BRITISH STANDARD

BS EN 50172:2004
BS 5266-8:2004
Including Corrigendum No. 1

Emergency escape lighting systems

The European Standard EN 50172:2004 has the status of a British Standard

ICS 91.160.00

BSi British Standards

National foreword

This British Standard is the official English language version of EN 50172:2004 and implements it as dual numbered British Standard BS 5266-8:2004.

This part of the BS 5266 series partially supersedes BS 5266-1:1999, *Emergency lighting. Code of practice for the emergency lighting of premises other than cinemas and certain other specified premises used for entertainment*, which is currently under revision to remove requirements conflicting with EN 50172:2004 as follows.

BS EN 50172:2004 specifies requirements whereas BS 5266-1 is a code of practice giving recommendations.

The requirements of BS EN 50172 alter the duration period and frequency required for self-contained luminaires (see **7.2**).

A number of the requirements which are given in BS 5266-1:1999 are expanded, particularly the size of open area that requires emergency lighting and the procedures to reduce the impact of the failure of any single luminaire. Appropriate product standards are also identified.

Compliance with this standard will assist users in meeting the requirements of the Workplace Directive, the Construction Products Directive and the forthcoming Regulatory Reform Order.

The UK participation in its preparation was entrusted by Technical Committee CPL/34, Lamps and related equipment, to Subcommittee CPL/34/9, Emergency lighting, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

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 does not of itself confer immunity from legal obligations.

This British Standard, was published under the authority of the Standards Policy and Strategy Committee on 20 December 2004

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 12, an inside back cover and a back cover.

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Amendments issued since publication

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EUROPEAN STANDARD **EN 50172**

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English version

Emergency escape lighting systems

Systèmes d'éclairage de sécurité Sicherheitsbeleuchtungsanlagen

This European Standard was approved by CENELEC on 2004-03-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 50172:2004 E

Foreword

This European Standard was prepared by the former CENELEC BTTF 62-8, Emergency lighting systems.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50172 on 2004-03-01.

For emergency lighting systems, it should be read in conjunction with EN 50171 and EN 1838.

Attention is drawn to the Council Directive 92/58/EEC of 24 June 1992 on the minimum requirements for provision of safety and/or health signs at work.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2005-03-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2007-03-01

Contents

1 Scope

This European Standard specifies the provision of illumination of escape routes and safety signs in the event of failure of the normal supply, and specifies the minimum provision of such emergency lighting based on the size, type and usage of the premises. This standard relates to the provision of electric emergency escape lighting in all work places and premises open to the public.

This European Standard does not cover private domestic premises but its provisions are applicable to common access routes within multi-storey dwellings.

This European Standard is also applicable to standby lighting used as emergency escape lighting.

There are emerging way guidance techniques that, when applied to escape routes in addition to conventional emergency lighting luminaires, can enhance its effectiveness in an emergency.

2 Normative references

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

EN 81-1	Safety rules for the construction and installation of lifts and service lifts - Part 1: Electric lifts
EN 1838:1999	Lighting applications - Emergency lighting
EN 13032 (series)	Light and lighting - Measurement and presentation of photometric data of lamps and luminaires
EN 50171	Central power supply systems
EN 50272-2	Safety requirements for secondary batteries and battery installations Part 2: Stationary batteries
EN 60529	Degrees of protection provided by enclosures (IP Code) (IEC 60529)
EN 60598-2-22:1998	Luminaires - Part 2-22: Particular requirements - Luminaires for emergency lighting (IEC 60598-2-22:1997, modified)
EN 62034 [1)]	Automatic test system for battery powered emergency escape lighting
HD 384/HD 60364 series	Electrical installations of buildings (IEC 60364 series, modified)
ISO 8528-12	Reciprocating internal combustion engine driven alternating current generating sets - Part 12: Emergency power supply to safety devices

3 Definitions

For the purposes of this standard the following definitions apply:

3.1
premises
the whole or part of a building treated as a single unit for the purposes of applying this standard

[1)] At draft stage.

