SLOVENSKI STANDARD
SIST EN 1838:2013

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Nadomešča:
SIST EN 1838:1999

Razsvetljava - Zasilna razsvetljava

Lighting applications - Emergency lighting

Angewandte Lichttechnik - Notbeleuchtung

Éclairagisme - Eclairage de secours

Ta slovenski standard je istoveten z: EN 1838:2013

ICS:

91.160.10 Notranja razsvetljava Interior lighting

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EUROPEAN STANDARD

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English Version

Lighting applications - Emergency lighting

Éclairagisme - Eclairage de secours

Angewandte Lichttechnik - Notbeleuchtung

This European Standard was approved by CEN on 15 June 2013.

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Foreword

This document (EN 1838:2013) has been prepared by Technical Committee CEN/TC 169 “Light and lighting”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2014, and conflicting national standards shall be withdrawn at the latest by January 2014.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1838:1999.

Users of this European Standard, prepared in the field of application of Article 153 of the Treaty on the Functioning of the European Union TFEU, should be aware that standards have no formal legal relationship with Directives which may have been made under Article 153 of the Treaty on the Functioning of the European Union TFEU.

Significant changes between this document and EN 1838:1999 are:

a) Illumination of the points of emphasis have been clarified and improved and the external illumination has been clarified as needing to extend to a place of safety. Illumination of fire alarm call points and first aid posts are now consistent, regardless of their location, and are defined at the equipment to be operated;

b) The colour and style of safety signs is amended to the revised ISO format;

c) The A deviations of some countries have been amended.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

Emergency lighting is provided for use when the supply to the normal lighting fails and is therefore powered from a source independent of that supplying the normal lighting.

For the purposes of this standard emergency lighting is regarded as a generic term of which there are a number of specific forms, as shown in Figure 1.

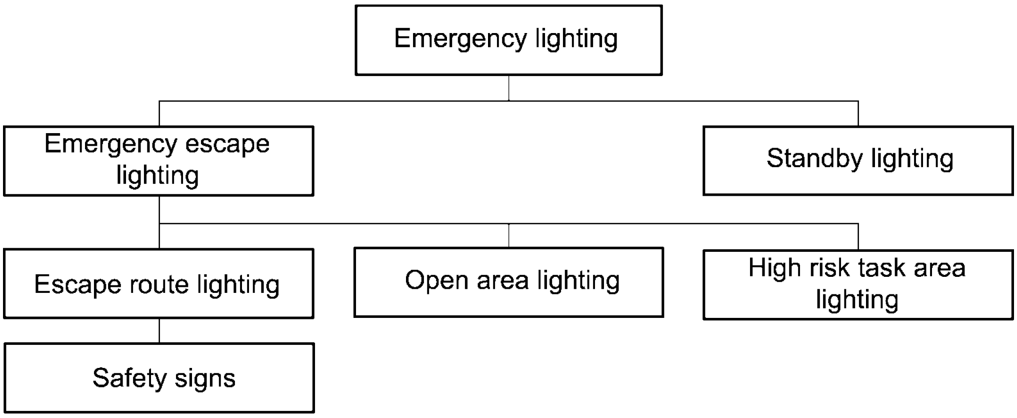

Figure 1 — Specific forms of emergency lighting

The overall objective of **emergency escape lighting** is to enable safe exit from a location in the event of failure of the normal supply. The objective of each form within this category is as follows.

- The objective of **escape route lighting** is to assist the safe exit from a location for occupants by providing appropriate visual conditions and direction finding on escape routes and in special locations, and to ensure that fire fighting and safety equipment can be readily located and used.

- The objective of emergency lighting of escape route **safety signs** is to provide appropriate visual conditions and direction finding to assist escape routes to be readily located and used.

- 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. The flow of light for escape routes or open areas should be downward to the working plane but illumination should also be provided to any obstruction up to 2 m height above that plane.

- The objective of **high risk task area lighting** is to contribute to the safety of people involved in a potentially dangerous process or situation and to assist proper shut down procedures to be carried out for the safety of other occupants of the location.

There are techniques that may be used as a supplement and when applied to escape routes in addition to conventional emergency lighting luminaires can enhance their effectiveness in an emergency. These techniques are not included in this standard.

Vision varies from person to person, both by the amount of light required to perceive an object clearly and in the time taken to adapt to changes in the illuminance. In general, older people need more light and take a longer time to adapt to low illuminance on a hazard or escape route.

Much anxiety and confusion can be alleviated by strategically placed signs indicating the way out of a location. It is very important that exits are clearly signposted and are visible, whenever the location is occupied.

1 Scope

This European Standard specifies the luminous requirements for emergency escape lighting and standby lighting systems installed in premises or locations where such systems are required. It is principally applicable to locations where the public or workers have access.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and 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 12665:2011, *Light and lighting – Basic terms and criteria for specifying lighting requirements*

EN 50172, *Emergency escape lighting systems*

EN 60598-2-22, *Luminaires – Part 2-22: Particular requirements – Luminaires for emergency lighting (IEC 60598-2-22)*

EN 62034, *Automated test systems for battery powered emergency escape lighting (IEC 62034)*

EN ISO 7010, *Graphical symbols – Safety colours and safety signs – Registered safety signs (ISO 7010)*

ISO 3864-1, *Graphical symbols – Safety colours and safety signs – Part 1: Design principles for safety signs and safety markings*

ISO 3864-4, *Graphical symbols – Safety colours and safety signs – Part 4: Colorimetric and photometric properties of safety sign materials*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12665:2011 and the following apply.

