BS 8524-1:2013

BSI Standards Publication

Active fire curtain barrier assemblies –

Part 1: Specification

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Published by BSI Standards Limited 2013

ISBN 978 0 580 64524 2

ICS 13.220.20

The following BSI references relate to the work on this document:
Committee reference FSH/25
Draft for comment 09/30189801 DC; 12/30263295 DC

Publication history

First published April 2013

Amendments issued since publication

Date	Text affected

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to ii, pages 1 to 42, an inside back cover and a back cover.

Foreword

Publishing information

This part of BS 8524 is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 30 April 2013. It was prepared by Technical Committee FSH/25, *Smoke, heat control systems and components*. A list of organizations represented on this committee can be obtained on request to its secretary.

Relationship with other publications

This British Standard has been developed from PAS 121, which will be withdrawn on 31 July 2013. This British Standard is published in two parts:

- Part 1: *Specification*;
- Part 2: *Code of practice for application, installation and maintenance*.

BS 8524-2 gives guidance on those issues that were originally specified in PAS 121 that have not been covered by the present part of BS 8524. These include specifying, installing and maintaining active fire curtain barrier assemblies, with recommendations for different assembly applications, wiring, power supplies and the emergency egress control.

Product testing. Users of this British Standard are advised to consider the desirability of third-party testing of product conformity with this British Standard. Users seeking assistance in identifying appropriate conformity assessment bodies or schemes may ask BSI to forward their enquiries to the relevant association.

Use of this document

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

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

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

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.

0 Introduction

0.1 Role and use of barrier assemblies

As fire-separating elements, barrier assemblies are required to provide two main functions:

a) to maintain any compartmentation of buildings needed to limit the spread of fire and smoke;

b) to allow access to protected escape routes, both vertical and horizontal, without any loss of fire resistance, and to limit smoke entry into these routes, i.e. protected corridors and protected shafts.

They can also be partially deployed to control the movement of fire effluent within buildings in the event of fire, prior to being fully deployed as a fire barrier.

Recommended positions and ratings for fire-separating elements for means of escape purposes are given in BS 9999, BS 9991 and BS 7974. The recommendations in BS 9999 and BS 9991 use a risk-based approach; those in BS 7974 are based on the principles of fire safety engineering.

When used as part of a fire-engineered design solution, barrier assemblies can become a critical element of that design. If barrier assemblies do not deploy to their operational position, the fire-engineered design solution would be compromised. However, in the event that other fire protection systems or elements do not function, e.g. due to total power failure, the barriers in the fire-operational position provide fire separation.

0.2 Application of barrier assemblies

Barrier assemblies used in life safety and property protection applications can be horizontal, vertical or angled. Depending upon the application, they could be used to replace fire doors, roller shutters, non-load-bearing walls, non-load-bearing ceilings, glazed elements, etc. They could also be used to form fire separation, e.g. forming protected routes or lobbies. They can provide some of the functionality of a fire door, but when used only for fire and smoke control, as a fire door then different requirements apply. These requirements will be given in BS EN 16034 (currently in preparation as prEN 16034). Barrier assemblies can enable greater barrier widths and barrier movements using less space than other traditional methods. Recommendations on the suitability, selection, installation and maintenance of barrier assemblies are given in BS 8524-2.

0.3 Deployment of barrier assemblies

Some examples of how barrier assemblies could be deployed are:

a) barriers deploy fully upon receipt of a signal from the fire alarm system;

b) barriers remain retracted when the fire alarm system is activated and only deploy upon receipt of a signal from a local smoke/heat detector. In these circumstances, the only barrier assemblies to deploy are those where fire or smoke are in the vicinity;

c) barriers deploy upon local thermal activation, e.g. upon parting of a fusible link;

d) barriers remain retracted when the fire alarm system is activated for a predetermined time to allow for evacuation before deploying fully;

e) barriers move to a given height above finished floor level when the fire alarm system is activated to contain smoke for a predetermined time before closing fully for fire containment;

f) barriers move to a given height above finished floor level when a specific fire alarm system signal is provided to contain smoke when the fire location is such that the barrier assembly is not required to deploy fully;

g) barriers deploy on loss of primary and auxiliary power supply.

NOTE Further information on the deployment of barrier assemblies is given in BS 8524-2.

0.4 Heat transfer through barrier assemblies

In fire safety situations, it is often important to establish the heat transfer from one side of the separating element to the other in order to calculate escape route sizes and safe operating distances. Traditionally this has been established using insulation and radiation measurements.

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

PAS 121 introduced the term "insulating zone" to describe the area created between the surface of the unexposed face of the barrier assembly when the assembly is exposed to fire, and the point at which the air temperature is 180 °C above ambient air temperature at any given time classification.

In this British Standard, the insulating zone concept that was introduced in PAS 121 has not been included. This is because the requirements associated with this concept relied on a test method that was not in line with European testing standards. There was also some misinterpretation of the term having an association with insulation. Both BS 8524-1 and BS 8524-2 use insulation and/or radiation test data instead, and further information regarding the application of test data can be found in BS 8524-2.

1 Scope

This part of BS 8524 specifies requirements for the design, testing and classification of active fire curtain barrier assemblies, for installation in accordance with the recommendations of BS 8524-2. It covers the reliability and durability, fire resistance, smoke containment and impact resistance performance of the active fire curtain barrier assemblies, their control devices and ancillary equipment.

The requirements within this part of BS 8524 are applicable to active fire curtain barrier assemblies of any material that are designed to provide fire resistance.

This part of BS 8524 does not cover active smoke barriers, or active fire curtain barrier assemblies that are used only for fire and smoke control as fire doors.

NOTE 1 Smoke barriers, used solely for smoke control, are covered by BS EN 12101-1. Such smoke barriers are not considered to be active fire curtain barrier assemblies within the scope of BS 8524.

NOTE 2 Guidance on fire doors is given in BS 8214. Requirements for fire doors for fire and smoke control are given in prEN 16034 (currently in preparation).