3.2
escape route
a route designated for escape to a place of safety in the event of an emergency

3.3
emergency escape route lighting
that part of emergency escape lighting provided to ensure that the means of escape can be effectively identified and safely used at all times when the premises are occupied

3.4
open area (anti-panic)
areas of undefined escape routes in halls or premises larger than 60 m^2 floor area or smaller areas if there is additional hazard such as use by a large number of people

3.5
place of safety
a place in which persons are in no danger

3.6
mounting height
the vertical distance between a luminaire and the floor

3.7
combined emergency luminaire
a luminaire containing two or more lamps, at least one of which is energized from the emergency lighting supply and the other(s) from the normal lighting supply. A combined emergency luminaire is either maintained or non-maintained

3.8
emergency exit
a way out that is used during an emergency

3.9
final exit
the terminal point of an escape route

3.10
luminaire
apparatus which distributes, filters or transforms the light transmitted from one or more lamps and which includes all the parts necessary for supporting, fixing and protecting the lamps, but not the lamps themselves, and which includes where necessary circuit auxiliaries together with the means for connecting them to the supply

3.11
maintained emergency luminaire
luminaire in which the emergency lighting lamps are energized at all times when normal or emergency lighting is required
[EN 60598-2-22:1998, 22.3.5]

3.12
non-maintained emergency luminaire
luminaire in which the emergency lighting lamps are in operation only when the supply to the normal lighting fails
[EN 60598-2-22:1998, 22.3.6]

3.13
internally illuminated safety sign
a sign that is illuminated, when required, by an internal source
[EN 1838:1999, 3.11]

3.14
externally illuminated safety sign
a sign that is illuminated, when required, by an external source
[EN 1838:1999, 3.10]

3.15
required battery duration
duration of emergency operation of the battery required for the function

3.16
rated duration of emergency operation
time, as claimed by the manufacturer, that the rated emergency lumen output is provided
[EN 60598-2-22:1998, 22.3.15]

4 Emergency escape lighting

4.1 General

The purpose of emergency escape lighting is to ensure the lighting is provided promptly, automatically and for a suitable time in a specified area when the normal power supply to the normal lighting fails. The installation shall ensure that emergency escape lighting fulfils the following functions:

a) to illuminate escape route signs;

b) to provide illumination onto and along such routes as to allow safe movement towards and through the exits provided to a place of safety;

c) to ensure that fire alarm call points and fire equipment provided along escape routes can be readily located and used;

d) to permit operations concerned with safety measures.

Emergency escape lighting shall be activated not only on complete failure of the supply to the normal lighting but also on a localized failure such as a final circuit failure.

Emergency escape lighting is not designed to enable normal operations to be continued on the premises in the event of failure of normal or standby lighting.

Full details of levels and measurement of illuminance and adaptation are specified in EN 1838 and EN 13032.

The wiring rules of HD 384 / HD 60364 shall be complied with.

4.2 Identification and luminance of emergency exit signs

Where direct sight of an exit is not possible and doubt may exist as to its location, a directional sign (or series of signs) shall be provided, placed such that a person moving towards it will be directed towards an emergency exit.

An exit or directional sign shall be in view at all points along the escape route.

All signs marking exits and escape routes shall be uniform in colour and format, and their luminance shall comply with EN 1838.

NOTE Maintained exit signs should be considered for applications where occupants may be unfamiliar with the building.

4.3 Escape route lighting

The objective of escape route lighting is to enable safe exit for occupants by providing appropriate visual conditions and direction finding on escape routes and to ensure that fire fighting and safety equipment can be readily located and used.

4.4 Open area (anti-panic) lighting

The objective of open area (anti-panic) lighting is to reduce the likelihood of panic and to enable safe movement of occupants towards escape routes by providing appropriate visual conditions and direction finding. It is used in areas of undefined escape routes in halls or premises larger than 60 m^2 floor area or smaller areas if there is additional hazard such as use by a large number of people.

