BRITISH STANDARD

BS 5266 :
Part 2 : 1998

Emergency lighting

Part 2. Code of practice for electrical low mounted way guidance systems for emergency use

Confirmed
January 2010

ICS 91.160.10

Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee CPL/34/9, Emergency lighting, upon which the following bodies were represented:

Association of British Theatre Technicians
Association of Building Engineers
Association of County Councils
Association of Manufacturers of Power Generating Systems
British Cable Makers Confederation
British Fire Consortium
Chartered Institution of Building Services Engineers
Chief and Assistant Chief Fire Officers Association
Cinema Exhibitors' Association
Department of the Environment, Transport and the Regions (Construction Sponsorship Directorate)
Department of Trade and Industry (Consumer Safety Unit, CA Division)
District Surveyors' Association
Electrical Contractors' Association
Electricity Association
Engineering Industries Association
GAMBICA (BEAMA Ltd.)
Home Office
Industry Committee for Emergency Lighting Ltd. (ICEL)
Institute of Fire Prevention Officers
Institute of Fire Safety
Institution of Electrical Engineers
Institution of Lighting Engineers
Lighting Industry Federation Ltd.
London Transport
Marine Safety Agency
National Illumination Committee of Great Britain
National Inspection Council for Electrical Installation Contracting
Photoluminescent Safety Products Association
Tenpin Bowling Proprietors' Association
Coopted members

This British Standard, having been prepared under the direction of the Electrotechnical Sector Board, was published under the authority of the Standards Board and comes into effect on
15 February 1998

Amendments issued since publication

Amd. No.	Date	Text affected

The following BSI references relate to the work on this standard:
Committee reference CPL/34/9
Draft for comment 94/209173 DC

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Contents

Foreword

This Part of BS 5266 has been prepared by Technical Committee CPL/34/9.

This standard is supplementary to, and is intended to be used as an addition to, BS 5266 : Part 1 *Code of practice for emergency lighting*.

The aim of this standard is to promote wider understanding of low mounted way guidance systems, to encourage uniformity of application and to give advice on their most effective use within buildings.

These systems use a series of illuminated visual markers to assist in indicating the location of the escape routes and exits. They may be continuously illuminated or switched on either by failure of the normal lighting supply or by activation of the fire alarm system.

Low mounted way guidance systems have been developed to conform to the general provisions of the emergency lighting luminaire product standard IEC 60598-2-22 and to be installed in accordance with the relevant principles of BS 5266 : Part 1.

Owing to the developing nature of the technology, a review of this Part of BS 5266 will commence three years after the date of publication, as opposed to the usual five yearly review period.

Compliance with this British Standard does not of itself confer immunity from legal obligations.

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.

Code of practice

1 Scope

This Part of BS 5266 gives recommendations for the planning, design, installation and servicing of electrical low mounted way guidance systems, for use within emergency lighting systems. It is intended to cover the use of low mounted way guidance systems for use in premises where such use has been agreed by all interested parties including the enforcing authority.

2 Normative references

This Part of BS 5266 incorporates, by dated or undated reference, provisions from other publications. These normative references are made at the appropriate places in the text and the cited publications are listed on the inside back cover. For dated references, only the edition cited applies; any subsequent amendments to or revisions of the cited publication apply to this Part of BS 5266 only when incorporated in the reference by amendment or revision. For undated references, the latest edition of the cited publication applies, together with any amendments.

3 Definitions

For the purposes of this standard the definitions given in BS 5266 : Part 1 apply, together with the following.

3.1 low mounted way guidance system

Low mounted luminous tracks positioned on escape routes in combination with exit indicators, exit marking and intermediate exit direction indicators along the route, provided for use when the supply to the normal lighting fails or on detection of smoke, which operate from an electrical supply independent of the normal supply under emergency conditions.

3.2 escape route markers

Highly visible linear markers forming part of the way guidance system, provided to clearly delineate an escape route or define an escape path through an open area.

