



**Fire and Emergency Services (FES) Commissioner's  
Operational Requirement Guideline (ORG)**

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**Authorised:** Superintendent Built Environment Branch

**ORG 4: Water Supply and Access**

**1. Intent**

A sustained and suitable (quantity, flows and pressure) water supply for hydrants and sprinklers is critical for ensuring successful firefighting operations.

**2. Operational Requirement**

The FES Commissioner requires the following:

- i. a four hour hydrant supply and one hour sprinkler supply should be provided except where concessions exist in the National Construction Code (NCC),
- ii. unimpeded safe access to the water supply must be provided,
- iii. as a minimum all parts of the building should be covered by a firefighting hose in accordance with Australian Standard (AS) 2419.1,
- iv. if sprinklers are required they must provide coverage to the entire building,
- v. the flow requirements in the AS 2419.1 should be considered the minimum requirements – at times more may be requested based on the hazard presented or the DFES firefighting resources and equipment available.
- vi. All fire engineered solutions proposing alterations in water flow must provide quantitative analysis and the solution be agreed as acceptable by DFES Built Environment Branch before proceeding,
- vii. at the time that firefighters first apply water to the fire, the maximum radiation flux at 1.5 m above the floor is no greater than 4.5 kW/m<sup>2</sup> and the smoke layer is not less than 2 m above the floor.

Consultation with the DFES Built Environment Branch is required for any deviations from the points above or if clarification is required.

**3. Reason**

Without water firefighters cannot extinguish a fire and they may not be able to enter a building without the protection of a hose with a suitable supply (quantity, flows and pressure). Lives may be lost and damage to property and the environment increased.

A lack of water will effect fire suppression in a building and a fire can quickly grow to a size where the ability of firefighters to conduct internal search and rescue activities and to locate and suppress the fire will be hampered by the effects of severe radiated heat and visual obstruction due to smoke.

Without a suitable water supply, particularly with large buildings, a fire emergency may unnecessarily become a protracted incident, involving substantial firefighting resources and affect many surrounding businesses, residents and the environment. When resources are not immediately available due to the distance between fire stations and/or when crews are committed to other emergencies, the effect may be even greater.

## 4. Risk Management

DFES defines risk as: *'The threat that an event or activity adversely affects our ability to achieve business and operational objectives or the failure to exploit opportunities to maximise stakeholder value.'*

In the event of a building fire, there is an extreme risk that the provision of an unsuitable water supply will:

- i. allow unnecessary spread of fire through additional fire compartments of a building and to adjacent exposures,
- ii. present limitations on the ability of firefighters to access the location of the fire or trapped occupants,
- iii. inhibit the ability of occupants to access escape routes,
- iv. cause injury and death to occupants and/or firefighters,
- v. increase damage to environment and heritage values.

The FES Commissioner's Operational Requirements are designed to help manage the risk.

## 5. Resources

Additional DFES water supply information for building owners, authorities having jurisdiction and fire safety practitioners is available in DFES technical notes and operational requirement documents:

<https://www.dfes.wa.gov.au/regulationandcompliance/buildingplanassessment/pages/publications.aspx>

## 6. References

AS 2419.1 Fire hydrant installations system design, installation and commissioning, Standards Australia, Strathfield, NSW, Australia.

DFES Enterprise Risk Management Procedure (2018) Version1, Enterprise Risk.

Grimwood, P. and Sanderson, I. (2014), *Glasgow Caledonian University: Research into firefighting water flow-rates at 5,401 UK building fires 2009=2012*, International Fire Professional, October 2014.

National Construction Code Series (as amended) Volume One Building Code of Australia 'Class 2 to 9 Buildings', Australian Building Codes Board, ACT, Australia.