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Safety identification — Escape and evacuation plan signs

Identification de sécurité — Plans d'évacuation et de secours

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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 of 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 www.iso.org/iso/foreword.html.

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

This second edition cancels and replaces the first edition (ISO 23601:2009), of which it constitutes a minor revision. The previous edition has been editorially revised.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

There is a need to standardize a system of communicating escape routes in facilities that relies as little as possible on the use of words to achieve understanding.

Continued growth in international trade, travel and mobility of labour requires a common method of conveying this important safety information to the occupants of facilities.

The use of this document is expected to reduce risk by providing a means of improved training and education and to reduce possible confusion in times of emergency.

Through the use of ISO 7010 safety signs, colour coding and specific design requirements, this document establishes a common method of illustrating the position of the viewer in relation to designated escape routes leading to emergency exits and the location of fire safety and emergency equipment close and adjacent to escape routes.

Escape plans are an integral part of a facility's system of safety signs and play an integral role in a building owner's fire safety management plan. Escape plans are a necessary component of a facility's safety way guidance system (see ISO 16069).

NOTE Some countries' statutory regulations might differ in some respect from those given in this document.

Safety identification — Escape and evacuation plan signs

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 establishes design principles for displayed escape plans that contain information relevant to fire safety, escape, evacuation and rescue of the facility's occupants. These plans may also be used by intervention forces in case of emergency.

These plans are intended to be displayed as signs in public areas and workplaces.

This document is not intended to cover the plans to be used by external safety services nor detailed professional technical drawings for use by specialists.

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, *Graphical symbols — Safety colours and safety signs — Registered safety signs*

ISO 17398, *Safety colours and safety signs — Classification, performance and durability of safety signs*

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 https://www.iso.org/obp

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

3.1
emergency safety notice
instructions for occupants, to be followed in case of emergency

3.2
escape plan
plan displayed for the occupants of a facility on which are illustrated the necessary elements for escape and on which may appear information required for evacuation, rescue and for a first intervention

3.3
escape route
designated route to a place of intended safety

3.4
escape plan detail
detailed representation of the area marked in the overview plan based on floor plans

3.5
fire safety notice
instructions for occupants, to be followed in case of fire

3.6
overview plan
simplified graphical representation used to relate the escape plan detail to the overall facility or site

4 General

Before applying the design principles, the fire safety management procedures shall have determined a number of essential elements to be shown on the escape plans. The escape plans shall be a reflection of the study of the following information:

a) fire safety manuals and procedures;

b) current site and facility plan drawing(s) with key features of the facility as verified by site visit;

c) identification of all escape routes;

d) evacuation planning documentation including expected people movement and any instructions given and the way they are to be given;

e) location of all fire-fighting equipment and alarms;

f) location of emergency equipment and evacuation aids;

g) required actions to be taken in case of emergency or fire;

h) location of refuge and assembly points.

The purpose of escape plans is to help people orient themselves in relation to the planned escape route. In this way, the escape plan complements the facility's safety way guidance system (see ISO 16069).

5 Design requirements

The escape plan shall be designed in accordance with the evacuation strategy of the facility and addresses the specific needs of the occupants of the premises or part thereof.

The following requirements shall be met by any escape plan.

a) The exact location of the user shall be indicated on the escape plan.

b) Escape plans shall use colour.

c) The scale of the escape plan is dependent on the size of the facility, the level of detail to be illustrated and the intended location of the escape plan. Scales no less than the following shall be used:

   — 1:250 for large-sized facilities;

   — 1:100 for small- to medium-sized facilities;

   — 1:350 for plans displayed in individual rooms.

