



Information Bulletin

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Evacuation diagrams

Version 1

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FIRE PROTECTION ASSOCIATION AUSTRALIA



Evacuation diagrams

Leading and supporting a professional industry to minimise the impact of fire on life, property and the environment, for a safer community

1.0 Purpose Statement

The purpose of this document is to promote awareness of:

- the requirements for evacuation diagrams in Australian Standard AS 3745-2010, *Planning for emergencies in facilities*; and
- potential issues in regards to the installation of such diagrams on fire resistant elements of construction (such as, fire doors).

Note: Unless specifically stated otherwise, any reference in this document to AS 3745-2010 is a reference to AS 3745-2010 including Amendment 1 2014.

2.0 Audience

This Information Bulletin is intended for:

- (i) FPA Australia members.
- (ii) Other stakeholders in the fire safety and construction industry.
- (iii) Owners, occupiers, managers and employers of a building, workplace or structure (facility) that may be occupied by people.
- (iv) Members of Emergency Planning Committees (EPCs).

3.0 Introduction

This document has been developed to provide information in relation to the preparation, location and installation of evacuation diagrams in a facility. Such diagrams are provided to assist with the evacuation of a facility in an emergency. As such, they consist of a pictorial representation of the floor or area of the facility and other relevant emergency response information as set out in AS 3745-2010.

FPA Australia members have identified occurrences of evacuation diagrams that do not satisfy the requirements of AS 3745-2010 in regards to the information they contain, how this information is displayed or both.

Also of concern is the installation of these diagrams in contravention of other standards, such as, the fire door standard (AS 1905.1-2005) and its associated test standard (AS 1530.4-2005). Penetrating or installing additional material to fire doors (or other fire resistant elements of construction) to install evacuation diagrams may adversely affect the fire door's capacity to perform at the expected level in order to contain the spread of fire, which is required by AS 1905.1 and identified through testing to AS 1530.4.

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4.0 AS 3745-2010 and legislation

AS 3745-2010, *Planning for emergencies in facilities* was published on 25 November 2010 superseding AS 3745—2002, *Emergency control organization and procedures for buildings, structures and workplaces*. Amendment 1 to AS 3745-2010 was published on 1 May 2014.

The objective of the 2010 edition of AS 3745 was to make a greater distinction between emergency plans and emergency/evacuation procedures. It also includes expanded and revised sections (or paragraphs) covering:

- (a) Emergency plans.
- (b) Evacuation diagrams.
- (c) Emergency Planning Committee (EPC).
- (d) Emergency Control Organization (ECO).
- (e) Occupants with a disability.
- (f) Education and training.

This revision of the Standard has led to greater emphasis on the provision of, or updating of, evacuation diagrams.

Amendment 1 further refined the requirements of AS 3745-2010, including some changes to the requirements for evacuation diagrams.

AS 3745-2010 is not directly referenced in the model Work Health and Safety Act and Regulations, which have been adopted in all States and Territories (except, at time of publication, Victoria and Western Australia). However, Regulation 43 of these model WH&S Regulations requires a person conducting a business or undertaking at a workplace to ensure that an emergency plan is:

- prepared (and meets certain requirements);
- maintained;
- relevant; and
- implemented (in the event of an emergency).

Regulation 43 also outlines the penalties if an emergency plan is not prepared. Both Victoria's and Western Australia's legislation has similar requirements although Victoria's requirements only relate to certain circumstances and facilities.

Further information is provided in the Safe Work Australia model Code of Practice (CoP) "Managing the Work Environment and Facilities", which was developed along with other model Codes as part of the package of harmonised work health and safety laws. "Managing the Work Environment and Facilities" is an approved Code of Practice under section 274 of the model WH&S Act. Section 5 of this CoP discusses Regulation 43 and how the obligations of this regulation can be met, including

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that emergency procedures should address “distribution and display of a site plan that illustrates the location of fire protection equipment, emergency exits and assembly points” (in effect, an evacuation diagram). The CoP also includes reference to AS 3745-2010, *Planning for emergencies in facilities* for further information.

As such, while regulation does not specifically reference AS 3745-2010, this Standard is considered best practice by FPA Australia for the development of emergency plans for facilities (including associated evacuation diagrams) and is also recognised through government advisory documents such as the CoP mentioned above.

