people to use information to safely and effectively design, construct and operate buildings, and keep people safe, now and in the future.

ASSA ABLOY's Openings Studio BIM application integrates with design software to create and visualise openings for complete door, frame and hardware schedules and specifications. This enables seamless extraction of door design intent and all relevant interfaces to assist specifiers to seamlessly

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develop complete door requirements that meet building regulations.

Product information, performance data and budget information are captured within the BIM design environment, and through real-time collaborative working, these designs can be validated for compliance, functional performance and aesthetics – plus presented as 3D views that can be fully re-integrated into the overall project design.

TOOLS CAN ASSIST IN MAINTAINING STRONG DESIGN WITHOUT COMPROMISING SAFETY

With linked internal systems ASSA ABLOY uses this final schedule of information to manufacture the complete doorset solution including the leaf, frame and all specified hardware. This is a unique collaborative tool for all project stakeholders, helping to minimise costs and streamline the data sharing process throughout the entire project lifecycle – from the initial design, right through to the construction process, delivery, asset management and beyond.

An extension to Openings Studio has recently been developed, which offers a mobile app that

directly accesses this data for use during the door installation process, ensuring full validity of the finished product prior to project completion.

Finally, the app offers an easy to use ‘check box’ system to carry out and capture detailed inspections based on the specific details of each door included in the schedule.

This report validates if a door has remained compliant or identifies what elements need to be corrected or replaced to return the product to the standard required, providing full traceability and ownership of all changes at all stages.

This means the doorset is managed as a holistic compliant solution – meeting the expectations outlined by Dame Judith Hackett. Most importantly, it connects all components of the doorset through a single platform, and eliminates the risk that doors are pieced together as an assembly of parts from various sources or maintained and repaired as a collection of individual parts.

Although striking the balance between security features and aesthetic appeal can be a challenge, tools such as BIM are there to assist specifiers to maintain a strong design identity without compromising on product performance.

And ultimately, creating the ‘golden thread’ of information through collaborative working is the future of effective specification and the standard the industry should be working towards ●

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