



THE UNIVERSITY OF
**WESTERN
AUSTRALIA**

The University of Western Australia

Design and Construction Standards

FIRE SERVICES AND FIRE SAFETY ENGINEERING

G

DOCUMENT CONTROL

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The Standards have been developed by Campus Management with the assistance of UWA staff, external consultants, contractors and colleagues from other education institutions.

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1 Introduction

1.1 PURPOSE

The *UWA Design and Construction Standards* (the *Standards*) outline UWA's expectations for its built forms in order to achieve consistency in the quality of the design and construction of those built forms. They are aligned with the UWA's *Campus Plan 2010* planning principles and UWA's requisites for aesthetic appeal, maintainability and environmental sustainability, while ensuring that there is sufficient scope for innovation and technological advancements to be explored within each project.

The Standards are intended for use by any parties who may be involved in the planning, design and construction of UWA facilities. This includes external consultants and contractors, UWA planners, designers and project managers as well as faculty and office staff who may be involved in the planning, design, maintenance or refurbishment of facilities. These Standards also provide facility managers, maintenance contractors and other service providers with an understanding of UWA services in order to assist in the maintenance and operation of facilities.

1.2 SERVICES

The UWA Design and Construction Standards for **Fire Services and Fire Safety Engineering** (this document) are a part of UWA Design and Construction Standards set of documents (the Standards). The Standards are divided into the following service documents for ease of use, but must be considered in its entirety, regardless of specific discipline or responsibilities:

- A Building and Architecture
- B Mechanical Services
- C Electrical Services
- D Communication Services
- E Hydraulic Services
- F Security Services
- G Fire Services and Fire Safety Engineering (this document)**
- H Structural Works
- I Civil Works
- J Irrigation Services
- K Sustainability
- L Vertical Transport

1.3 RELATED DOCUMENTS

1.3.1 University Documents

The Standards are to be read in conjunction with the following relevant University documents:

- UWA General Preliminaries Document
- UWA Specification for As-Constructed Documentation
- Relevant UWA planning and policy documents such as the *UWA Campus Plan*, *Commercial Masterplan*, *Landscape Vision* and *Integrated Infrastructure Strategy*, *University Policy on Alterations to University Buildings*, etc.
- Relevant UWA operational and maintenance documents such as preferred vendors lists, room data sheets, operational and maintenance manuals, etc.
- Other documents as referenced within the UWA Design and Construction Standards.

1.3.2 Relevant Legislation

The planning, design and construction of each UWA facility must fully comply with current relevant legislation, including but not limited to:

- Relevant Australian or Australian / New Zealand Standards (AS/NZS),
- National Construction Code (NCC),
- Occupational Safety and Health (OSH) legislation,
- Disability Discrimination Act (DDA),
- Accessibility Aspiration Design Factors, and
- Local council and authority requirements.

1.3.3 Manufacturer Specifications and Data Sheets

All installation must be carried out in accordance with manufacturer specifications and data sheets to ensure product performance over its intended life and so as not to invalidate any warranties.

1.3.4 Project Specific Documentation

Requirements specific to a particular project, campus or other variable, will be covered by project specific documentation, such as client briefs, specifications and drawings. These Standards will supplement any such project specific documentation.

The Standards do not take precedence over any contract document, although they will typically be cross-referenced in such documentation.

Extracts from the Standards may be incorporated in specifications, however it must remain the consultant's and contractor's responsibility to fully investigate the needs of the University and produce designs and documents that are entirely 'fit for purpose' and which meet the 'intent' of the project brief.

1.4 DISCREPANCIES

The Standards outline the University's generic requirements above and beyond the above mentioned legislation. Where the Standards outline a higher standard than within the relevant legislation, the Standards will take precedence.

If any discrepancies are found between any relevant legislation, the Standards and project specific documentation, these discrepancies should be highlighted in writing to the Associate Director Capital Works, Campus Management.

1.5 DEPARTURES

The intent of the Standards is to achieve consistency in the quality of the design and construction of the University's built forms. However, consultants and contractors are expected to propose 'best practice / state of the art' construction techniques, and introduce technological changes that support pragmatic, innovative design.

In recognition of this, any departures from relevant legislation, or the Standards, if allowed, must be confirmed in writing by the Associate Director Capital Works, Campus Management.

Any departures made without such written confirmation shall be rectified at no cost to UWA.

