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GL-04: FIRE DETECTION CONTROL AND INDICATING EQUIPMENT, FIRE CONTROL CENTRE / ROOMS AND TACTICAL FIRE PLANS

1. Purpose:

This Guideline has been provided to assist designers in meeting DFES Operational requirements when planning for Fire Detection Control and Indicating Equipment (FDCIE) (formerly referred to as FIPs), Fire Control Centres (FCC), and Fire Control Rooms (FCR).

It also clarifies the position of DFES in relation to when a FCC has been constructed as a room in multi storey buildings <50m effective height or in class 6, 7, 8 and 9 buildings, having a total floor area >18000 m².

2. Introduction:

A FCC or a FCR are special areas within a building from where major emergency situations can be controlled and monitored and where supporting equipment is provided to assist in that function.

3. Fire Detection Control and Indicating Equipment

Where FDCIE is being connected to the Direct Brigade Alarm (DBA) network, it should comply with AS1670.1 and be located within sight of the Designated Building Entry Point (DBEP), or a FCR, as applicable.

- The DBEP is to be the main entry point of the building with the FDCIE located inside the building i.e. within the lobby / foyer, reception area, lift lobby or the like. The DBEP should be provided with an external alarm indication. This ensures quick and easy location and interrogation of the FDCIE by fire brigade personnel.
- The FDCIE must be clearly visible and readily accessible from within the DBEP. If located within a cupboard as permitted in the DFES DBA Connection Code it must comply with Section 1.1 of the code or AS1670.1 Figure 3.9.3 for clearance for fire fighters.
- If the FDCIE is to be located within the FCR or a separate room in a building

<50m effective height, then the room/FCR must be clearly visible and readily accessible on entry to the building.

- Any alternative entry points must be discussed with and acceptable to DFES, and documented as a Performance Solution in accordance with [DFES Guideline GL-15](#). Refer [BEB Request For Consultation Form](#).

4. Fire Control Centre / Room:

Fire Control Centre located as a separate room:

For Buildings (i) >25m but ≤50m in height OR (ii) Classes 6, 7, 8 and 9 buildings, having a total floor area >18000 m². The following will apply if the building, as described above, includes FDCIE as part of an FCC located as a separate room:

- The FCC must comply with BCA Specification E1.8 (1) to (5).
- The room housing the FCC must at a minimum meet the dimensions and further requirements of BCA Specification E1.8 (7)(c), (8)(a), (9)(c), (11) and (12).
- The FDCIE within the room must have the required clearance and access as detailed in AS1670.1.
- If the FDCIE is connected to the DBA, then the room should be locked and access keys provided to DFES.

Fire Control Centre not located as a separate room:

The FCC must comply with BCA Specification E1.8 (1) to (5).

Fire Control Room:

The FCR must be constructed to meet all requirements of BCA Specification E1.8.

Locating Bell & Strobe

All FDCIE should have:

- A strobe complying with AS1670.1 (2004) Clause 3.8.
- An external bell meeting DFES DBA agreement provisions.
- The bell should be mounted in parallel with the external strobe circuit to provide an audible reference and should meet AS1603.6 (1987) requirements.
- The bell and strobe should be mounted in such a position that they are clearly visible from the nearest or main approach to the FDCIE and that they face the roadway used for approach by the Fire and Rescue Service.
- The height of the bell/ strobe should not exceed 3 metres nor be lower than 2.7 metres in height.
- A Fire Fan Control Panel (FFCP), where applicable.
- An Emergency Warning Control and Indicating Equipment (EWCIE) panel (formerly referred to as EWIS).

DBA connection

Where a DBA connection is required and variations to the location of the FDCIE, DBEP, FCR, external bell and strobe are proposed, further clarification on the connection requirements should be obtained from the DFES Direct Brigade Alarms Manager on (08) 9395 9987 or via email brendan.o'regan@dfes.wa.gov.au. Please refer to <http://firealarmmonitoringservices.com.au/> and the *DFES DBA Connection Code* for further guidance.

5. Tactical Fire Plans:

Tactical Fire Plans are required in buildings where a FCR / FCC is provided and where active fire protection or detection and occupant warning systems interface with the FDCIE as part of the minimum equipment requirements (refer BCA Specification E1.8 9. (a) (vi)).

Tactical Fire Plans should comprise colour coded as-built building plans overlaid with the locations of fire safety measures / features. The drawings should be provided with suitable protection so they do not suffer damage or become illegible over time.

