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Timber fire doors



1 Types of product

Most of the time, a fire door is just like any other door. But if a fire breaks out, it is more than just a piece of wood in a hole to stop the draught; it performs a vital and specific task by burning at a particular rate to act as a barrier to hold back the spread of the blaze. A fire door is carefully and precisely designed, engineered and tested in accordance with British and European standards to ensure that if it is ever called upon, it does what it is supposed to do.

A fire door is much more than just the door leaf. The door frame, the hinges, the ironmongery, the glass in any vision panels and the seals must all be selected to ensure that the door design is properly fire resistant and all the components must work when used in combination. Fire doors are tested as complete, functioning assemblies, never as single door leaves in isolation.

Most people responsible for buying, installing or checking fire doors do not know that if the wrong components are used (for example, the wrong type of intumescent seal), the door cannot be relied

upon. They are unwittingly installing fire doors which will not work in a fire. Third-party accreditation schemes can raise awareness and help to prevent these problems.

Fire door products are available in a number of formats:

a) Doorsets

The easiest way to ensure compatibility of components is by obtaining the complete doorset already made up, rather than as the individual components. The manufacturer has already made certain that all the hardware and components are fully compatible with the design. As the control of the entire process is solely with the manufacturer, there is less room for error.

b) Assemblies

A common alternative to a doorset is an assembly. These are created by a second company that purchases fire door leaves from a major manufacturer then buys in all the correct components (frame, seals, hardware) from separate sources and creates a 'doorset'.

c) Door leaves

Most fire doors manufactured in the UK are manufactured as fire door leaves and supplied separately from the additional components needed to install them. This is the most common method of purchase and the one most prone to difficulties. Before they are installed, many leaves will be modified in some way, whether by the addition of a door frame, the insertion of glass vision panels or other types of apertures, or, ideally, conversion into a complete fire doorset or assembly.

Pre-manufactured fire doorsets are the optimum solution in new buildings. However, it can prove harder to find a doorset to match non-standard sizes for refurbishment projects. In these cases, a fire door assembly made up of individual compatible components will be more appropriate. But this latter method is better if a specialist creates the assembly.



2 Types of system

Fire door leaves and doorsets are available in a variety of styles, from plain faces to moulded faces, with or without glazed areas. Whichever type of door is selected, the construction of a door is based upon specialist knowledge. A fire door is tested as a complete assembly. When the door passes this test, all the hardware and components in the assembly have also – simultaneously – passed. This does not mean that the fire door will be as reliable if used with another intumescent seal, for example. The test merely indicates that the door is reliable only when used in conjunction with that particular intumescent seal, that particular frame, that particular vision panel and all the other different components used in the test. It is wrong to assume that a component is reliable with any fire door design or configuration.

Proper installation of fire door assemblies and doorsets is fundamental to their overall performance because it ensures the door remains reliable to its fire integrity rating in the event of a fire.

To ensure that correct fitting has taken place, it is necessary to check the following points:

- the door leaf has the correct fire resistance period
- hinges and other hardware are correct for the particular door leaf
- the frame is the correct size and fixed correctly to the structure
- the gaps between the frame and wall are properly filled
- the correct intumescent seals are used and fitted in the correct size groove, which can be in either the frame or the door leaf
- if there is an aperture, it must be correctly formed and glazed
- the correct closer is fitted

All the information for this should be available from the door leaf manufacturer, who should provide full instructions with every door leaf. Unfortunately, this is not always the case. In order to resolve this problem, the British Woodworking Federation (BWF) established the BWF-CERTIFIRE Fire Door and Doorset Scheme in 1996.

All doors manufactured by BWF-CERTIFIRE certified manufacturers include specific and comprehensive installation instructions. It is imperative that these are followed in order for the door to remain certified. Installation instructions are specifically

written for each particular door design in accordance with its relevant fire test.

