



## Fire hydrant concessions for existing buildings

### 1 Purpose

This technical information sheet provides advice to consent authorities on concessions acceptable to Fire and Rescue NSW (FRNSW) regarding the provision of fire hydrant coverage to an existing building or premises that is subject to a fire safety order.

### 2 Scope

This technical information sheet details:

- (a) the application of a concession acceptable to FRNSW, with conditions, on fire hydrant coverage for an existing building or premises
- (b) requirements for the location of feed fire hydrants and attack fire hydrants providing extended fire hydrant coverage
- (c) requirements for minimum performance and other ancillary items applicable to the fire hydrant system, and
- (d) recommendations to the consent authority determining an existing building or premises to which this fire hydrant coverage concession may apply.

### 3 Application

This document applies to any existing building or premises which:

- (a) is subject to a Development Control Order (DCO) issued pursuant to [Division 9.3](#) of the *Environmental Planning and Assessment Act 1979* by the relevant consent authority
- (b) is required to have a fire hydrant system installed to satisfy the requirements of Clause E1.3 of the *National Construction Code (NCC)* and Australian Standard *AS 2419.1*<sup>1</sup>, and
- (c) does not contain fire isolated stairs.

This document does not apply to any existing building or premises which:

- (a) proposes any building work by means of development consent (i.e. complying development certificate or construction certificate), and
- (b) has, or is likely to have, manifest quantities of hazardous chemicals.

This document does not apply to any new building or premises.

This document is to be used by the relevant consent authority when issuing the DCO. Where appropriate, the consent authority should reference this document for any existing premises that the corresponding DCO applies to.

This document grants concession to a retrofitted fire hydrant system with reduced net benefit (e.g. performance) compared to a fire hydrant system that complies with all *NCC* and *AS 2419.1* requirements, which will typically incur much higher costs.

**Note:** FRNSW are mindful of the greater financial burden to retrofit a fully compliant fire hydrant system to an existing building.

<sup>1</sup> *AS 2419.1–2005 Fire hydrant installations, Part 1: System design, installation and commissioning*

When applying this document to any DCO, the resultant fire safety upgrade to the existing building or premises may not satisfy all performance requirements of the current *NCC*.

**Note:** FRNSW acknowledge fire safety upgrades may not fully comply with the *NCC*.

When this document does not apply, including when the existing building does not meet the requirements for the concession to apply, the consent authority may consult with FRNSW by applying for [comment on an occupied building](#).

## 4 Background

Legislation applicable to building design have changed significantly over the last century. In 1912, the *Height of Building Act 1912* and *Ordinance 71* constituted the main building regulations in NSW. These regulations remained in place until repealed by *Ordinance 70*, with *Ordinance 71* being repealed in 1974 and the *Height of Building Act* repealed in 1986.

The *Building Code of Australia (BCA)* was first published in 1988. However, the *BCA* was not adopted in NSW until 1993 via the *Local Government Act 1993—Regulation (Local Government (Approvals) Regulation 1993)*. In 2011, the *BCA* was incorporated into a suite of building and plumbing codes, with the current *NCC* applying to buildings in NSW.

Changes were made by regulators to keep pace with the building industry, to standardise building rules, or respond to significant events. As a result, buildings are designed to differing requirements depending on the provisions applicable at the time of construction. By example, a Class 2 building having a rise in storeys of not more than four did not require a fire hydrant system under *Ordinance 70*, but under the current *NCC* the same building would require an *AS 2419.1* fire hydrant system be installed.

The concession provided in this document ensures applicable buildings and premises are still provided with fire hydrant coverage that enables firefighters to meet their statutory obligations and undertake firefighting intervention.

FRNSW expects an existing building issued with a DCO to install a fire hydrant system, be fitted with a hydrant system complying with *AS 2419.1* when this document does not apply.

**Note:** While the current *NCC* references *AS 2419.1–2005*, this document does make reference to specific provisions from *AS 2419.1–2017*<sup>2</sup>.

## 5 General requirements

### 5.1 Minimum flow rate

- 5.1.1 The minimum flow rate from each feed fire hydrant outlet providing coverage is to be determined in accordance with the requirements of section 2.2.3 of *AS 2419.1–2017*.
- 5.1.2 The number of feed fire hydrant outlets required to discharge simultaneously is to be determined in accordance with the requirements of section 2.2.2 of *AS 2419.1–2017*.