IMPORTANT: Queensland has specific requirements for evacuation diagrams in its Building Fire Safety Regulation 2008 (BSFR 2008). As such, while FPA Australia advocates the recommendations in this document, the requirements of the BSFR 2008 must be followed under law in Queensland.

For more information on the specific requirements, please refer to the BSFR 2008 (available from Queensland Legislation, <https://www.legislation.qld.gov.au/OQPChome.htm>).

5.0 AS 3745-2010 requirements for evacuation diagrams

A key component of AS 3745-2010 is the provision of evacuation diagrams, see Clause 3.5 of AS 3745-2010. These diagrams are intended to provide emergency and evacuation information for occupants and visitors. They should contain concise, clear and appropriate detail to inform occupants and visitors in an emergency.

The following are the key requirements for evacuation diagrams:

- **Location** (Clause 3.5.2)

Evacuation diagrams shall be displayed where occupants and visitors are able to view them.

The Emergency Planning Committee has a role to determine the location and number of evacuation diagrams for a facility.

- **Position** (Clause 3.5.3)

The evacuation diagram should be positioned at a height not less than 1200 mm and not more than 1600 mm above the floor.

- **Orientation** (Clause 3.5.4)

Each evacuation diagram shall have the correct orientation with regard to the direction of egress and its location to the ‘YOU ARE HERE’ point. Where an assembly area diagram is included, it shall have the same orientation to the rest of the diagram.

See Figure 1 on the following page for an example of correct and incorrect orientation.

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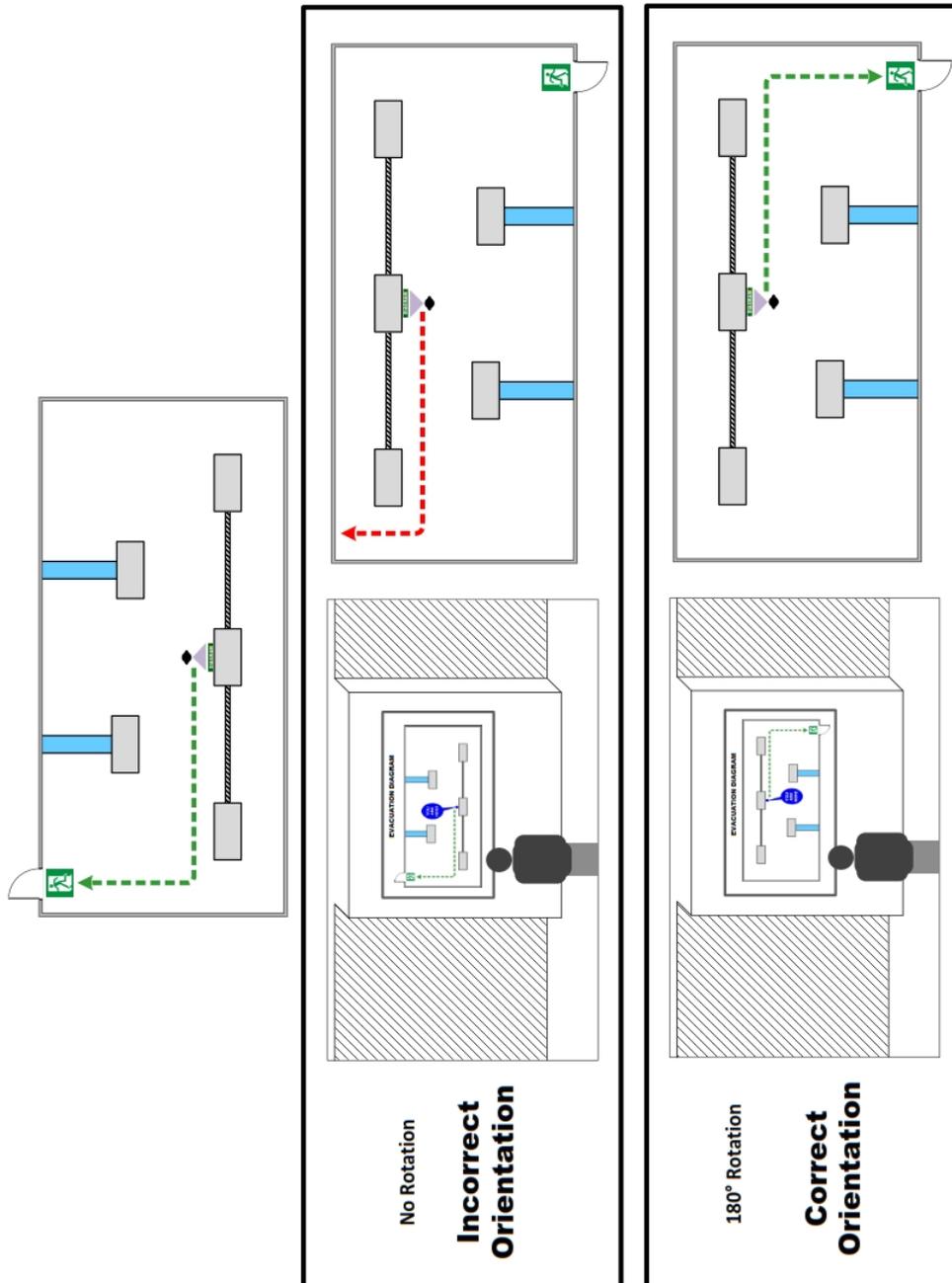


