AS 2118.2:2021

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Automatic fire sprinkler systems

Part 2: Wall wetting sprinkler systems

AS 2118.2:2021

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Australasian Fire and Emergency Service Authorities Council
Australian Building Codes Board
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Australian Institute of Building Surveyors
CSIRO
Department of Health and Human Services, Vic.
Engineers Australia
Exova (Testing Interests Australia)
Fire Protection Association Australia
Hydraulic Consultants Association Australasia
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Preface

This Standard was prepared by the Standards Australia Committee FP-004, Automatic Fire Sprinkler Installations, to supersede AS 2118.2:2010, *Automatic sprinkler systems, Part 2: Drencher systems*.

The objective of this document is to provide system designers and installers with a set of requirements for the design, installation and commissioning of wall wetting sprinkler systems to provide protection to the unprotected opening infills of a building subject to the limitations detailed in this document.

NOTE Atrium protection details are contained in the NCC.

The objective of this revision is to update the type of sprinklers (previously referred to as drenchers) to be installed, including their orientation, to enhance the efficacy of the wall wetting sprinkler system.

The AS 2118 suite of sprinkler Standards is structured into two groups: systems (AS 2118 series) and components (AS 4118 series). A list of all parts in the AS 2118 and AS 4118 series can be found in the Standards Australia online catalogue.

The major changes in this edition are as follows:

(a) Alignment with NCC terminology.

(b) Update to technical equipment in line with recent research testing and results.

(c) Update of design criteria in line with recent research testing and results.

(d) Clarification on the water supply requirements for different applications of this document.

(e) Limit of protection provided by wall wetting sprinklers to 40 kW per m^2 in response to recent research testing and results.

The terms “normative” and “informative” are used in Standards to define the application of the appendices to which they apply. A “normative” appendix is an integral part of a Standard, whereas an “informative” appendix is only for information and guidance.

A note to a clause in this document is designed to draw attention to a condition that needs to be considered when applying the clause; for example, a reminder that another Standard needs to be consulted which could conflict with the clause.

A commentary is an explanation as to why the clause was written or developed and is primarily intended to assist with how the clause would be applied in practice (see box below).

This document includes a commentary on some of the clauses. The commentary directly follows the relevant clause, is designated by “C” preceding the clause number and is printed in italics in a box. The commentary is for information and guidance only and does not form part of the document.

Contents

Introduction

Where heat radiated by a fire source feature impinges on an unprotected opening infill of the building at sufficient levels, failure of the infill and/or ignition of the contents can occur. To mitigate this risk, wall wetting sprinklers are required by the National Construction Code (NCC) to provide protection where fire can spread from a fire source feature to the building.

Wall wetting sprinklers may also be required by the NCC to provide protection to a path of travel.

Research on the behaviour of glazing under radiant heat conditions and the ability to protect openings has shown that when water is sprayed uniformly and covers the entire surface area of a glass infill, it can reduce the risk of failure and the passage of radiant heat. Similarly, a uniform and complete film of water onto both combustible and non-combustible (but not fire rated) infills in wall openings, can reduce the radiant heat transfer from an exposure fire and help prevent ignition or deformity. The protection criteria detailed in this document is limited to a maximum radiant heat exposure of 40 kW/m^2.

The purpose of wall wetting sprinkler systems is to provide sufficient and uniform water spray upon opening infills, such as windows and doors, to mitigate the effects of radiant heat from adjacent fire sources.

The title of this Part of the AS 2118 series, “Wall wetting sprinkler systems”, has been chosen to align with the NCC terminology.

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Part 2: Wall wetting sprinkler systems

Section 1 Scope and general

1.1 Scope and application

1.1.1 Scope

This document sets out requirements for the design, installation, and commissioning of wall wetting sprinkler systems where the exposure protection requirements of AS 2118.1 do not apply. The requirements are intended to provide automatic external and/or automatic internal protection to the unprotected opening infills of a building.

C1.1.1 *Wall wetting sprinkler systems may be either internal or external. This document covers external protection of fire source exposed building infills and internal protection where egress paths pass unprotected opening infills of the building, as required in the NCC.*

1.1.2 Application

Wall wetting sprinkler systems designed to this document are intended to meet the requirements of the NCC wherever "wall wetting sprinklers" are required for otherwise non-sprinkler protected buildings and where the radiant heat exposure does not exceed 40 kW/m^2. Where a building is not sprinkler protected throughout, but the sprinkler protected areas are in accordance with AS 2118.1, AS 2118.4, AS 2118.6 or FPAA101H, wall wetting sprinklers, where required by the NCC for the non-sprinkler protected parts of the building, shall be designed to this document.

NOTE 1 Atrium protection details are given in the NCC.

NOTE 2 Refer to the Verification Methods CV1 and CV2 of the NCC for more information on the level of heat flux that can be received by a building from a fire source feature.

NOTE 3 Where atrium wall wetting sprinklers are installed in a sprinkler protected building in accordance with the requirements of the NCC, the provisions of this document may be used for sprinkler positioning.

C1.1.2 *The application of this document is for buildings or parts of buildings that do not otherwise have internal sprinkler protection. Where the building, or part of that building, is internally sprinkler protected, reference should be made to the design documents for those internal systems with regards to external wall wetting design and installation.*

1.2 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:

NOTE Documents referenced for informative purposes are listed in the Bibliography.

AS 1670, *Automatic fire detection and alarm systems—System design, installation and commissioning*

AS 1851, *Routine service of fire protection systems and equipment*

AS 2118.1, *Automatic fire sprinkler systems, Part 1: General requirements*