
**Graphical symbols — Safety colours
and safety signs — Natural disaster
safety way guidance system**

*Symboles graphiques — Couleurs de sécurité et signaux de sécurité
— Système de guidage pour mise en sécurité en cas de catastrophe
naturelle*

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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*.

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 for giving safety information related to evacuation to safety evacuation areas in the event of natural disasters that relies as little as possible on the use of words to achieve understanding.

It is extremely important for people who do not understand the local language to figure out the evacuation route instantly when they encounter a natural disaster in a foreign country.

This document reflects best practice; the illustrations show installation practice designed to provide the optimum amount of information to clearly identify the hazards of different types of natural disaster in order to direct evacuation by the appropriate location of evacuation route signs and evacuation plan signs, and the selection of places of refuge.

International travel increases the need for standardized methods of safety communication. A standardized method of signing with the use of appropriate supplementary signs and text throughout the public environment assists the process of education and instruction on the meaning of the evacuation route signs and place of refuge signs, and the appropriate actions to take.

The illustrations within this document are based on the assumption that people might be unfamiliar with the features of the natural disaster or the location of places of refuge.

It is important that the application of safety way guidance systems is standardized to aid comprehension. While education in the comprehension of the signs and evacuation plan signs is essential, incomprehension caused by lack of standardization can lead to confusion and possibly hinder effective evacuation.

This document does not purport to include all the necessary aspects or requirements of the design of a natural disaster safety way guidance system. Users are responsible for its correct application.

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Graphical symbols — Safety colours and safety signs — Natural disaster safety way guidance system

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 specifies the principles governing the design and application of signs and plans used to create a natural disaster safety way guidance system to help people evacuate to safe areas or places of refuge in case of natural disasters (e.g. tsunamis, floods, debris flows, steep slope failures, landslides, tornados, large-scale fires, active volcanoes).

This document provides guidance on the selection and use of safety signs conforming to ISO 7010, public information symbols conforming to ISO 7001, and text on evacuation route signs, places of refuge signs and evacuation plan signs for information related to one or more particular natural disasters. Guidance on the design, location, mounting positions and maintenance of the sign components of a natural disaster safety way guidance system is also provided.

This document does not apply to the determination of the need for natural disaster safety way guidance. This document assumes that the risk assessment or requirements of an enforcing authority have established the need for such natural disaster safety way guidance systems.

This document is not applicable to the particular hazards of high winds, snow avalanches, earthquakes or hurricanes, which cause the natural disasters covered in this document.

This document is applicable to safety way guidance from natural disasters from the outside of buildings to safe areas. ISO 16069 is applicable to safety way guidance within a building to the emergency exit(s).

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

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*

3 Terms and definitions

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

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

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <https://www.electropedia.org/>

3.1

evacuation plan

map or diagram displayed in public areas to assist users to understand the environment, locate facilities and determine evacuation routes to reach a safe area

3.2

evacuation route

direction from a person's location to the nearest safe area when a disaster occurs

3.3

natural disaster safety way guidance system

system that includes evacuation plan signs and evacuation route signs, and provides information to guide people from a location to a place of refuge when a natural disaster occurs

3.4

natural disaster supplementary sign

sign indicating the type of possible disaster

Note 1 to entry: Appropriate evacuation area and other related information are also displayed.

3.5

ordinary material

material which is not retroreflecting, fluorescent or phosphorescent, and neither involves powered light emission nor is activated by a radioactive source

[SOURCE: ISO 3864-4:2011, 3.11, modified]

3.6

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 16069:2017, 3.15]

3.7

place of refuge

outdoor area or indoor space to which people can quickly evacuate in order to remain safe when a disaster occurs or is likely to occur

Note 1 to entry: Places of refuge include protection shelters, outdoor refuge areas, tsunami evacuation areas and tsunami evacuation buildings.

3.8

protection shelter

facility that provides protection from a disaster

3.9

sign height

diameter of a circular geometric shape or height of a rectangular or triangular geometric shape of the type of safety sign

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 20712-3:2020, 3.8, modified — Note 1 to entry revised.]

4 Purpose and deployment

The natural disaster safety way guidance system is necessary to warn people in areas likely to be affected by a disaster when it occurs and help them take suitable action quickly according to the type of disaster.

The objective of the natural disaster safety way guidance system is to display information about the hazards of possible natural disasters in vulnerable regions so both visitors and people living in the region can evacuate quickly.

5 Planning natural disaster safety way guidance systems

Where risk mitigation plans related to natural disasters have been prepared and are available to civil protection agencies or relevant authorities, a natural disaster safety way guidance system can be designed to communicate important safety and evacuation information to populations in zones that can be affected by one or more types of natural disaster.

The designer of the system should identify the following, based on the mitigation plans:

- a) locations of hazard zones;
- b) locations of places of refuge and their names;
- c) suitability of places of refuge for certain disasters;
- d) locations of evacuation routes to places of refuge;
- e) locations of accessible routes in the event of floods from inland waters and fire disasters;
- f) locations of rescue facilities (e.g. medical, firefighting);
- g) locations of facilities for enabling emergency evacuation (e.g. helicopters, lifeboats);
- h) locations of emergency communication equipment;
- i) locations of available emergency services, such as water and energy supply;
- j) appropriate supplementary text on evacuation route signs, such as information on recorded heights of water at locations within flood zones;
- k) use of local language(s) and other languages;
- l) other sources of warning information, such as national and local media, and sound alarms.

6 Signs used in natural disaster safety way guidance systems

6.1 Signs

The safety sign components of natural disaster safety way guidance signs shall be registered safety signs from ISO 7010. Supplementary signs and combination signs shall meet the design requirements of ISO 3864-1. Signs used in natural disaster safety way guidance systems are shown in [Table 1](#).

Safety signs shall be based on ordinary material or phosphorescent material. Safety signs shall meet the colorimetric and photometric specifications of ISO 3864-4 under the test conditions relating to safety signs being externally illuminated.

NOTE ISO 3864-4 defines colour under certain test conditions and not all conditions of observation of safety signs. Phosphorescent safety signs during luminance decay mode lack colour recognition of the green; however, they are designed such that the luminance contrast enables the graphical symbols to be or remain identifiable. Ordinary signs lack colour discrimination in night-time illumination.

Classification of emission colour of phosphorescent material is given in ISO 3864-4:2011, Annex B.

