DRY FIRE SYSTEMS

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA

DESIGN STANDARDS

DS-09

Document Register

Revision	Date	Description	Prepared By	Reviewed By
1.0	18.10.2021	Project Use		P Carroll
1.1	01.08.2022	Minor formatting update	A. Rose	B. Veliscek
2.0	21.07.2023	Annual review and update	M. Douglas	B.Veliscek
3.0	18.12.2025	Annual review and update	M. Douglas/D.Lavrencic	B.Veliscek

Contents

Disclaimer

Refer to the Disclaimer within the UQ Design Standards.

Reference Documents

Refer to the UQ Design standards for the list of documents and associated standards to be referenced for design work.

The designer is to coordinate between disciplines and standards.

01 Introduction

1.1 Introduction

1.1.1 Context

The University of Queensland (UQ) positively influences society by engaging in the pursuit of excellence through the creation, preservation, transfer and application of knowledge. UQ helps shape the future by bringing together and developing leaders in their fields to inspire the next generation and to advance ideas that benefit the world. UQ strives for the personal and professional success of its students, staff and alumni.

UQ operates over 1,670 hectares of real estate across three major campuses at St Lucia, Gatton and Herston; and other sites including research stations, centres of excellence, clinical units and satellite sites such as UQ Brisbane City and Customs House.

UQ's Property and Facilities (P&F) Division manages projects and initiatives across UQ's real estate portfolio that enhance and enrich the experience of UQ sites for students, staff and visitors.

1.1.2 Purpose

This Design Standard forms part of the University of Queensland's suite of Engineering Design Standards.

The purpose of this Design Standard is to define the University of Queensland's specific requirements for the design of dry fire systems; and to assist designers, contractors and other professionals involved in the preparation of designs commissioned by UQ to understand the University context.

The purpose of this Design Standard is not to detract from designers' obligations to undertake stakeholder engagement to develop design briefs; follow good design practice; and produce designs that address project specific considerations.

The purpose of this Design Standard is not to detract from designers' obligations to seek endorsement of their design from UQ.

The purpose of this Design Standard is not to repeat the requirements of relevant legislation, regulations, codes and standards. Designers shall produce designs in accordance with the requirements of relevant references irrespective of the requirements of this Design Standard.

Where certain requirements are not addressed by this Design Standard, relevant industry-based design and construction standards should be adopted in consultation and agreement with UQ.

This document must be read and implemented in conjunction with project-specific documentation.

1.1.3 Departures

Departures from these guidelines shall be requested by designers in writing to the Project Manager who shall provide to the Infrastructure & Sustainability Team for approval. Departures must be formally approved in writing, prior to being incorporated into project designs.

1.1.4 Contractors and consultants

Contractors shall read and comply with the requirements outlined in on the UQ Properties

and Facilities Building Contractors and Consultants website, as follows:

https://coo.uq.edu.au/operational-areas/property-and-facilities/pf-staff-and-contractors/building-contractors-and-consultants

1.2 Objectives

The Dry Fire Design Standard sets out the University's requirements for the design, installation and testing for all Dry Fire services infrastructure across the University Campuses. The Design Standard shall assist designers, contractors and other professionals involved in the preparation of designs commissioned by UQ to understand the University context.

02 Abbreviations & definitions

For the purpose of interpreting this Design Standard, the abbreviations listed in Table 2–1 apply.

Table 2–1 Abbreviations

Abbreviation	Definition
AAD	Audible Alarm Device
AAF	Alarm Acknowledgement Facility
ADF	Alarm Delay Facility
AC	Alternating Current
ASD	Alarm Smoke Detectors
ASE	Alarm Signalling Equipment
AVF	Alarm Verification Facility
AIF	Alarm Investigate Facility
BMCS	Building Management Control System
BMS	Building Monitoring System
CIE	Control and Indicating Equipment
CSMS	Central Security Monitoring Station
DC	Direct Current
DB	Distribution Board
DBEP	Designated Building Entry Point
DLP	Defects Liability Period
DSEP	Designated Site Entry Point
ECO	Emergency Control Organisation
ECP	Emergency Call Point
EDS	Emergency Detection System
ELD	End of Line
EICIE	Emergency Intercom Control and Indicating Equipment
EWCIE	Emergency Warning Control and Indicating Equipment
EWIS	Emergency Warning Intercom System
EWS	Emergency Warning System
FBP	Fire Brigade Panel
FCC	Fire Control Centre