In any emergency, the success of the response operations depends on the availability of critical data, information and building plans showing the premises/ building installations. This assists in appropriate decision making. Tactical Fire Plans are therefore required to support DFES's fire crews by providing essential and comprehensive information on the building structure, layout, fire safety systems, fire fighter interface locations (gas shut-off, power supply controls, etc.) and potentially hazardous installations.

The important features required in Tactical Fire Plans are:

- General information on the building or premises
- Details of the fire protection facilities available
- Fire safety features. See attached example (Appendix A)
- Tactical Fire Plans should be updated following any changes made to the building (including renovation / refurbishment or extension).

Building Plans

Tactical fire plans must clearly illustrate the significant elements of a building's active and passive fire protection systems and provide essential instructions for their operation and control in case of fire and other emergency. These plans should be representative of the building i.e. As-Installed drawings. Special hazards must also be highlighted.

Building plans should:

- Include a plan view of each level showing fire protection system elements with standard symbols and be colour-coded as per Appendix B.
- Be clear and concise, not smaller than 1:200 scale and fade resistant. Where scale exceeds 1:200 for a very large building, acceptance should be confirmed with DFES Built Environment Branch.
- Exclude all unnecessary information or measurements from the drawings.
- Include sectional elevations of the building including fire barriers, service risers and

other relevant items from the colour-code list.

- Include schematic diagrams of:
 - Fire mains systems (including isolation valves)
 - Smoke control/ stair pressurization systems.
 - Location of jet fans and their air flow path and isolation points if provided.
 - Fire detection and control systems.
 - Essential service power distribution systems (MSSBs), and
 - Essential instructions for the operation and control of emergency systems.

The plans may be presented in two ways:

- By individual storey - showing all building services together on each floor plan.
- By individual service - showing each building service separately on plans of the whole building.

Other Requirements

A number of Australian Standards and other documents require the provision of items that are required for inclusion on the tactical fire plans, or emergency instructions to be provided which enable DFES operational requirements to be met, these are:

- AS2419:
 - Section 7.11 requires a hydrant block plan accessible at the FBP.
- AS1670.1:
 - Section 1.7 requires the provision of baseline data to be provided including reference to the Fire Safety Engineering Report (FSER) where a Performance Solution has been provided.
 - Sections 7.15 and 7.19 requires a schematic diagram and essential operating instructions for the FFCP (This includes Jet Fans in car parks).
 - Section 7.19 of AS1670.1 requires As-built plans to be provided.
 - Section 3.10 requires a zone block plan accessible at the FBP, showing the locations of FDCIE, SHCIE, FFCP and EWCIE.
- AS1851:
 - requires that block plans and emergency instructions be provided to facilitate routine maintenance, including sprinkler zone, detection zone and hydrant block plans.
- DFES Direct Brigade Alarm Connection Code:
 - Where connection the DFES DBA network is proposed the DFES [DBA Connection Code](http://firealarmmonitoringservices.com.au) must be complied with. Please refer to firealarmmonitoringservices.com.au for further information.
- Occupational Safety and Health Regulations 1996:
 - Regulation 3.10 requires that an emergency evacuation plan is “*clearly and prominently displayed*”.

6. Summary:

This guideline was developed to assist industry in achieving compliance with DFES operational requirements, in providing a FCR / FCC and for Tactical Fire Plans that will assist DFES on site in an emergency.

Care should be taken when adopting the above guidance as amendments to the BCA, Australian Standards or DFES Requirements will supersede this guidance. If confirmation of compliance of Tactical Fire Plans with DFES operational requirements is considered required please contact bebadmin@dfes.wa.gov.au.

Definitions:

The following definitions apply for the purpose of this guideline:

DBA: Direct Brigade Alarm, a direct datalink from the FDCIE via DFES Alarm Signalling Equipment to the DFES Communications Centre (also referred to as a Monitoring Centre).

DBEP: Designated Building Entry Point, as defined in AS1670.1 and outlined in this document.

EICIE: Emergency Intercom Control and Indicating Equipment.

EWCIE: Emergency Warning Control and Indicating Equipment (previously referred to as EWIS).

EWIS: Emergency Warning Intercommunication System.

FDCIE: Fire Detection Control and Indicating Equipment.

FIP: Fire Indicator Panel.

FBP: Fire Brigade Panel, having a firefighter's facility as defined in AS1670.1.

