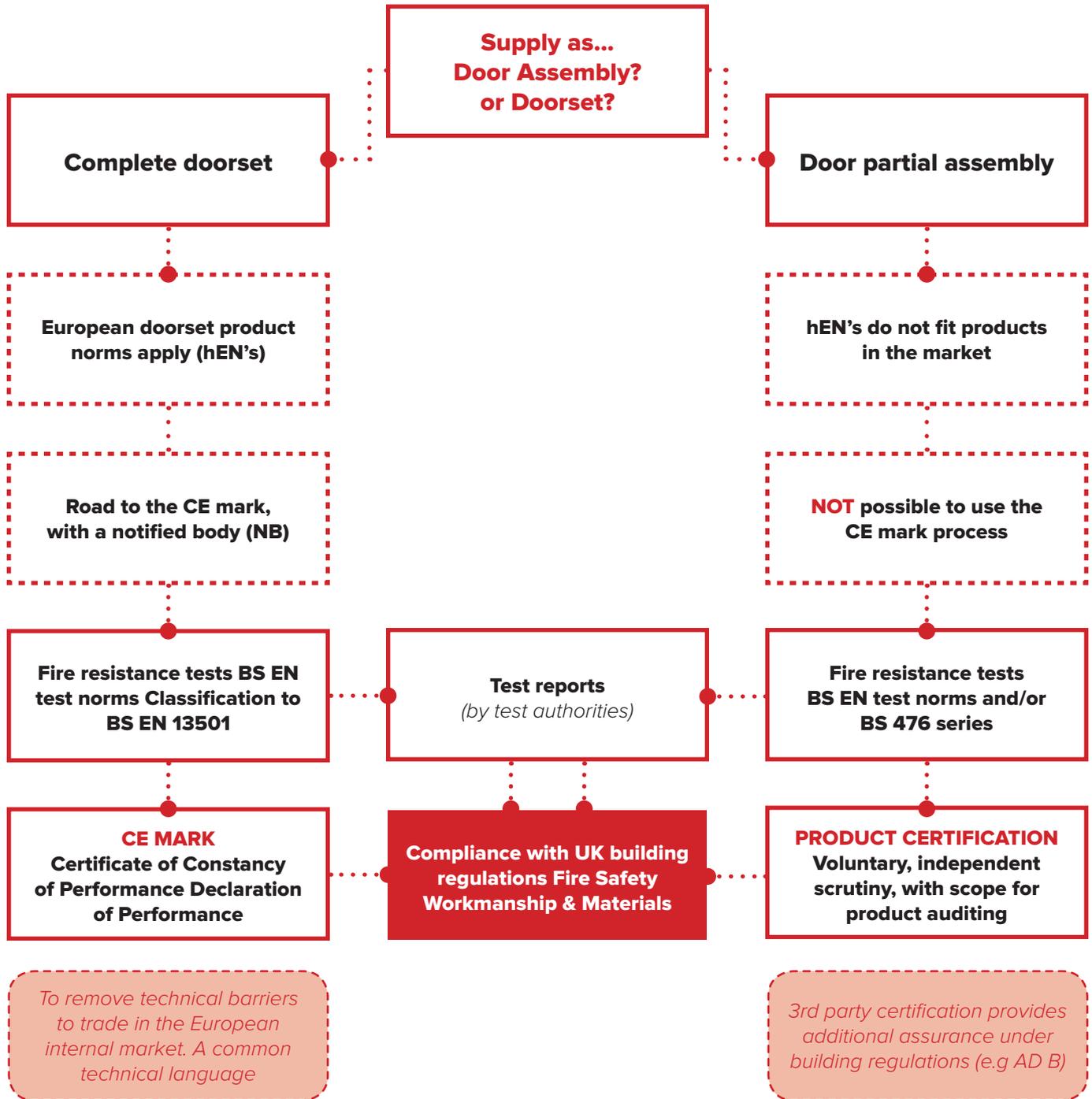


ASDMA Guide to Timber Fire Doors

Performance Certification and Assuring Fitness for Purpose



Note
The UK timber fire door industry is structured around the supply and installation of assemblies made up of approved prepared elements and components, established by test. Doorsets under European standards - as complete entities procured by installers in a single transaction – may be supplied in some cases but that is not the main traditional way on the established UK market for timber fire doors to be procured and installed by a number of operators in construction trades.

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Notes

1. A doorset under the applicable European standards is taken to be a complete entity consisting of: **a)** the prepared door leaf or leaves ; **b)** the necessary seals and hardware essential for the performance and function of the fire door; **c)** the door frame; **d)** any factory glazed door vision panels; and **e)** any flush over, side and transom panels in an associated door screen.

According to that standard definition a doorset must be supplied as an item from a single source in one transaction. It can be supplied to site either fully assembled or part assembled together with the other components ready for final assembly using basic assembly and installation tools and methods.

