

Graphical symbols and signs —

Safety signs, including fire safety signs —

Part 6: Creation and design of graphical symbols for use in safety signs — Requirements

ICS 01.080.99; 13.220.99

Confirmed December 2011

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by Technical Committee PH/8, Graphical symbols and signs, to Subcommittee PH/8/1, Safety signs (including fire safety signs), upon which the following bodies were represented:

- Association of British Theatre Technicians
- BRE/LPC Laboratories
- British Fire Consortium
- British Sign and Graphics Association
- Cinema Exhibitors Association
- Consumer Policy Committee of BSI
- Electricity Association
- Guild of Architectural Ironmongers
- Health and Safety Sign Association
- Home Office
- Institute of Fire Safety
- Lighting Industry Federation Limited
- London Fire and Emergency Planning Authority
- Manchester Metropolitan University, Department of Psychology and Speech Pathology
- Ministry of Defence — UK Defence Standardization
- National Illumination Committee of Great Britain
- Photoluminescent Safety Products Association
- Railtrack
- Royal Institute of British Architects
- Royal Life Saving Society UK
- Royal Society for the Prevention of Accidents
- Sign Design Society Limited
- South Yorkshire Fire Prevention Association and Fire Liaison Panel
- Theatres Advisory Council
- Coopted members

This British Standard, having been prepared under the direction of the Health and Environment Sector Policy and Strategy Committee, was published under the authority of the Standards Policy and Strategy Committee on 26 November 2002

The following body was also represented in the drafting of the standard through a panel:

- Health and Safety Executive

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Amendments issued since publication

Date	Amd. No.	Comments

The following BSI references relate to the work on this British Standard:
Committee reference PH/8/1
Draft for comment 02/586206 DC

ISBN 0 580 40695 4

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Foreword

This part of BS 5499 has been prepared by Subcommittee PH/8/1.

BS 5499 covers safety signs and fire safety signs since it is considered essential that all safety signs follow the same basic vocabulary of safety colours and geometric shapes.

BS 5499 comprises the following parts:

- *Part 1: Specification for geometric shapes, colours and layout;*
- *Part 2: Specification for self-luminous fire safety signs;*
- *Part 3: Specification for internally illuminated fire safety signs;*
- *Part 4: Code of practice for escape route signing;*
- *Part 5: Signs with specific safety meanings;*
- *Part 6: Creation and design of graphical symbols for use in safety signs — Requirements;*
- *Part 11: Water safety signs.*

This part of BS 5499 specifies requirements for the creation and design of graphical symbols for use in safety signs.

It is intended for use in conjunction with BS 5499-1.

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 in 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 29 and a back cover.

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Introduction

A graphical symbol is defined as a visually perceptible figure used to transmit information independently of language. Graphical symbols are used in safety signs for a wide range of purposes. For such graphical symbols, consistency in the design of graphical symbols for use in a particular situation or in similar situations is important, as is comprehensibility. Thus, there is a need to standardize the principles for creating graphical symbols for safety signs to ensure visual clarity, to maintain consistency and thereby to improve recognition.

1 Scope

This part of BS 5499 specifies requirements for the creation and design of graphical symbols for use in safety signs, including fire safety signs. It specifies requirements for the design of graphical symbols suitable for use in safety signs for submission for registration as approved safety signs, including line thickness, the use of determinants and how to indicate negation. It also specifies a series of templates to be used in the design of graphical symbols for different types of safety signs.

This part of BS 5499 is not applicable to graphical symbols for use:

- on drawings and diagrams;
- in technical documentation for products;
- as public information symbols not intended to convey any safety message;
- on road traffic signs.

Examples are given for illustrative purposes only and do not constitute requirements for particular safety signs.

NOTE 1 Existing safety signs, including fire safety signs, are specified in BS 5499-5 and existing water safety signs are specified in BS 5499-11.

NOTE 2 The illustrations in this standard are as accurate as possible within the limitations of the printing process. BSI does not claim that the colours used correspond to any proprietary colour system.

NOTE 3 A checklist for designers is given in Annex A, and recommendations on colour and file format are given in Annex B.

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.