1.6 PROFESSIONAL SERVICES

For all works, it is expected that suitably qualified and experienced professionals are engaged to interpret and apply these Standards to UWA projects. Works cannot be carried out by unqualified and unlicensed consultants or contractors.

1.7 STRUCTURE OF DOCUMENT

This document is structured into 4 parts:

- Part 1** Introduction (this Section)
- Part 2** General Requirements – outlines the general requirements or design philosophies adopted at UWA
- Part 3** Checklist for project team (if applicable) – checklist of items for consideration at various stages of a project
- Part 4** Specifications (if applicable) – materials specifications and/or preferred lists for materials, processes or equipment used by UWA.

1.8 DEFINITIONS

For the purpose of this document, the following definitions apply:

- Can:** Implies a capability of possibility and refers to the ability of the user of the document, or to a possibility that is available or might occur.
- May:** Indicates the existence of an option.
- Shall:** Indicates that a statement is mandatory.
- Should:** Indicates a recommendation.

2 General Requirements

2.1 FIRE SAFETY SERVICES SCOPE

Fire safety services covered in this document include:

- Detection and occupant warning system
- Fire hydrant
- Fire hose reel
- Fire sprinklers
- Fire extinguishers
- Fire doors
- Smoke doors
- Fire and smoke dampers
- Smoke seals
- Smoke exhaust
- Specialised fire-fighting system (e.g. gas suppression system)
- Fire services interface

2.2 STANDARDS AND CODES

All fire safety works shall comply with current Statutory Regulations, Australian Standards, Supply Authority regulations and any other Authority having jurisdiction over the works or portion of the Works. Examples of these are:

- AS/NZS 3000
- Telecommunications Cabling Provider Rules 2000 (as amended)
- Regulations and requirements of the local Supply Authority
- Building Code of Australia
- Department of Fire & Emergency Services (DFES)
- Any other regulations that apply directly or indirectly to such installations in the locations.

Where Australian Standards and Codes do not exist, the relevant International Standard or Code shall apply.

Where conflict arises between this document and any of the applicable Acts, Codes or Standards, the highest standard of materials and workmanship shall prevail.

A list of references is provided in the *References* section of this document.

2.3 BCA COMPLIANCE

Under the current legislation, buildings shall comply with the requirements of the *Building Code of Australia* (BCA) either via the Deemed to Satisfy (DTS) Provisions or on a performance basis via Performance Solutions.

A number of buildings on the campus are subjected to previous Performance Solutions. Prior to undertaking design, construction or maintenance, check with UWA to ascertain if there are any Alternative Solutions applicable to the building. Where Alternative Solutions are present, ensure a UWA approved fire engineer is consulted (via UWA) to ensure there are no implications on the previously approved Solutions.

Where the building is a DTS compliant building, ensure fire safety systems comply fully with the BCA and referenced standards.

Older buildings are likely to comply only with DTS Provisions of an earlier version of the BCA or the Uniform Building By Law (UBBL). Where works are undertaken in the building, ensure system is upgraded as far as practicable to comply with current DTS requirements and standards. Where this is not practical, liaise with UWA approved fire engineers to address issues on a performance basis (i.e. Alternative Solutions) as appropriate.

Where a building design involves Alternative Solutions, a copy of the Fire Safety Engineering Report (FSER) shall be handed over to UWA for record. All FSERs shall clearly outline the following in a separate section to the main section of the report:

1. Specific Non-compliance
2. Fire safety strategies
3. Specific maintenance and Management In Use requirements

Requirements from the FSER which requires specific fire system design which is over and above BCA requirements shall be clearly outlined for coordination with services consultants.

2.4 BASELINE DATA

In accordance with *AS 1851*, base line data for all fire safety systems shall be clearly documented in the As-Built documentation. The information shall be used as a basis for all maintenance works in accordance with recommendations outlined in *AS 1851*.

2.5 NEW OR REPLACED EQUIPMENT

Where new equipment is installed or replaced, ensure information is provided to UWA for update of the maintenance and asset register (i.e., Maximo database). This shall include operation and maintenance manual and as-built drawings. Consult with UWA regarding the format of the asset register required.

2.6 FIRE DETECTION SYSTEM

2.6.1 General

The existing detection system serving the overall UWA campus currently consists of a mixture of brands and is of different capabilities. The intent in the long run is to have a standardised system throughout each building on the campus. This will in turn provide the benefit of a more standardised maintenance approach and the ability for the site wide panels to be networked.

