

FIRE AND EMERGENCY SERVICES COMMISSIONER'S OPERATIONAL REQUIREMENTS WA BUILDING REGULATIONS 18B(1)

This document aims to provide an overview and guidance on the Fire and Emergency Services (FES) Commissioner's Operational Requirements. It should not be considered exhaustive. Each building and its surrounding environment is unique and Department of Fire and Emergency Services (DFES) resources available may differ in various geographical areas. DFES will assess all plans and specifications submitted for consideration under section 18B of the Building Regulations 2012 on merit on a case-by-case basis. This document does not replace any statutory requirements or restrict the FES Commissioner from providing comment more broadly on a building's fire safety design.

THE FES COMMISSIONER'S OPERATIONAL REQUIREMENTS ARE CRITICAL

A building's compliance with the FES Commissioner's Operational Requirements is critical for preventing fires, ensuring community preparedness and resilience and safe and effective firefighting operations. Operational Requirements relate to a range of hazards, however, the guidance provided in this document and the documentation supporting it, primarily relate to building fire.

Buildings should be designed and constructed in a manner that allows firefighters to safely and effectively carry out emergency operations, taking into account the operational limitations of personal protective clothing and equipment, crew resourcing, standard training and procedures and the lead time for additional support (distance from available additional fire stations). The firefighting requirements of the National Construction Code's Building Code of Australia (BCA) are typically considered the minimum. A building's fire safety systems should be considered more holistically, as these, not firefighters, are the first line of defence during a fire.

Firefighters perform their functions at all times of the day in unfamiliar environments where decisions need to be made quickly and often with limited information. Firefighters take calculated risks to carry out their job and the amount of risk will depend on the potential outcome. The fire safety systems available in the building are a key consideration in this risk assessment. Internal and external firefighting becomes more challenging as the complexity of a building (height and size) increases. Properly considered and well maintained fire safety systems lower the risks associated with firefighter intervention and assists with achieving better firefighting outcomes.

Effective and successful emergency operations rely on building designs which include firefighting operational requirements, installed fire safety systems and occupants' knowledge and understanding of the fire safety strategy. Poor design may result in serious injury, fatalities or more significant property loss.

OPERATIONAL REQUIREMENTS – THE FIVE FUNDAMENTALS

EMERGENCY VEHICLE ACCESS: We need access for emergency vehicles. Poor or inadequate access can delay the emergency response and increase the risk to lives and the level of damage to the property and its surrounding environment. Refer to ORGs 3.2 and 3.3

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INFORMATION: We need information to establish whether a person's life is at risk, the location of the fire and any hazardous conditions, and to identify the fire safety systems available in the building. Without access to the necessary information decision making is hindered and firefighting operations delayed. Delays increase the risk to occupants and the level of damage to the property and its surrounding environment. Refer to ORG's 1, 3 & 8.

WATER: We need safe and easy access to a building's suitable water supply and it must have adequate quantity, flows and pressure. The bigger the building the more water we may need. Firefighters cannot carry out firefighting operations without water. Refer to ORG's 1 & 4 - 7.

SAFE EVACUATION AND FIREFIGHTER ACCESS: We need evacuation routes to be designed and constructed to allow safe and effective occupant evacuation and use by firefighters for firefighting purposes. Restrictions or delays in occupants exiting and/or firefighters entering a building, increases the risk to occupants and the level of damage to the property. Refer to ORG's 1, 3, 8, 9 & 10.

STRUCTURAL INTEGRITY: We need the building's structural systems to be designed and constructed to contain the fire to the area of origin and ensure the building is stable during the fire and until after it has been extinguished and recovery actions initiated. Poor structural integrity increases the risk of occupants and firefighters being trapped in a burning building and compromises firefighting operations. Refer to ORG's 1, 7, 9 & 10.

OPERATIONAL REQUIREMENTS' GUIDELINES (ORG) – OVERVIEW

1. MAINTENANCE: All passive and active fire safety systems must be maintained to their installed standard in accordance with the *WA Building Regulations* (regulation 48A). DFES recommends Australian Standard (AS) 1851 be adopted for all fire safety system maintenance requirements. If a required fire safety system does not work when it needs to, firefighting operations will be compromised increasing the risk to life of occupants and firefighters and the level of damage to the property. *Link to ORG 1.*

2. PERIMETER VEHICLE ACCESS: Firefighting access requirements of the BCA are generally considered the minimum. Vehicle access provides firefighters with the ability to move personnel and resources to and around a building and ensure protection for firefighters from exposure to heat and flames and potential structural collapse. Failure to provide clear and safe access can result in firefighters being unable to defend the whole, or part of, a property. This can be particularly important in designated bushfire prone areas. *Link to ORG 2.*

3. INFORMATION: Clear information on arrival at an incident allows firefighting operations to commence quickly and appropriately for the situation. Depending on the building's design, firefighters will expect to have access to a range of information sources, including:

- i. person with local knowledge of the incident (such as a fire warden) and/or of the installed fire safety systems (such as the building facilities manager)
- ii. fire detection control and indicating equipment (FDCIE)
- iii. hazardous material information

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- iv. fire control centre/room
- v. hydraulic block plans