BS 5499-1:2002, *Graphical symbols and signs — Safety signs, including fire safety signs — Part 1: Specification for geometric shapes, colours and layout.*

BS 5499-5, *Graphical symbols and signs — Safety signs, including fire safety signs — Part 5: Signs with specific safety meanings.*

BS 5499-11, *Graphical symbols and signs — Safety signs, including fire safety signs — Part 11: Water safety signs.*

BS 8501, *Graphical symbols and signs — Public information symbols.*

PD 6578, *Guide to British, European and International graphical symbols, for use on equipment, for safety and fire safety, and for public information in relation to ISO 7000 and IEC 60417.*

BS ISO 9186, *Graphical symbols — Test methods for judged comprehensibility and comprehension.*

3 Terms and definitions

For the purposes of this part of BS 5499 the following terms and definitions apply.

3.1

safety sign

sign that gives a general safety message, by means of a combination of a safety colour and a geometric shape and which, by the addition of a graphical symbol, gives a particular safety meaning

3.2 types of safety sign

3.2.1

prohibition sign

safety sign that indicates that specific behaviour is forbidden

3.2.2

mandatory sign

safety sign that indicates that a specific course of action is to be taken

3.2.3

hazard sign

safety sign that indicates a specific source of potential harm

3.2.4

safe condition sign

safety sign that indicates a safety action, the location of safety equipment or a safety facility, or an escape route

3.2.5

fire equipment sign

safety sign that indicates the location or identification of fire equipment or how it should be used

3.2.6

water safety sign

safety sign for use on, in or near water

3.3

safety colour

specific colour to which a safety meaning is attributed

3.4

contrast colour

colour that contrasts with the safety colour in order to make the safety colour more conspicuous

3.5

graphical symbol

visually perceptible figure with a particular meaning used to transmit information independently of language

3.6

graphical symbol element

part of a graphical symbol with a particular meaning

3.7

determinant

graphical symbol used as a common element within a series of graphical symbols

NOTE For example, the fire determinant when used with the graphical symbol for a telephone conveys the meaning “fire telephone”; the fire determinant when used with the graphical symbol for a hose reel conveys the meaning “fire hose reel”; the first aid determinant when used with the graphical symbol for a shower conveys the meaning “first aid shower”.

3.8

critical detail

element of a graphical symbol without which the graphical symbol cannot be understood

3.9

exclusion band

area of a safety sign in which there is no part of the graphical symbol, to ensure the clarity of the graphical symbol within the safety sign

3.10

function

written description of the purpose of the information to be conveyed by a graphical symbol

3.11

image content

written description of the elements of the graphical symbol

NOTE The image content can also include a description of the relevant disposition of the elements of the graphical symbol.

3.12

meaning

safety message that a safety sign is intended to convey

3.13

sign height

diameter of a circular geometric shape or the height of a rectangular or triangular geometric shape

NOTE Any border is ignored.

3.14

safety sign original

finished version of a safety sign in terms of shape, colour, layout and graphical symbol, used for reference, standardization or reproduction purposes

3.15

template

basic pattern for the design of a graphical symbol for use in a safety sign

4 Creation procedure

4.1 Before design of a new graphical symbol for use in a safety sign is undertaken the following procedure shall be carried out:

- a) identification of the required meaning of the safety sign;
- b) identification of the need for a new safety sign by determination of whether a safety sign with the required meaning already exists. This shall be determined in accordance with BS 5499-1:2002, Clause 8, as follows:
 - 1) determination of whether a safety sign incorporating a graphical symbol conveying the required meaning is specified in BS 5499-5 or in BS 5499-11;
 - 2) if a safety sign incorporating a graphical symbol conveying the required meaning is not specified in BS 5499-5 or in BS 5499-11, determination of whether a graphical symbol conveying the required meaning is specified in BS 8501 or PD 6578;
- c) identification of the type of safety sign, in accordance with Clause 5;
- d) assignment of a meaning and a function to the safety sign in accordance with Clause 6.

4.2 During the design of a new graphical symbol for use in a safety sign the following procedure shall be carried out:

- a) consideration of existing graphical symbols with similar meanings which might be adapted or combined to form the graphical symbol for the new safety sign;

NOTE 1 An analysis should also be carried out of the expected characteristics of the target audience of the new safety sign and the context in which it is expected to be used. (Factors to be considered are given in Annex A.)