The following is a summary of the various brands and types of systems currently installed on the campus.

Brand	System Type
Notifier	<ul style="list-style-type: none"> • Currently the main brand installed • Mixture of addressable and conventional systems • Oldest panel dating back to 2000 (15 years) • Some system are DVC ready but a number of system are not
Siemens	<ul style="list-style-type: none"> • Currently only installed in 3 buildings • No information available for this system • System is likely to be addressable
Simplex	<ul style="list-style-type: none"> • Currently only installed in 2 buildings • No information available for this system • System is likely to be addressable
Vigilant	<ul style="list-style-type: none"> • Currently only installed in 5 buildings • No information available for this system
Ampac	<ul style="list-style-type: none"> • Currently only installed in 3 buildings • No information available for this system but likely to be conventional system
FFE	<ul style="list-style-type: none"> • Currently only installed in 5 buildings • No information available for this system but likely to be conventional system

A summary of the fire detection systems currently installed (as of August 2016) is detailed in Appendix A of this document.

UWA's requirement is to have all new and replaced systems installed as Notifier. This is to allow a site wide high level interface. All new FIPs must allow for connection to UWA V-LAN site network.

Where refurbishment works occur, ensure existing zone plans are updated to reflect any changes.

All detectors are to be selected and located in a manner which allows easy access for maintenance.

Cabling systems for Fire Detection and Alarms systems, smoke control and the like should be separate from other ELV cabling. Naming protocols, routing and containment for this cabling should be installed to the same standard as, and coordinated with, the requirements for Communications Systems. Refer *UWA Design and Construction Standards – Communications Services*.

2.6.2 Occupant Warning System

The occupant warning system currently installed on the campus provides only localised warning within each building. However, a number of newer systems have been installed with the capability to interlink all systems to allow a campus wide evacuation strategy should the need arise. The capability involves inclusion of a site wide digital voice command (DVC) function to fulfil this requirement.

The full capability of the existing system is currently not realised as the system will need to be networked and a front end terminal will need to be installed within the campus security control room for control of individual panels. However, all new systems shall allow for this capability.

The Occupant Warning System should be coordinated with the other communications sound systems, such as AV, public address and IT. Wiring should be separate from the other communications systems.

2.6.3 System Interface

A fire interface matrix shall be provided for all projects to ensure that connections between services are clearly outlined. Examples of these include:

- Mechanical system fire mode operation.
- Electric door lock release (where required).
- Emergency warning and intercommunication system.
- Fire or smoke curtains

In cases where there are Alternative Solutions, requirements from the Fire Safety Engineering Report (FSER) shall be accounted for in the system interface with a clear reference to the specific FSER.

Where the fire detection systems interface with other building systems ensure the new systems accommodate these interconnections and maintain reliable modes of operation.

2.6.4 Direct Brigade Alarm (DBA)

The fire detection system is to be linked into the DFES monitoring system where required or unless otherwise advised.

Liaise with DFES regarding the modification of the existing monitoring systems and pay any associated costs.

2.7 FIRE HYDRANT AND FIRE HOSE REEL SYSTEM

2.7.1 Hydrant

The entire installation to be installed is to comply with *AS 2419.1* and tested to the requirements of DFES. For the Crawley campus, fire booster systems are to be supplied from the fire engineered irrigation/bore system and will require campus system to be activated for testing purposes.

External fire hydrants shall be supplied from campus mains water ring main unless required to be integrated to a building boosted system.

Prior to the commissioning of a new fire system, DFES is to be contacted and a booster test is to be organised. UWA Campus Management is to be made aware of the booster test to ensure testing is integrated with the fire/irrigation system.

External fire hydrants to be Galvin Engineering 65mm Sydney pattern type with top BIC coupling, red plastic protection cap and brass securing chain. Provide and install galvanised chain with heavy duty Lockwood type padlocks to hydrant wheels to prevent opening of hydrants by unauthorised persons. Hydrants shall be dual type mounted on a single 100 diameter steel riser and fixed to a GWI purpose made hydrant support frame concreted in-ground. Bollards to be provided as required. Additional signage shall be provided indicating water pressure (in kPa) at each hydrant.

Internal fire hydrants to be Galvin Engineering 65mm Sydney pattern type with top BIC.