Table 1 — Signs used in natural disaster safety way guidance systems

Type of disaster	Safety signs		Supplementary signs
	Warning signs	Safe condition signs	
Tsunami	 ISO 7010-W056 Warning; Tsunami hazard zone	 ISO 7010-E062 Tsunami evacuation area  ISO 7010-E021 Protection shelter	 Tsunami
Storm surge		 ISO 7010-E063 Tsunami evacuation building	
Flood (including flood from inland waters)	 ISO 7010-W077 Warning; Flood zone	 ISO 7010-E065^a Proposed new sign; Outdoor refuge area  ISO 7010-E021 Protection shelter	 Flood
Debris flow	 ISO 7010-W076 Warning; Debris flow zone	 ISO 7010-E065^a Proposed new sign; Outdoor refuge area  ISO 7010-E021 Protection shelter	 Debris flow
Steep slope failure	 ISO 7010-W078 Warning; Landslide zone	 ISO 7010-E065^a Proposed new sign; Outdoor refuge area  ISO 7010-E021 Protection shelter	 Landslide

^a This safety sign is subject to registration/co-ordination through ISO/TC 145 and is currently at enquiry stage.

Table 1 (continued)

Type of disaster	Safety signs		Supplementary signs	
	Warning signs	Safe condition signs		
Large-scale fire	 ISO 7010-W073 Warning; Large scale fire zone	 ISO 7010-E065^a Proposed new sign; Outdoor refuge area	 ISO 7010-E021 Protection shelter	 Large scale fire
Tornado	 ISO 7010-W074 Warning; Tornado zone	 ISO 7010-E021 Protection shelter	 Tornado	
Volcano	 ISO 7010-W075 Warning; Active volcano zone	 ISO 7010-E021 Protection shelter	 Volcano	

^a This safety sign is subject to registration/co-ordination through ISO/TC 145 and is currently at enquiry stage.

^a This safety sign is subject to registration/co-ordination through ISO/TC 145 and is currently at enquiry stage.

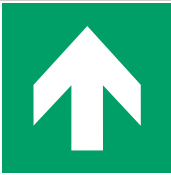
6.2 Supplementary direction arrow signs

Arrows in direction signs shall be used in conjunction with safety signs to indicate the direction of movement a person should take to reach the indicated destination. The format of the direction arrow shall be arrow type D from ISO 3864-3. The meanings of different arrow orientations are shown in Table 2.

Table 2 — Use of supplementary direction arrow signs

Arrow	Meaning
	Proceed to the right from here
	Proceed to the left from here

Table 2 (continued)

Arrow	Meaning
	a) Proceed forward from here b) Proceed forward and through from here c) Proceed forward and up from here
	a) Proceed up to the right from here b) Proceed forward and across to the right from here
	Proceed down to the right from here
	a) Proceed up to the left from here b) Proceed forward and across to the left from here
	Proceed down to the left from here
	Proceed down from here

6.3 Supplementary symbols and suitability marking

Because the construction and location of a place of refuge might only be appropriate for particular natural disasters, it is necessary to indicate the type of disasters for which places of refuge are appropriate. Place of refuge signs help people who are unfamiliar with the area to properly identify a specific building's or area's suitability or unsuitability as a place of refuge.

In areas where different types of natural disaster can occur, the civil protection agency or authority shall decide on the suitability of the places of refuge for a certain disaster.

In place of refuge signs and evacuation route signs, the appropriate supplementary symbols given in [Table 1](#) should be used to indicate whether a place of refuge is suitable or unsuitable for protection from hazards associated with one or more types of natural disaster.

Where it is necessary to warn people that the place of refuge is not suitable for particular types of natural disaster, an "x" or diagonal bar should be displayed.

A green tick may be used to indicate suitability. The green tick may be replaced by another element appropriate to the cultural requirements of the target audience.

Examples of suitability and unsuitability markings are presented in [Figure 1](#).



Figure 1 — Examples of markings displaying suitability for floods but unsuitability for debris flow, landslides or large-scale fires

For examples of signs, see [Figures 6 a\)](#) and [6 b\)](#).

7 Structure of a natural disaster safety way guidance system

7.1 Overview of structure

In order to effectively and efficiently guide people to specific places of refuge when natural disasters occur, it is important for the system's signs to provide evacuees with clear, seamless directional information so they do not lose their way. The structure and content of the guidance system should be consistent with the information requirements defined in the planning stage (see [Clause 5](#)). The structure of seamlessly designed natural disaster safety way guidance systems is shown in [Figure 2](#).

Natural disaster safety way guidance systems shall provide warning signs, evacuation plan signs, evacuation route signs and place of refuge signs continuously along the evacuation route in accordance with the risk mitigation plan.