- b) design of the new graphical symbol in accordance with Clause 7 using the relevant template specified in Clause 8.

4.3 After design of the new graphical symbol, an evaluation shall be carried out of the comprehensibility of the safety sign original in the context in which it is to be used, in accordance with BS ISO 9186. The safety sign original shall then be modified if necessary.

NOTE The safety sign original may be submitted to BSI Technical Committee PH/8 for registration¹⁾.

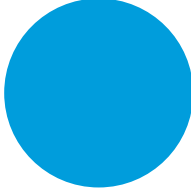
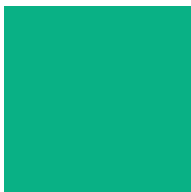
5 Types of signs

Each graphical symbol shall be designed for use in one of the following five types of safety sign as specified in BS 5499-1, and shown in Table 1:

- a) a prohibition sign;
- b) a mandatory sign;
- c) a hazard sign;
- d) a safe condition sign;
- e) a fire equipment sign.

¹⁾ Details of the registration procedure and an application form, which gives details of required file formats, can be obtained from The Secretary, Technical Committee PH/8, BSI, 389 Chiswick High Road, London W4 4AL.

Table 1 — Geometric shapes, safety colours and contrast colours of templates for safety signs

Geometric shape	Meaning	Safety colour	Contrast colour	Graphical symbol colour	Examples of use
A circle 	Prohibition	Red	White	Black	No smoking No unauthorized vehicles Do not drink
A circle 	Mandatory action	Blue	White	White	Wear safety helmet Keep clear
An equilateral triangle with radiused outer corners 	Hazard	Yellow	Black	Black	Hot surface Acid High voltage
A square 	Safe condition Escape route Safety equipment	Green	White	White	First aid room Fire exit Evacuation assembly point
A square 	Fire equipment	Red	White	White	Fire point Fire alarm Wet riser Fire extinguisher

6 Assignment of meaning, function and image content to the safety sign

Each safety sign shall be used to convey only one safety message in accordance with BS 5499-1:2002, 11.3.

The new safety sign shall be assigned a meaning and a function. Once the safety sign original is complete the image content shall be identified, including the critical details (see Figure 1).

NOTE The assigned meaning and function should be unambiguous.



Meaning: No smoking.

Function: To prohibit the smoking of cigarettes, pipes, cigars etc.

Image content: Cigarette shown in profile with smoke. Critical details are cigarette and smoke plume.

Figure 1 — Example of assignment of meaning, function and image content to a safety sign

7 Design of the graphical symbol

7.1 General

The graphical symbol shall be designed in accordance with 7.2 to 7.8.

NOTE 1 The design of a graphical symbol should:

- a) be simple in order to facilitate comprehension and reproduction;
- b) be readily associated with its intended meaning;
- c) be based on objects which are reliably identifiable by the target audience;
- d) be easily distinguishable from other graphical symbols;
- e) contain only those details that contribute to understanding.

NOTE 2 The additional design guidelines given in Annex C, Annex D and Annex E should also be followed, as applicable.

7.2 Use of template

The graphical symbol shall be designed within the template specified for the particular type of safety sign in Clause 8.

For mandatory signs, hazard signs, safe condition signs and fire equipment signs the graphical symbol shall be such that the safety colour covers at least 50 % of the area of the sign excluding any border, as specified in BS 5499-1:2002, Clause 9.

The graphical symbol shall not extend into the exclusion band of the safety sign as indicated on the template.

NOTE The graphical symbol should make full use of the permitted area within the template.

7.3 Line thickness

Any lines used in a graphical symbol shall be a minimum of 1 mm thick (see Figure 2).

NOTE The spacing between lines should take into account visual clarity (see Figure 2).



Meaning: Beware of industrial vehicles/Beware of fork lift trucks.

Function: To warn of a hazard from fork lift trucks and other industrial vehicles.

Image content: Truck shown in solid form with stylised driver. Critical details are front fork lift, cab, wheels and driver.

Figure 2 — Example of the use of line thickness and line spacing in a graphical symbol