FFCP: Fire Fan Control Panel, the part of the FDCIE designed to provide control and indication of air-handling equipment required to operate in fire mode.

FCC: Fire Control Centre.

FCR: Fire Control Room.

JET FAN: As defined in AS1670.1 / AS 1668.2, an air moving device installed in carparks as part of the ventilation system.

SHCIE: Special Hazards Control and Indicating Equipment, for fire suppression systems other than AS2118.1 compliant systems.

References:

1. National Construction Code (2016), Volume 1 (incorporating Amendment No.1), Australian Building Codes Board, ACT, Australia.
2. Standards Australia (2011), Australian Standard AS 2700, Colour standards for general purposes, Standards Australia, Sydney.
3. Standards Australia (2001), Australian Standard AS 2444, Portable Fire Extinguishers and Fire Blankets, Standards Australia, Sydney.
4. Standards Australia (2005), Australian Standard AS 2441, Installation of fire hose reels, Standards Australia, Sydney.
5. Standards Australia (2005), Australian Standard AS 2419.1, Fire Hydrant Installations, Part 1: System design, installation and commissioning (incorporating Amendment No.1), Standards Australia, Sydney.
6. Standards Australia (1994), Australian Standard AS 1319, Safety signs for the occupational environment, Standards Australia, Sydney.
7. Standards Australia (2013), Australian Standard AS 2941, Fixed fire protection installations: Pumpset systems, Standards Australia, Sydney.
8. Standards Australia (2017 / 1999), Australian Standard AS 2118.1, Part 1, Automatic fire sprinkler: General systems, Standards Australia, Sydney.
9. Standards Australia (2015), Australian Standard AS 1670, Part 1, Fire detection, warning, control and intercom systems: System design installation and commissioning, Fire, Standards Australia, Sydney.
10. Standards Australia (2009), Australian Standard AS / ISO 14520, Gaseous fire-extinguishing systems, Physical properties and system design, Part 1: General Requirements, Standards Australia, Sydney.
11. Standards Australia (1996), HB20 – Graphical symbols for fire protection drawings, Standards Australia, Sydney.
12. Standards Australia (1995), AS1345 – Identification of the contents of pipes, conduits and ducts, Standards Australia, Sydney.
13. Standards Australia (1995), AS1318 – Use of colour for the marking of physical hazards and the identification of certain equipment in industry, Standards Australia, Sydney.
14. Standards Australia (2010), AS3745, Planning for emergencies in facilities, Standards Australia, Sydney.
15. Standards Australia (1999), AS4428.7, Fire detection, warning, control and intercom systems, control and indicating equipment, Air-Handling fire mode control panel.
16. Occupational Safety and Health Regulations (1996), Government of Western Australia, Perth, Western Australia.
17. Department of Fire and Emergency Services, Built Environment Branch, Building Plan Assessment, Publications and Guidelines. [ONLINE] Available at: <https://www.dfes.wa.gov.au/regulationandcompliance/buildingplanassessment/Page/s/publications.aspx> [Accessed 21 June 2018].

7. Legislation:

Building Act 2011

Building Regulations 2012 (as amended).

Appendix A - TACTICAL FIRE PLANS – ESSENTIAL INFORMATION OF BUILDING

1. General

- (a) Name and address of premises:
- (b) Year of construction:
- (c) No. of storey:
- (d) Basement (If any):

2. Key Personnel Emergency Contact Information

- (a) Property Manager
- (b) Chief Warden
- (c) Building Maintenance Officer
- (d) Chief Security Officer
- (e) Fire Warden/ Asst. Warden
- (f) Fire Alarm Maintenance Contractor/ Company
- (g) Fire Safety Co-ordinator

PRIORITY ORDER	NAME	DESIGNATION	MOBILE NO.	OFFICE NO.	HOME NO.	REMARKS

3. Type of occupancy and usage

- (a) Occupant load and usage

SERIAL NO	BLOCK/ STOREY	CLASSIFICATION OF BUILDINGS	REMARKS

- (b) Total No. of occupants
 - (1)Day
 - (2)Night

4. Fire Protection Facilities

- (a) Sprinkler System (Please provide with a Schematic Diagram of Sprinkler System)

SERIAL NO	LOCATION OF STOP VALVE	AREAS IT SERVES/ CONTROLS	QTY. OF WATER STORAGE TANK	LOCATION OF BOOSTER/ STORZ	REMARKS

(b) Internal Hydrants (Location)