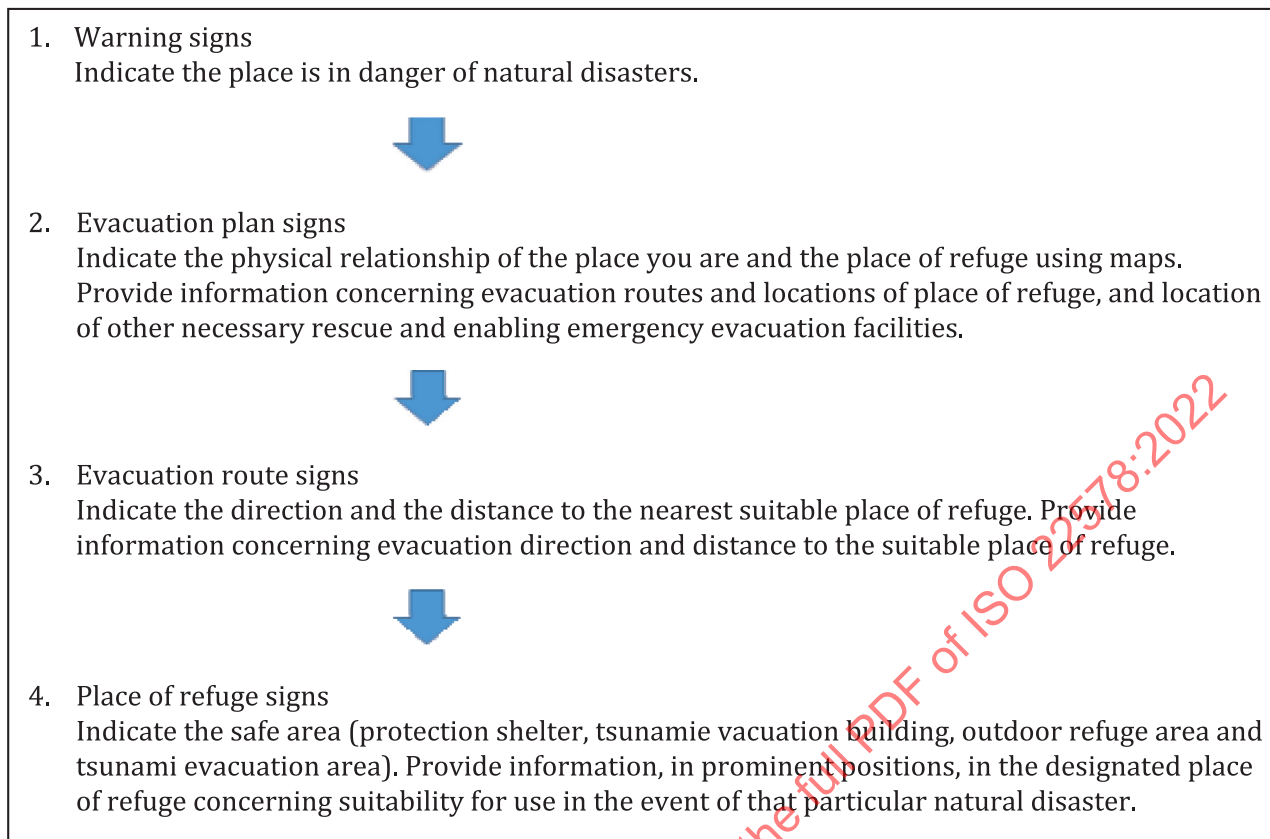


Figure 2 — Structure of seamlessly designed natural disaster safety way guidance system

7.2 Warning signs

Warning signs shall be installed in locations or areas deemed appropriate, identified as being at risk of hazard from a particular natural disaster.

Warning signs shall conform to the appropriate ISO 7010 sign. When using supplementary texts, they may include “Warning” and text giving the meaning of the sign. Additional supplementary text may be provided giving additional safety information.

Examples of the application of warning signs for natural disasters are shown in [Figure 3](#) and [Clause A.1](#).

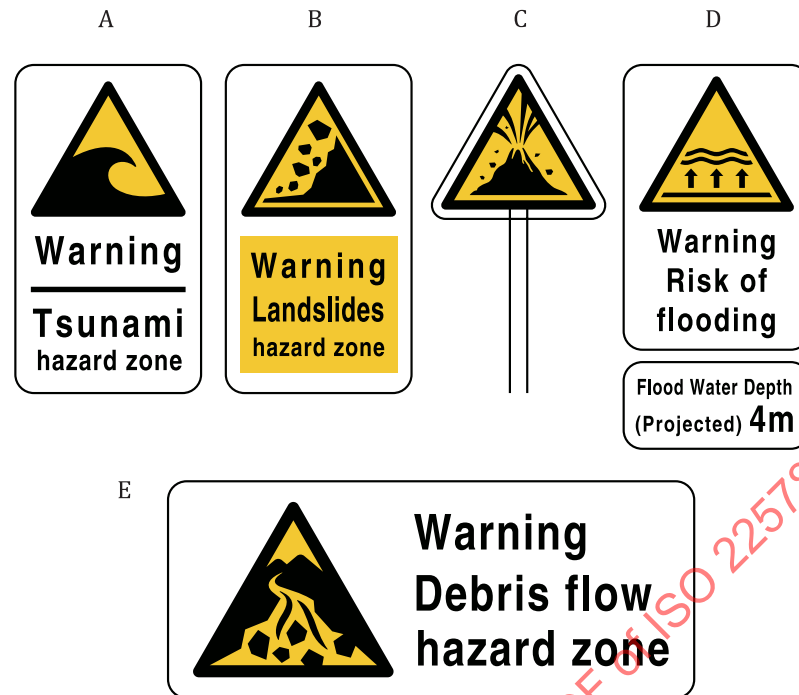


Figure 3 — Examples of layouts and contents in a warning sign

7.3 Evacuation plan signs

Evacuation plan signs show the physical relationship between the evacuee and the places of refuge using the area map as appropriate. They shall provide information identifying the area(s) of risk of the natural hazard, the locations of places of refuge and the location of evacuees with the symbol “You are here”. Legend symbols should be from ISO 7001 and ISO 7010.

The following information shall be shown on evacuation plan signs:

- location of places of refuge;
- location of current place (“You are here”).

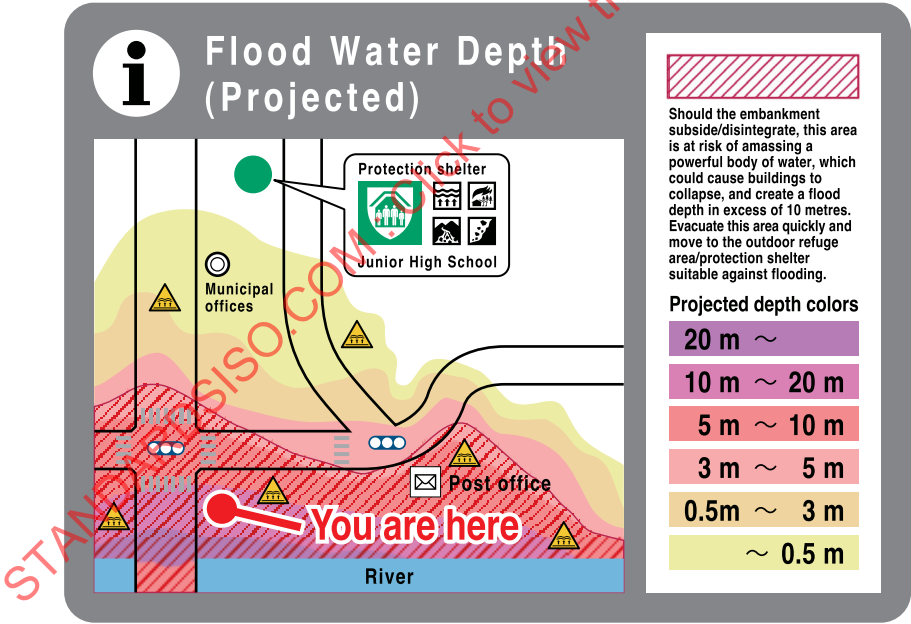
The following information can be shown on the evacuation plan sign:

- location of emergency services, such as drinking water and first aid;
- location of evacuation routes;
- location of landmarks;
- hazard zones (see [Figures A.2](#), [A.3](#) and [A.4](#));
- legend;
- marking of the hazardous zone by warning signs and colouring;
- different sources of warning information.