Figure 1 Example of correct and incorrect orientation

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- **Minimum elements** (Clause 3.5.5)

AS 3745-2010 lists a range of elements which must be included in the evacuation diagram, such as designated exits, fire fighting equipment and the location of where the evacuation diagram is installed within the facility (i.e. the 'YOU ARE HERE' location).

- **Optional information** (Clause 3.5.6)

AS 3745-2010 provides an option to include additional information on the evacuation diagram, such as, other emergency information and equipment. The inclusion of this optional information is to be considered by the Emergency Planning Committee, but is not a mandatory requirement of AS 3745-2010.

- **Size** (Clause 3.5.7)

The minimum size of an evacuation diagram is A4 (i.e. 210 mm x 297 mm) with a pictorial representation of the floor or area of at least 200 mm x 150 mm or an area of at least 30 000 mm².

However, where any additional information is included—that is, anything in addition to the items listed in clause 3.5.5—the minimum size of the evacuation diagram is A3 (i.e. 297 mm x 420 mm) with a pictorial representation of the floor or area of at least 300 mm x 200 mm or an area of at least 60 000 mm².

- **Symbols** (Appendix E)

Appendix E of AS 3745-2010 provides examples of symbols which may be used in evacuation diagrams. It is important to note that Appendix E is an *informative* appendix. That is, its contents (example symbols) are provided for guidance only and do not need to be followed to comply with AS 3745-2010.

IMPORTANT: The above information simply highlights the key requirements for evacuation diagrams, it does not provide the full detail of these requirements. For the full detail, please refer to AS 3745-2010.

Measuring the area of the pictorial representation of the floor or area

AS 3745-2010 is silent on how to measure the pictorial representation of the floor or area on an evacuation diagram (although it does provide guidance in clause 3.5.5 on what is excluded from the pictorial representation and also how to deal with larger floor areas).

When determining the size of the pictorial representation, in many cases it will simply be a matter of measuring sections of the pictorial representation and calculating the area. However, for more unusual floor shapes (such as, oval leaf shapes) it can be extremely difficult to accurately measure

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and calculate the overall area.

For unusual shapes, FPA Australia considers a pragmatic approach would be to measure the pictorial representation as if you were determining what size frame would be needed for this. That is, measure the distance from the left-most point to the right-most point and from the bottom-most point to the top-most point and use those measurements to determine the area of the pictorial representation, see Figures 2, 3 and 4 below.

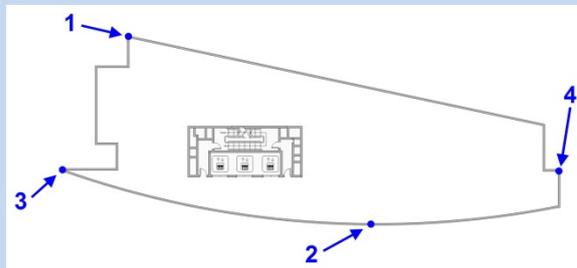


Figure 2 Identifying outer-most points of the pictorial representation of a floor for an unusual floor shape

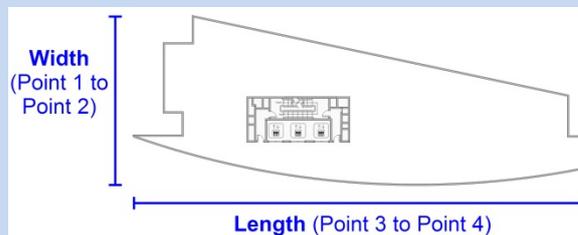


Figure 3 Length and width of the pictorial representation of a floor for an unusual floor shape