2. A door assembly differs from a doorset predominantly in that the various elements are procured from more than one source, in more than one transaction. The basic specification and list of approved components would normally be provided by the door manufacturer or the blank supplier, determined and approved by test evidence (*normally with variations backed up by assessments from test evidence*).

This approach potentially offers more flexibility to designers and specifiers to provide purpose-made and individual solutions to fit design style and “look” for particular buildings. In contrast CE marking tends to restrict the scope of design options and application to a more limited choice of options because of the complexity and cost of the formal CE marking process for doorsets and each of the possible variations that are demanded by the market.

3. The relevant harmonised European standards define the important product characteristics required to meet the essential characteristics under the Construction Products regulation (*CPR*).

As they stand these are:

BS EN 14351-1:2006 + A1: 2010 Windows and doors - Product standard, performance characteristics.

Part 1: Windows and external pedestrian doorsets without resistance to fire and smoke leakage characteristics.

pr EN 14351-2 Windows and doors - Product standard, performance characteristics.

Part 2: Windows and internal pedestrian doorsets without resistance to fire and smoke leakage characteristics.

pr EN 16034 Pedestrian doorsets, industrial, commercial and garage doors and openable windows – Product standards, performance characteristics. Fire resistance and/or smoke control.

(pr EN 16034 is still in process through the European approvals system, expected within the year.)

Products can only be CE marked if the relevant harmonised standard is published, and if the product definition in the standard fits the product on the market. Assembly and installation on site directly into the works lies outside the scope of CE marking.

Internal and external fire resistant doorsets have to function as standard operating doors in other respects, and should be therefore be CE marked for those characteristics as defined by BS EN 14351-1 for external doorsets and prEN 14351-2 for internal doorsets when that standard is published.

4. Under CE marking to the Construction Products Regulation (*CPR*) there are 5 separate systems defined systems for the assessment and verification of constancy of product performance (*AVoC*). The system that applies to fire doors is referred to as system 1. Under that system both the manufacturer and a designated approved independent body – referred to as a Notified Body – have specific tasks and duties to carry out before the CE mark can be declared and affixed to the product.

The manufacturer is required to carry out factory production control (*quite normal in established factories*) including testing of samples taken at the factory according to a prescribed routine test plan as required for production line quality control.

A notified certification body (*NB*), approved by national authority and appointed by the manufacturer, shall confirm product type by separate sampling for type testing (*i.e. fire resistance testing*), together with initial plant inspection and review of the factory production control system. The NB shall also carry out what is described as continuous surveillance of the quality control system.

Importantly, the type test is not required to be repeated unless there are changes in the product or production process, as notified by the manufacturer.

A Declaration of Performance with respect to the essential characteristics, leading to the CE mark, may only be made by the manufacturer following a certificate of constancy of performance provided by the Notified Body.

5. Standard pr EN 16034 as drafted specifically excludes from its scope (*section 1.2*) door assemblies produced with components from several sources where there is no single identified manufacturer or legal entity who will take responsibility for the components.

In addition there are derogations under Article 5 of the Construction Products Regulation (*CPR*) that permit a manufacturer operating under applicable national rules to refrain from drawing up a declaration of performance.

These are as follows:

- a)** Individually manufactured or custom-made products in a non-series process in response to a specific order, and installed in a single identified construction work;
- b)** Products manufactured on the construction site (*i.e. put together from component parts, separate elements, part assemblies*) for incorporation in the works;
- c)** Products manufactured in a traditional manner, or in a way appropriate to heritage conservation, in a non-industrial process for adequately renovating construction works.

Both exclusions **a)** and **b)** are directly relevant to the situation as it applies on the ground to the supply and installation of timber doors in the UK.

6. The classification of doorsets for resistance to fire performance characteristics falls under European standard BS EN 13501-2:2006 Fire classification of construction products and building elements – Part 2: Classification using data from fire resistance tests, excluding ventilation services.

The relevant applicable test standards are:

BS EN 1634 - 1 Fire resistance for door and shutter assemblies – part 1 : *Fire doors and shutters*

BS EN 1634 - 2 Fire resistance for door and shutter assemblies – part 2 : *Fire door hardware*

BS EN 1634 - 3 Fire resistance for door and shutter assemblies – part 3 : *Smoke control doors*

7. Under the established custom and practice in the UK, evidence for fire resistance comes from a **fire resistance test report** carried out by an accredited test organisation.

Manufacturers and suppliers will normally have a suite of test reports at their disposal, most likely in conjunction with a number of assessment reports covering variations to the tested systems, related to applicable test evidence and carried out by an accredited, competent organisation. In most cases that body of test evidence is likely to be well established over some years, involving a lot of investment and continuous testing for product system improvements and developments in response to market requirements.