3.3 exit indicator

An illuminated indicator forming part of the way guidance system, provided to clearly identify an exit.

NOTE. It may be used with or without a supplementary sign mounted adjacent to the exit at low level for use when any overhead safety sign may be less effective or obscured.

3.4 exit marking

That part of the way guidance system provided to clearly identify an exit by using the luminous marking to outline part or all of the exit surround.

3.5 intermediate information and exit direction indicators

That part of the way guidance system provided to identify exit routes and to clearly indicate direction towards an exit.

3.6 point source

A light source with an intensity distribution generated from a small section such as a filament or light emitting diode (LED), and having an overall luminous area of less than 100 mm^2.

3.7 planar source

An area light source having a predominantly uniform luminance across its surface.

4 Planning

4.1 Consultation

The consultation recommendation given in **3.1** of BS 5266 : Part 1, and the provision of plans given in **3.2** of BS 5266 : Part 1 should be followed. In addition, the level of integration between low mounted way guidance, overhead emergency lighting and lighting of signage should be considered.

4.2 Selection of escape route

Low mounted way guidance relies for its effectiveness on a row of visible markers along the escape route. It is therefore important that the following are identified on the plans:

a) all routes suitable for use in an emergency;

b) all exits on escape routes, such as intermediate doors, storey exits and final exits;

c) all doors situated within the escape route and which do not form part of the means of escape;

d) any route which crosses an open area and an appropriate form of marking for that route.

4.3 Modes of operation

In certain fire conditions, it is possible that smoke could enter the escape route and obscure the vision of persons attempting to escape, even with the primary or emergency escape lighting in operation. It is therefore essential that the way guidance system should either be of maintained operation or be activated by the fire detection and/or alarm system.

5 Components

Central power supply systems should be in accordance with the relevant clauses of BS 5266 : Part 1.

Way guidance systems for use in hazardous areas as defined in IEC 79-10 should conform to BS EN 50014.

Luminous sources should conform to the appropriate requirements of IEC 60598-2-22.

As electrical components are mounted in exposed positions on or close to the floor they should have:

a) a minimum degree of ingress protection of IP54 (dust proof/splash proof) in accordance with BS EN 60529 : 1992;

b) adequate mechanical strength. The component should conform to the category of impact test requirements for road and street lighting luminaires as given in table 4.3 of BS EN 60598-1 : 1997.

6 Design

6.1 General

Low mounted way guidance systems are intended to complement emergency escape lighting systems and should only be used as stand alone systems when they are in accordance with all the relevant recommendations of BS 5266 : Part 1. The inter-relationships of specific forms of emergency lighting are illustrated in figure 1.

A low mounted way guidance system should be designed to ensure that the escape route is clearly marked with a visible 'line of light' (see **6.3**).

With the exception of stairs, it is essential that the lines of markers do not cross the route which is to be used in an emergency and do not cross the threshold of an exit. An exit's use should be reinforced by indicators or markers. Consideration should be given to extending the escape route markers up to door handle height adjacent to the exit or to completely outline the surround of the exit.

For doors which are not used as a part of the escape route (e.g. cupboard doors), the visual line of the wall mounted marker system should be continued by introducing a floor mounted marker system past the doorway.

An electrically powered illuminated indicator should be mounted at a level no higher than 1 m above the floor adjacent to any exit. In all cases the indicator should be sited as seen from the approach side of the exit and, in the case of doors, adjacent to the opening edge.

NOTE. All exit signs provided in a premises to which the Health and Safety (Safety signs and signals) Regulations 1996 [1] apply are subject to those regulations.

Breaks may be necessary in the marker system when the escape route passes openings or intersecting corridors. Where such situations occur, breaks of up to 2 m in the marker system are acceptable.

Changes in level should be delineated by wall mounted components indicating the pitchline of a flight of stairs or contour of each tread of a flight of stairs, single steps and ramps. The beginning, passage and end of the change of level needs to be clearly marked. Escape route marker systems incorporated into stair treads should be visible when either ascending or descending the stairs. Marking on the guarding or handrail can provide an additional orientation aid.