Examples of the application of evacuation plan signs for other natural disasters are presented in [Figure 4](#) and [A.2](#).



a) Area map of safety way guidance



b) Projected flood water depth

Figure 4 — Examples of evacuation plan signs

7.4 Evacuation route signs

The direction and the distance to the place of refuge shall be shown on the evacuation route signs. Evacuation route signs shall be installed with a directional arrow showing the direction of evacuation, distance to the place of refuge and the safe condition sign with a suitable natural disaster supplementary sign. Evacuation route signs shall use the appropriate safety sign from [Table 1](#) and direction arrow from [Table 2](#).

The direction given by the arrow is used to indicate the direction of movement of evacuation. Evacuation route signs (such as those given in [Figure 6](#)) shall be used exclusively to indicate the direction to be followed by occupants. Graphical symbols with a person running (outdoor refuge area, tsunami evacuation area and tsunami evacuation building) shall always be used with a supplementary arrow and shall be consistently displayed at all installed positions on the evacuation route. Examples of a safe condition sign with a supplementary direction arrow sign are presented in [Figure 5](#).



Figure 5 — Examples of a safe condition sign with a supplementary direction arrow sign

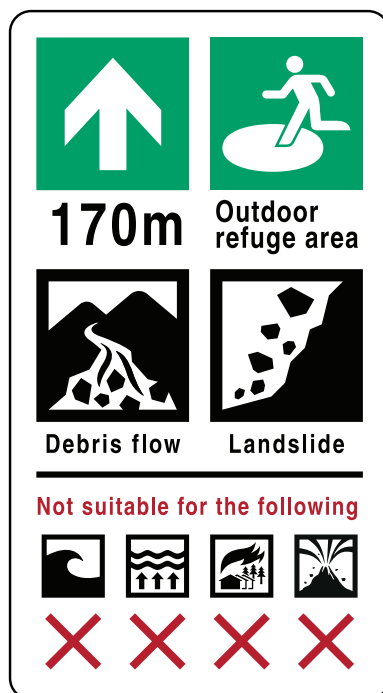
The evacuation route sign shall show the following information in the event of natural disasters, as a consequence of the mitigation plans:

- a) distance to the place of refuge;
- b) sign and description or identifier showing the place of refuge;
- c) supplementary sign showing the suitable type of natural disaster.

The graphical symbols used on evacuation route signs can be arranged in several ways depending on the space available for the display. Examples of evacuation route sign layouts are presented in [Figure 6](#) and [A.3](#).



a) Layout example of a vertical sign



b) Layout example of a vertical sign with not suitable marking



c) Layout example of a horizontal sign



d) Layout example of a square sign



e) Layout example of a horizontal sign for one disaster

Figure 6 — Examples of evacuation route sign layouts

7.5 Place of refuge signs

Place of refuge signs show the place is safe for refuge from certain types of natural disasters.

The appropriate safe condition sign from ISO 7010 (see [Table 1](#)) shall be used for place of refuge signs, such as tsunami evacuation area, outdoor refuge area, tsunami evacuation building and protection shelter.

Signs shall be installed in (a) prominent place(s) at the designated location(s) and include suitability marking for the types of natural disaster. Signs should show the following information in the event of natural disasters, as a consequence of the mitigation plans:

- when appropriate, the safe condition sign and the name of the location of the place of refuge;
- when appropriate, the applicable type(s) of natural disaster;
- when appropriate, the types of natural disaster for which it is not suitable marked with “x” or a diagonal bar, “\”.

Examples of place of refuge sign layouts are shown in [Figure 7](#) and [A.4](#).



a) Layout example of a vertical sign



b) Layout example of a horizontal sign



c) Layout example of a horizontal sign for one disaster

Figure 7 — Examples of place of refuge sign layouts

8 Bilingual signs

The use of the local languages might be sufficient when international users are not a concern. For situations that require international understanding, English should be used in addition to the official local languages. Layout examples of bilingual signs are presented in [Figure 8](#).



a) Example of a bilingual flood evacuation plan sign



b) Example of a bilingual warning sign

Figure 8 — Examples of layouts of bilingual signs

9 Identifiability and legibility of signs under daylight and night-time conditions

This document is intended to be used for safety way guidance for the outdoors. Natural disaster safety way guidance system signs are installed outdoors and are subject to illumination from daylight, night light and stray or borrowed lighting from buildings, pathways and street lighting.

Signs shall be identifiable and legible under daylight and night-time conditions. In the daytime, the illumination of the sign should normally be by natural daylight. The light incident on signs is a combination of direct and scattered light.

At night-time the natural light is less effective for ordinary signs, such that signs need to be either light-emitting, such as phosphorescent signs, or externally illuminated by a light source, such as by street lighting or an integral light source. The failure of the power supply to artificial light sources should also be considered.

Some types of lighting, such as low-pressure sodium street lighting, do not enable effective colour recognition and are therefore unlikely to be suitable for the illumination of the sign components of the safety way guidance system.

In choosing the application of either ordinary signs or phosphorescent signs, information on the identifiability and legibility of ordinary signs and phosphorescent signs and sizing, given in [Annex C](#), should be considered.

For phosphorescent signs, the whole surface of the sign carrier should be phosphorescent. If this is not practical, at least the graphical symbols and directional arrows should use phosphorescent material in order to be identifiable.

The minimum requirement for the luminance decay properties of phosphorescent materials used in components of the natural disaster safety way guidance system shall be as given in [Table 3](#) for the category of luminance classification. The test conditions are given in [Annex C](#).

Products should be marked with the relevant classification.

Table 3 — Luminance decay classification of outdoor phosphorescent safety signs

Classification	Minimum luminance at 720 min decay time mcd/m ²
I	3
II	10

10 Installation of natural disaster safety way guidance systems

10.1 General

The following principles should be applied when installing natural disaster safety way guidance systems:

- Install signs in a prominent place within the normal visual field.
- Make signs stand out from the surrounding environment.
- Select locations such that the signs themselves do not pose a risk to the environment.
- Make sure each sign is clearly visible and legible from the intended viewing positions. Also check the visibility of the system at night-time. If possible, an open space should be maintained in front of each sign so those with impaired vision can approach the sign to read it closely.
- Ground surface mounted signs can be effective as supplementary signs in places with limited sight distance or places where vertical installation is not possible. It is necessary to check the performance and effect of the phosphorescent materials in snowy regions or places where rainwater can change the sign installation environment significantly, since they might not fully exhibit the expected performance.

