

The use of Street Hydrants for fire protection purposes

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Author: FSSPR Unit
Sponsor: BSR Unit
Authorised by: ACFO, Fire Safety

1. PURPOSE

The purpose of this guideline is to provide further guidance to building design team members and building surveyors with respect to the application of Australian Standard AS 2419.1, *Fire hydrant installations, Part 1: System design, installation and commissioning* as they relate to street hydrants that are situated throughout Victoria, inclusive of both 2005 and 2021 versions.

This guideline also intends to provide a degree of guidance to designers of buildings and structures to ensure they can fulfill their statutory obligations under Section 28 of the *Occupational Health and Safety Act 2004*.

2. BACKGROUND

References herein to AS 2419.1 without the year of revision relate to both 2005 and 2021 versions, as applicable to the subject design or installation.

AS 2419.1 is developed at a nation-wide level considering input from relevant state and regional fire authorities. Although it captures the key provisions that facilitate the overall objectives of the various fire authorities, the specific requirements associated with each fire authority may not be fully defined. Particularly where new considerations emerge with the ongoing development of local firefighting strategies and technologies introduced to the local built environment.

This guideline presents the considerations of the Fire Rescue Commissioner with respect to utilising street hydrants for the purposes of fire protection of the built environment in its area of operation.

The Regulation 129 report and consent process under the Building Regulations 2018 allows the Fire Rescue Commissioner to assess the building's fire safety design. During the assessment process, consideration is given to the factors associated with utilising firefighting water from a street hydrant. These considerations may be directly related to the effectiveness of fire brigade intervention, firefighter health and safety and fire brigade appliance protection. This guideline enhances the status of AS 2419.1 through the provision of necessary, supplementary guidance material that enhances fire brigade intervention effectiveness, firefighter safety as well as fire brigade appliance protection.

3. DEFINITIONS

For the purpose of this document, the following definitions will apply.

Design team means the professional group comprising of the architectural designer, fire service design engineer, builder, and owner.

Chief Officer maintains the same definition as Section 3(1) of the *Building Act 1993*.

Fire brigade appliance means a heavy road vehicle that carries FRV firefighters and firefighting equipment to a fire.

Fire brigade intervention means all FRV activities commencing from the time of notification of an incident, through to fire extinguishment and overhaul, including fire brigade operations.

Fire Rescue Commissioner refers to the Fire Rescue Commissioner of Fire Rescue Victoria (FRV). Pursuant to Section 100 of the *Fire Rescue Victoria Act 1958*, the Fire Rescue Commissioner is the successor at law to the Chief Officer of the former Metropolitan Fire and Emergency Services Board (MFB). From 1 July 2020, the Fire Rescue Commissioner's title is substituted for any reports that were issued by the Chief Officer of the MFB pursuant to relevant building legislation.

4. CRITERIA AND ASSESSMENT

Where a building design proposes to adopt street hydrant installations to satisfy the requirements of the National Construction Code 2022 (NCC), there are a number of factors that must be considered.

4.1. When can the use of a street hydrant be considered under AS 2419.1?

AS 2419.1 identifies the circumstances where street hydrants, which are situated within public infrastructure mains, can be used within a design setting, to protect a building. These circumstances are broadly summarised below.

- a) Street hydrants must only be considered as feed hydrants;
- b) They must meet the relevant system performance requirements for pressure and flow;
- c) Situated to conform with the location requirements for external feed fire hydrants;
- d) Not more than two street hydrants can be considered in a single building design solution;
- e) They are not to be considered where fire brigade booster connections are installed or proposed to be installed to the subject building.

Section 1, Clause 1.1 of AS 2419.1-2021, now prescribes scope limitations for buildings representing significant hazards or require complex strategies for firefighting. Designers are to be conscious of these introduced scope limitations.

Where there is a desire by the design team to utilise street hydrants in a manner that is inconsistent with the requirements of AS 2419.1, or in a building that is excluded from the scope of AS 2419.1 Clause 1.1, the report and consent of the Fire Rescue Commissioner must be obtained under Regulation 129 of the Building Regulations 2018.

Note: AS 2419.1 – 2021 has introduced additional considerations regarding street hydrant provisions and locations. It is the expectation of the Fire Rescue Commissioner that AS 2419.1 – 2005 street hydrant designs also adopt these sensible provisions, which include providing location plans, and street hydrant setbacks from Electric Vehicle Charging Stations and Gas Assemblies. These are detailed within Clauses 3.5.2 and 3.5.3.1 (b) of AS 2419.1 – 2021.

4.2. Does the street hydrant achieve the required capacity for effective firefighting?

As street hydrants may only be considered where there is compliant pressure and flow within the public infrastructure main, an adequacy assessment must be undertaken. An adequacy assessment can be in the form of a physical commissioning test or through the interpretation of reliable water authority data.

An appropriate degree of conservatism and foresight must be exercised by design team members when street hydrants form part of their design solution as potential pressure and/or flow reductions within the public infrastructure main may be implemented by the relevant water authority.

The relevant water authority should be consulted for advice on this matter prior to any decision on the adequacy of the system.

4.3. Will the street hydrant provide a safe working environment for firefighting?

This part of GL-04, contains additional information that is not already addressed within the relevant sections of AS 2419.1. This information has been specifically developed to inform building design team members and building surveyors of the safety concerns that firefighters are likely to experience when utilising existing street hydrants to provide total or partial coverage to a building.

To determine whether the location of a street hydrant will provide a safe and practical working environment, design team members and/or the building surveyor must consider the following assessment criteria. Each item should be met with a “**YES**” response for the proposed use of the street hydrant to be considered acceptable.

