

Australian Standard[®]

Automatic fire sprinkler systems

Part 1: Standard

This Australian Standard was prepared by Committee FP/4, Automatic Sprinkler Installations. It was approved on behalf of the Council of Standards Australia on 30 March 1995 and published on 5 July 1995.

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Australian Building Codes Board
Australian Chamber of Commerce and Industry
Australian Chamber of Manufactures
Australian Fire Authorities Council
Australian Fire Protection Association
Australian Water and Sewerage Authorities
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Automatic fire sprinkler systems
Part 1: Standard

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee FP/4 on Automatic Sprinkler Installations to supersede in part AS 2118—1988, *SAA Code for Automatic Fire Sprinkler Systems*, and is the result of a consensus among representatives on the joint committee to produce it as an Australian Standard.

The revisions to AS 2118 have included Standards Australia's requirements to keep product and installation Standards separate. When complete the series will comprise:

AS

2118 Automatic fire sprinkler systems

- Part 1: Standard
- Part 2: Wall wetting sprinklers (Drenchers)
- Part 3: Deluge
- Part 4: Residential
- Part 5: Domestic
- Part 6: Combined sprinkler and hydrant
- Part 9: Piping support and installation
- Part 10: Approval documentation

4118 Fire sprinkler systems

- Part 1.1: Components—Sprinklers and sprayers
- Part 1.2: Components—Alarm valves (wet)
- Part 1.3: Components—Water motor alarms
- Part 1.4: Components—Valve monitors
- Part 1.5: Components—Deluge and pre-action valves
- Part 1.6: Components—Stop valves and non-return valves
- Part 1.7: Components—Alarm valves (dry)
- Part 1.8: Components—Pressure reducing valves
- Part 1.9: Components—Accelerators and exhausters

Part 2.1: Piping—General

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

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STANDARDS AUSTRALIA

Australian Standard

Automatic fire sprinkler systems

Part 1: Standard

SECTION 1 SCOPE, DEFINITIONS,
CLASSIFICATION AND DESIGN DATA

1.1 SCOPE This Standard specifies requirements for the installation of standard sprinkler systems in buildings.

1.2 NEW DESIGNS AND INNOVATIONS Any alternative materials, designs, methods of assembly, procedures and similar that do not comply with the specific requirements of this Standard, or are not mentioned in it, but that give the equivalent results to those specified, are not necessarily prohibited. The Committee on Automatic Sprinkler Installations can act in an advisory capacity concerning equivalent suitability, but any required approval remains the prerogative of the regulatory authority.

1.3 REFERENCED DOCUMENTS A list of referenced documents is given in Appendix A.

1.4 DEFINITIONS For the purpose of this Standard the definitions given in AS 2484.1, AS 2484.2, AS 3500.0 and that below apply.

1.4.1 Alarm valve—a non-return valve which allows the water to enter the installation and operate alarms when the installation pressure falls below the water supply pressure.

1.4.2 Approved—approved by the regulatory authority.

1.4.3 Assumed area of operation—the area, i.e. the number of sprinklers likely to operate, in a sprinklered building which is considered may be involved in a fire. The assumed area of operation is different in each hazard class.

1.4.4 Regulatory authority—a Minister of the Crown, a government department, or other public authority having power to issue regulations, orders, or other instructions in respect of any subject covered by this Standard.

NOTE: Where adoption of this Standard is not a requirement of a regulatory authority but is a requirement of a body such as a relevant insurance company or association, then that body, or their nominees such as the Insurance Council of Australia, may perform the functions of the regulatory authority for the purposes of this Standard.

1.4.5 Authorized inspector—an inspector appointed by the regulatory authority.

1.4.6 Building owner—the owner of a building or his authorized representative.

1.4.7 Fire and draught stop—a partition or bulkhead extending from end to end and top to bottom of a concealed space, installed to delay the spread of fire and constructed from imperforate materials which are non-shatterable under fire conditions.

NOTES:

- 1 Examples of acceptable fire and draught stops include the following:
 - (a) Structural features such as a reinforced beam or steel joist extending to or through the ceiling, and a brick wall extended up through the ceiling to the floor above.
 - (b) A purpose-built partition mounted on wood or steel framework, constructed of 10 mm gypsum board, 0.6 mm sheet steel or 7 mm high-density tempered hardboard.

2 Only the following apertures are permitted:

- (a) Openings for the passage of individual pipes, conduits and airconditioning ducts, provided that such openings are reasonably close fitting.
- (b) Openings not exceeding 2 m in width for the passage of groups of pipes, conduits and airconditioning ducts, protected by a 'cut-off' sprinkler or sprinklers as required to provide full protection to such openings.

1.4.8 Inferior wall—any wall with an FRL of less than $-/30/30$ and for an inferior external wall the FRL applies only to the external face.

1.4.9 Net positive suction head (NPSH) (of a pump)—the total inlet head plus the head corresponding to the atmospheric pressure minus the head corresponding to the vapour pressure. NPSH, as well as inlet total head, is referred to the reference plane. It is necessary to make a distinction between—

- (a) required net positive suction head (NPSHR)—a function of pump design, which is available from the pump manufacturer; and
- (b) available net position suction head (NPSHA)—a function of the system in which the pump operates, which can be calculated for any installation.

1.4.10 Open joists and exposed common rafters—a series of members (including purlins) spaced not more than 600 mm apart, measured from centre to centre of the members.

1.4.11 Sprinklered area—an area of a building equipped with a sprinkler system installed in accordance with this Standard, and separated from non-sprinklered areas in accordance with this Standard.

1.4.12 Sprinklered building—a building equipped throughout with a sprinkler system installed in accordance with this Standard.

1.4.13 Post or box pallet—solid or mesh box with the open face uppermost, designed to be stacked one upon the other in a self-supporting manner.

SECTION 2 CLASSES OF SPRINKLER SYSTEMS AND DESIGN DATA

2.1 CLASSES OF SYSTEMS Sprinkler systems shall be classified on the basis of the hazard classes of occupancy and shall be designated accordingly, viz. light, ordinary and high. (See Clause 2.2 for the classification of occupancies according to hazard class.)

2.2 CLASSIFICATION OF OCCUPANCIES

2.2.1 General The following lists provide a guide to the classification of occupancies. The listings cannot be considered to be exhaustive. Where sprinkler protection is being designed for an occupancy which is not listed, the occupancy should be related to that which could be considered to behave in a similar manner under fire conditions.

2.2.2 Light hazard occupancies Examples of light hazard occupancies are as follows:

Art galleries	Medical and dental consulting rooms
	Museums (low combustible loading)
Bath (Turkish and Sauna)	
Boarding houses and residential sections of clubs, hotels and motels	Offices
	Prisons
Churches and chapels	
	Schools, colleges, universities
Hospitals, orphanages, homes and asylums	Sewerage works
	Waterworks and pumping stations
Libraries (excluding stack rooms)	
Lodging houses	

The piping and pressure and flow requirements for light hazard systems are not designed to provide adequate densities should more than six sprinklers come into operation. Therefore, where there is any undivided* area in excess of 126 m² within a building otherwise classified as light hazard, the sprinklered areas (see Clause 1.4.11) shall be classified throughout as ordinary hazard 1. Corridors and lobbies requiring one row of sprinklers only, are exempted from this area limitation (see Clause 9.1).

2.2.3 Ordinary hazard occupancies Ordinary hazard occupancies are divided into four groups as follows:

NOTE: Premises having mixed occupancies must be referred to the regulatory authority for a decision.

* Undivided areas are those enclosed between full height walls and partitions, adequate to delay the flow of hot gases until a sprinkler is operated.