



UNIVERSITI MALAYSIA SARAWAK (UNIMAS)

OCCUPATIONAL SAFETY & HEALTH GUIDELINES

Safety, Health & Emergency Signage

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1.0 INTRODUCTION AND SCOPE

Signs are used to assist with the communication of information about hazards at the workplace and to provide advice about responding in emergency situations. These guidelines are designed to:

- i. Ensure a consistent approach and standard of presentation for all safety and health related signs
- ii. Establish which safety signs are required to meet legislative and university requirements

The guidelines apply to all hazard, emergency information and fire signs at all campuses of UNIMAS.

2.0 GENERAL REQUIREMENTS

The following item should be considered when choosing or designing safety sign in the workplace:

2.1. Suitability for purpose

The responsible person should ensure that the type of sign used is suitable for the intended purpose. The assessment should include consideration of the following:

- i. Hazard identification.
- ii. The safety symbol or sign should accurately convey the message which needs to be conveyed by the sign; and
- iii. Where there are to be words on a sign, is it likely that the meaning of the sign will need to be conveyed to persons not familiar with the Bahasa Melayu and/or English language. In addition to Bahasa Melayu and/or English, it may be necessary to repeat the message in one or more other languages, particularly if instant recognition of the message may be needed in a critical situation. Translated message should adhere as closely as practicable to the intent of the Bahasa Melayu and/or English version.

2.2. Accident prevention and awareness

2.2.1. Safety sign should draw attention to objects and situations affecting safety and health.

- 2.2.2. Explanations of their functions and meaning should be included in employee induction training programmes.
- 2.2.3. Employees should be informed beforehand and an explanation should be given for the introduction of a new sign or the change in location of an existing one.
- 2.2.4. Safety signs should not replace for proper accident prevention measures.

2.3. Installation and maintenance of signs

2.3.1. Erection and removal

Signs other than those painted directly on existing surface, should be erected so that they do not create a hazard. Examples of signs erected hazardously are those projecting into passageways at such heights or locations that person, vehicles or mobile plant may strike them.

All signs should be removed immediately when the information is no longer relevant. This practice is especially important for signs warning of specific temporary hazards. When the hazard ceases to exist, the hazard sign should be removed promptly. For example signs giving warning of person working above should be removed when the overhead job is completed. Failure to observe this practice may induce disrespect for all signs.

2.3.2. Sign location

2.3.2.1. Visibility

Signs should be located where the messages are legible and so that they attract the attention of, and are clearly visible to all concerned.

Visibility will be enhanced if a contrast exists between the predominant colour of the sign and that of its immediate surroundings. E.g. a green sign which of necessity that has to be placed on a green wall will be rendered more distinct if it has a white surround.

2.3.2.2. Placement of signs

Signs should be fixed/mounted as close as practicable to the observer's line of sight in the vertical plane.

For standing adults this will be approximately 5 degrees up or down from a point 1 500mm above ground or floor level in front of the observer.

Signs which are free standing or mounted overhead should be placed so that they are not a hazard to pedestrians.

2.3.2.3. Regulatory and hazard sign

Regulatory and hazard signs should be so sited in relation to a particular hazard as to allow a person ample time after first viewing the sign to heed the warning.

This distance will vary, e.g. signs warning against the touching of switches or other electrical equipment should be placed close to the equipment, whereas signs used in plant yards or on construction work should be placed sufficiently in advance of the hazard to permit the warning to be perceived before the hazard is reached.

2.3.2.4. Signs on movable object

Signs should not be placed on moveable objects such as doors, windows or racks where a change in position would void the purpose of the sign or cause it to be out of sight. This does not apply to signs intended to be portable or moveable.

However, exception is given to special function door such as emergency exit door and cabinet or storage door where hazardous material is stored, provided that these doors are kept closed most of the time.

2.3.2.5. Illumination of signs

External or internal illumination of signs should be considered where the general lighting, either natural or artificial, does not provide for adequate visibility of signs.

In all cases, glare from lighting should be avoided. Special attention should also be given to signs subject to illumination from certain artificial light sources such as sodium vapour lamps, which cause changes in the perception of colours.

2.3.2.6. Number of signs

Care should be taken when considering the placing of several signs close together. The result may be that there is so much information in one place that little or none is absorbed, or the visual effect may

be so confusing as to make it difficult to distinguish individual message.

2.3.3. Sign maintenance

For maximum effectiveness, the responsible person should ensure that signs are:

- Maintained in good condition
- Kept clean and well illuminated
- Regularly inspected, replaced or upgraded accordingly.