2.7.2 Fire Hose Reels

The system shall be compliant with *AS 2441*. Fire Hose Reels to be Galvin Engineering 36 metre swing fire hose reels with fixed water ways and swing guide arm.

Fire hose reels located within cupboards to be Galvin Engineering 36 metre swing fire hose reels with flexible water ways mounted on galvanised bolted down mounting post. Install GE-507040 wall mounted swing arm. Fire hose reels located on walls other than masonry are to be reinforced to be capable of withstanding a force of 1kN and in accordance with *AS/NZS 1221*.

On completion, fire hose reels are to be tagged as per *AS 1851.1*. As per *AS 1851.2*, fire hose reels are to be inspected and serviced at each 6 month intervals until end of defect liability. Records of such shall be forwarded to UWA.

2.7.3 Pipework and Valves

In ground fire service pipework and valves shall be as follows:

- 25 to 63 diameter inclusive - PE Auspex
- 100 diameters and over - ACUTEC PE PN16
- Valves 25 – 50 inclusive to be stainless steel ball, stem and handle.
- Valves 100mm or larger to be Norcast Rislan™ nylon 11" coating as standard, with key head.

All valves to be located in 250 mm x 250 mm cast iron valve box painted white with "Fire" embossed in cover.

2.8 SPRINKLER AND DRENCHER SYSTEMS

2.8.1 General

Compliance is required with the following Australian standards:

- AS 1851 - Maintenance of Fire Protection Systems and Equipment
- AS 2118.1 - General
- AS 2118.2 - Drenchers
- AS 2118.3 - Deluge Systems
- AS 2118.4 - Residential

Automatic sprinkler system signals shall be connected to the UWA BMCS, with the following signals required to be provided, sprinkler alarm, sprinkler isolate, sprinkler pump, running, sprinkler pump fault, sprinkler pump low fuel level, sprinkler stop valve closed. Where a FIP is installed within the building these signals shall also be connected to the FIP and provided with individual LED indicators.

Where works are undertaken, ensure all on site documentation and equipment required by AS 2118.1 and AS 1851 are revised and/or provided to suit all system refurbishments and new works. This includes but is not limited to the provision of block plans, fire system interface diagram/matrix, pressure gauge schedules, water supply information, spare sprinklers and spanners.

The sprinkler control valves shall be located in a position accessible to responding Brigade appliances. Clear directions to the sprinkler control valve location shall be posted adjacent the FIP. A location plate indicating the position of the sprinkler control valves shall be installed on the outside of an external wall.

2.8.2 Water Supplies

When designing and installing new fire sprinkler systems, or upgrading existing systems, the existing water supply pressure/flow shall be tested with results incorporated into design. It is imperative that the building hydrant demand is allowed in addition to the building sprinkler demand to ensure that both systems can operate simultaneously from the water supply provided to the building.

All fire services test water shall discharge into on site soak wells or back to storage tank when applicable.

Test drains, sumps and soak wells of appropriate size shall be provided to enable water flow testing.

2.9 SPECIALISED EXTINGUISHING SYSTEM

Some communications, data and electrical rooms may require specialised extinguishing system which is not addressed in the BCA. Where this is required by UWA to protect equipment, the design shall comply with relevant manufacturer's requirements. Prior to nominating the specific extinguishing system, consideration shall be given to budget, type of equipment, space constraints and maintenance costs.

Where a multi-point aspirated detection system is required to activate the system, the design shall comply with AS1670.1 and manufacturer's requirements.

2.10 PORTABLE FIRE EXTINGUISHERS

2.10.1 General

Portable fire extinguishers shall be selected, located and distributed in accordance with AS 2444. Dry powder extinguishers shall be provided unless specific risks (e.g., cooking oil fires) warrant a different type of extinguisher in the location of the hazard. All extinguishers shall be signed in accordance with AS 2444.

Extinguishers shall be sized to ensure they do not exceed 5kg in overall weight to ensure it is useable by majority of occupants.

2.11 MECHANICAL SYSTEM

2.11.1 Smoke Exhaust System

Smoke exhaust fans shall be selected and sized to comply with *NCC Specification E2.2b* requirements. Smoke baffles shall also be provided to comply with *NCC* requirements.

Where a performance based exhaust system is to be provided, a copy of the Fire Safety Engineering Report shall be provided to UWA for record purposes.