8. Any building work which is subject to the requirements imposed by Schedule 1 of the Building Regulations should be carried out with proper materials and in a workmanlike manner in accordance with Regulation 7, as defined in applicable regulatory guidance.

Regulation 7 contains the following guidance for the installer on the ways by which compliance may be shown:

- The CE mark (*i.e. if the product falls within definition of an applicable product standard*);
- Third party certification schemes (*accredited by the UK Accreditation Service, i.e. UKAS*);
- Testing to BS test standards, including versions of European standards designated BS EN;
- Established experience in use (*based on established test results*).

9. The main current practice is to carry out testing to the BS EN series of test standards since their introduction. But there are still numerous products in place in buildings, installed under applicable UK building regulations, which were formerly tested to the BS 476 series of tests and backed up by an accumulation of valid test evidence to that standard.

Companies in many cases have a considerable body of established valid test data to BS 476 accumulated over some time with a great deal of investment. Since the fire safety of so many installations is based on that data, and confirmed under operating risk assessments according to the Fire Safety Order 2005, it is entirely illogical to say now that those safety levels in some way are no longer appropriate, suitable and sufficient.

10. Many of the essential components of a door assembly are separately CE marked under specific harmonised European standards by the individual component manufacturing networks. And it is normal expected practice to use those components in tested fire-resistant timber door assemblies wherever possible. Some core elements – such as door blanks, for example - cannot be CE marked because standards are not available (*nor entirely possible*), and that is one important reason why third party certification retains an important place in the product assurance process.

Doorset component or associated element	Can the item be separately CE marked?	Relevant product standard
Door leaf	x	No hEN
Doorframe	x	No hEN
Single axis hinges	✓	BS EN 1935
Locks and latches	✓	BS EN 12209
Electro-mechanical locks	✓	BS EN 14846
Controlled closing devices	✓	BS EN 1154
Electric hold open devices	✓	BS EN 1155
Door co-ordinators	✓	BS EN 1158
Panic exit devices	✓	BS EN 1125
Emergency exit hardware	✓	BS EN 179
Uncontrolled door closer	✓ (when standard available)	pr EN 15887
Electrically controlled emergency exit systems	✓	BS EN 13637
Powered pedestrian door systems	✓	BS EN 16005
Glass		
Laminated (NB as special fire-resistant glass)	✓	BS EN 14449
Modified toughened soda-lime-silica glass	✓	BS EN 12150
Soda-lime-silica - Georgian wired	✓	BS EN 572
Toughened borosilicate	✓	BS EN 13024
Glass ceramic	✓	BS EN 1748
Seals (e.g edges and protection hardware elements)	x	No hEN
Glazing sealants	x	No hEN
Ventilators and grilles	x	No hEN
Letter plates	x	No hEN
Viewing spy holes	x	No hEN
Firestopping between frame and surrounding structure	✓	ETAG 026-3:2011

Note:

- a) The designation “pr” indicates a standard not yet formally completed and published
- b) The ETAG, European Technical Approval Guideline, route is voluntary (EAD under CPR)

11. Third party certification schemes are well established in the UK system over several years to provide users with additional assurance of product performance. They are voluntary schemes, operated by independent organisations and accredited by the United Kingdom Accreditation Service (UKAS). A number of separate schemes are available, mainly for products but also for installers (and increasingly now for risk assessors).

Processes include evaluation of factory production control, independent product sampling and testing. It is important to note that the level of scrutiny is in no way less than provided by the CE marking process – and in important respects provides a significant additional requirement of third party certification compared with CE marking.

That additional assurance comes from product audit testing on a regular basis (whereas CE marking type testing is only required initially, and repeated when changes to product and production arise).

Product certification can also include, importantly, a facility if necessary to audit products from the market. That is not the case, for example, under System 1 attestation CE marking as applies to fire doors. *(System 1+ under CE marking systems of assessment and verification of constancy of performance does include facility for product auditing, but that applies **before** placing the product on the market – and not **after** the product is placed on the market, as provided for under third party product certification schedules).*

Further additional features which help to provide enhanced assurance for users of timber fire doors are that: **a)** door components not falling within scope of European harmonised technical standards can be readily included within scope of third party certification; and **b)** scrutiny and policing is carried out within the fire safety industry where the prime knowledge, resources, and awareness reside *(instead of resting with an enforcement body outside and detached from the industry, which does not have the necessary resource nor first hand product experience and awareness of what is happening on a wider scale within fire safety).*

12. Within the UK, applicable guidance for compliance with building regulations falls within under separate authorities, with some differences although there is a major level of commonality in the core guidance:

- England and Wales, Approved Document B 2006 , Fire Safety, Volume 1 Dwellinghouses and Volume 2 Buildings other than dwellinghouses;
- Scotland, Technical Handbooks 2013, Domestic and non-Domestic.
- Northern Ireland, Technical Booklet E, 2005.