The BWF-CERTIFIRE scheme has succeeded in promoting the benefits of purchasing fire doors as doorsets. Nevertheless, the scheme was founded when most fire doors were manufactured as individual door leaves and continues to meet the need for confidence in fire door assemblies made up from separately-sourced components.

The scheme membership also includes joinery workshops, which are certified by CERTIFIRE to modify fire door leaves under licence from the manufacturers. Their certification indicates that they modify the door in accordance with the specific guidelines set out by the respective manufacturer and agreed by CERTIFIRE. The workshops use the specific certificated hardware that is compatible with a particular door design. These companies have been trained by the manufacturer to modify certified fire door leaves into fire door assemblies in accordance with all the relevant product standards and Building Regulations.

Door identification

Prior to the BWF-CERTIFIRE scheme, traceability was a major problem within the fire door industry. There was no simple, obvious way of telling where a door was manufactured, in what condition it left the factory, where it was glazed or modified into a fire door assembly, whether its performance had been verified by a third party, or even how long it was expected to last in the event of a fire. The traditional fire door plugs relied on a knowledge of the colour coding used and the rules for their insertion were widely acknowledged to have been abused.



The BWF decided to introduce a completely reliable traceability method as a fundamental part of its scheme. Every door, doorset, fire door frame, glass opening and glazed aperture is supplied with a unique, permanent and tamper-evident BWF label detailing the manufacturer's name and telephone number, the scheme certificate number and serial number.

Installation

To ensure correct installation, the BWF has formed an association with FIRAS to develop an Accredited Fire Door Installer Scheme. By using properly trained and accredited installers, you can be confident that fire door installations are carried out safely and in total compliance with the Building Regulations.



3 Maintenance

Ensuring that fire doors are correctly maintained is just as important as ensuring their correct installation. Fire doors must always perform correctly in the event of a fire. Their essential task is to resist fire for the prescribed period of time, preventing flames and smoke from reaching other parts of the building and allowing the occupants to escape from danger in an orderly way. This can only happen if the fire door is checked regularly and attention given to ensure its correct performance.

The way in which a door works is inevitably affected by its surroundings. All too often, fire doors are knocked by items such as

furniture, trolleys, luggage etc, or pushed open by trolleys and other wheeled objects as people pass through them. Some adjustments to hinges, locks and closers will probably be needed at regular intervals, depending on how severe the traffic is through the door. A door in a school corridor will require inspection much more frequently than one in a hotel bedroom. Nevertheless, both must be checked and adjusted as necessary. It is worth checking fire doors at least once every six months. Doors in newly occupied buildings or heavily used areas may require more frequent checks.

4 Relevant regulations and standards

Fire safety is covered by Part B of the Building Regulations in England and Wales. The accompanying guidance document (Approved Document B) sets out the minimum performance recommendations for all fire doors, depending on where they are situated within a building. When installed, a fire door or doorset must meet particular fire-rated performance.

Fire rated performance should be tested against BS 476: Part 22: *Fire tests on*

building materials and structures. Methods for determination of the fire resistance of non-loadbearing elements of construction: 1987. Since 1 March 2003, fire doors may also be tested using the new European Standard BS EN 1634-1: *Fire resistance tests for door and shutter assemblies. Fire doors and shutters:* 2001. Testing against these standards will ensure that the fire doors have met the relevant Building Regulations.

5 Other issues

The BWF recommends that all fire door designs should be certified by a third party to offer a safeguard for important aspects which are not covered in a single fire test. The third-party certification body verifies a fire door's design, performance, manufacturing process and the associated procedures, quality assurance, the audit trail from manufacture to installation and identification markings. It also checks that frame and compatible components used in the test are detailed.

The combination of the serial and CERTIFIRE certificate numbers give unique reference which ensures the complete traceability of every fire door, doorset, frame, glass opening and glazed aperture produced by scheme members.

Further information on the BWF-CERTIFIRE Fire Door and Doorset Scheme is available on website: www.bwf.org.uk; e-mail: firedoors@bwf.org.uk; or tel: +44 (0)870 458 6952

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