6.2 Mounting

The escape route corridors should be indicated by rows of markers on the side of the route. For corridors wider than 2 m both sides of the escape route should be indicated. When the escape route crosses an open area, the location of the route should be indicated by two parallel lines of route markers.

Wall mounted marker systems should normally be mounted no higher than 300 mm above floor level.

Floor mounted marker systems should normally be mounted within 150 mm of the side of the escape route.

6.3 Gaps

Luminous elements within the lines of the marker system should be as continuous as possible. The following gaps are acceptable.

a) The gaps between point sources should be 300 mm or less.

b) The gaps between luminous planar sources should be 400 mm or less, provided the luminous elements are greater in length than the gap. The breadth of the luminous elements should be at least 5 mm.

Failure of any one light source, circuit or luminous component should not result in the overall system becoming ineffective. In the event of such a failure the resulting gap between luminous components should be not greater than 1.3 m.

NOTE. It may be necessary to take redundancy of light sources into account in the design of the marker system.

6.4 Colour

The marker light source should be predominantly either white or green.

6.5 Luminance performance

Components using point sources should have a minimum peak intensity of 30 mcd. The intensity distribution should be appropriate to the viewing angles during escape, i.e.:

a) for escape route markers: 60° from the mounting surface in the direction of the evacuee;

b) for exit markers: 90° from the mounting surface in the direction of the evacuee.

Components using planar sources should have a minimum surface luminance of 10 cd/m^2.

The luminance should be appropriate to the viewing angles during escape, i.e. any angle between 65° either side of the perpendicular to the source.

NOTE. In general for a given size of light source, the greater the intensity or luminance, the longer the visibility distance will be, particularly in the presence of smoke. It is also likely that components having higher intensity or luminance values will be more effective in conditions where the normal lighting is still operating.

When the low mounted way guidance system is activated by smoke/fire detectors consideration should be given to the use of higher peak intensities and surface luminances to provide enhanced performance in the presence of smoke.

6.6 Response time

The luminous performance recommended in **6.5** should be achieved in emergency mode operation at the end of the duration and the end of the life of the battery system.

The minimum luminous performance recommended in **6.5** should be reached within 5 s of the system being switched on.

The minimum duration is given in BS 5266 : Part 1.

6.7 Indicator dimensions

Low mounted indicators should have a minimum symbol height of 30 mm.

7 Installation

The system wiring between components should conform to the relevant requirements of BS 7671 and should be in accordance with BS 5266 : Part 1.

Cables from a power supply to a luminous element should be wired in a parallel loop or ring circuit within each fire compartment.

8 Servicing and maintenance

Maintenance of the system should be carried out in accordance with the manufacturer's instructions and particular care should be taken in cleaning the surfaces of the luminous elements.

Testing of the system should be carried out in accordance with BS 5266 : Part 1 and BS 7671.