3.0 MATERIAL REQUIREMENTS

3.1. Indoor and outdoor surfaces

All safety, health and emergency signage for indoor and outdoor surfaces should be made of self-adhesive vinyl sticker. Semi-rigid plastic/PVC with 1mm thickness can be used where it is not practical to fix a self-adhesive vinyl sticker. The use of paper-based material (whether laminated or not) should be avoided.

3.2. Way finding signage

All way finding signage located in an area where there is electrical lighting, limited natural lighting or for night usage should be made of photo luminescent self-adhesive vinyl sticker. This is to allow building occupant to notice these signage in the event of a blackout during fire emergency.

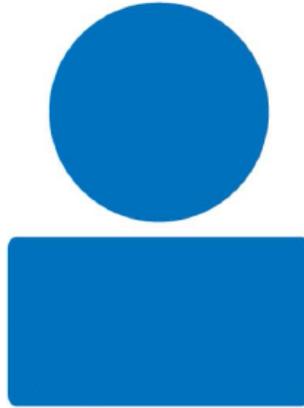
3.3. Outdoor –static pole-mounted

All pole-mounted safety, health and emergency signage should be made of vandal-resistant aluminum.

4.0 DESIGN REQUIREMENTS

4.1. Geometric shape, safety colours and contrast

4.1.1. Mandatory action



Sign

Geometric shape	Safety colour	Contrast colour	Graphical symbol/letter colour
Circle	Signal Blue (RAL 5005)	Signal White (RAL 9003)	Signal White (RAL 9003)

Supplementary information

Geometric shape	Safety colour	Contrast colour	Graphical symbol/letter colour
Rectangular	Signal Blue (RAL 5005)	Signal White (RAL 9003)	Signal White (RAL 9003)

4.1.2. Safe condition



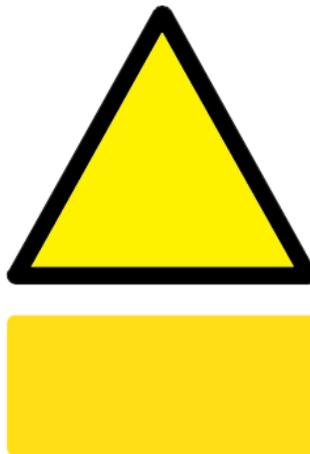
Sign

Geometric shape	Safety colour	Contrast colour	Graphical symbol/letter colour
Square	Signal Green (RAL 6032)	Signal White (RAL 9003)	Signal White (RAL 9003)

Supplementary information

Geometric shape	Safety colour	Contrast colour	Graphical symbol/letter colour
Within the square	-	Signal White (RAL 9003)	Signal White (RAL 9003)

4.1.3. Warning



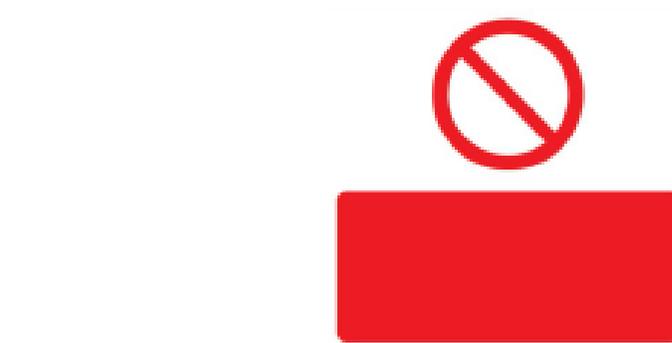
Sign

Geometric shape	Safety colour	Contrast colour	Graphical symbol/letter colour
Equilateral triangle with radiused outer corners	Signal Yellow (RAL 1003)	Signal Black (RAL 9004)	Signal Black (RAL 9004)

Supplementary information

Geometric shape	Safety colour	Contrast colour	Graphical symbol/letter colour
Rectangular	Signal Yellow (RAL 1003)	-	Signal Black (RAL 9004)

4.1.4. Prohibition



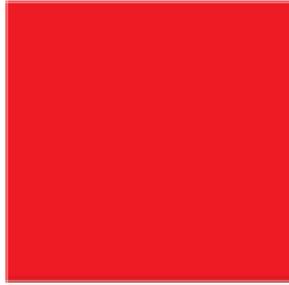
Sign

Geometric shape	Safety colour	Contrast colour	Graphical symbol/letter colour
Circle with diagonal bar	Signal Red (RAL 3001)	Signal White (RAL 9003)	Signal Black (RAL 9004)