FCR	Fire Control Room
FDAS	Fire Detection Control and Alarm System
FDCIE	Fire Detection Control and Indicating Equipment
FFCP	Fire Fan Control Panel
FEB	Fire Safety Engineering Brief
FER	Fire Safety Engineering Report
HV	High Voltage
LCS	Local Control Station
LV	Low Voltage
MCC	Motor Control Centre
MDF	Main Distribution Frame
MCP	Manual Call Point
MSB	Main Switchboard
MSSB	Mechanical Services Switchboard
NCC	National Construction Code
PBDB	Performance Based Design Brief
PVC	Polyvinyl Chloride
PSE	Power Supply Equipment
OWS	Occupant Warning System
QFD	Queensland Fire Department
RASTI	Rapid (or room) Acoustics Speech Transmission Index
SPL	Sound Pressure Level
VAD	Visual Alarm Device
VWD	Visual Warning Device
WIP	Warden Intercom Point

For the purpose of interpreting this Design Standard, the definitions listed in Table 2–2 apply.

Table 2–2 Definitions

Term	Definition
Access for Maintenance	Access required for safe maintenance, inspection, measurement, operation, adjustment, repair, replacement and other maintenance related tasks.
Accredited Testing Laboratory	➢ An organisation accredited by the National Association of Testing Authorities (NATA) to test in the relevant field; or ➢ An organisation outside of Australia accredited to undertake relevant tests by an authority recognised by NATA through a mutual recognition agreement; or ➢ An organisation recognised as an Accredited Testing Laboratory under legislation at the time that the test was undertaken
Contract Administrator	The University of Queensland's authorised representative for contractual matters, which may be a member of University staff, or a third-party representative appointed by the University.

Design Life	The period during which a building component is expected by its designers to operate within its specified parameters, with only anticipated maintenance being carried out, and without the need for major repair or replacement.
Designer	Any person commissioned directly or indirectly by the University of Queensland to undertake design activities. Designers are the intended audience for this document.
Distribution Boards	Any low voltage switchboard other than the main switchboard.
Economic Life	The period during which a building component is the lowest cost alternative for satisfying its function, with only anticipated maintenance being carried out, and without the need for major repair or replacement.
Fire Safety and Rescue Authority	An operational entity in government, established for the purposes of providing fire, rescue and emergency services.
Floor Area	Measurement as defined in Volume 1 of the National Construction Code.
Furnish	See 'Supply'.
High-level Interface	Transfer of complex information in a digital format using an open system protocol.
Hold Point	A point in time during the design period where design activities are paused, primarily allowing the Contract Administrator to conduct reviews with the client and other stakeholders; to provide feedback on the design; and to provide a direction for the design to proceed.
Ingress Protection	A rating describing the degree of protection provided by enclosures as defined in AS 60529.
Local (Government) Authority	An administrative entity in local government, established for the purposes of governing an area of the State or Territory.
Low-level Interface	Transfer of binary-type information via terminals and voltage-free contacts.
Main Contractor	See 'Principal Contractor'.
Main Switchboard	The first low voltage switchboard installed downstream of a distribution transformer.
Managing Contractor	See 'Principal Contractor'.
Manufacturer's Recommendations	Recommendations, instructions, specifications and similar expressions provided in written or other form by an equipment manufacturer and/or supplier, relating to the suitability, use, installation, storage, maintenance and/or handling of a product.

