BRITISH STANDARD

BS 5499-3:1990

Fire safety signs, notices and graphic symbols —

Part 3: Specification for internally-illuminated fire safety signs

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Fire Standards Policy Committee FSM/11, upon which the following bodies were represented:

Association of British Theatre Technicians
Association of Manufacturers Allied to the Electrical and Electronic Industry (BEAMA Ltd.)
Bingo Association of Great Britain
British Entertainments and Dance Hall Association
British Sign Association
Chief and Assistant Chief Fire Officers' Association
Cinema Exhibitors' Association
Defence Manufacturers' Association
Department of Health
Department of the Environment (Building Research Establishment)
Department of the Environment (Property Services Agency)
Fire Extinguishing Trades Association
Fire Fighting Vehicle Manufacturers' Association
Guild of Architectural Ironmongers
Home Office
Lighting Industry Federation Ltd.
London Fire and Civil Defence Authority
Loss Prevention Council
Ministry of Defence
National Radiological Protection Board
Royal Institute of British Architects

This British Standard, having been prepared under the direction of the Fire Standards Policy Committee, was published under the authority of the Board of BSI and comes into effect on
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The following BSI references relate to the work on this standard:
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Contents

Foreword

This Part of BS 5499 has been prepared under the direction of the Fire Standards Policy Committee. Together with BS 5499-1:1990, it supersedes BS 2560:1978 which is withdrawn. The renumbering has been carried out in order to align this Part with other Parts of BS 5499 dealing with fire and emergency safety signs.

This Part of BS 5499 differs from BS 2560:1978 in that it applies solely to the construction and performance requirements of this type of sign. Graphics requirements are now included in BS 5499-1.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 4, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This Part of BS 5499 specifies requirements for the construction and performance of internally-illuminated box type fire safety signs. Such signs are illuminated by one or two separate systems of electric lighting; where a sign is internally illuminated by one system only, a separate external illumination system is required.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this Part of BS 5499, the definitions in BS 4533-101, BS 4533-102.22, BS 5266-1 and BS 5499-1 apply, together with the following.

self-contained fire safety sign

a fire safety sign in which all the elements such as the battery, the lamp, the control unit and the test and monitoring facilities, where provided, are concealed within the housing or adjacent to it (that is within 1 m)

3 Classification

3.1 Signs shall be classified by the type of protection against electric shock, in accordance with **2.2** of BS 4533-101:1990.

3.2 Signs shall be classified by the degree of protection against the ingress of dust and moisture, in accordance with **2.3** of BS 4533-101:1990.

3.3 Signs shall be classified by the material of supporting surface for which the sign is designed, in accordance with **2.4** of BS 4533-101:1990, except that all self-contained fire safety signs (see clause **2**) shall be suitable for direct mounting on surfaces which may be combustible.

4 Signs for general use

4.1 General

When tested as described in the appropriate clause of BS 4533-101 and Section 102.22 at an ambient temperature of 10 °C to 30 °C, under the conditions given in appendix A, the signs shall comply with **4.2** to **4.13**.

NOTE The order in which the tests are carried out in should be agreed between the parties concerned in testing. Where no particular order is requested the tests should be carried out in the order listed in clause **4**.

Components of signs which comply with the relevant British Standards, and do not require additional protection shall not be subjected to further testing or appraisal as part of the sign. Those components which rely upon the construction of the sign for electrical, thermal and mechanical safety shall be tested in accordance with **4.2** to **4.13**.

4.2 Construction

Signs shall be constructed in accordance with section four of BS 4533-101:1990, as modified by **22.6** of BS 4533-102.22:1981.

NOTE A panel of clear or translucent glass or plastics material may be incorporated in the bottom of the housing, if the housing is designed for surface mounting, for the purpose of local illumination at floor level.

4.3 Creepage distances and clearances

Signs shall have creepage distances and clearances in accordance with section eleven of BS 4533-101:1990.

4.4 Provision for earthing

Signs shall have provision for earthing in accordance with section seven of BS 4533-101:1990.

4.5 Terminals

Signs shall have terminals in accordance with sections fourteen and fifteen of BS 4533-101:1990.

4.6 External and internal wiring

Signs shall have external and internal wiring in accordance with section five of BS 4533-101:1990.