The sites of installation and other matters related to the natural disaster safety way guidance system shall be decided by the relevant civil protection agency.

For distance factors and sizing visual elements, see [Annex B](#).

10.2 Sign positioning

Interval is an important factor for deploying natural disaster safety way guidance signs. In order to guide people continuously, all respective signs should be installed seamlessly from the hazardous zone to the final evacuation facility at appropriate intervals.

In particular, at an intersection where the road branches off in different directions, the directional arrow indicating the direction of evacuation to a designated place of refuge should be identifiable from safe positions. Evacuees might feel uneasy if the interval between signs becomes longer. The sign interval should be carefully studied on-site to check that the next sign can be identified from the position of the previous sign. An example of installed evacuation route signs is presented in [Figure 9](#).



Figure 9 — Example of layout of an evacuation route sign installed before a crossroads

For phosphorescent materials, where practical, select locations where the signs are exposed to direct sunlight, preferably in the afternoon. Phosphorescent signs should not be placed in locations in permanent shadow.

10.3 Durability

Natural disaster safety way guidance system sign materials should be selected considering the environment of the installation site. The following factors should also be considered:

- durability of the base plate materials;
- durability of displays;
- colour selection and light fastness;
- resistance to abrasion caused by the flow of people and repeated cleaning;
- waterproofness;
- resistance to corrosion, such as that caused by seawater spray;
- resistance to pasting of paper or flyers and writing of graffiti;
- flame resistance;
- types of accessories and their suitability;
- resistance to wind pressure;
- protection against excessive UV and moisture.

Signs to be installed should be suitable for the expected environmental conditions of the site of installation. Installers and designers of signs should confirm the above points by checking the material certificates and requesting approval of materials and other documents submitted by the supplier.

11 Repair, maintenance and inspection

Natural disaster safety way guidance sign systems should be cleaned and inspected periodically and countermeasures taken when any defects are found.

A sign which has been damaged or faded should be replaced. A sign should be removed when its function is no longer needed.

Luminance of phosphorescent signs should be measured at the site of installation. If the measurement result fails to reach the specified level, the sign should be replaced.

Maintenance should be conducted at any time as required. Inspections should be performed according to the instructions of the sign manufacturers.

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Annex A (informative)

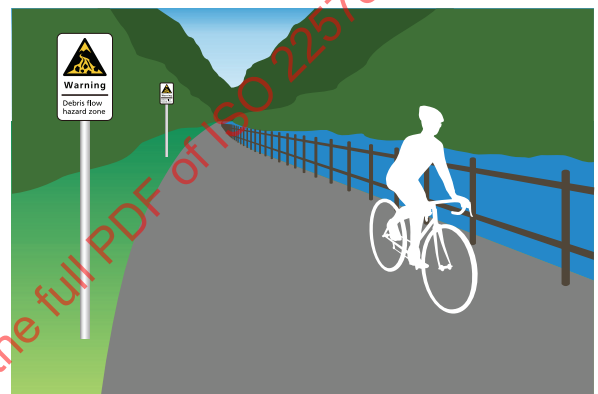
Examples of installations of natural disaster safety way guidance systems

A.1 Examples of warning sign installations

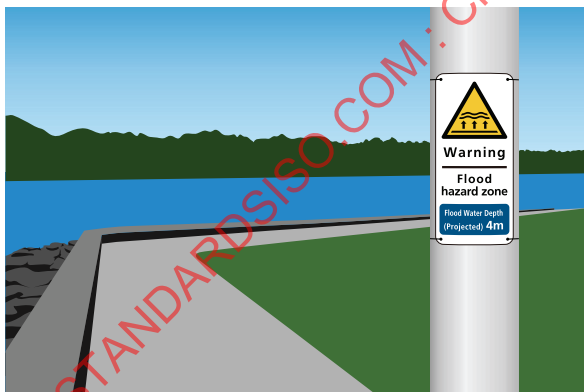
Examples of warning sign installations are shown in [Figure A.1](#).



a) Tsunami or storm surge warning sign with additional information related to altitude installed on the sea wall close to the coast



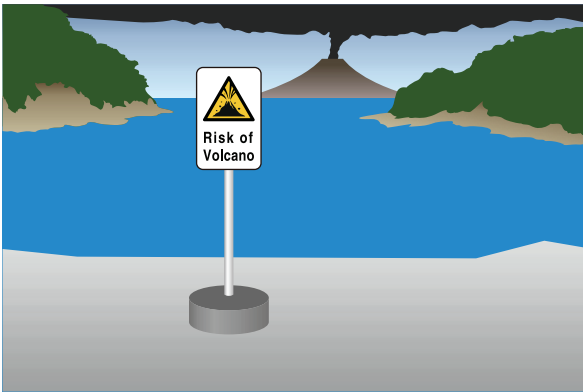
b) Debris flow warning sign installed on the roadside at the foot of a mountain



c) Flood warning sign with projected flood water depth supplementary sign installed near a river path



d) Steep slope failure or landside warning sign installed near a steep slope of a mountain behind houses



e) Temporary sign installed when eruption foreseeable

Figure A.1 — Examples of warning sign installations

A.2 Examples of evacuation plan signs

A.2.1 Additional information for disaster precaution

The precaution areas for tsunamis and storm surges or hazard zones for debris flow, steep slope failure and landslides should be marked appropriately on the evacuation plan sign.

An example of disaster precaution areas for tsunamis is shown in [Figure A.2](#).