Delays in obtaining information or receiving inaccurate information can result in firefighters being unable to make time critical decisions which impacts the effectiveness of firefighting operations. *Link to ORG 3.*

4. WATER SUPPLY AND ACCESS: Access to a sustained water supply for hydrants and sprinklers is critical for ensuring a successful firefighting response. Insufficient water allows the fire to increase in size and spread beyond its original location. *Link to ORG 4.*

4.1 SUPPLY:

- i. Hydrant water - all buildings must provide the minimum four-hour hydrant supply, except where the BCA deemed to satisfy (DTS) requirements allow a concession.
- ii. Attack hydrant water - all buildings must provide at least the minimum flows required at the minimum pressure of 700kPa.
- iii. Sprinkler water - all buildings must provide the minimum sprinkler system water supply and flows as required by BCA E1.5 and Australian standards and specifications.
- iv. Hydrant and sprinkler firefighting pumps - must be installed where the available water supply in the street main (at peak demand) cannot achieve the minimum flows and pressure as required by the BCA and applicable standards and specifications.

4.2 ACCESS:

Firefighters must have safe and easy access to water tanks and firefighting pumps during an incident. If firefighting pumps do not operate as intended, or the water supply fails, the lack of water will cause operational delays. Firefighters will be unable to safely conduct search and rescue and defend the property and surrounding areas.

5. HYDRANTS: The location, number of hydrants and the water flows as required in the BCA and AS 2419.1 should always be considered the minimum – at times more may be required. All parts of the building must be reachable by a firefighting hose connected to a hydrant. Hydrant locations which are unsafe to access or do not enable all parts of the building to be reached with suitable water limits firefighting operations. *Link to ORG 5.*

6. BOOSTER ASSEMBLIES - HYDRANT AND SPRINKLER: The booster assembly must be located at the front, or on approach to the building as required by AS2419.1 and provided with unobstructed access from its location to where the fire truck will need to site. This is 4.5m for a storz connection to a water tank supply or 10.0m for lay flat hose feed hydrant connections. When required to be used by firefighters, the booster assemblies should not impede access to or egress from the building. E.g. near a required exit door. If firefighters cannot use the assemblies to boost the system/(s), the water supply may prove insufficient for safe and effective firefighting and operations will become limited. *Link to ORG 6.*

7. SPRINKLER SYSTEMS: Sprinklers must be fitted throughout the whole of a building as required by BCA E1.5. Sprinklers should not be omitted by using performance based approaches relying on management practices to limit fuel loads or firefighters to extinguish the fire. Where options to fit a non-AS 2118 system exist in the BCA - additional measures may

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be required by DFES. Sprinklers will generally not extinguish a fire, therefore a hydrant system is also always required. *Link to ORG 7.*

8. SMOKE DETECTION AND ALARM SYSTEM/SMOKE HAZARD MANAGEMENT SYSTEM/SMOKE EXHAUST SYSTEM/ WARDEN INTERCOM PHONE: Occupant warning, smoke exhaust and communication systems must be programmed and maintained to be consistent with the building's evacuation strategy. If these are not, occupants may not be alerted during a fire and remain in the building when it is not safe to do so. Firefighters need to use these systems when and as required during an incident to ensure efficient evacuation and effective firefighting operations. *Link to ORG 8.*

9. EMERGENCY LIFTS: Lifts may be used during an incident to transport firefighters and equipment closer to the fire and/or rescue occupants. However, they should not be installed as an alternative for a building's BCA required exit/(s). Where required by the BCA, the emergency lift/s must be clearly identified as such on the ground floor lift lobby. Two lift operating keys must also be held on site in the fire control centre or room. Failure to do so may delay or restrict firefighting operations. *Link to ORG 9.*

10. FIRE COMPARTMENTATION/SEPARATION/STRUCTURAL INTEGRITY: Structural systems and fire resistance levels in buildings allow firefighters safe access to the location of the fire. Firefighters will need sufficient time to search, and where necessary, evacuate a building of occupants while also suppressing the fire. It is expected that a fire will remain in the compartment of fire origin. A quantitative analysis must be provided to support any departures from the BCA DTS requirements. This must include confirmation of the design's suitability by a structural engineer. A partial or complete structural collapse can kill, injure or trap occupants and firefighters. *Link to ORG 10.*

OPERATIONAL REQUIREMENTS – SAFETY IN BUILDINGS

The FES Commissioner is the Hazard Management Agency (HMA) for fire throughout the State and has the responsibility to manage the hazard across the four aspects of emergency management – prevention, preparedness, response and recovery.

Requirements which aim to meet the HMA responsibilities and strategic control priorities are outlined in the State Hazard Plan for Fire:

<https://semc.wa.gov.au/Documents/Resources/LegislationPolicyPlansProcedureandGuidelines/Plans/StateHazardPlans/InterimStateHazardPlanFire.pdf>

The FES Commissioner's Operational Requirements contribute to performing this duty. Building designs need to comply with the FES Commissioner's Operational Requirements to ensure DFES can safely and effectively fight a building fire to protect life, property and the environment.

DFES provides a range of fire safety information on its website:
<https://www.dfes.wa.gov.au/Pages/default.aspx>.