### 5.2 Minimum residual pressure

- 5.2.1 The minimum residual pressure at the outlet of a standpipe connected to a street fire hydrant, or the on-site feed fire hydrant, is to be not less than Table 2.2.3.1(A) of *AS 2419.1–2017* when flowing at the minimum required flow rate for that feed fire hydrant.
 

**Note:** Greater head losses must be considered in the hydraulic calculations when two fire hydrants are required to flow simultaneously.
- 5.2.2 The on-site feed fire hydrant is to have a back-flow prevention device installed according to the requirements of the relevant water supply authority. The minimum residual pressure at the fire hydrant outlet is to include hydraulic losses associated with this device.

<sup>2</sup> *AS 2419.1–2017 Fire hydrant installations, Part 1: System design, installation and commissioning*

### 5.3 Method of measurement and limitations

- 5.3.1 The method of measuring fire hydrant coverage is to be made in accordance with the requirements of section 3.11 of AS 2419.1–2017, including consideration of all limitations which impact on the laid-on ground distance.
- 5.3.2 Fire hydrant coverage 'within a building' is the laid-on ground distance along paths of travel between the final exit (i.e. open space) and the furthestmost point inside the building.

### 5.4 Hardstand areas

- 5.4.1 Hardstand areas required for the fire appliance (e.g. access to on-site feed fire hydrant) are to comply with the requirements of section 3.3 of AS 2419.1–2017.

**Note:** Refer to FRNSW guideline [Access for fire brigade vehicle and firefighters](#) for further information. A public road may serve as the hardstand area.

- 5.4.2 The hardstand area is to provide pedestrian access to the building entry point through which fire hydrant coverage is determined, as applicable to the portions of floor area being covered by that entry point.

## 6 Fire hydrant coverage

### 6.1 Supply from a street fire hydrant

- 6.1.1 A street fire hydrant being used as the feed fire hydrant is to be located within 30 m of the positioned fire appliance (see Figure 1).
- 6.1.2 A street fire hydrant may only be used as the feed fire hydrant if not likely to be obstructed by a parked vehicle nor present a safety hazard to firefighter (e.g. middle of roadway).
- 6.1.3 If the street fire hydrant is not suitable (i.e. cannot be relied upon when fire occurs) then an external feed fire hydrant is to be installed.
- 6.1.4 All portions of floor area are to be within 90 m of the positioned fire appliance, except not more than 70 m is to be within the building (see Figure 1).

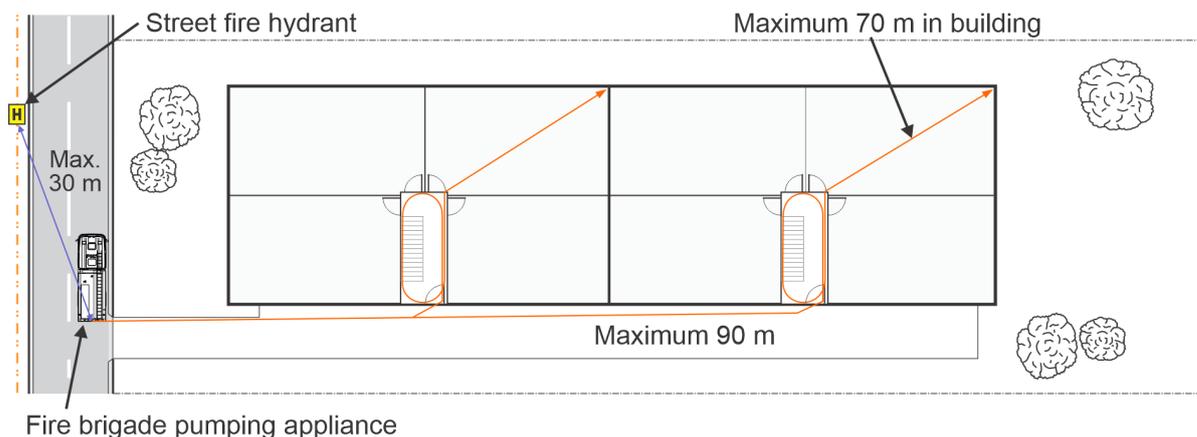


Figure 1 Example of fire hydrant coverage from a street fire hydrant

- 6.1.5 Where appropriate, an application may be made to the relevant water supply authority to request an additional street fire hydrant be installed on their town main water supply network so that street fire hydrant coverage can be achieved.