All non-essential mechanical system shall shut down in the event of fire.

2.12 PASSIVE FIRE BARRIERS

2.12.1 Fire and Smoke Barriers

All fire and smoke walls shall comply with *BCA* requirements and the relevant standards as follows:

- Fire wall – Comply with AS 1530.4 to achieve a FRL
- Smoke wall – Comply with AS 1530.1 as non-combustible
- Floors – Comply with AS 1530.4 to achieve a FRL

All services penetrations through a fire wall shall be sealed in accordance with *BCA C3.15*.

All services penetrations through a smoke wall shall be sealed with appropriate fire rated mastic seals.

The area of works shall be clearly labelled and marked with the following information:

- Standards the system is compliant with (i.e. AS 1530.4 and AS 4072.1)
- FRL of the system
- Name and contact details of the installer

- Installation date
- Reference number for the specific area
- Name and contact details of the manufacturer

The following figure is an example of the expected label.

SERVICE PENETRATION AND CONTROL JOINT SYSTEM (TO AS 4072.1) FRL: -/60/60		
Installed by:
	(Company/name)	(Phone No.)
Installation date:	
Installation reference:	
Manufacturer:	
	(Name, Address, Phone No.)	
CONTACT THE ABOVE IN THE EVENT OF DAMAGE OR IF REINSTATEMENT IS REQUIRED		

Documentation

Upon completion of the works, the area of works shall be inspected to ensure satisfactory completion. The Contractor is required to provide documentation as per AS 4072.1 as follows:

- The system used is identical with the tested specimen; AND
- The system has been correctly installed in accordance with the manufacturer's specification

In addition to the above documentation, the Contractor shall provide a record of each installation which outlines the following information as noted in AS 4072.1:

- Name, address and contact details of installation company
- Date of final inspection
- Description of system
- Identification of the position of the installation on a drawing
- Photo

2.12.2 Fire Dampers

Fire dampers shall be constructed and installed to meet all requirements of AS 1682 and AS 1668. Manufacturer certification of compliance is required.

The free area of any fire damper shall not be less than 85% of the adjoining duct area. Where necessary the duct

size shall be increased above the nominal airway size of the adjoining ductwork to accommodate the fire damper and access openings in the duct to enable the fusible link to be replaced and the damper operation checked.

Fire dampers shall not be used for air volume control.

Fire dampers in stud walls, which have not been tested when assembled in that type of wall, shall be independently supported from the soffit of the floor above. Fire damper supports shall be contained within the thickness of the stud wall. Welding these supports to the fire damper is not acceptable.

All dampers above ceiling shall be clearly labelled on the ceiling via a tag or via other means appropriate to UWA.

Dampers shall be located in an accessible location to allow testing and maintenance.

2.12.3 Smoke Dampers

Air volume control dampers used for smoke control shall comply with the requirements of *AS/NZS 1668.1*.

All dampers above ceiling shall be clearly labelled on the ceiling via a tag or via other means appropriate to UWA.

Dampers shall be located in an accessible location to allow testing and maintenance.

2.12.4 Fire Doors

Fire doors shall be manufactured and installed in accordance with *AS1905.1*. Doors shall be tagged on the door frame and door leaf as required under *AS1905.1*.

Where existing fire doors in refurbishment type projects are not tagged, they shall be core tested to verify fire resistance level (FRL) or where this is not possible, the door and frame shall be replaced.

2.12.5 Smoke Doors

Smoke doors shall be compliant with BCA requirements to be at least 35 mm solid core. Smoke seals shall be at least medium temperature seals able to withstand temperatures of up to 200°C.

All smoke doors shall be labelled either via door tag or signage on the door.

2.12.6 Fire and Smoke Curtains

As fire and smoke curtains are not a Deemed to Satisfy (DTS) method of protecting openings in buildings under current *NCC* requirements, they shall be confirmed for use by a fire safety engineer. Justification to allow its use shall be outlined in a Fire Safety Engineering Report.

Location of fire and smoke curtains shall be clearly indicated via signage to ensure it is not obstructed from closing.