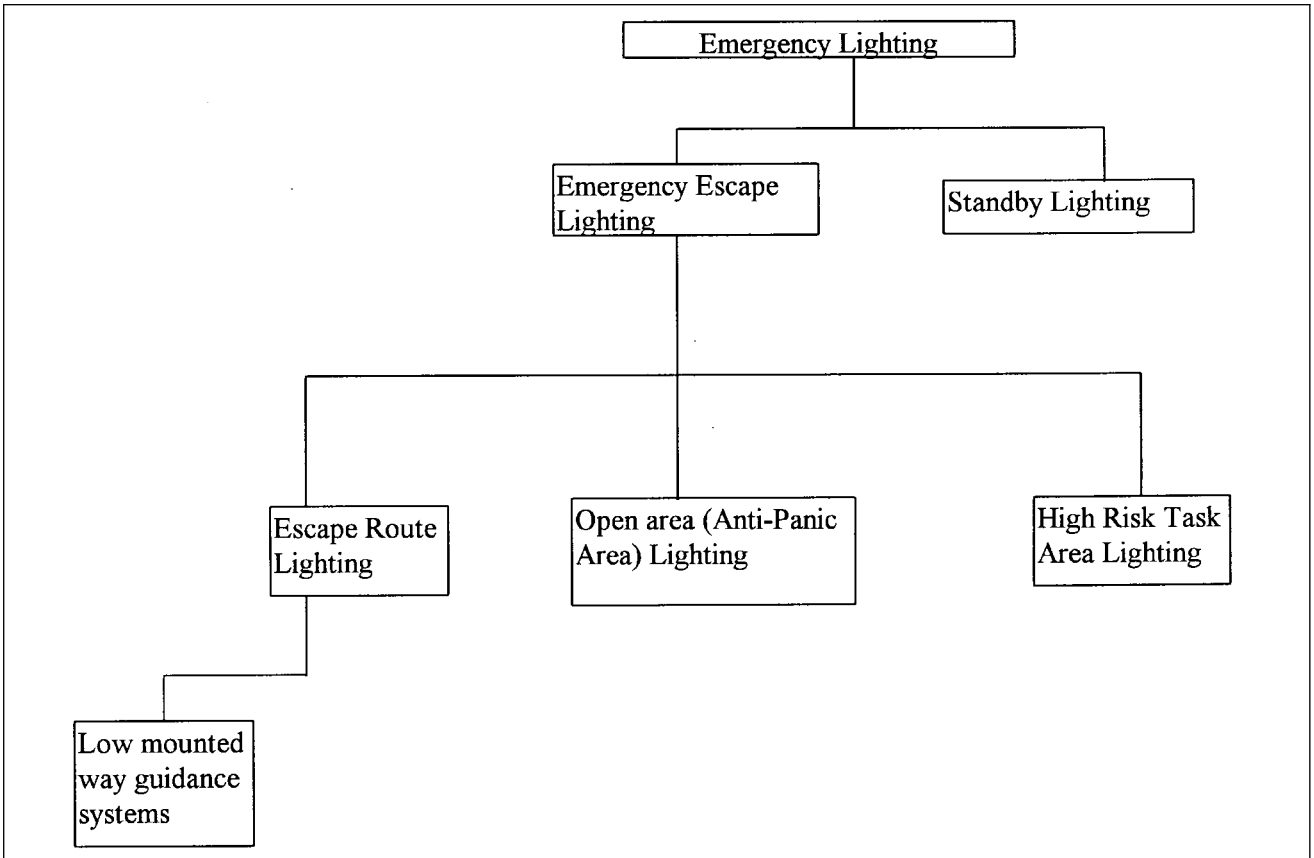

Figure 1. Specific forms of emergency lighting

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List of references (see clause 2)

Normative references

BSI publications

BRITISH STANDARDS INSTITUTION, London

BS 5266 :	*Emergency lighting*
BS 5266 : Part 1 : 1998	*Code of practice for the emergency lighting of premises other than cinemas and certain other specified premises used for entertainment*
BS 7671 : 1992	*Requirements for electrical installations. IEE Wiring Regulations. Sixteenth edition*
BS EN 50014 : 1993	*Electrical apparatus for potentially explosive atmospheres. General requirements*
BS EN 60529 : 1992	*Specification for degrees of protection provided by enclosures (IP code)*
BS EN 60598 :	*Luminaires*
BS EN 60598-1 : 1997	*General requirements and tests*

IEC publications

INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC), Geneva. (All publications are available from Customer Services, BSI.)

IEC 79 :	*Electrical apparatus for explosive gas atmospheres*
IEC 79-10 : 1995	*Classification of hazardous areas*
IEC 60598 :	*Luminaires*
IEC 60598-2-22 : 1997	*Particular requirements — Luminaires for emergency lighting*

Other publication

[1] GREAT BRITAIN. Health and Safety (Safety signs and signals) Regulations 1996, London, The Stationery Office.

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