Detailed elements such as stairs or corridors may be drawn to a larger scale to increase conspicuity or to accommodate the placement of safety signs on the escape plan. For a series of escape plans for the same facility, the same scale should be used. For certain specific areas of the facility, such as parking areas or technical spaces, other scales may be used to recognize the extent of empty space.

d) In a set of facility plans, all defined areas shall be illustrated consistently.

e) In order to achieve sufficient visibility and legibility, the vertical illumination on escape plans shall be no less than 50 lx provided by the normal lighting. Where emergency lighting is provided in case of failure of the normal lighting, the vertical illumination on escape plans comprising ordinary materials or phosphorescent materials shall be no less than 5 lx. Where emergency lighting is not provided in case of failure of the normal lighting or where a phosphorescent safety way guidance system according to ISO 16069 is provided, escape plans comprising phosphorescent materials may be used. In all cases, the phosphorescent material shall be no less than classification C according to ISO 17398.

f) In order to identify safety colours on the plans, the minimum value for the colour-rendering index, R_a, from a lamp shall be ≥ 40. The luminaire shall not substantially subtract from this. Where escape plans are based on phosphorescent materials, excitation shall be from white fluorescent lamps. Low-pressure sodium lamps shall not be used.

g) The background of an escape plan shall have the safety colour white or phosphorescent white as defined in ISO 3864-4:2011, Table 1.

h) The minimum size of an escape plan shall be 297 mm × 420 mm (A3) except for escape plans to be located in individual rooms where the plan size may be reduced to 210 mm × 297 mm (A4). A tolerance of 5 % is acceptable.

i) Escape plans shall be up to date.

j) The orientation of the plan as displayed shall be related to the viewer so that locations on the left of the plan are to the viewer's left and locations on the right of the plan are to the viewer's right.

k) When safe condition and fire-fighting equipment are indicated on the escape plan, they shall use safety signs that are the same as in their installed location in the facility and both shall conform to ISO 7010.

l) Escape plans shall have a legend.

m) Escape plans shall have a standardized header, including the words “Escape plan” in the language(s) of the country in which the plan is used.

n) Escape plans shall show the position of the assembly points as part of the escape plan detail or on an overview plan.

6 Size of plan elements

The following requirements shall be met.

a) Information presented on escape plans shall be legible at the intended viewing distance. The minimum lettering height shall be 2 mm. Fonts should be chosen that maximize the legibility at the intended viewing distance.

b) The minimum height of the header shall be at least 7 % of the smallest dimension of the escape plan and the height of its characters shall be at least 60 % of the height of the header. Examples are given in Table 1.

c) Safety signs shown on the plan shall have a minimum height of 7 mm.

d) The line width for the graphical representation of the facility's structural walls shall be at least 1,6 mm. Interior partition walls shall be represented by lines of a minimum width of 0,6 mm.

If detailed elements are shown on the plan (e.g. stairs, shelves, windows), they shall be shown by lines of a minimum width of 0,15 mm.

In the representation of long escape corridors, architectural features or equipment should be shown to give the user a sense of scale or distance.

Table 1 — Examples of the minimum height of header and characters

Size of escape plan mm × mm	Height of escape plan mm	Height of header mm	Height of capital letter mm
297 × 420 (A3)	297	21	13
420 × 594 (A2)	420	30	18
594 × 841 (A1)	594	42	26
841 × 1 189 (A0)	841	59	36

7 Contents and representation

7.1 Header

Every escape plan shall have a header. For the header, upper- and lower-case letters may be used.

7.2 Overview plan

Except when a small facility's escape plan detail is itself an overview perspective of the facility, every escape plan shall incorporate an overview plan.

An overview plan shall incorporate:

a) the assembly point location(s);

b) the overall facility or site plan with the specific section covered by the escape plan detail highlighted;

c) a simplified representation of the surrounding area (e.g. roadways, parking areas, other buildings).

The size of the overview plan shall not exceed 10 % of the area of the escape plan.

7.3 Escape plan detail

The escape plan detail shall incorporate the following:

a) The floor plan of the relevant part of the facility that is modified to:

   — eliminate non-essential details;

   — highlight important elements;

   — increase legibility and ease of comprehension;

   — orient the plan to the position of the viewer.

b) All emergency exits and escape routes, horizontal and vertical. If directional instructions are to be given from a specific “You are here” point, such directional information shall be conveyed by the use of arrow-type D from ISO 3864-3 (see Figure 1).

