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Graphical symbols — Safety signs — Safety way guidance systems (SWGS)

Symboles graphiques — Signaux de sécurité — Systèmes de guidage pour cheminement d'évacuation de sécurité

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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 145, *Graphical symbols*, Subcommittee SC 2, *Safety identifications, signs, shapes, symbols, and colours*.

This second edition cancels and replaces the first edition (ISO 16069:2004) which has been technically revised.

The main changes compared with the previous edition are as follows:

a) the component luminance requirements of the electrical systems have been updated;

b) the component luminance and dimensions of non-electrical phosphorescent systems have been updated;

c) the document and its requirements have been simplified to improve ease of use and eliminate ambiguity;

d) all example figures which by definition could not cover all arrangements have been removed;

e) an informative annex for designers of non-electrical phosphorescent systems regarding observation distances has been added.

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Introduction

Safety way guidance systems need to be standardized so that they communicate the information necessary to allow people to be able to evacuate a building efficiently and, if necessary, to assemble in designated safe areas in cases of fire or other emergencies.

Through the consistent and uniform international application of common SWGS design principles, persons in all countries will be better able to recognize and follow the directional information provided by such systems to assist in providing a safe evacuation. As an additional benefit, a standardized SWGS will assist fire fighters and other rescue teams to evacuate occupied areas during emergency situations.

In order to communicate safety way guidance information efficiently across language barriers, the systems defined in this document incorporate the use of graphical symbols and markings such as arrows, conforming to ISO 7010 and ISO 3864-3.

Illumination of escape routes is not part of the SWGS and is therefore not covered by this document; a SWGS is not intended to replace emergency escape lighting. There will be certain situations where emergency escape lighting is not needed, and other situations, for example where smoke is present, where emergency escape lighting can lose its efficiency and a SWGS will be more effective in assisting emergency evacuation, but it is generally recommended that SWGS be used in combination with the illumination of escape routes to provide additional benefits for the whole system.

The principles given in this document are intended to provide consistent design elements irrespective of whether they use electrically powered or phosphorescent components. Consistent use will improve public awareness of the systems and assist rapid recognition and effectiveness in the case of an emergency.

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Graphical symbols — Safety signs — Safety way guidance systems (SWGS)

IMPORTANT — The colours represented in the electronic file of this document can be neither viewed on screen nor printed as true representations. For the purposes of colour matching, see ISO 3864-4 which provides colorimetric and photometric properties together with, as a guideline, references from colour order systems.

1 Scope

This document describes the principles governing the design and application of visual components used to create a safety way guidance system (SWGS).

This document contains general principles valid both for electrically powered and for phosphorescent components. Special information which is related to the type of component is given to assist in defining the environment of use, choice of material, layout, installation and maintenance of SWGS.

This document does not cover risk assessment. Applications with different risks to the occupants typically require different layouts and types of SWGS. The specific application and exact final design of SWGS is entrusted to those persons responsible for this task.

This document also does not include the special considerations of possible tactile or audible components of SWGS, nor does it include requirements for high mounted components of the emergency escape route lighting, especially the design and application of emergency escape route lighting.

This document is intended, by collaboration and coordination, to be used by all other Technical Committees within ISO and IEC charged with developing SWGS for their specific requirements. This document is not to be used for ships falling under regulations of the International Maritime Organization (IMO).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

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

ISO 3864-3, *Graphical symbols — Safety colours and safety signs — Part 3: Design principles for graphical symbols for use in safety signs*

ISO 3864-4:2011, *Graphical symbols — Safety colours and safety signs — Part 4: Colorimetric and photometric properties of safety sign materials*

ISO 7010:2011, *Graphical symbols — Safety colours and safety signs — Registered safety signs*

ISO 23601, *Safety identification — Escape and evacuation plan signs*

IEC 60364-5-56, *Low-Voltage electrical Installations — Part 5-56: Selection and erection of electrical equipment — Safety services*

IEC 60598-2-22, *Luminaires — Part 2-22: Particular requirements — Luminaires for emergency lighting*

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3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
assembly area
designated safe area outside the occupied area where occupants are expected to assemble

3.2
dead end
corridor, or part of a corridor whose depth is greater than its width from which there is only one escape route

[SOURCE: ISO 15370:2010, 3.5]

3.3
emergency escape lighting
that part of *emergency lighting* (3.4) that provides illumination for the safety of people leaving a location or attempting to terminate a potentially dangerous process before doing so

3.4
emergency lighting
lighting provided for use when the supply to the normal lighting fails

3.5
factor of distance
z
relationship between the height (h) of a sign and observation distance (l), used to determine observation distances of signs

$$z = \frac{l}{h}$$

[SOURCE: ISO 3864-1:2011, 3.2]

3.6
guidance line
line of luminous material on or close to the floor provided to clearly delineate an escape route or define an escape path through an open area

3.7
high location
installation position above doors or at or close to ceiling level for safety signs and other safety way guidance components

3.8
intermediate location
installation position between a *low location* (3.9) and a *high location* (3.7) especially at eye level for safety signs and other safety way guidance components

3.9
low location
installation position at or close to floor level for safety signs and other safety way guidance components

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3.10
luminance contrast
<SWGS> luminance of the brightest element of the safety way guidance component divided by the luminance of the surrounding environment

3.11
marking
method of highlighting and identifying specific building components or equipment

3.12
observation distance
l
<sign> distance from which a sign is identifiable and conspicuous

3.13
observation distance
l
<guidance lines, door frames> distance from which *guidance lines* (3.6) and door frames are visible

3.14
period of use
time over which the safety way guidance system is expected to be operational

3.15
phosphorescent material
material incorporating phosphors that, if excited by UV or visible radiation, store energy, which is emitted as light over a period of time

Note 1 to entry: A phosphorescent sign is the same as "photoluminescent" commonly used in the literature of the photoluminescent safety sign industry.

[SOURCE: ISO 3864-4:2011, 3.12, modified — Note 1 to entry has been added.]

3.16
safety sign
sign which 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 3864-1:2011, 3.12]

3.17
safety way guidance system
SWGS
system that provides luminous markings and direction information for the safety of people leaving a location

3.18
sign height
diameter of a circular geometric shape or height of a rectangular or triangular geometric shape

Note 1 to entry: Registered safety sign originals in ISO 7010 are in a uniform 70 mm size with corner marks to enable accurate enlargement and reduction scaling. A border is not shown.

[SOURCE: ISO 3864-1:2011, 3.13, modified — Note 1 to entry has been added.]

3.19
supplementary sign
sign that is supportive of a safety sign and the main purpose of which is to provide additional clarification

[SOURCE: ISO 3864-1:2011, 3.14]

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