**Note:** The additional street fire hydrant should be installed equal distance between street fire hydrants located not more than 120 m apart, so the fire appliance is located within 30 m of the nearest street fire hydrant.

- 6.1.6 Not more than two street fire hydrants can be used to provide fire hydrant coverage to all portions of floor area of the residential premises.
- 6.1.7 Where fire hydrant coverage cannot be achieved in accordance with this section, an on-site feed fire hydrant complying with section 6.2, or a fire hydrant system complying with AS 2419.1 is to be provided.
- 6.1.8 A fade and weather resistant sign, A3 in size, is to be permanently affixed at the front of the building or premises at the most likely access point, and have uppercase contrasting text which states (see Figure 2):
  - (a) 'STREET HYDRANT', not less than 30 mm high,
  - (b) 'HP' or 'HR' depending on whether the street fire hydrant is located on the Road or Path, along with arrows to each side and the respective distance to the nearest street fire hydrant in that direction, and
  - (c) 'ADDITIONAL HOSE LENGTHS MAY BE REQUIRED', not less than 20 mm high.

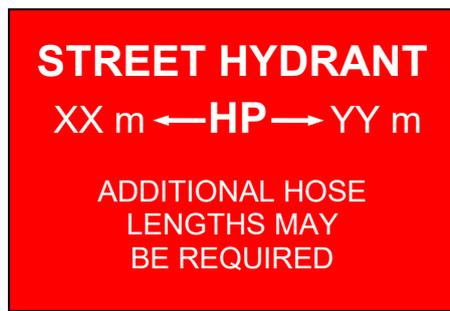


Figure 2 Example of signage required at the front of the building

**Note:** 'XX' and 'YY' is the distance from the sign to the street fire hydrant in each direction. In cases where multiple access points are likely, a sign should be provided at each access point.

## 6.2 Fire Supply from on-site feed fire hydrants

- 6.2.1 All portions of floor area are to be within 90 m of a fire appliance supplied from an on-site feed fire hydrant, except not more than 70 m is to be within the building (see Figure 3).

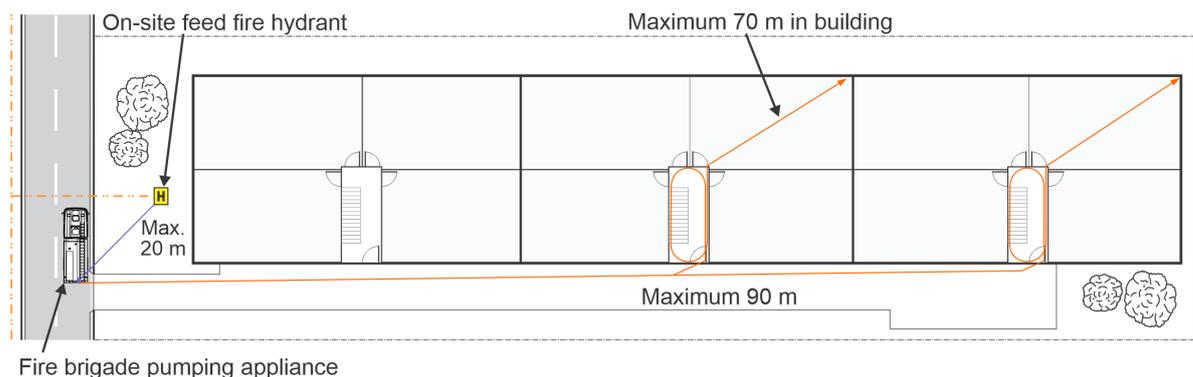


Figure 3 Example of fire hydrant coverage from an on-site feed fire hydrant

- 6.2.2 The on-site feed fire hydrant supplying the fire appliance is to be located within 20 m of the required hardstand area (e.g. driveway or public road adjacent to the site boundary).
- 6.2.3 Not more than two external on-site feed fire hydrants can be used to provide fire hydrant coverage to all portions of floor area of the premises.
- 6.2.4 External on-site feed fire hydrants are to comply with the requirements of section 3.2.2 of AS 2419.1–2017, except for numbered identification disc as per clause 3.2.2.1(e).