3.1
emergency lighting
lighting provided for use when the supply to the normal lighting fails
[SOURCE: IEC 60050-845]

3.2
escape route
route used to evacuate in case of an emergency, starting where the evacuation starts and ending at a place of safety

3.3
emergency escape lighting
that part of emergency lighting that provides illumination for the safety of people leaving a location or attempting to terminate a potentially dangerous process before doing so

3.4
escape route lighting
that part of emergency escape lighting provided to ensure that the means of escape can be effectively identified and safely used when the location is occupied

3.5
open area lighting
that part of emergency escape lighting provided to avoid panic and provide illumination allowing people to reach a place where an escape route can be identified
Note 1 to entry: In some countries this is known as anti-panic lighting.

3.6
high risk task area lighting
that part of emergency escape lighting that provides illumination for the safety of people involved in a potentially dangerous process or situation and to enable proper shut down procedures for the safety of the operator and other occupants of the premises

3.7
standby lighting
that part of emergency lighting provided to enable normal activities to continue substantially unchanged
[SOURCE: IEC 60050-845]

3.8
emergency exit
way out that is intended to be used during an emergency

3.9
safety sign
sign that gives a general safety message, obtained by a combination of colour and geometric shape and which, by the addition of a graphical symbol, gives a particular safety message
[SOURCE: ISO 3864-1]

3.10
externally illuminated safety sign
sign that is illuminated, when it is required, by an external source

3.11
internally illuminated safety sign
sign that is illuminated, when it is required, by an internal source

3.12
place of safety
designated place where escaping people can assemble safely and are not at risk of the emergency status

4 Emergency escape lighting

4.1 General

4.1.1 Installation requirements

To ensure that emergency escape lighting operates when it is required to meet legal requirements, it shall be installed, tested and maintained in accordance with EN 60598-2-22, EN 50172 and EN 62034.

The requirements given in this standard are maintained minimum values and are calculated for the full rated duration period at the end of the design life of the equipment and the inter-reflected light contribution shall be ignored.

The emergency lighting scheme design should be based on worst conditions (e.g. minimum light output, maximum glare limits) of the luminaires during operating life and should be based only on direct light from luminaires. The contributions by room surface inter-reflections should be ignored. However, in lighting systems such as indirect luminaires or uplights (used as an emergency luminaire in maintained mode) where the luminaire works in conjunction with a reflecting surface, the first reflection (based on the maintained reflectance) may be taken as direct light from the system and subsequent reflections shall be ignored.

To provide visibility for evacuation purposes lighting is required in the volume of the space. Signs that are provided at all exits intended to be used in an emergency and along escape routes shall be illuminated to indicate unambiguously the route of escape to a place of safety. In this standard the requirement is fulfilled by mounting the luminaires for lighting and the escape route safety signs at least 2 m above the floor.

Where practical, for ease of seeing, the safety sign should be mounted not higher than 20° above the horizontal view according to the maximum viewing distance of the sign.

To ensure that emergency lighting operates when required it shall be installed, tested and maintained in accordance with EN 50172 and if automatic test facilities are installed they shall be in accordance with EN 62034.

Where direct sight of an emergency exit is not possible, an illuminated directional sign (or series of signs) shall be provided to assist progression towards the emergency exit.

An escape lighting luminaire conforming to EN 60598-2-22 shall be sited to provide appropriate illuminance near each exit door and at positions where it is necessary to emphasize potential danger or safety equipment. The positions to be emphasized shall include the following.

4.1.2 Points of emphasis

The points of emphasis when placing lighting devices are:

a) near (see NOTE 1) each exit door intended to be used in an emergency;

b) near (see NOTE 1) stairs so that each flight of stairs receives direct light;

c) near (see NOTE 1) any other change in level;

d) Externally illuminated escape route safety signs, escape route direction signs and other safety signs needing to be illuminated under emergency lighting conditions;

e) at each change of direction (see NOTE 2);

f) at each intersection of corridors (see NOTE 2);

g) near (see NOTE 1) to each final exit and outside the building to a place of safety;

h) near (see NOTE 1) each first aid post; so that 5 lx vertical illuminance shall be provided at the first aid box;

i) near (see NOTE 1) each piece of fire fighting equipment and call point so that 5 lx vertical illuminance shall be provided at the fire alarm call points, fire fighting equipment and panel.

j) near (see NOTE 1) escape equipment provided for the disabled; and

k) near (see NOTE 1) disabled refuges and call point. Also to include disabled refuge two way communication systems including disabled toilet alarm call position.

NOTE 1 For the purpose of this clause ‘near’ is normally considered to be within 2 m measured horizontally.

NOTE 2 For points e) and f), 'at' means that the emergency luminaire would illuminate in both directions at the change of direction or intersection

4.2 Escape route lighting

4.2.1 For escape routes up to 2 m in width, the horizontal illuminances on the floor along the centre line of an escape route shall be not less than 1 lx. The central band consisting of not less than half of the width of the route shall be illuminated to a minimum of 50 % of that value. Wider escape routes may be treated as a number of 2 m wide strips or be provided with open area (anti-panic) lighting.

NOTE Countries requiring different lighting levels are given in Annex B.