Supplementary information

Geometric shape	Safety colour	Contrast colour	Graphical symbol/letter colour
Rectangular	Signal Red (RAL 3001)	-	Signal Black (RAL 9004)

4.1.5. Fire safety



Sign

Geometric shape	Safety colour	Contrast colour	Graphical symbol/letter colour
Square	Signal Red (RAL 3001)	Signal White (RAL 9003)	Signal White (RAL 9003)

Supplementary information

Geometric shape	Safety colour	Contrast colour	Graphical symbol/letter colour
Within the square	-	Signal White (RAL 9003)	Signal White (RAL 9003)

4.2. Layout

4.2.1. Single

Refer 4.1

4.2.2. Multiple

Multiple signs are means of communicating complex safety messages. Combination of signs should not exceed four in a horizontal row (Refer figure overleaf as example).



The order of the safety signs (and any corresponding supplementary signs) should be displayed according to the order of priority that is chosen for each of the safety messages.

4.3. Recommended size of signage (Height x Width)

- 4.3.1. Static pole-mounted outdoor assembly point: 450mm x 600mm (inclusive of supplementary information)
- 4.3.2. Mandatory: 400mm x 300mm (inclusive of supplementary information)
- 4.3.3. Safe condition: 400mm x 300mm (inclusive of supplementary information)
- 4.3.4. Warning: 400mm x 300mm (inclusive of supplementary information)
- 4.3.5. Prohibition: 400mm x 300mm (inclusive of supplementary information)
- 4.3.6. Fire safety: 400mm x 300mm (inclusive of supplementary information)

4.4. Graphical symbol and wording

Refer Annex A

5.0 SPECIFIC APPLICATION

5.1. Accident prevention tag

5.1.1. General description

An accident prevention tag is a miniature sign on card, paper, pasteboard or similar temporary or semi-permanent material, which can be attached to plant, equipment, control device or other objects for the purpose of

imposing a regulatory requirement, or for advising or informing users about some safety aspects of the item.

5.1.2. Design of tags

Prohibition and warning signs recommended in this guideline may be miniaturised, and made as an accident prevention tag.

A tag should have minimum dimensions of 80 mm x 150 mm exclusive of any additional area required to tie or fix the tag to the plant or other item. Recommended design of tags are shown below.



5.2. Building evacuation plan signage

5.2.1. General description

The building evacuation plan illustrates the scheme of the building and location of the main and fire exits for a safe evacuation, and clearly defines directions to them on the plan.

5.2.2. Design specification

5.2.2.1. General requirements

- a) The exact location of the user should be indicated on the escape plan.
- b) Escape plans should 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 should be used:
 - 1:250 for large-sized facilities
 - 1:100 for small- to medium-sized facilities
 - 1:350 for plans displayed in individual rooms
- d) 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, e.g. parking areas or technical spaces, other scales may be used to recognize the extent of empty space.
- e) In order to achieve sufficient visibility and legibility, the vertical illumination on escape plans should be no less than 50 lux provided by the normal lighting.
- f) The background of an escape plan should have the safety colour white.

- g) The minimum size of an escape plan should 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.
- h) The orientation of the plan as displayed should 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.
- i) Escape plans should have a legend.
- j) Escape plans should have a standardized header, including the words "Escape plan" in the language(s) of the country in which the plan is used.
- k) Escape plans should show the position of the assembly points as part of the escape plan detail or on an overview plan.

5.2.2.2. Size of plan elements

- a) Information presented on escape plans should be legible at the intended viewing distance. The minimum lettering height should be 2 mm. Fonts should be chosen that maximize the legibility at the intended viewing distance, however it is recommended to use Arial font.
- b) The minimum height of the header should be at least 7 % of the smallest dimension of the escape plan and the height of its characters should be at least 60 % of the height of the header. Examples are given in Table 1.
- c) Safety signs shown on the plan should have a minimum height of 7 mm.
- d) The line width for the graphical representation of the facility's structural walls should be at least 1,6 mm. Interior partition walls should 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 should 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/distance.

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

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

5.2.2.3. Contents and representation

a) Header

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

b) Overview plan

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

An overview plan should incorporate:

- the assembly point location(s);
- the overall facility/site plan with the specific section covered by the escape plan detail highlighted;
- a simplified representation of the surrounding area (e.g. roadways, parking areas, other buildings).