3 Checklist for Project Team

Activity	Responsibility	Stakeholder(s)	Timeframe
Determine if the building or area of works has previous Performance Solutions.	Services consultants	CM (Engineering Services) / CM (Building Operations)	Gate 2 Feasibility
Consult with UWA approved Fire Engineer to ascertain impact on previous solutions.	Services consultants	CM (Engineering Services) / CM (Building Operations)	Gate 2 Feasibility
Determine if an upgrade to current Australian Standards is required for works in existing buildings.	Services consultants	CM (Capital Works)	Gate 2 Feasibility
If not possible to comply, consult with UWA approved fire engineer to ascertain possible Performance Solutions.	Services consultants	CM (Engineering Services)	Gate 2 Feasibility
Provide baseline data for all fire safety systems to UWA	Services consultants / Contractor	CM (Engineering Services) / CM (Building Operations)	Gate 3 Planning
Fire Engineering Where Alternative Solutions are prepared, ensure a copy of FSER is provided to UWA for record.	Contractor	CM (Building Operations)	Gate 5 Construction
Fire Engineering Ensure FSER clearly outlines information in a separate section outlining list of non-compliances, fire safety strategies, maintenance requirements and Management in Use requirements	Contractor	CM (Building Operations)	Gate 5 Construction
Detection System Ensure detection system is Notifier panel with network capability	Services consultants / Contractor	CM (Building Operations)	Gate 3 Planning
Detection System Ensure interface to all existing systems has been retained	Services consultants / Contractor	CM (Building Operations) / CM (Security)	Gate 3 Planning
Detection System Ensure system been programmed to interface with other fire safety system including: <ul style="list-style-type: none"> Mechanical system shut down Secured doors unlocked Occupant warning system activated Fire/smoke curtains closing 	Services consultants / Contractor	CM (Building Operations) / CM (Security)	Gate 3 Planning

Activity	Responsibility	Stakeholder(s)	Timeframe
<ul style="list-style-type: none"> Smoke fans or vents activating. 			
Occupant Warning System Ensure system has been provided with a digital voice command (DVC) capability.	Services consultants / Contractor	CM (Building Operations) / CM (Security)	Gate 3 Planning
Fire Hydrant System Ensure system is compliant with AS 2419.1.	Services Consultant / Contractor		Gate 3 Planning
Fire Hydrant Water Supply Coordinate with UWA to test fire / irrigation system.	Services Consultant / Contractor	CM (Engineering Services) / CM (Building Operations)	Gate 3 Planning
Fire Hose Reel System Ensure system complies fully with AS 2441.	Services consultants / Contractor		Gate 3 Planning
Fire Extinguisher Ensure dry powder provided unless risks require alternative extinguisher	Services consultants / Contractor	CM (Engineering Services) / CM (Building Operations)	Gate 3 Planning
Fire Extinguisher Ensure extinguishers are of appropriate weight not exceeding 5kg.	Services consultants / Contractor	CM (Engineering Services) / CM (Building Operations)	Gate 3 Planning
Mechanical Fire System Ensure smoke exhaust fans are selected and sized to comply with <i>NCC Specification E2.2b</i> requirements	Services consultants / Contractor		Gate 3 Planning
Passive Fire Barriers Ensure barrier complies with AS1530.4 for fire barriers or is considered non-combustible for smoke barriers.	Services consultants / Contractor		Gate 3 Planning
Fire / Smoke Walls Tag walls as per requirements outlined in this document.	Contractor	CM (Building Operations)	Gate 5 Construction
Fire / Smoke Doors Tag doors as required by AS1851. In relation to smoke doors, provide signage as appropriate.	Contractor	CM (Building Operations)	Gate 5 Construction
Fire / Smoke Doors Where secured during normal operation, ensure interface for door to fail open on alarm has been coordinated.	Contractor	CM (Building Operations) / CM (Security)	Gate 5 Construction
Fire & Smoke Curtains	Services consultants /		Gate 3 Planning

Activity	Responsibility	Stakeholder(s)	Timeframe
Ensure use of fire and smoke curtain is accompanied by fire safety engineer's FSER given it is not a compliant method to protect openings	Contractor		
Fire / Smoke Curtain Ensure location of fire and smoke curtains is clearly indicated onsite	Contractor	CM (Building Operations) / CM (Security)	Gate 5 Construction