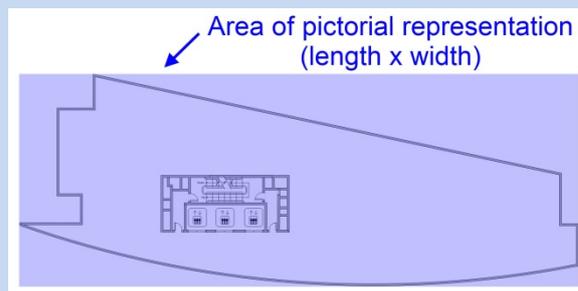


Figure 4 Area of a pictorial representation of a floor for an unusual floor shape

Please note that it is recognised that using this method will result in an area clearly in excess of the actual area of the pictorial representation. However, given the extra space is unlikely to be used for other thing, this is considered a practical solution. For example, in the figures above the space on the left and bottom cannot be used for other purposes although the top right could be.

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6.0 Installation of evacuation diagrams

An emerging trend is the installation of evacuation diagrams to fire doors (e.g. entrance doors to apartments, or hotel rooms, and fire stairs) and also on to smoke doors and fire rated walls.

In some cases, the diagram will be an acrylic based sign or in an acrylic based poster frame. In others, it may be in an aluminium poster frame with an acrylic cover.

These signs or poster frames are then installed on the doors using glue, screws or double sided tape.

Installation of evacuation diagrams on to a fire or smoke door may contravene the requirements of the Building Code of Australia and the relevant Australian Standards (e.g. AS 1905.1) unless the installation has been either tested or a formal opinion has been obtained in relation to how this fitting impacts on the performance of the fire door or fire wall or smoke door.

For example, the material of the sign or its frame may negatively impact on the door's integrity (ability to resist the passage of flames and hot gases from one side of the door to the other) or its insulation (ability to maintain a temperature on the surface that is not exposed to the fire below specified limits). Also, the method of installing the sign to the door may have similar negative impacts.

At this time, FPA Australia is not aware of any evidence that these signs or poster frames have been tested on fire or smoke doors, that any formal opinions have been obtained or that such installation is detrimental.

7.0 Recommendations

AS 3745-2010 provides clear guidance on the preparation of evacuation diagrams and although this standard is not specifically referenced by legislation, FPA Australia considers it represents best practice for the development and implementation of emergency plans for facilities.

As such, FPA Australia recommends that:

1. Anyone conducting a business or undertaking at a facility should ensure they have evacuation diagrams in accordance with the requirements of AS 3745-2010.
2. Anyone involved in the preparation of evacuation diagrams produces such diagrams in accordance with the requirements of AS 3745-2010.

In addition, FPA Australia is aware of concerns regarding the installation of evacuation diagrams on fire doors and other fire resistant elements of construction and therefore recommends that:

3. Evacuation diagrams are not fitted to fire doors, smoke doors or other fire resistant elements of construction unless this has been tested or a formal opinion has been obtained from an appropriate authority (e.g. a testing laboratory or professional engineer).

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8.0 References

- Fire Protection Association Australia Technical Advisory Committee for Emergency Planning (TAC/17).
- Australian Standard AS 1530.4-2005, *Methods for fire tests on building materials, components and structures - Fire-resistance test of elements of construction* – Published by Standards Australia International Ltd.
- Australian Standard AS 1905.1-2005, *Components for the protection of openings in fire-resistant walls - Fire-resistant doorsets* – Published by Standards Australia International Ltd.
- Australian Standard AS 3745—2002, *Emergency control organization and procedures for buildings, structures and workplaces* – Published by Standards Australia International Ltd.
- Australian Standard AS 3745-2010, *Planning for emergencies in facilities* (including Amendment 1 2014)– Published by Standards Australia International Ltd.
- Model Work Health and Safety Regulations, 2011 (revised at 9 January 2014), available at www.safeworkaustralia.gov.au — Published by Safe Work Australia.
- Managing the Work Environment and Facilities Code of Practice, December 2011, available at www.safeworkaustralia.gov.au — Published by Safe Work Australia.

9.0 Disclaimer

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