

Recommendations for

# Graphic symbols and abbreviations for fire protection drawings

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- Association of British Theatre Technicians
- Association of Manufacturers Allied to the Electrical and Electronic Industry (BEAMA Ltd)
- Bingo Association of Great Britain
- British Entertainments and Dance Hall Association
- British Sign Association
- Chief and Assistant Chief Fire Officers' Association
- Cinema Exhibitors' Association
- Department of Health
- Department of the Environment (Property Services Agency)
- Department of the Environment (Building Research Establishment)
- Fire Extinguishing Trades Association
- Fire Fighting Vehicle Manufacturers' Association
- Guild of Architectural Ironmongers
- Home Office
- Lighting Industry Federation Ltd.
- London Fire and Civil Defence Authority
- Loss Prevention Council
- Ministry of Defence
- National Radiological Protection Board
- Royal Institute of British Architects

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## Foreword

This British Standard has been prepared under the direction of the Fire Standards Policy Committee. It supersedes BS 1635:1970, which is withdrawn. In its preparation, consideration has been given to ISO 6790 “*Graphical symbols for fire protection plans*”, published by the International Organization for Standardization (ISO). The symbols agreed by ISO have been used wherever possible, and additional information (Table 7, Table 8 and Table 9) included as this was within the scope of the 1970 edition.

The opportunity has also been taken to change the format so that it conforms with the style of BS 1192-3:1987.

Although based on the principles set out in ISO 6790, this British Standard incorporates precedents that exist in British practice, particularly in the use of qualifying or explanatory abbreviations, and adopts the rationale proposed in BS 1192, and restated in this standard. Graphic conventions proposed by ISO or other authorities that do not conform either to the stated rationale or to national precedent have not been included. The symbols taken from ISO 6790 without modification are noted with an asterisk.

The names given to symbols have wherever possible been derived from BS 4422 and the wording used in group 9, Fire safety signs, complies with BS 5499-1.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

**Compliance with a 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 20, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

# Section 1. General

## 1 Scope

This British Standard, which is primarily intended for those preparing drawings, gives recommendations for symbols and other graphic conventions for use on drawings for fire protection purposes.

The recommendations include the production of graphical symbols to be used on fire protection drawings in architectural, engineering, building and allied design fields. Details are provided of equipment for fire protection, fire fighting and means of escape on drawings for design, construction, renovation or fire certification purposes.

It also describes a rationale of symbolism (clause 3) which establishes rules for the design of symbols and other graphic conventions, and gives recommendations for the application of those rules and the ways in which symbolism should be used (clause 4).

Appendix A gives an example (for information only) of a drawing using some of these symbols.

**NOTE** The titles of the publications referred to in this standard are listed on the inside back cover.

## 2 Definitions

For the purposes of this British Standard the definitions given in BS 1192-1, and BS 4422 apply, together with the following definitions and explanations which are taken from BS 1192-3.

### 2.1 convention

an accepted way of drawing an item which may have the nature of a representation, a simplified representation or a symbol

### 2.2 information device

a convention indicating an abstract item

### 2.3 representation

a scale view of an object

### 2.4 simplified representation

a scale view incorporating only the essential shape, size or features of an object

### 2.5 symbol

a graphic device without scale used:

- a) on a drawing to indicate the occurrence and/or location of an item;
- b) in an annotation to indicate one or more of the attributes of an item.

### 2.6 symbol element (element)

a graphic device without scale used only in combination with a symbol (or symbols) or with other elements, to form a symbol

## 3 Rationale

### 3.1 Indication of all features of an object

Although all the features of an object (subject to the limitations of the scale of the drawing) can be shown on a detailed pictorial view (a representation, see 2.3), there are usually other attributes of the object which need to be described, annotated or referred to in other documents.

### 3.2 Limited indication of the features of an object

To reduce drawing effort and time, a pictorial view such as that described in 3.1 can sometimes, as appropriate, be limited in detail (a simplified representation, see 2.4) but can still need a description, annotation or reference.

### 3.3 Non-realistic indication of objects

To reduce drawing effort and time still further for an object of which the size is not significant on a drawing, especially if many such objects occur, the object can be indicated non-realistically by using a symbol (see 2.5).

### 3.4 Symbols sharing common subsidiary features

Some symbols share common subsidiary features; this British Standard refers to these features as elements (see 2.6). These can be incorporated in new symbols, can be added to established symbols or can be combined with other elements as needed.

A symbol element should not be used in isolation.

### 3.5 Types of symbol

The simplest form of symbol is the basic symbol. More complex types of symbol are derived from the basic symbol. There are three ways of deriving symbols:

- a) by embellishment of a basic symbol;
- b) by a combination of basic symbols;
- c) by extension of a basic symbol.

Figure 1 gives examples of symbols/elements and constructed symbols.

### 3.6 Conventions showing abstract items

Conventions showing abstract items are referred to as information devices (2.2).