SERIAL NO	LOCATION OF BOOSTER	FLOORS/ AREAS IT SERVES	REMARKS

(c) Other Protection System

SERIAL NO	TYPE OF PROTECTION	AREAS IT SERVES	REMARKS
1	Fire Hose reel		
2	Carbon Dioxide System		
3	Foam injection System		

(d) Fire Detection System

SERIAL NO	TYPE OF PROTECTION	AREAS IT SERVES	REMARKS
1	Smoke Detectors		
2	Heat Detectors		
3	Manual Call Point		
4	Others (to specify)		

(e) Fire Alarm System

(f) Location of Fire Alarm Sub-Panel/ Mimic Panel

SERIAL NO	LOCATION OF SUB-PANEL/ MIMIC PANEL	REMARKS

5. Water Supplies - (Type) – Combined System, Pumps, Relay Pumps

(a) Hydrant

Street Hydrant (within 200m) of the building

SERIAL NO	LOCATION	FLOW (L/S)	PRESSURE	REMARKS

External on-site Hydrant

(1) Location of Booster _____

SERIAL NO	FEED/ ATTACK HYDRANT	LOCATION	FLOW (L/S)	PRESSURE	REMARKS

(b) Type of water sources (e.g. Tanks.) – Full capacity – Infill

SERIAL NO	TYPE	QUANTITY	LOCATION	REMARKS

6. Fire Safety Features

(a) Fire Escape Staircase

SERIAL NO	STAIR NO.	SECTION/ FLOOR IT SERVES	TYPE OF VENTILATION	LOCATION	ACCESS TO ROOF TOP	REMARKS

(b) Fire Lifts

SERIAL NO	LOCATION	REMARKS

7. Vehicle Access Route

SERIAL NO	ROAD NAME	POINTS OF ENTRY TO THE PREMISES	REMARKS

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8. Fire Fighting Facility/ Equipment (Please see Appendix B for the detailed format)

9. Medical Facilities – Medical staff available on site

10. Hazardous Chemical/ Flammable Substances – MSDS Information if available

(a) Vital Information needed:

(1) NAME/ TYPE & UN NO.

(2) QUANTITY

(3) LOCATION

(4) PROPERTIES

(5) PROTECTION HAZCHEM CODE

(6) SUPPLIERS NAME & CONTACT NO.

(7) EMERGENCY ACTIONS AND SHUTDOWN PROCEDURE TO MITIGATE AND CONTAIN THE EMERGENCY

(8) SPECIAL HAZARD AND RISK ASSESSMENT

11. Evacuation Points

(a) Location

(b) Assembly Areas

12. Other Information

(a) Firefighting Facility/ Equipment - Appendix _

(b) Performance Solutions - Appendix _

(c) Building Plans - Appendix _

Name and signature of

Company Stamp

Date: _____

Appendix B – Building Plans – Colour Code List

BUILDING FEATURE	COLOUR
Fire barriers	BLACK
Fire rated stairs & passageways – Pressurised Non-pressurised	GREEN HATCH GREEN
Required & other exits	EXIT signs - GREEN
Emergency lighting	GREEN
Warden intercom points	BLUE
Emergency alarm initiating device - (Activate Emergency Equipment)	BLUE
Emergency warning speakers	BLUE
Emergency warning & intercommunication panels/sub-panels	BLUE
Air handling systems for smoke control/stair pressurisation Supply Return Relief	BLUE WHITE YELLOW
Fire detectors	RED
Break glass alarms	RED
Fire indicator & control panels/sub-panels	RED
Fire control room	RED BORDER
Hydrants & hose reels	RED
Sprinklers	RED
Other suppression systems	RED
Fire service system tanks, pumps, mains, isolation valves & boosters	RED
Lifts (emergency) Lift recall controls Escalators (emergency stop)	RED
Electrical High Voltage supply, sub-stations & transformers Emergency generators & UPS batteries	ORANGE
Essential services switchboards	ORANGE
Oil and gas storage, distribution & mains isolation valves - Oil Gas	BROWN BEIGE
Special hazards	YELLOW

Please note: This is a controlled document. DFES guidelines are available on the DFES Website: www.dfes.wa.gov.au under Regulation and Compliance, Building Plan Assessment then click on Publications/Guidelines.

Should the information provided in this guideline require further clarification, please contact DFES Built Environment Branch via email beadmin@dfes.wa.gov.au.

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