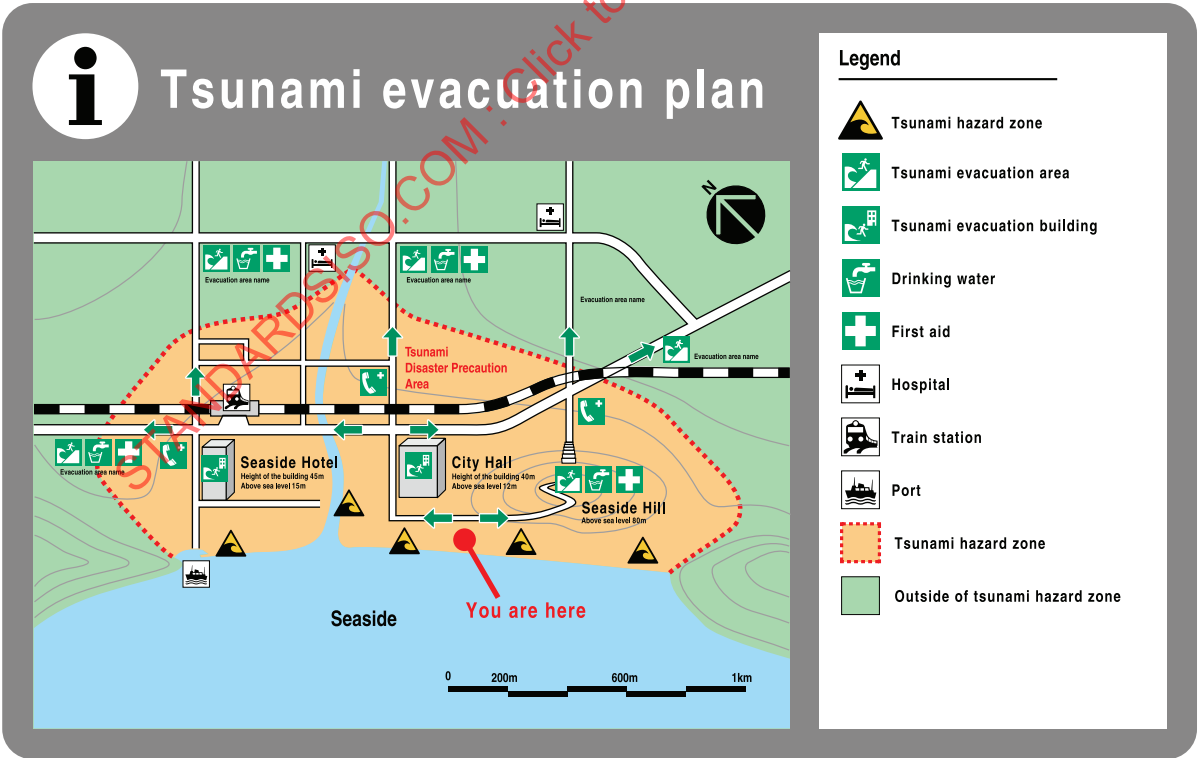
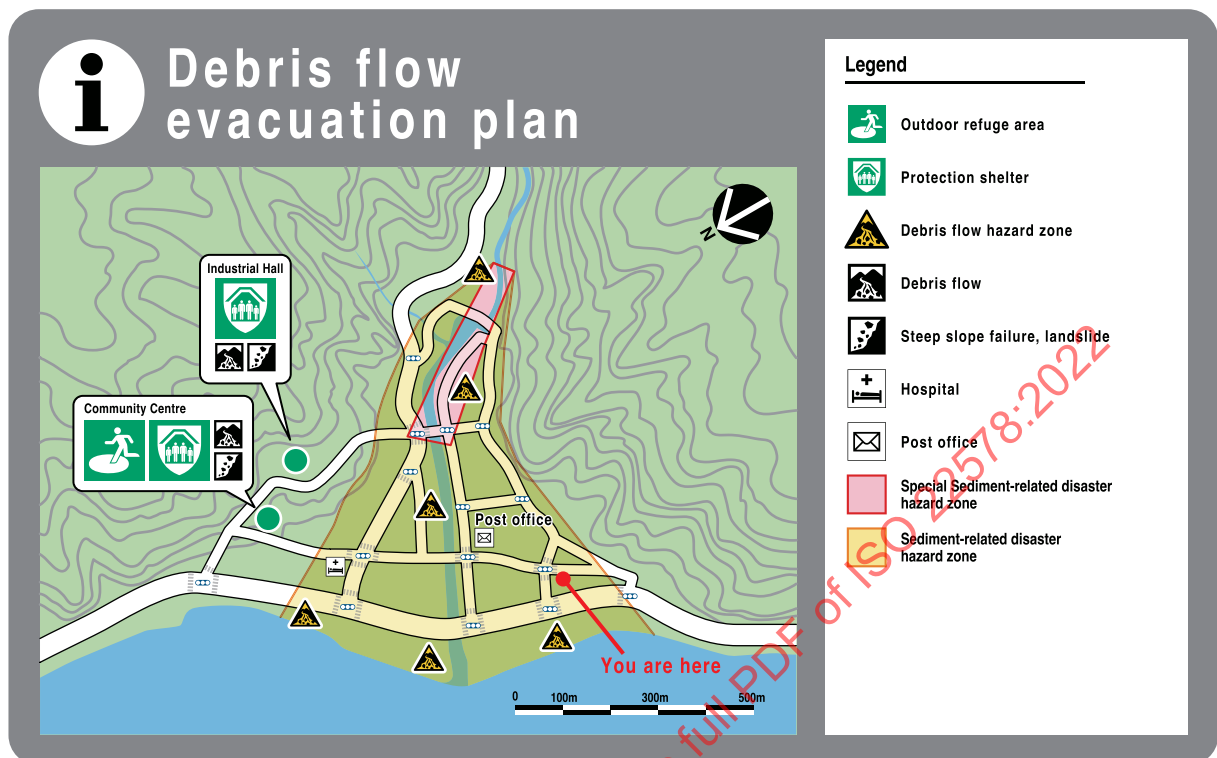


Figure A.2 — Example layout of an evacuation plan sign for disaster precaution areas for tsunamis, with available facilities