Principal Contractor	The primary construction contractor who maintains overall control of a construction site, and who is usually required to engage specialist trade contractors to complete the construction works. For the purposes of this Design Standard, the term 'Principal Contractor' has the same meaning as 'Main Contractor' or 'Managing Contractor'.
Professional Engineer	A Registered Professional Engineer of Queensland (RPEQ).
Proprietary	Something that is used, produced, provided, installed, commissioned or marketed under exclusive legal right of the inventor, designer, owner, manufacturer or supplier.
Prototype	A full-sized or scaled mock-up of components or systems to demonstrate or test construction methods, junctions and finishes, used to define or prove a minimum level of quality.
Referenced Documents	Documents referenced by this Design Standard in Section 03.
Safety Report	A report satisfying the requirements of Section 295 of the Work Health and Safety Regulation (Queensland).
Sample	A physical example of a component or system used to define or prove a minimum level of quality.
Statutory Authority	A public sector entity established under legislation, that is, a specific law of the Commonwealth, State, Territory or Local Government.
Supply	'Supply' shall mean to supply only.
Supply and Install	'Supply and Install' shall mean to supply, install, set to work, test, commission and warrant.
Supply Authority	See 'Utility Authority'.
Trade Contractor	A secondary building contractor, usually engaged by the Principal Contractor to undertake a specialist portion of the construction works.
Utility Authority	An operational entity, usually in government, established for the purposes of governing supply of various services.

03 Reference documents

3.1 UQ reference documents

This Design Standard shall be read in conjunction with relevant UQ reference documents, including but not limited to those listed in Table 3–1. The designer shall the source of the version of the reference document applicable to their design.

Table 3–1 UQ reference documents

Title / description
UQ Design Guidelines
Campuses on Country Design Framework
Sustainability Strategy
Space Planning Documents
Architecture Design Standard
FF&E Standard Documents
Landscape Design Standard
Structural Design Standard
Civil Design Standard
Hydraulic and Wet Fire Design Standard
Mechanical Design Standard
Electrical Design Standard
Dry Fire Design Standard
Fire Engineering Design Standard
Veridical Transportation Design Standard
Acoustic Design Standard
Security Standards Document
Information and Communications Technology Design Standards Documents
Wayfinding and Signage Design Standard
Teaching Standards Documents
Laboratory Design Standards Documents
Environmental Design Standard
Climate Risk Assessment Design Standard

Collaborative Learning Space Documents

AV Design Standard

Electrical Metering Standards Documents

Working at Heights Standards Documents

Waste Infrastructure Standards Documents

3.2 Legislation, regulations, codes and standards

This design standard shall be read in conjunction with relevant legislation, regulations, codes and standards, including but not limited those listed in Table 3–2. The designer shall source the version of the reference document applicable to their design.

Table 3–2 Legislation, regulations, codes and standards

Reference	Title / description
Building Act (Queensland) and associated regulations	*An Act to regulate building development approvals, building work, building classification, building certifiers and pool safety inspectors, and to provide for particular matters about swimming pool safety and sustainable buildings, and for other purposes*
Building Fire Regulation (Queensland)	*The main objects of this regulation are—* *(a) to ensure persons can evacuate buildings safely and quickly if a fire or hazardous materials emergency happens; and* *(b) to ensure prescribed fire safety installations for buildings are maintained.*
Work Health and Safety Act (Queensland) and associated regulations and explanatory notes	*An Act to provide comprehensively for work health and safety, to provide for a new definition of asbestos in particular legislation and for a work health and safety levy, to amend other legislation as a consequence, and to amend the Workers' Compensation and Rehabilitation Act 2003 for particular purposes*
Professional Engineers Act (Queensland) and associated regulations and explanatory notes	*An Act to provide for the registration of professional engineers, and for other purposes*
Electricity Act (Queensland) and associated regulations and explanatory notes	*An Act about the electricity industry and use of electricity, and for related purposes*
Electrical Safety Act (Queensland) and associated regulations, codes of practice notices and explanatory notes	*An Act about electrical safety, and for other purposes*
National Construction Code	*Incorporating National Construction Code Series Volume 1: Building Code of Australia Class 2 to 9 Buildings; Volume 2: Building Code of Australia Class 1 and Class 10 Buildings; and Volume 3: Plumbing Code of Australia*
Fire Safety and Rescue Authority Requirements	*Incorporating technical standards, guidelines and requirements published by the Fire Safety and Rescue Authority, as applicable to the project*
Local Authority Requirements	*Incorporating technical standards, guidelines and requirements published by the Local Authority, as applicable to the project*
Supply Authority Requirements	*Incorporating technical standards, guidelines and requirements published by the Supply Authority as applicable to the project*
AS 1603 (set)	Automatic fire detection and alarm systems
AS 1668.1	The use of ventilation and air conditioning in buildings Part 1: Fire and smoke control in buildings