6.2.5 An external on-site feed fire hydrant combined with one street fire hydrant can be used to provide fire hydrant coverage to all portions of floor area of the premises (see Figure 4).

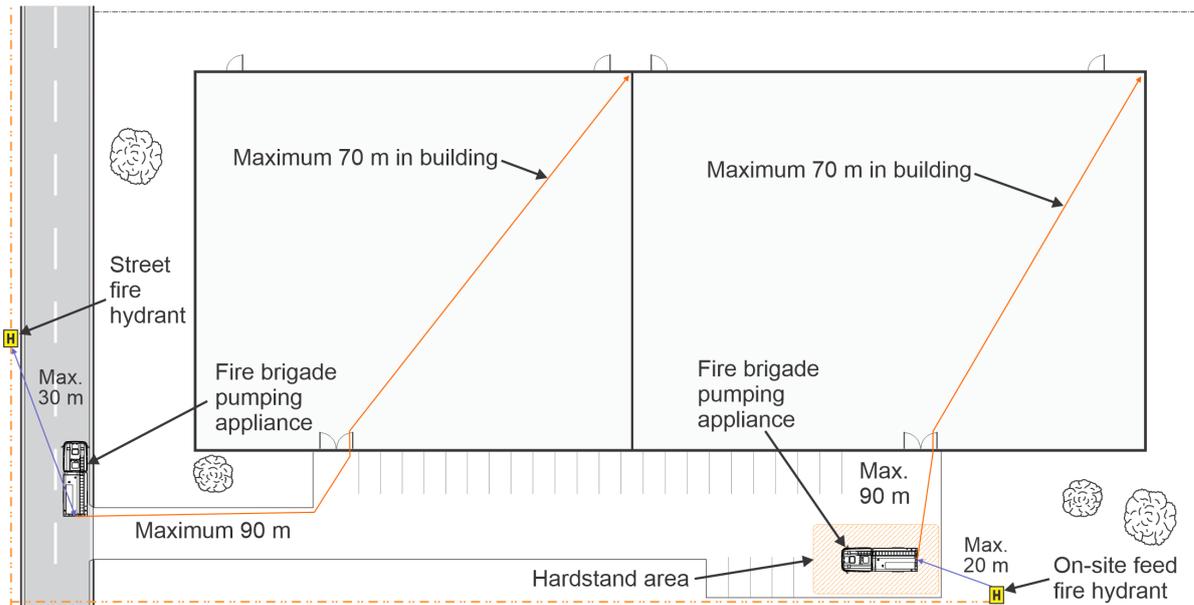


Figure 4 Example of fire hydrant coverage from street fire hydrant and on-site feed fire hydrant

6.2.6 An on-site feed fire hydrant is to be installed:

- (a) externally in a location readily visible and accessible from the street where vehicular access is provided and any required hardstand area
- (b) in an accessible position having pedestrian access to the building, and
- (c) not less than 10 m from any electrical substation, distribution board, kiosk or the like, dangerous goods including LPG installations, or stored combustible goods.

6.2.7 A fade and weather resistant sign, A4 in size, is to be permanently affixed adjacent to each on-site feed fire hydrant, and have uppercase contrasting text which states (see Figure 5):

- (a) 'FEED FIRE HYDRANT', not less than 25 mm high, and
- (b) 'ADDITIONAL HOSE LENGTHS MAY BE REQUIRED', not less than 15 mm high.



Figure 5 Example of signage required adjacent to each feed fire hydrant

6.2.8 Fire hydrant outlets are to be fitted with a 65 mm 'Storz' hose connection in accordance with FRNSW technical information sheet [FRNSW compatible Storz hose connections](#).

6.2.9 Where fire hydrant coverage cannot be achieved in accordance with this section, a fire hydrant system complying with AS 2419.1 is to be provided.

### 6.3 External attack fire hydrants

6.3.1 When a fire hydrant system otherwise complying with AS 2419.1 is being installed, all portions of floor area are to be within 90 m of an external attack fire hydrant, except not more than 70 m is to be within the building (see Figure 6).