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

c) Escape plan detail

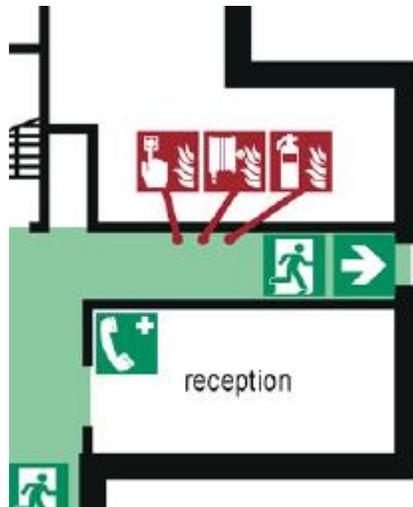
The escape plan detail should incorporate:

- 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
- 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 should be conveyed by the use of arrow as shown in Figure 1.



Figure 1 – arrow indicating the direction of movement of people

- the point of location of the user (“You are here”);
- the location of stairs;
- any specific evacuation provisions made available for people with disabilities;
- the location and type of the first intervention fire equipment and emergency and rescue equipment,
- 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 example overleaf).



- the location of the lifts as an architectural feature.

d) Safety notices

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

e) Legend

The legend should appear on the escape plan and should give the meaning of the safety signs, graphical symbols and colour coding used on the escape plan.

f) Other information

The following information should be part of the plan:

- plan designer
- name of the facility
- floor designation
- date of plan design and revision number
- plan number.

g) Use of colours

- Escape routes

Directional arrows should be in signal green. Escape routes should be highlighted in light green which gives sufficient contrast to the arrows.

- Safety signs

Safety signs should be reproduced in safety colours according to Annex A.

- Point of location of the user

The point of location of the user should be signal blue.

- Background colour

The colour of the background should be white.

- Outline of facility structural elements

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

- Header

The header should be in signal green and the text should be in white.

- Text

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

3.1.1. Material specification

3.1.1.1. The holder

The building evacuation plan holder should be constructed of acrylic and features a slot into which the plan is inserted.

3.1.1.2. The insert

The evacuation plans should be printed on a color laser printer. The specified colors should be verified with test prints to ensure

accuracy. The plans should be printed onto bright white paper stock.

3.1.2. Placement

- 3.1.2.1. Evacuation plan should be posted at
 - i. On every floor at primary entry points
 - ii. Near lifts and stairs
 - iii. Indoor cafeterias and lecture halls

- 3.1.2.2. Where building is used as student lodging/hostel, every room should have evacuation plan posted on the interior of or immediately adjacent to the entry door to the room.

- 3.1.2.3. The plan should be posted with its bottom edge at approximately, but not more than four feet from the floor.

REFERENCE

MS 2558:2014 Safety and health signage used in the workplace – Specification (First revision).

ISO 7010:2011 Graphical symbols-safety colours and safety signs-registered safety signs.

ISO 23601:2009 Safety identification-Escape and evacuation plan signs.

ANNEX A

Graphical Symbol and Wording

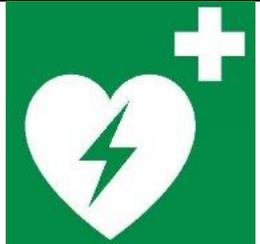
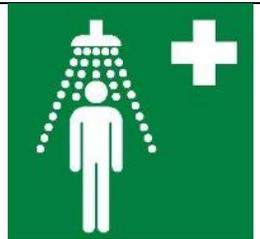
MANDATORY ACTION			
Graphical symbol*	Reference Number	Referent (safety meaning)	Supplementary information
	M001	Refer to instruction manual/booklet	Refer to instruction manual/booklet
	M002	Wear ear protection	Wear ear protection
	M003	Wear eye protection	Wear eye protection
	M004	Wear safety shoes	Wear safety shoes

	M005	Wear safety helmet	Wear safety helmet
	M006	Wear face shield	Wear face shield
	M007	Wear dust mask	Wear dust mask
	M008	Wear respiratory protection	Wear respiratory protection
	M009	Wear welding mask	Wear welding mask
	M010	Use protective apron	Use protective apron

	M011	Use protective clothing	Use protective clothing
	M012	Wear protective gloves	Wear protective gloves
	M013	Wash your hands	Wash your hands
	M014	Use safety harness	Use safety harness
	M015	Keep locked	Keep locked
	M016	Use handrail	Use handrail

	M017	Connect an earth terminal to the ground	Connect an earth terminal to the ground
	M018	Wear high-visibility clothing	Wear high-visibility clothing
	M019	Secure gas cylinder	Secure gas cylinder
	M020	Disconnect before performing maintenance or repair	Disconnect before performing maintenance or repair
	M021	Disconnect mains plug from electrics	Disconnect mains plug from electrics

*Blue hues in symbols above vary due to internet sourcing. Use signal blue always.