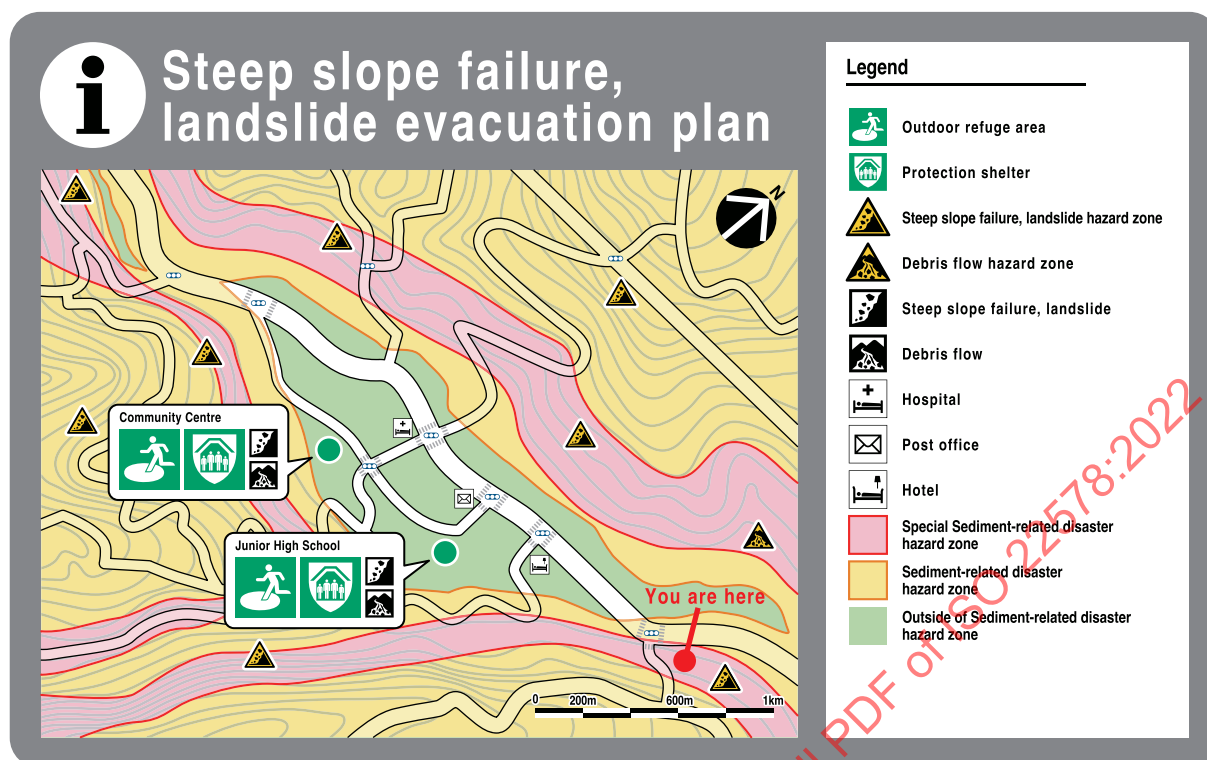
An example of an evacuation plan sign for hazard zones for debris flow is shown in [Figure A.3](#).



NOTE This example shows special (high-risk) sediment-related disaster hazard zones, sediment-related disaster hazard zones and area outside of sediment-related disaster hazard zones.

Figure A.3 — Example layout of an evacuation plan sign for disaster hazard zones for debris flow

An example of an evacuation plan sign for hazard zones for steep slope failure and landslides is shown in [Figure A.4](#).



NOTE This example shows special (highest-risk) sediment-related disaster hazard zones, sediment-related disaster hazard zones and area outside of sediment-related disaster hazard zones.

Figure A.4 — Example layout of an evacuation plan sign for disaster hazard zones for steep slope failure and landslides

A.2.2 Alternative evacuation routes

Evacuation plan signs should show alternative routes that can be used under differing circumstances as well as showing accessible routes for people with mobility challenges (e.g. people in wheelchairs).

An example of alternative routes and accessible routes is shown in [Figure A.5](#).

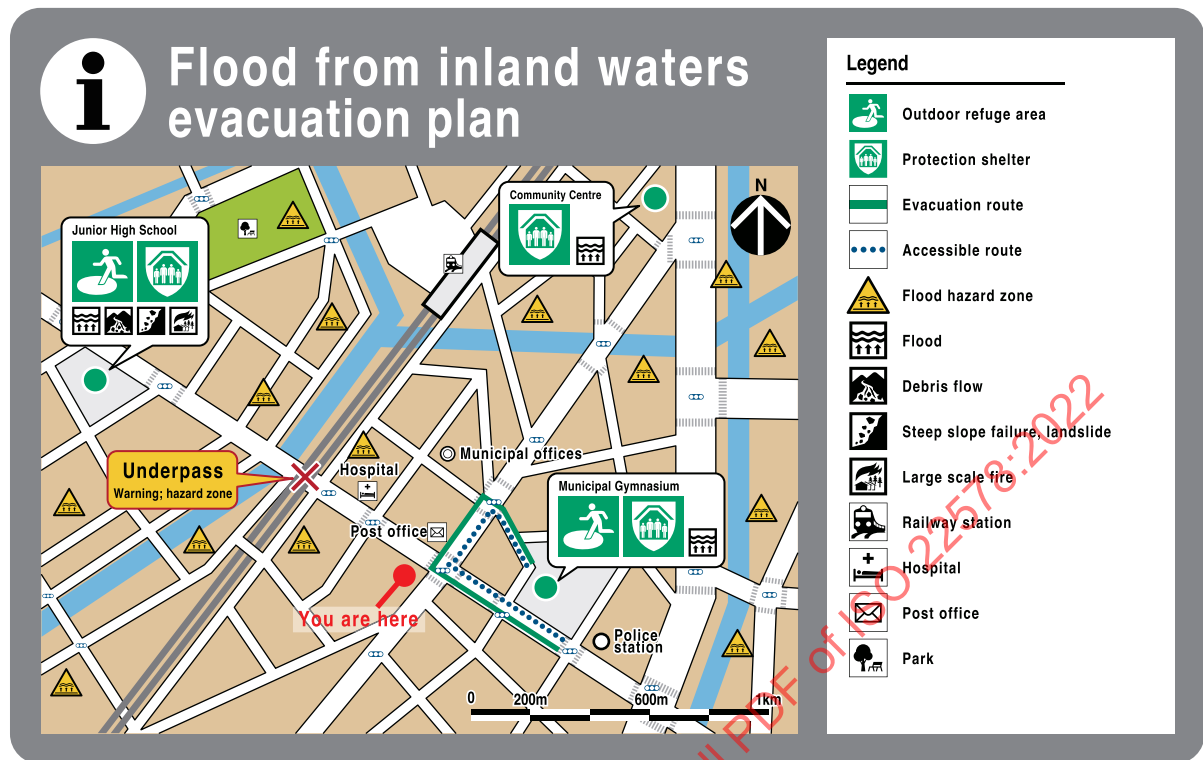


Figure A.5 — Example layout of an evacuation plan sign for alternative evacuation routes and accessible routes in case of flood

A.2.3 Examples of evacuation plan sign installations

Examples of evacuation plan sign installations are shown in [Figures A.6](#) and [A.7](#).