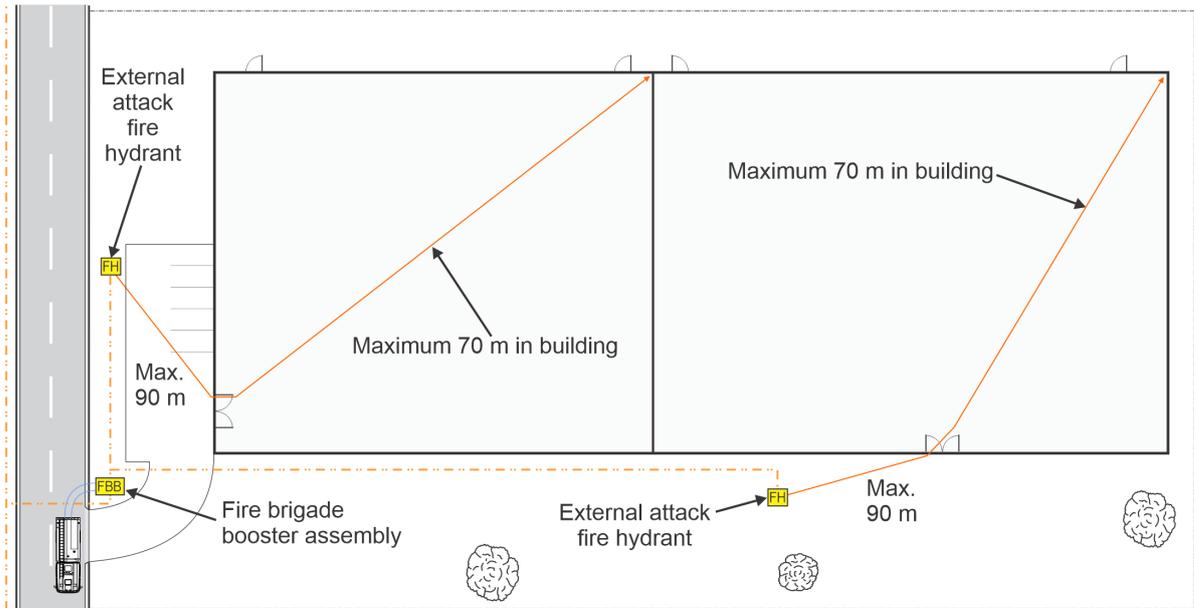


Figure 6 Example of fire hydrant coverage from external attack fire hydrant

- 6.3.2 A fade and weather resistant sign, A4 in size, is to be permanently affixed adjacent to each external attack fire hydrant, and have uppercase contrasting text which states (see Figure 7):
- (a) 'ATTACK FIRE HYDRANT', not less than 25 mm high, and
  - (b) 'ADDITIONAL HOSE LENGTHS MAY BE REQUIRED', not less than 15 mm high.



Figure 7 Example of signage required adjacent to external attack fire hydrant

## 7 Fire sprinkler system

- 7.1 If the DCO applies to a Class 2 or 3 building that requires a fire sprinkler system under Table E1.5 of the NCC, the fire hydrant system concessions applicable under Specification E1.5a of the NCC may be applied if a fire sprinkler system is installed, including:
- (a) the fire hydrant system being a dry fire hydrant system
  - (b) feed fire hydrants being located within 60 m of the fire appliance
  - (c) an on-site fire pumpset not being required
  - (d) the minimum fire hydrant outlet flow being 6 L/s; and
  - (e) the minimum pipe sizes specified in AS 2419.1 not applying.

**Note:** The DCO should consider adequate provision for fire safety in respect to all fire safety systems, including a fire sprinkler system under Clause E1.5 of the NCC.

- 7.2 If a fire sprinkler system is installed and a dry fire hydrant system is being considered, Council should consult with FRNSW on the additional requirements of a dry fire hydrant system to facilitate the needs of the fire brigade.

## 8 Ancillary provisions

- 8.1 A fade and weather resistant fire hydrant system block plan (see Figure 8) is to be permanently affixed in a readily visible position at:
- (a) each on-site feed fire hydrant (when installed), and
  - (b) the front of the building at the likely access point (when feed fire hydrants are installed).