NOTE Condition BD3 or BD4 of HD 384 also defines areas that require emergency lighting.

4.5 Emergency lighting for high risk task area lighting

The objective of high-risk task area lighting is to ensure the safety of people involved in a potentially dangerous process or situation and to enable proper shut down procedures for the safety of other occupants of the premises.

4.6 Standby lighting

If standby lighting is used to provide emergency escape lighting, the installation shall comply with the provisions of this standard and the appropriate product and wiring standards.

5 Emergency escape lighting system design

5.1 Plan of premises

In order to ensure that the emergency lighting system is engineered in accordance with EN 1838 plans showing the layout of the building and of all existing or proposed escape routes, fire alarm call points and fire fighting equipment and indicating the positions of all structural items which may offer obstruction to escape shall be provided before commencing system design.

5.2 Failure of normal supply to part of premises

Emergency escape lighting shall operate, in the event of failure of any part of the normal lighting supply. Non-maintained and combined non-maintained emergency luminaires have to operate in the event of failure of a normal lighting final circuit. In all cases, arrangements shall be made to ensure that local emergency escape lighting will operate in the event of failure of normal supply to the corresponding local area.

5.3 System integrity

The provision of highly reliable emergency escape lighting is essential. The illumination by the emergency escape lighting system of a compartment of the escape route shall be from two or more luminaires so that the failure of one luminaire does not plunge the route into total darkness or make the directional finding effect of the system ineffective. For the same reason, two or more luminaires shall be used in each open area (anti-panic).

NOTE It is not normally possible to cater for an interruption of the normal lighting due solely to the failure of an individual lamp, consideration should therefore be given to methods of eliminating any probable hazard which might arise due to the failure of this lamp.

5.4 Specific areas requiring emergency lighting

Where national regulations do not apply, the provisions of emergency escape lighting given in EN 1838 cover the routes and locations detailed in 4.2 to 4.5 of this standard. Other areas of hazard or areas that may need access in a normal lighting failure also require emergency lighting and are defined in 5.4.1 and 5.4.2 of this standard.

5.4.1 External areas in the immediate vicinity of exits

To assist dispersal to a place of safety, the external areas in the immediate vicinity of final exits should be illuminated in accordance with the illumination level for escape routes given in EN 1838.

5.4.2 Lift car

Lifts present a problem because the experience of being confined in the dark within a small space for an indefinite period is not only unpleasant, but may cause harm to those who are nervous or suffer from claustrophobia. Emergency lighting as specified for open area (anti-panic) lighting in EN 1838 shall therefore be fitted in lifts in which persons may travel. The emergency lighting can either be self-contained or powered from a central supply in which case a fire protected supply will be required.

NOTE For further guidance refer to EN 81-1.

5.5 Emergency escape lighting equipment

5.5.1 Luminaires

Emergency escape lighting luminaires shall be designed and constructed in accordance with EN 60598-2-22. They shall be selected to be appropriate for their location.

NOTE If used in areas with risk of explosion, the luminaires shall comply with the relevant standards and the 94/9/EC Directive.

5.5.2 Central power supply systems

Battery powered central power supply systems shall be designed and constructed in accordance with EN 50171 and the battery safety requirements of EN 50272-2 shall be complied with.

Reciprocating internal combustion engine driven alternating current generating sets: emergency power supply to safety devices shall be constructed in accordance with ISO 8528-12.

5.5.3 Automatic emergency lighting testing systems

Automatic emergency lighting testing systems shall be designed, constructed and installed in accordance with the relevant requirements of national standards or national regulations.

5.6 Categories of operation

The mode of operation and duration shall comply with the results of the risk assessment in accordance with national regulations.