4.7 Protection against electric shock

Signs shall have protection against electric shock in accordance with section eight of BS 4533-101:1990.

4.8 Endurance tests and thermal tests

Signs shall fulfil the requirements of the endurance test and thermal tests given in section twelve of BS 4533-101:1990, as amended by **22.12** of BS 4533-102.22:1981.

4.9 Resistance to dust and moisture

Signs shall have resistance to dust and moisture in accordance with section nine of BS 4533-101:1990.

4.10 Insulation resistance and electric strength

Signs shall have insulation resistance and electric strength in accordance with **22.14** of BS 4533-102.22:1981.

4.11 Resistance to heat, fire and tracking

Signs shall have resistance to heat, fire and tracking in accordance with **22.15** of BS 4533-102.22:1981.

4.12 Changeover operation

The changeover operation of signs shall be in accordance with **22.17** of BS 4533-102.22:1981.

4.13 Internal and external parts

All internal parts (including wiring) and external parts of signs shall be complete.

5 Signs intended for use in cinemas and theatres

5.1 Diffuser

5.1.1 Where the graphics are illuminated, each sign shall incorporate, behind the front panel, a diffuser of opal or flashed opal glass or plastics material of similar diffusivity.

NOTE Instead of the separate panel (with graphics) and diffuser an integral front panel and diffuser made of suitable plastics material may be used.

5.1.2 The overall dimensions of the diffuser shall be similar to those of the panel.

5.1.3 Glass, where used, shall be not less than 2 mm thick. Compliance shall be checked by inspection and measurement.

5.2 Provision of electric lamps

The electric lamps used shall give a "white light"; compliance shall be checked by inspection.

5.3 Level and uniformity of luminance

When the sign is illuminated in turn by the following the maximum luminance of any test patch shall not exceed 80 cd/m^2, and the minimum luminance of any test patch shall be not less than 2 cd/m^2:

a) the primary lighting only;

b) the emergency lighting only; and

c) by both systems simultaneously.

When tested as described in appendix B, the maximum variation in the luminance in the central areas between any one test patch and another under any single condition of illumination shall not exceed five to one.

Where the letter surrounds are normally translucent, the maximum variation in the luminance between any test patch on the central area and the corners of the overall front panel shall not exceed six to one.

NOTE The most suitable level of luminance is in general found to be between 17 cd/m^2 and 34 cd/m^2.

6 Marking

Signs shall be marked in accordance with section three of BS 4533-101:1990, and with **22.5** of BS 4533-102.22:1981.

Appendix A Testing

The signs shall be tested under the same conditions as they would be when delivered and installed as in normal use, having regard to the manufacturer's installation instructions. The lamp (or lamps) is not included except where essential for the test.

In general the tests shall be made on a single sample sign or, where a range of similar signs is involved, on a representative selection from the range as agreed with the manufacturer. This selection shall include the sign together with any attachments, which represents the most unfavourable combination from a testing point of view.

NOTE In order to reduce the time of testing and to allow for any tests which may be destructive, the manufacturers may submit additional signs or parts of signs, provided that these are of the same materials as the original sign and that the results of the tests are the same as if carried out on a single sign.

Appendix B Test for level and uniformity of luminance

Test the sign for the level of luminance by its internal illuminant(s) with the diffuser in position but without the front panel or any colour filter. If it is intended that an integral panel and diffuser will be used in the sign, carry out the test using a diffuser panel of the same material and light transmission as that used in the integral panel.

Make luminance measurements over the central area of the diffuser which is normally occupied by the graphics. Where the graphics surrounds are normally translucent, make measurements also at the corners of the overall front panel.

Over those positions of the diffuser, which in the assembled sign will appear translucent, take luminance readings of test patches not exceeding 600 mm^2, in a darkened room with the sign illuminated.

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Publications referred to

BS 4533, *Luminaires*.

BS 4533-101, *Specification for general requirements and tests*.

BS 4533-102, *Particular requirements*.

BS 4533-102.22, *Specification for luminaires for emergency lighting*.

BS 5266, *Emergency lighting*.

BS 5266-1, *Code of practice for emergency lighting of premises other than cinemas and certain other specified premises used for entertainment*.

BS 5499, *Fire safety signs, notices and graphic symbols*.

BS 5499-1, *Specification for fire safety signs*.

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