**Note:** When multiple access points exist, a block plan should be provided at each access.

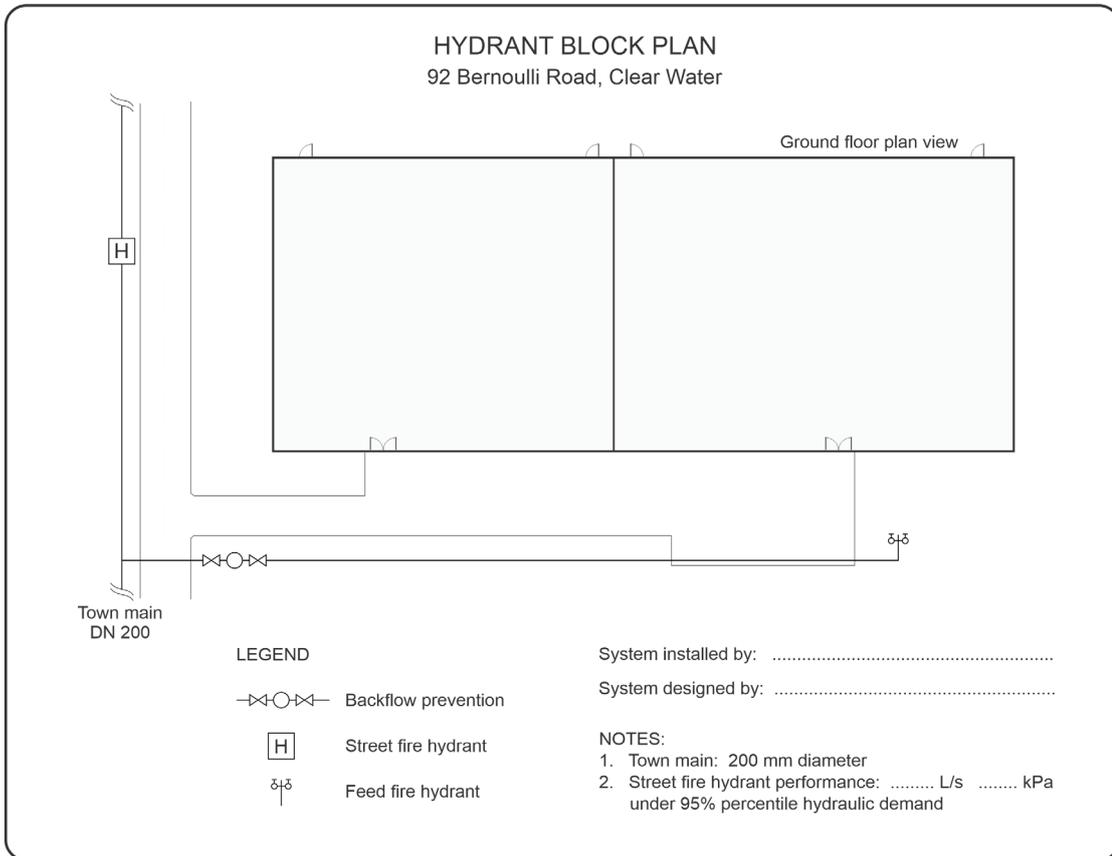


Figure 8 Example of fire hydrant system block plan

- 8.2 The fire hydrant block plan is to be a fade and weather resistant sign, minimum size of A4, and have uppercase contrasting text which indicate the following:
- (a) a plan of the building and its entry points
  - (b) the location of street fire hydrants and size and location of the town main/s
  - (c) the pressure and flow available under 95<sup>th</sup> percentile demand condition
  - (d) the location of attack fire hydrants and on-site feed fire hydrants (where installed)
  - (e) the location of back-flow prevention device and all valves (e.g. isolation)
  - (f) the location of any significant hazard (e.g. electrical substation/kiosk, LPG installation or dangerous goods storage), and
  - (g) the name of the installer and the designer of the fire hydrant system.
- 8.3 The fire hydrant block plan is to be oriented in the manner that reflects the aspect of the fire hydrant system as it is presented to the reader.

## 9 Contact us

For further information contact the Fire Safety Branch on (02) 9742 7434 or email [firesafety@fire.nsw.gov.au](mailto:firesafety@fire.nsw.gov.au).