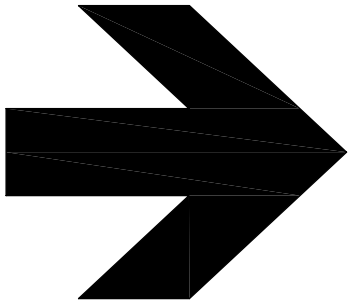

Figure 1 — Arrow indicating the direction of movement of people (ISO 3864-3, arrow-type D)

c) The point of location of the user ("You are here").

d) The location of stairs.

e) Any specific evacuation provisions made available for people with disabilities.

f) The location and type of the first intervention fire equipment and emergency and rescue equipment, such as fire alarms, fire extinguisher, fire hoses, first aid equipment.

If it is not possible to show the actual location of the safety signs because of the scale used, the safety signs may be shown separately in the closest available free space with a leader line to indicate the correct location (see Figure A.1).

g) The location of the lifts as an architectural feature.

7.4 Safety notices

Escape plans shall always be associated with fire and emergency safety notices which may be on the escape plan or displayed in proximity to the escape plan.

7.5 Legend

The legend shall appear on the escape plan and shall give the meaning of the safety signs, graphical symbols and colour coding used on the escape plan. Examples are given in Annex A.

7.6 Other information

The following information shall be part of the plan:

a) plan designer;

b) name of the facility;

c) floor designation;

d) date of plan design and revision number;

e) plan number.

7.7 Use of colours

7.7.1 Escape routes

Directional arrows shall be in safety green according to ISO 3864-4. Escape routes shall be highlighted in light green which gives sufficient contrast to the arrows.

NOTE With phosphorescent materials, graphical methods such as halftone or hatching of the escape route can be used to render the escape route directional arrows visible in dark conditions.

7.7.2 Safety signs

Safety signs shall be reproduced in safety colours according to ISO 3864-1 and ISO 3864-4.

7.7.3 Point of location of the user

The point of location of the user shall be safety blue according to ISO 3864-4.

7.7.4 Background colour

The colour of the background shall be white or phosphorescent white according to ISO 3864-1 and ISO 3864-4.

7.7.5 Outline of facility structural elements

The colour of the outline of facility structural elements shall be black.

7.7.6 Header

The header shall be in safety colour green and the text shall be in the contrast colour as given in ISO 3864-1 and ISO 3864-4.

7.7.7 Text

The normal colour of the text shall be black. Other colours may be used for highlighting purposes.

8 Materials

Escape plans shall be made of materials and inks that are durable enough to resist the environmental influences at the site of the application (e.g. light resistance and resistance to humidity) for the expected service life. If required, durability characteristics shall be measured by methods described in ISO 17398.

9 Installation and location

Escape plans shall be located so that they are conspicuous in their environment of use and sited to ensure that they are accessible and readable to the intended user.

These plans shall be permanently fixed and are intended to be located:

a) at positions where occupants can learn the means of escape;

b) at strategic points of the escape route, which can be:

— on every floor at primary entry points;

— near lifts and stairs;

— in every room, for example hotel rooms;

— at appropriate training points, for example cafeterias, office centres and meeting places;

— at principal junctions and intersections.

10 Inspection and revision

Inspections of the escape plans shall be conducted at regular intervals, to ensure they are legible, conspicuous, comprehensible and up to date.

Any change of the facility or its fire safety or emergency procedures shall result in a review of the escape plans and, when necessary, revision to the escape plans.

Annex A
(informative)

Examples of escape plans

Figures A.1 to A.4 are example layouts of escape plans.

These examples should not be assumed to be exhaustive. They are not drawn to scale.