6 Emergency escape lighting system records and reporting

6.1 General

On completion of the work, drawings of the emergency escape lighting installation shall be provided and retained on the premises. The drawings shall be made in accordance with Subclause 514.5.1 of HD 384.5. In particular, they shall identify all luminaires and the main components, and shall be regularly updated with any subsequent changes to the system. These drawings shall be signed by a competent person to verify that the design meets the requirements of this standard.

In addition, a logbook conforming to 6.3 shall be provided for the recording of routine examinations, tests, defects and alterations.

These shall be available as either a manual record or as a hard copy obtained from an automatic testing device.

6.2 System record

On completion of a yearly inspection and test schedule as required in the periodic inspection a test certificate should be supplied to the person responsible for the premises.

6.3 Log book (Reporting)

A log book shall be kept on the premises in the care of a responsible person appointed by the occupier/owner and shall be readily available for examination by any duly authorized person.

The log book shall be used to record at least the following information:

a) date of commissioning of the system including any certificate relating to alterations;

b) date of each periodic inspection and test;

c) date and brief details of each service, inspection or test carried out;

d) dates and brief details of any defects and of remedial action taken;

e) date and brief details of any alteration to the emergency lighting installation;

f) if any automatic testing device is employed, the main characteristic and the mode of operation of that device shall be described.

NOTE 1 The logbook may also include pages relating to other safety records, e.g. fire alarms. Details of replacement components of luminaires such as lamp type, battery and fusing may also be recorded in the logbook.

NOTE 2 An appropriate print out of data from an automatic testing device meets the requirements of this clause.

7 Servicing and testing

7.1 General

When automatic testing devices are used, the information shall be recorded monthly. For all other systems, the tests shall be carried out as described in 7.2 and the results recorded.

Regular servicing is essential. The occupier/owner of the premises shall appoint a competent person to supervise servicing of the system. This person shall be given sufficient authority to ensure the carrying out of any work necessary to maintain the system in correct operation.

7.2 Routine inspections and tests

Where national regulations do not apply, the following shall be met.

7.2.1 General

Because of the possibility of a failure of the normal lighting supply occurring shortly after a period of testing of the emergency lighting system or during the subsequent recharge period, all full duration tests shall wherever possible be undertaken preceding time of low risk to allow for battery recharge. Alternatively, suitable temporary arrangements shall be made until the batteries have been recharged.

The following minimum inspections and tests shall be carried out at the intervals recommended in 7.2.2 to 7.2.4. The regulating authority may require specific tests.

7.2.2 Daily

Indicators of central power supply shall be visually inspected for correct operation.

NOTE This is a visual inspection of indicators to identify that the system is in a ready condition and does not require a test of operation.

7.2.3 Monthly

If automatic testing devices are used, the results of the short duration tests shall be recorded.

Tests shall be carried out as follows:

a) Switch on in the emergency mode each luminaire and each internally illuminated exit sign from its battery by simulation of a failure of the supply to the normal lighting for a period sufficient to ensure that each lamp is illuminated.

NOTE The period of simulated failure should be sufficient for the purpose of this clause whilst minimising damage to the system components e.g. lamps.

During this period, all luminaires and signs shall be checked to ensure that they are present, clean and functioning correctly.

At the end of this test period, the supply to the normal lighting should be restored and any indicator lamp or device checked to ensure that it is showing that the normal supply has been restored.

b) In addition to a), for central battery systems, the correct operation of system monitors shall be checked.

c) In addition to a), for generating sets, refer to the requirement of ISO 8528-12.

7.2.4 Annually

If automatic testing devices are used, the results of the full rated duration test shall be recorded.

For all other systems the monthly inspection shall be carried out and the following additional tests made:

a) each luminaire and internally illuminated sign shall be tested as per 7.2.3 but for its full rated duration in accordance with the manufacturer's information;

b) the supply of the normal lighting shall be restored and any indicator lamp or device checked to ensure that it is showing that normal supply has been restored. The charging arrangements should be checked for proper functioning;

c) the date of the test and its results shall be recorded in the system logbook;

d) in addition, for generating sets, refer to the requirements of ISO 8528-12.