Where consideration of the assessment criteria yields a “**NO**” response, then the street hydrant location is considered by the *Fire Rescue Commissioner* to represent an unsafe work environment for firefighters. The building design must therefore be amended to include provision for an onsite fire hydrant system.

- a) Is the street hydrant located in a safe and accessible location to the building, satisfying the provisions of AS 2419.1-2021 Clause 3.5.3?

- b) Is the street hydrant clearly indicated¹ and visible from either side of the road from an approaching fire brigade appliance?
- c) Is the street hydrant in working order without any signs of damage that may impact functionality and accompanied by recent field test results?
- d) Where up to two street hydrants are required to achieve coverage—
 - i. is the distance between these hydrants within 90 metres in a commercial setting or 120 metres in a residential setting?
 - ii. are those hydrants connected to a town main having diameter of at least 100mm and capable of simultaneous operation?
- e) Is the street hydrant situated off the roadway, including laneway or other public carriageways?
- f) Is the street hydrant situated where it cannot be obstructed by parked cars, public infrastructure, or other physical obstructions?
- g) Is the street hydrant situated where coverage to the building does not require travelling across a freeway, arterial road, divided road, rail, or tram tracks?

In circumstances where responses to the assessment criteria remain unclear, the design team should seek to obtain the Fire Rescue Commissioner's advice as part of the design process before construction commences. In these instances, FRVs 'Application for Pre-129 Consultation' form should be utilised to obtain this advice.

5. VERIFICATION AND ONGOING MONITORING

Section 165(4) of the *Water Act 1989* details the obligations of councils, water authorities and building owners in respect to providing, installing, marking, and maintaining all street hydrants (A.K.A. fire plugs). The relevant water authority is responsible for keeping all street hydrants in working order, provide conspicuous markers and ensure water is available at all times (except in non-fire emergencies or water shortages).

Private and municipal building surveyors, who rely on street hydrants to—

- a) Satisfy the fire hydrant coverage requirements of AS 2419.1 as they relate to new buildings or building work; or
- b) Address safety concerns arising from the condition or use of a building under a Section 102 emergency order or Section 111 building order, under the *Building Act 1993*;

are requested to impose the following conditions on the relevant permit or approval documentation that they issue.

- i. *As the *Relevant Building Surveyor/*Municipal Building Surveyor has deemed that the use of the street fire hydrant is necessary to provide coverage to the building, it is the onus of the building owner to verify and document the presence of the street hydrant on a six-monthly basis for the life of the building.*

¹ Refer to CFA Guideline 'Identification of Street Hydrants for Fire Fighting Purposes'

- ii. *The property owner must notify the relevant Water Authority and Local Government Agency that the subject street fire hydrant(s) is being relied upon to provide coverage to the building. The notification should detail the location of the applicable street fire hydrant/s and it must request that the Water Authority and the Council register the notification on their respective geographical and asset information systems.*

Note: A sample notification letter is provided within Appendix A of this guideline.

- iii. *If, for any reason, the street fire hydrant no longer provides a safe and practical working environment for use in its approved position, the building owner must notify the Fire Rescue Commissioner without delay. The Fire Rescue Commissioner will then determine an alternative means of satisfying the fire hydrant coverage provisions of AS2419.1 including the ongoing verification obligations. The owner must also write to inform the relevant Council and Water Authority.*
- iv. *The street fire hydrant must be conspicuously identified in accordance with FRV's operational requirements, for the life of the building.*
- v. *The property owner is requested to undertake a test every 5 years, which verifies that the water supply rate and flowing pressure of the street fire hydrant(s) is consistent with the design expectations of AS2419.1.*

6. REFERENCES AND FURTHER INFORMATION

- Australian Standard AS2419.1:2005, *Fire hydrant installations, Part 1: System design, installation and commissioning.*
- Australian Standard AS2419.1:2021, *Fire hydrant installations, Part 1: System design, installation and commissioning.*
- *Building Act 1993*
- Building Regulations 2018
- CFA Guideline 'Identification of Street Hydrants for Fire Fighting Purposes'
- Designing Safer Buildings and Structures, 1st Edition, December 2005, WorkSafe Victoria.
- *Fire Rescue Victoria Act 1958*
- National Construction Code 2022, Australian Building Codes Board.
- *Occupational Health and Safety Act 2004*
- *Water Act 1989*

APPENDIX A – RELEVANT WATER AUTHORITY & RELEVANT LOCAL GOVERNMENT AGENCY SAMPLE NOTIFICATION LETTER

Date: _____

Dear Relevant Water Authority and Relevant Local Government Agency,

This is to inform you that the following street hydrant/s has/have been nominated to provide part of the fire hydrant coverage requirements of Australian Standard AS2419.1:2021, *Fire hydrant installations, Part 1: System design, installation and commissioning* for the building located at:

Address of the building _____

Location of applicable street hydrant/s _____

(Include relevant street number and name)

Nearest cross street to the building _____

I/We respectfully request that this/these nominated street hydrant/s be registered on your respective geographical and asset information systems to ensure that the street hydrant/s remains in service for the life of this building.

- A copy of the building permit/occupancy endorsing the use of the street hydrant accompanies this advice.
- A copy of the Fire Rescue Commissioner's report and consent accompanies this advice.

I/We will obtain the necessary approvals from the Relevant Water Authority and/or Relevant Local Government Agency prior to undertaking the 5-yearly test of the street hydrant(s), and will notify the Relevant Water Authority and/or Relevant Local Government Agency of any water supply and/or pressure deficiencies identified from the test(s).

Endorsement by: Owner/Authorised agent of owner
Postal Address
Email address
Telephone number