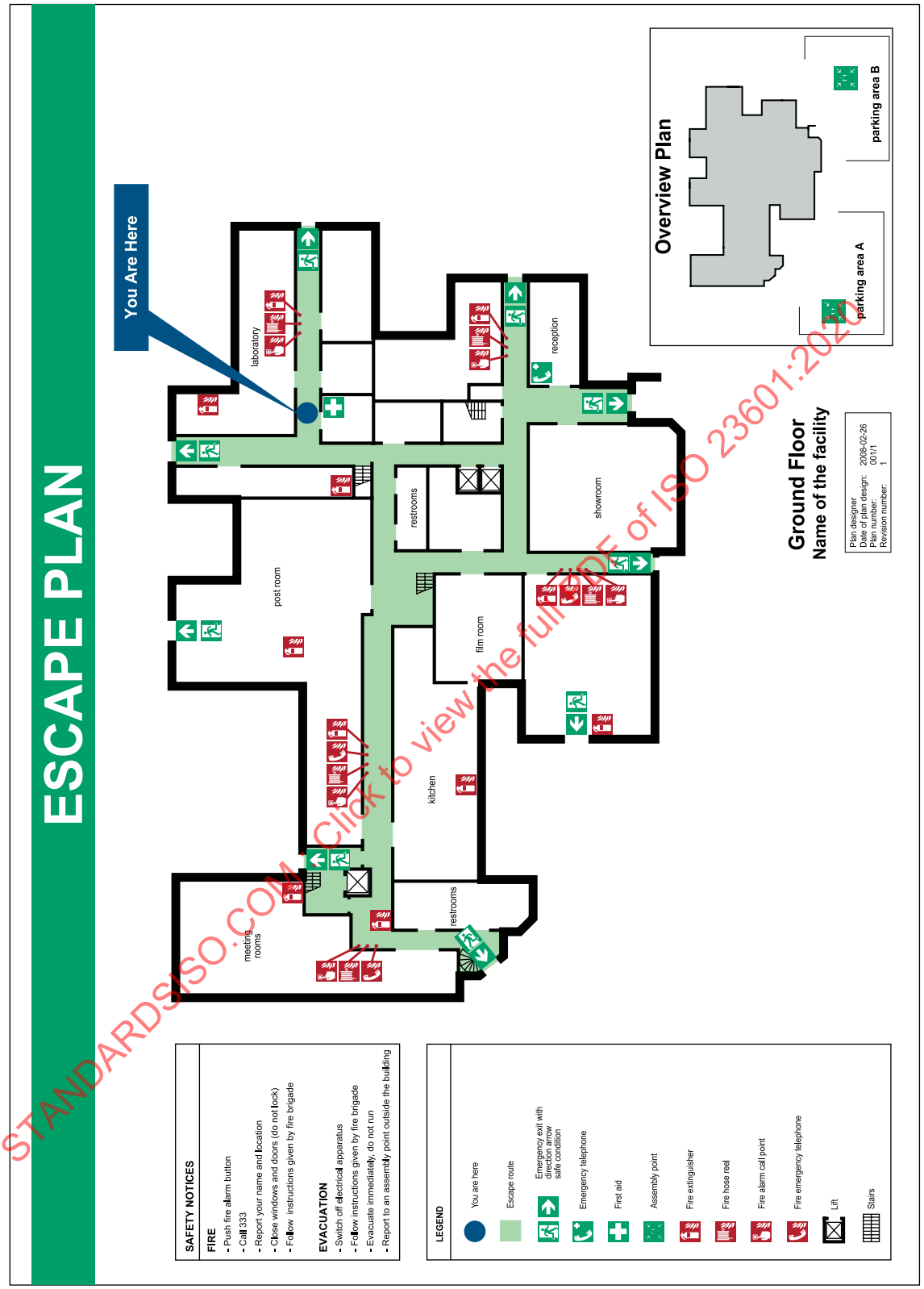

Figure A.1 — Example of an escape plan without directional arrows — Complete floor

