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

Issued: **April 2020**

Authorised: **Superintendent Built Environment Branch**

ORG 8: Smoke detection and alarm system / smoke hazard management system / smoke exhaust system / Warden Intercom Phone (WIP)

1. Intent
The installed fire safety systems must alert occupants and support and maintain tenable egress routes. They should allow firefighters to quickly determine the stage an evacuation strategy is at and to take manual control if required.

2. Operational Requirement
The FES Commissioner requires the following:
  i. automatic emergency warning systems such as an Emergency Warning Intercommunication System /Building Occupant Warning System (EWIS/BOWS), must be installed as required by the National Construction Code (NCC) and relevant standards,
  ii. the EWIS/BOWS/Smoke Control panel must be co-located with the Fire Indicator Panel installed for the building's smoke detection system,
  iii. the smoke hazard management/ventilation system, must be installed as required by the NCC and relevant standards,
  iv. when a fire engineered solution is proposed to have internal discharge from a pressurised fire isolated stairway (for example the lobby entrance) the mechanical engineers report should be provided in the fire engineering report, confirming that the design achieves the required performance,
  v. evidence should be kept that confirms that the systems are maintained and consistent with the building's evacuation strategy and if applicable, the fire engineering report,
  vi. occupant evacuation strategies must account for the time required to evacuate part or all of the building given the occupant characteristics, including those with impaired mobility,
  vii. fire safety designers should consider and compensate if applicable, for the reduced availability of a stairwell due to firefighting operations,
  viii. WIP phones must be installed as required by the NCC.

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

3. Reason
Firefighters expect building occupants to have an evacuation strategy in place and for it to be consistent with the installed fire safety systems and the fire engineering report if applicable. It is important that building owners/operators/occupants understand this responsibility.

A variety of evacuation strategies are used in large, complex or tall buildings, including:
- (i)   evacuation to a place of safety inside the building (refuge areas/floors),
- (ii)   phased/sequenced evacuation,
- (iii)   stay put/in place, and
- (iv)   whole of building simultaneous evacuation.

Inconsistencies in approach may cause delays to evacuation and the fire isolated escape routes and stairways, designed for occupant safe passage may become filled with smoke and unable to be used. As a result building occupants may become trapped and firefighting operations become more difficult and require more resources. In tall buildings occupant evacuation can have significant challenges because it will often be occurring in the same single route, downwards for occupants and upwards for firefighters. As the height above ground increases, this directly influences the time to descend to a place of safety outside the building, particularly if both occupants and firefighters require the same route. Structural adequacy of the building must be considered to accommodate the time taken for occupant evacuation and firefighter intervention. Refer to OR 10.

Firefighters will take control of the emergency warning and smoke management systems if required to assist occupants to evacuate promptly and efficiently during the emergency response. The WIP system may also be used by firefighters to supplement their own communication channels and should be installed in buildings as required by the NCC and relevant standards.

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 a moderate risk that the provision of a poorly designed, emergency warning system will:
- i.   allow unnecessary spread of fire through additional fire compartments of a building,
- 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.

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

5. Resources
Additional DFES EWIS/BOWS/WIP 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 1670.1, Fire detection, warning, control and intercom systems – Fire, System design, installation and commissioning, Standards Australia, Strathfield, NSW, Australia.

AS 1670.4, Fire detection, warning, control and intercom systems - System design, installation and commissioning - Emergency warning and intercom systems, Standards Australia, Strathfield, NSW, Australia.

AS/NZS 1668.1, The use of ventilation and air conditioning in buildings. Part 1: Fire and smoke control in buildings, Standards Australia, Strathfield, NSW, Australia.

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

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