Abbreviations

AV	Audio Visual
BMCS	Building Management and Control Systems
BCA	Building Code of Australia
CM	Campus Management
DFES	Department of Fire and Emergency Services
DTS	Deemed to Satisfy
DVC	Digital Voice Command
ELV	Extra Low Voltage
FIP	Fire Indicator Panel
FRL	Fire Resistance Level
FSER	Fire Safety Engineering Report
GW	Galvanised Wrought Iron
IT	Information Technology
LED	Light Emitting Diode
UBBL	Uniform Building By Law
UWA	the University of Western Australia
VLAN	Virtual Local Area Network

References

- AS/NZS 1221 Fire hose reels
- AS 1530 Methods for fire tests on building materials, components and structures
- AS/NZS 1668 The use of ventilation and air conditioning in buildings
- AS1670 Detection and occupant warning system
- AS 1682 Fire, smoke and air dampers
- AS 1851 Routine service of fire protection systems and equipment
- AS1905 Fire doors
- AS 2118 Automatic Fire Sprinkler Systems
- AS 2419 Fire Hydrant System
- AS 2441 Installation of fire hose reels
- AS2444 Fire extinguishers
- AS2941 Fire-fighting pumpsets
- AS/NZS 3000 Electrical Installations
- AS 4072 Components for the protection of openings in fire-resistant separating elements
- Building Code of Australia
- Department of Fire & Emergency Services (DFES) Authority
- Telecommunications Cabling Provider Rules 2000 (as amended)

Appendix A – FIP Information (As of August 2016)

Building No.	Building Name	Make	Install Date
001	Central Chilled Water Plant	Ampac AB800	Unknown
102	Administration	Notifier	2012
103	Hackett Hall	Notifier	2015
104	Lawrence Wilson Art Gallery	Notifier	2007
106	Arts	Siemens	Unknown
107	University Club of Western Australia	Notifier	2007
108	Admin East (HR)	Ampac	Unknown
131	Recreation Centre	Notifier	2010
139	Reid Library	Notifier	2007
142	Music	Notifier	2000
143	Octagon Theatre	Vigilant	Unknown
144	Dolphin Theatre	Vigilant	Unknown
190	39 Fairway (Edward St)	Notifier	2009
210	Chemistry LT (Wills&Tatts)	Notifier	2007
211	Molecular & Chemical Sciences	Notifier	2007
222	Centre for Water Research	Vigilant	Unknown
223	Mathematics	Notifier	2010
224	Civil & Mechanical Engineering	Notifier	2010
225	Geography & Geology	Notifier	2006
226	Electrical & Electronic Engineering	Notifier	2014
235	GP3	Notifier	2011
241	Computer Science	FFE8070	Unknown
242	CO2 Building	Notifier	2014
245	Physics	Vigilant	Unknown
248	Child Study Centre - Kindergarten/Media	Notifier	2005
272	Robert Street	Notifier	2009
274	Irwin Street Building	FFE NFP	Unknown
329	Guild	Notifier	2012
338	Law	Notifier	2010
344	C-TEC	Notifier	2009
345	Curnow Bld	Notifier	2007
346	Physiology	Notifier	2009
347	Psychology	Siemens	Unknown

Building No.	Building Name	Make	Install Date
351	Economics and Commerce/	Notifier	2014
352	Social Science South East Wing	Amalgamated with Economics	2014
352	Social Science/ North	Amalgamated with Economics	2014
401	Agriculture Institute and North West Wing	Notifier	2012
402	Soil Science South East Wing	FFE	Unknown
405	Agriculture Central Wing and CRC	Notifier	2013
409	Botany and Biology	Cerberus	Unknown
410	Botany Annexe 1	Vigilant FO8	Unknown
412	Old Pharmacology	Vigilant FO8	Unknown
416	Large Animal Facility	Notifier	2014
420	Zoology Building	Notifier	2014
429	Glass Houses Service Building	Notifier	2009
432	Combined Workshop	Ampac	Unknown
441	Business School	Notifier	2009
444	Human Movement	Notifier	2005
446	Biological Sciences Library	Notifier	2010
656	Masonic Hall	Notifier	2013
658	Michael Building	Siemens	Unknown
661	Park Ave - Main Building	Notifier	2009
681	Architecture - Fine Arts Tower	FFE	Unknown
682	Education Building	FFE	Unknown
683	Nedlands - Music and Drama Building	Notifier	2010
684	Cafeteria	Notifier	2010
687	Clifton St Building	Notifier	2011
689	Child Care Center	Notifier	2011
4601	55 Broadway, Crawley	Chubb	1985



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