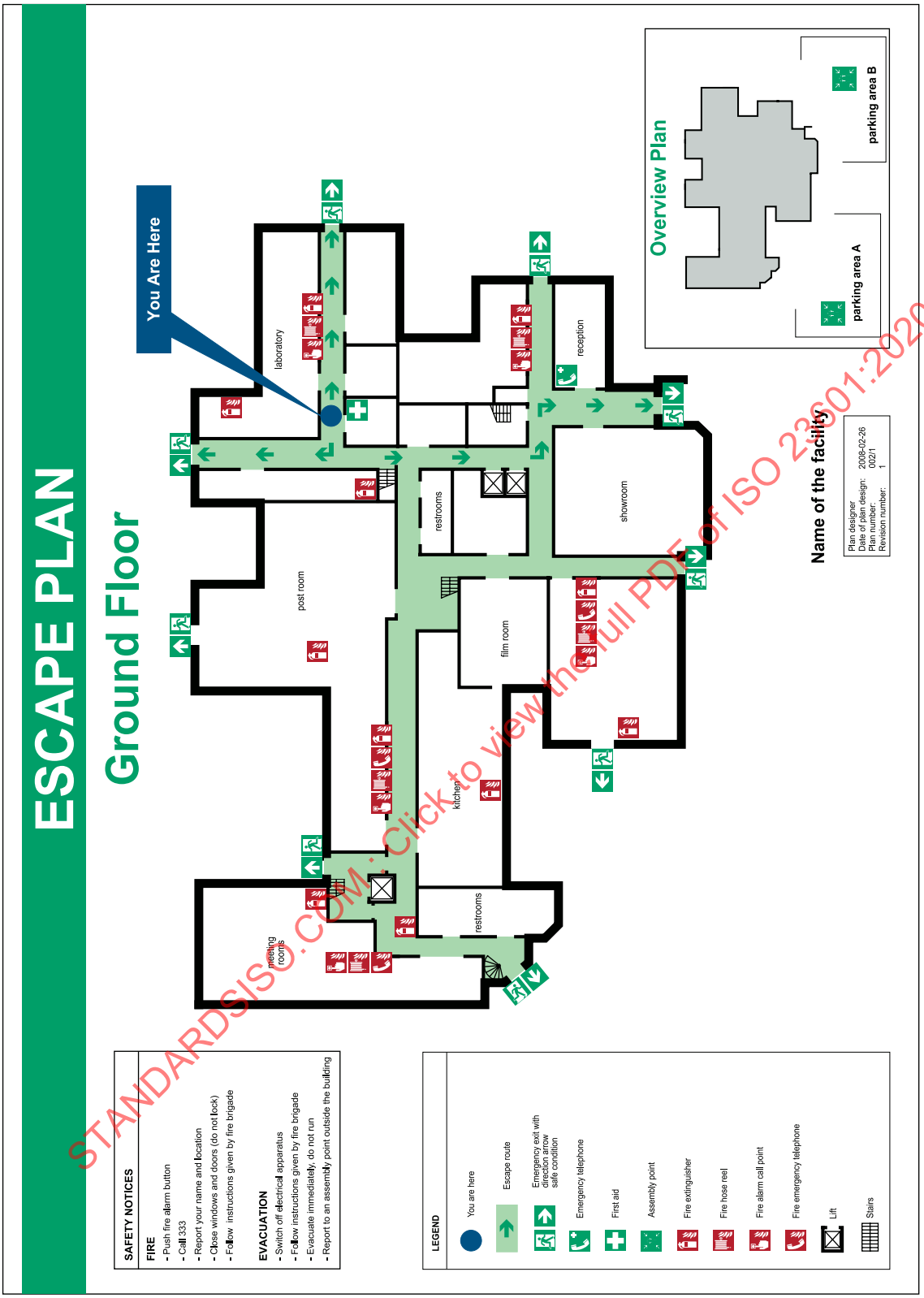

Figure A.2 — Example of an escape plan with directional arrows — Complete floor