Figure A.6 — Example of a tsunami evacuation plan sign

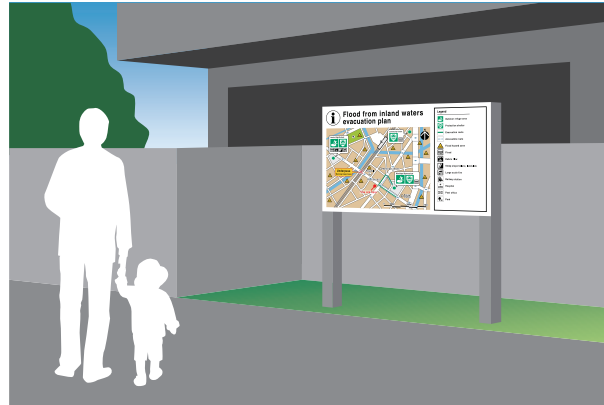


Figure A.7 — Example of a flood evacuation plan sign installed in a conspicuous place

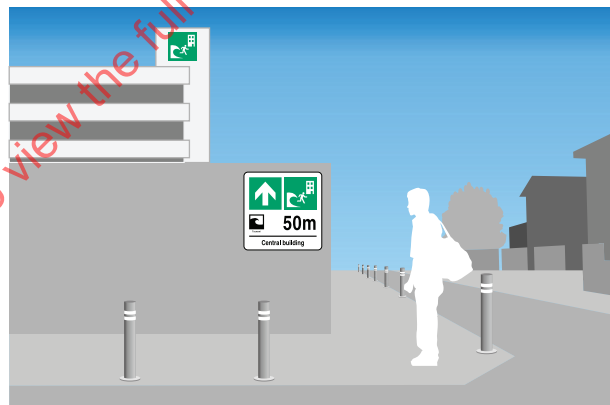
A.3 Examples of evacuation route signs

A.3.1 Examples of evacuation route sign installations

Examples of evacuation route sign installations are shown in [Figure A.8](#).



a) Tsunami evacuation route sign installed on a mountain path



b) Tsunami evacuation route sign installed on a wall in an urban area



c) Fire disaster evacuation route sign installed on a utility pole and on a path



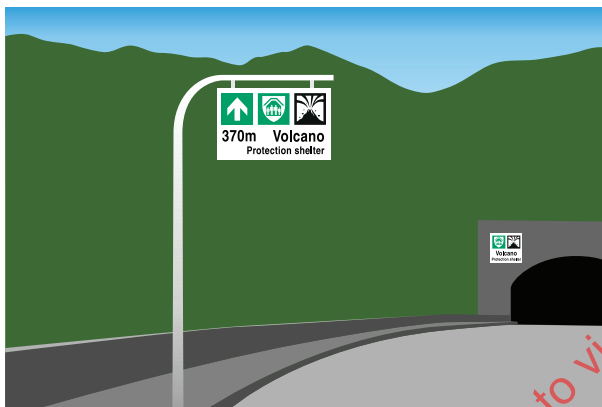
d) Storm surge evacuation route sign installed on the inside of a dyke



e) Self-standing debris flow and landside evacuation route sign installed on a path running along the river



f) Debris flow evacuation route sign installed on a pole in an area surrounded by a mountain and a river



g) Volcano evacuation route sign installed in front of a tunnel which is a protection shelter



h) Tornado evacuation route sign installed on the exterior wall of a protection shelter

Figure A.8 — Examples of evacuation route sign installations

A.3.2 Additional information located near evacuation route signs

An example of projected flood water depth is shown in [Figure A.9](#).

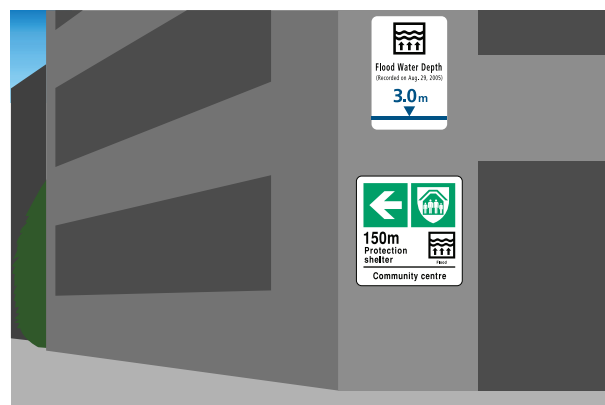


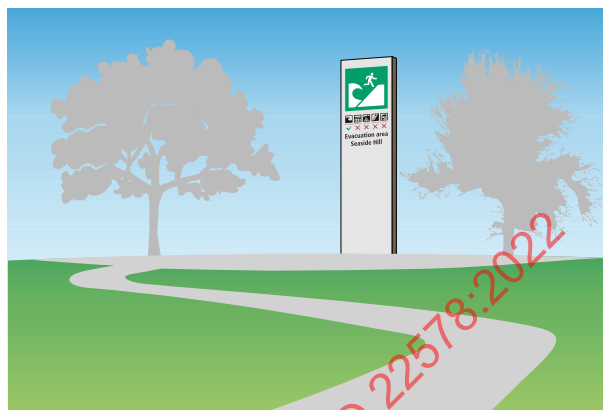
Figure A.9 — Example of flood water depth (historical) installed with evacuation route sign installation

A.4 Examples of place of refuge sign installations with suitable and not suitable marking

Examples for place of refuge sign installations are presented in [Figure A.10](#).



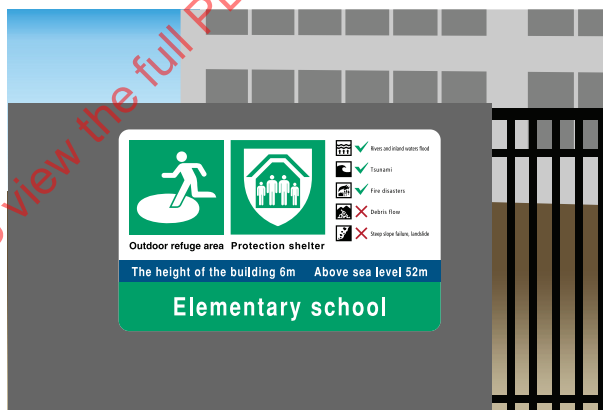
a) Tsunami evacuation building sign installed on 1st floor and top of the building



b) Tsunami evacuation area sign with suitable and not suitable marking installed in plain view



c) Self-standing sign for flood and large-scale fire with suitable and not suitable marking installed in a conspicuous place near the entrance of a protection shelter



d) Place of refuge sign for flood, tsunami and large-scale fire with suitable and not suitable marking installation on a school gate

Figure A.10 — Examples of place of refuge sign installations