SAFE CONDITION			
Graphical symbol	Reference Number	Referent (safety meaning)	Supplementary information
	S001	First Aid	-
	S002	Doctor	-
	S003	Eye wash station	-
	S004	Automated external heart defibrillator	-
	S005	Emergency shower	-
	S006	Stretcher	-

	S007	Exit left	-
	S008	Exit right	-
	S009	Assembly point	-
	S010	Emergency telephone	-
	S011	Break to obtain access	-
	S012	Turn clockwise	-

	S013	Turn anticlockwise	-
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*Green hues in symbols above vary due to internet sourcing. Use signal green always.

PROHIBITION			
Graphical symbol	Reference Number	Referent (safety meaning)	Supplementary information
	P001	General prohibition sign	-
	P002	No smoking	No smoking
	P003	No open flame	No open flame
	P004	No pedestrian	Do not walk here
	P005	Not drinking water	Not drinking water

	P006	Do not touch	Do not touch
	P007	No photography	No photography
	P008	No access	No access
	P009	No food or drink	No food or drink

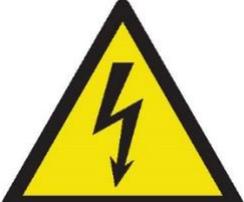
FIRE SAFETY AND EMERGENCY			
Graphical symbol	Reference Number	Referent (safety meaning)	Supplementary information
	F001	Fire extinguisher	Fire extinguisher
	F002	Fire hose reel	Fire hose reel
	F003	Fire alarm call point	Fire alarm call point
	F004	Fire emergency telephone	Fire emergency telephone
	F005	Fire blanket	Fire blanket

	<p>F006</p>	<p>Location of Automated External Defibrillator</p>	<p>None</p>
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*Red hues in symbols above vary due to internet sourcing. Use signal red always.

WARNING			
Graphical symbol	Reference Number	Referent (safety meaning)	Supplementary information
	W001	General warning sign	WARNING
	W002	Radiation risk	WARNING Radiation risk
	W003	Laser beam	WARNING Laser beam
	W004	Non-ionising radiation	WARNING Non-ionising radiation
	W005	Optical radiation	WARNING Optical radiation
	W006	Magnetic field	WARNING Magnetic field

	W007	Trip hazard	WARNING Trip hazard
	W008	Fall hazard	WARNING Fall hazard
	W009	Slippery surface	WARNING Slippery surface
	W010	Mind your head OR Overhead obstacle	WARNING Mind your head
			WARNING Overhead obstacle
	W011	Falling object	WARNING Falling object
	W012	Overhead load	WARNING Overhead load

	W013	Biological hazard	WARNING Biohazard
	W014	Extremely cold surface OR Cold environment	WARNING Extremely cold surface
			WARNING Cold environment
	W015	Electric shock risk OR High voltage	WARNING Electric shock risk
			WARNING High voltage
	W016	Hot surface	WARNING Hot surface
	W017	Explosive Material	WARNING Explosive Material

	W018	Toxic substances	WARNING Toxic substances
			WARNING Poison
	W019	Highly flammable	WARNING Highly flammable
	W020	Corrosive substance	WARNING Corrosive substance
	W021	Oxidizing agent	WARNING Oxidizing agent
	W022	Battery charging	WARNING Battery charging
	W023	Pressurised cylinder	WARNING Cylinder can explode and release flammable substances

	W024	Compressed gas	WARNING Compressed gas
	W025	Automatic start	WARNING Machine start automatically
	W026	Moving feed roller OR rotating shaft	WARNING Entanglement Hazard
	W027	Sharp elements OR Shearing hazard OR Cutting hazard	WARNING Sharp elements. Can cut or shear hands
	W028	Crushing of hands OR Pinch point	WARNING Crushing of hands
			WARNING Pinch point
	W029	Crushing	WARNING Crushing Hazard

	W030	High Noise Area-where noise level is above 85dBA	WARNING High Noise Area
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*Yellow hues in symbols above vary due to internet sourcing. Use signal yellow always.

ANNEX B

Example of Building Evacuation Plan

