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Timber-based fire door assemblies – Code of practice

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Contents

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 34, an inside back cover and a back cover.

Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 December 2016. It was prepared by Subcommittee B/538/1, *Windows and doors*, under the authority of Technical Committee B/538, *Doors, windows, shutters, hardware and curtain walling*. A list of organizations represented on these committees can be obtained on request to their secretary.

Supersession

This British Standard supersedes BS 8214:2008, which is withdrawn.

Information about this document

This is a full revision of the standard, and introduces the following principal changes:

- limitation of the scope to timber-based door assemblies only;
- complete revision of recommendations for joints between timber-based door frames and walls;
- removal of colour codes from the normative text;
- general update to take into account the publication of new and revised standards since 2008.

Fire doors perform a vital function in the provision of an adequate means of escape from a building and, depending upon the intended use of the building, BS 9999, BS 9991 and other documents recommend both the performance rating and the position of the fire doors required to ensure safe egress. Similarly, guidance in support of national building regulations includes provision for the control of the spread of internal fire, by means of compartmentation or other techniques, and again appropriately rated fire doors contribute to this containment. The rating of such doors is specified by the design team/designer, possibly in conjunction with fire safety professionals, using the recommendations given in these documents, or by the fire strategy that has been developed to meet the functional objectives. The fire resistance provisions of the structure, including the fire door assemblies, will have been determined, when designing to meet the functional requirements of the regulations, as those which are necessary to control the hazard from fire to acceptable levels of risk.

This British Standard identifies the important parameters in the specification, installation and maintenance of fire doors that contribute to the successful attainment and retention of the level of performance deemed appropriate to contain the risk.

References are given throughout this British Standard to information to be obtained from manufacturers. These are summarized in Annex A.

Use of this document

As a code of practice, this British Standard takes the form of guidance and recommendations. It should not be quoted as if it were a specification and particular care should be taken to ensure that claims of compliance are not misleading.

Any user claiming compliance with this British Standard is expected to be able to justify any course of action that deviates from its recommendations.

Presentational conventions

The provisions in this standard are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is "should".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Where words have alternative spellings, the preferred spelling of the Shorter Oxford English Dictionary is used (e.g. "organization" rather than "organisation").

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

Particular attention is drawn to Regulation 7 of the Building Regulations 2010 [1], Regulation 8 of the Building (Scotland) Regulations 2004 [2] and Regulations 23 and 24(2) of the Building Regulations (Northern Ireland) 2012 [3].

Attention is also drawn to the Regulatory Reform (Fire Safety) Order 2005 [4], the Fire (Scotland) Act 2005 [5] and the Fire Safety Regulations (Northern Ireland) 2010 [6] in respect of the requirement for all buildings to be subjected to ongoing fire risk assessment, subsequent to the acceptance by the regulatory controllers of the fire protection measures provided.

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0 Introduction

0.1 Role and use of fire doors

Fire doors are required to provide two main functions:

a) to maintain any compartmentation of buildings, which has been introduced to limit the size and spread of fire in order to control the perceived risk;

b) to allow access to protected escape routes, both vertically and horizontally, without any loss of fire resistance, and limit smoke movement in the structure forming these routes, e.g. protected corridors, lobbies, stairways and shafts.

The locations and ratings for fire doors for means of escape are given in relevant guidance under building regulations in the UK and applicable design standards such as BS 9991 and BS 9999 founded on risk-based design considerations. In more complex buildings, designs may be based on fire safety engineering approaches governed by procedures defined in BS 7...

0.2 Fire door rating

The expression of fire resistance requirements in the UK in regulations and design standards is limited to either the integrity criterion alone or integrity with insulation. Performance is tested in accordance with either BS 476-22 or BS EN 1634-1, determined by the time in minutes when the standard failure criteria are reached for either integrity or insulation. Fire doors are typically designated by reference to their integrity performance, although insulation performance might also be a requirement, particularly under risk-based design approaches.

When tested in accordance with BS 476-22, such doors are identified by the prefix FD followed by the required integrity rating expressed in minutes, e.g. FD 30, a fire-resisting door able to resist integrity failure for 30 min. The following ratings fall within the scope of this British Standard: FD 20, FD 30, FD 60, FD 90 and FD 120.

When tested in accordance with BS EN 1634-1, and classified in accordance with BS EN 13501-2, the doors are identified by the prefix E followed by the required integrity rating expressed in minutes, e.g. E 30, a fire-resisting door able to resist integrity failure for 30 min. The following ratings fall within the scope of this British Standard: E 20, E 30, E 45, E 60, E 90 and E 120. Insulation performance is indicated by the shorthand designation "EI" followed by the test time category (e.g. 30 min).

NOTE National building regulations ([1] to [3] and [7]) only apply to life safety. Higher performance levels (such as insulation) might be necessary for certain applications if property protection is required.

In addition to the need to provide fire resistance, certain doors are also required to restrict the spread of ambient temperature ("cold") smoke. When tested in accordance with BS 476-31.1, these doors are identified by the suffix S, e.g. FD 30S. When tested in accordance with BS EN 1634-3 and classified in accordance with BS EN 13501-2, these doors are identified by the suffix S_a, e.g. E 30S_a.

1 Scope

This British Standard gives recommendations for the specification, installation and maintenance of timber-based fire doors. The recommendations are applicable to timber-based hinged or pivoted pedestrian door assemblies or door leaves, fitted into frames of any material.

This British Standard is applicable only to door assemblies that are designed to provide fire resistance ratings of up to and including 2 h when tested in accordance with BS 476-22 or BS EN 1634-1.

This British Standard is applicable to fire performance and smoke control. It does not cover security, ergonomic factors, functional performance other than with respect to fire resistance. It does not cover impact safety of glazing, for which recommendations are given in BS 6262-4.

This British Standard does not include doorsets, which are covered in BS EN 16034.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 476-20, *Fire tests on building materials and structures – Part 20: Method for determination of the fire resistance of elements of construction (general principles)*

BS 476-22, *Fire tests on building materials and structures – Part 22: Method for determination of the fire resistance of non-loadbearing elements of construction*

BS 476-31.1, *Fire tests on building materials and structures – Part 31: Methods for measuring smoke penetration through doorsets and shutter assemblies – Section 31.1: Method of measurement under ambient temperature conditions*

BS EN 179, *Building hardware – Emergency exit devices operated by a lever handle or push pad for use on escape routes – Requirements and test methods*

BS EN 1125, *Building hardware – Panic exit devices operated by a horizontal bar, for use on escape routes – Requirements and test methods*

BS EN 1366-4, *Fire resistance tests for service installations – Part 4: Linear joint seals*

BS EN 1634-1, *Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware – Part 1: Fire resistance test for door and shutter assemblies and openable windows*

BS EN 1634-3, *Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware – Part 3: Smoke control test for door and shutter assemblies*

BS EN 13637, *Building hardware – Electrically controlled exit systems for use on escape routes – Requirements and test methods*