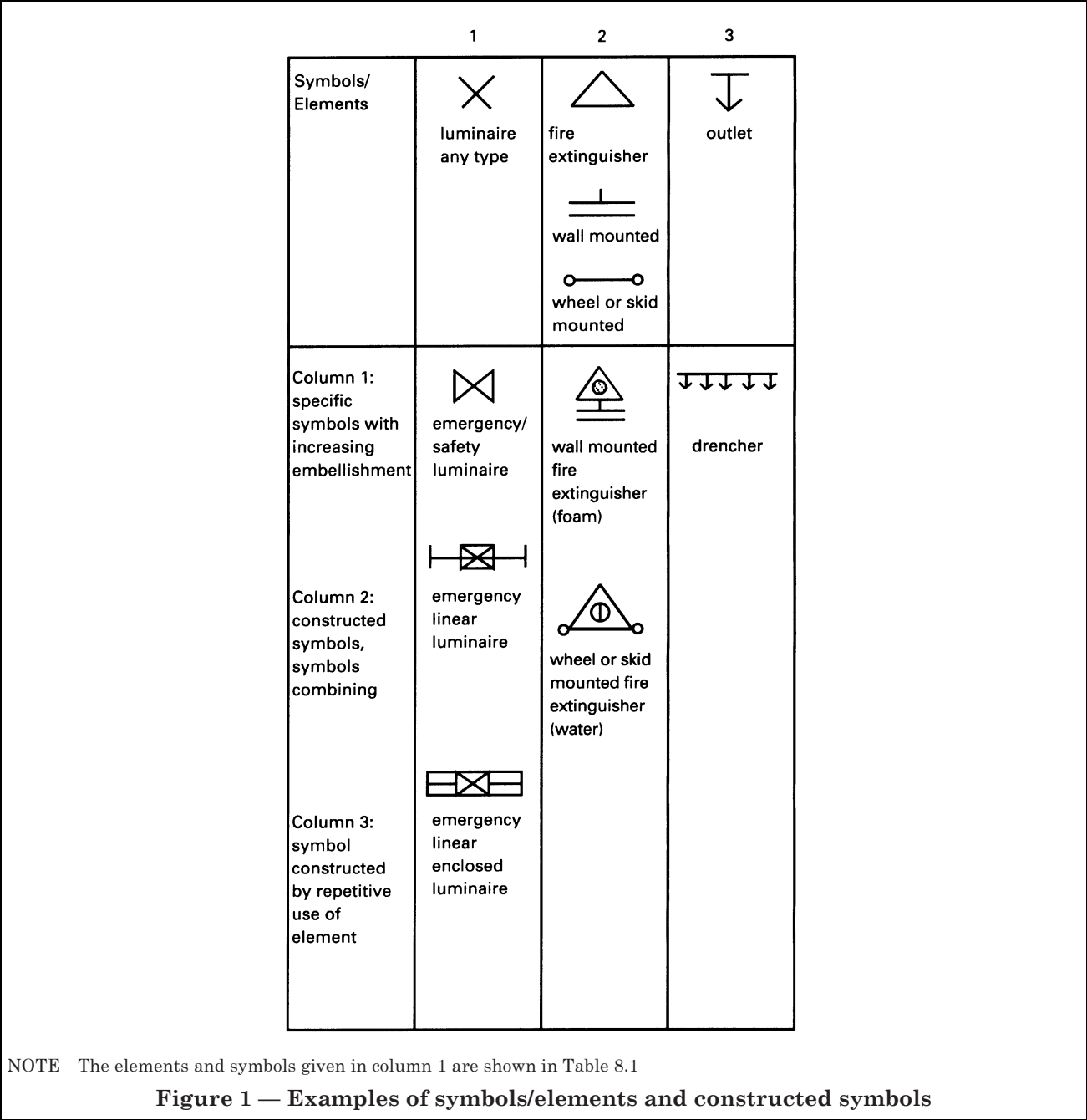
3.7 Comparison between representations, simplified representations and symbols

Figure 2 shows a comparison between representations, simplified representations and symbols.

4 Design and use of symbolism

4.1 Graphic simplicity

4.1.1 The amount of detail in representation should be appropriate to the scale of the drawing, taking account of the recommendations of BS 1192-1 regarding clarity of reproduction and microfilming.



**4.1.2** The amount of detail in a simplified representation should be limited to the essential attributes of the object (see 2.4 and Figure 2).

**4.1.3** Geometric shapes for information devices, elements and symbols are limited. Precedent (see the introduction) can establish that one shape can have several meanings, the relevant meaning being determined normally by context and experience.

A geometric shape should not be used if its meaning is not determined by context and experience.

**4.1.4** Over-complexity of information devices, elements and symbols should be avoided by one of the following methods:

- a) omitting unnecessary information (for example, if all the items in a project are of the same type);
- b) annotating differences between one item and another;
- c) referring differences to a schedule or other document.

## **4.2 Symbols (including elements of symbols)**

**4.2.1** The size of a symbol does not necessarily relate to the size of an object, nor to the scale of a drawing.

**4.2.2** The shape of a symbol does not necessarily relate to the shape of an object.

**4.2.3** A symbol does not necessarily indicate graphically all the attributes of an item (see 4.1.4 and Figure 3).

**4.2.4** A symbol can be combined with an element or a symbol to form another symbol. (See Figure 3.)

**4.2.5** A symbol can be added to a convention, a representation, a simplified representation or another symbol. (See Figure 3.)

## **4.3 Graphics**

**4.3.1** The illustrations in section 2 (the compendium) indicate the size of symbolism that should typically be used on drawings to a scale of 1 : 100. Account has been taken, in the light of evaluation tests, of producing symbolism by:

- a) manual drawing using a 0.35 mm pen, including the manufacture of suitable templates (stencils);
- b) computer drawing;
- c) using dry transfer.

**4.3.2** Graphic techniques should follow the recommendations in BS 1192-1, and in particular:

- a) line thickness should be not less than 0.25 mm on drawings to be reproduced without reduction or to be microfilmed;
- b) line thickness should be not less than 0.35 mm on drawings to be reduced by up to 50 %;

c) if different line thicknesses are used, each thickness should be at least twice the next thinner line;

d) the space between lines should be not less than 0.7 mm;

e) inclined lines should be at an angle of 15° or a multiple of 15°;

f) solidly filled areas should be kept to a minimum (because they tend to disappear in successive reproductions): hatching is preferred;

g) lettering (including numbers) should have a capital height of:

- 1) not less than 2.5 mm for drawings as in a) above;
- 2) not less than 3.5 mm for drawings as in b) above.

**4.3.3** The orientation of an element should always be as shown in section 2 (the compendium), but the orientation of other types of symbolism should not be regarded as affecting the meaning of the symbolism concerned.

## **4.4 Authority**

**4.4.1** Each drawing or set of drawings which uses symbolism drawn from this British Standard, should include a statement to that effect in the information panel of the drawing concerned.

**4.4.2** Symbols derived from symbols in this standard should be illustrated and their meaning should be clearly explained on the drawings concerned. Care should be exercised to ensure that derived symbols do not become over-complicated.

**4.4.3** Where additional symbols are used to those presented in this British Standard, e.g. from BS 1553-1, BS 1192-3 or BS 3939-11, a statement to that effect should be included in the information panel of the drawing concerned, the symbol should be illustrated and its meaning should be clearly explained on the drawing.

# **5 Presentation of the compendium**

## **5.1 General**

Section 2 comprises a compendium of symbols and other graphic conventions that are recommended for use on fire protection drawings. Examples of the application of symbols are given as appropriate. The compendium is organized by subject area.

## **5.2 Background matrix**

**5.2.1** Elements or symbols having significant relative sizes are illustrated against a matrix of 4 mm squares.

5.2.2 The background to some elements and symbols incorporates additional lines to indicate, as appropriate, how they should:

- a) be drawn;
- b) relate to the context in which they occur.

5.3 Reference system

5.3.1 Tables are grouped in broad categories in groups, and the group number is the first digit of the table number.

5.3.2 The second digit of the table number identifies that table within its group.

5.3.3 Elements are numbered sequentially within their table of origin, with E interposed between the table number and the sequential number.

5.3.4 Conventions and symbols are numbered sequentially (always with two digits) within their table of origin, the sequential number being suffixed to the table number.

5.3.5 Elements and symbols originating in other tables and used in a table are only listed in that table; they are illustrated in their tables of origin.

5.3.6 Applications illustrate examples of conventions and symbols in use, and are not numbered.

5.3.7 The numbers of the elements and symbols used in applications are listed.

5.4 Arrangement of tables

The contents of each table are arranged in the following order:

- a) elements;
- b) elements and symbols from other tables;
- c) conventions;
- d) symbols;
- e) simplified representations;
- f) applications.

NOTE Not every table includes all these contents.

| Item                            | Representation | Simplified representation | Symbol |
|---------------------------------|----------------|---------------------------|--------|
| Fire main with meter on by-pass |                |                           |        |

Figure 2 — Comparison between representation, simplified representation and symbol

| Item                                | Symbolism | Component parts of symbolism     |             |                         |               |
|-------------------------------------|-----------|----------------------------------|-------------|-------------------------|---------------|
|                                     |           | Elements                         | Conventions | Symbols                 | Simp. Rep'ns. |
| Dry riser landing valve             |           | 2.2E1<br>3.1E4                   | —           | 3.102                   | —             |
| Ground hydrant on pipe below ground |           | 2.2E1<br>3.1E1<br>3.1E3<br>3.1E4 | 1.104       | —                       | —             |
| Fire door with exit sign            |           | 7.1E2                            | —           | 7.105<br>7.120<br>9.101 | —             |

Figure 3 — Formation of symbols from elements, conventions, symbols and simplified representations