AS 1670.1	Fire detection, warning, control and intercom systems – System design, installation and commissioning Part 1: Fire
AS 1670.3	Fire detection, warning, control and intercom systems - System design, installation and commissioning Part 3: Fire alarm monitoring
AS 1670.4	Fire detection, warning, control and intercom systems - System design, installation and commissioning Part 4: Emergency warning and intercom systems
AS 2419 (set)	Fire hydrant installations
AS 2441	Installation of fire hose reels
AS 2444	Portable fire extinguishers and fire blankets – Selection and location
AS/NZS 3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)
AS 4428.4	Fire detection, warning, control and intercom systems - Control and indicating equipment Part 4: Emergency intercom control and indicating equipment
AS 4428.6	Fire detection, warning, control and intercom systems - Control and indicating equipment Part 6: Alarm signalling equipment
AS 4214	Gaseous fire-extinguishing systems
AS 7240 (set)	Fire detection and alarm systems
AS/CA S009	Installation Requirements for Customer Cabling (Wiring Rules)
ISO 14520.1	Gaseous fire extinguishing systems - Physical properties and System Design Part 1: General Requirements
ISO 14520.14	Gaseous fire extinguishing systems - Physical properties and System Design Part 14: IG-55 extinguishant
ISO 14520.15	Gaseous fire extinguishing systems - Physical properties and System Design Part 15: IG-541 extinguishant.

04 Design life

Building components and systems shall meet the requirements for design life as listed in Table 4–1.

Table 4–1 Design life

Element	Minimum design life
Fire Indicator Panels and devices	10 years
Emergency Warning and Intercom Panel and devices	10 years
Cable containment – Below ground (conduits, pits, etc)	50 years
Low voltage and extra-low voltage cables	25 years
Gas Suppressions Systems	20 years

05 Design criteria

5.1 Health and safety

5.1.1 General

5.1.1.1 Legislated obligations

Designers shall meet their obligations under the Work Health and Safety Act (Queensland) and Work Health and Safety Regulation (Queensland).

Particular attention is drawn to Section 22 of the Work Health and Safety Act (Queensland) – *Duty of persons conducting businesses or undertakings that design plant, substances or structures*.

Particular attention is drawn to Section 295 of the Work Health and Safety Regulation (Queensland) – *Designer must give safety report to person who commissions design*.

Designers requiring additional information regarding their legislated obligations should contact the relevant Local Authority.

5.1.1.2 Safety in design

Irrespective of their legislated obligations, designers shall:

a. Consult with UQ and its nominated stakeholders throughout the design process about how to ensure that risks to health and safety arising from the design during the construction work are eliminated, so far as is reasonably practicable; or if it is not reasonably practicable to eliminate the risks, minimised so far as is reasonably practicable. This consultation shall occur not less than once during each separate design phase

b. Provide a Safety Report to UQ not less than once during each separate design phase

c. Provide a Safety Report to the Principal Contractor, when appointed

5.1.2 Access

All plant and equipment shall be positioned to allow safe and ready access for installation and maintenance.

Any access provisions for operation and maintenance of dry fire plant and equipment requiring a ladder, platform or similar shall be approved by the Contract Administrator.

Dry fire plant and equipment shall not be located behind the open position of any door or access cover.

Doors to dry fire plant rooms, riser cupboards and similar shall be lockable in the open and closed position.

Doors in the open position shall not impede or obstruct egress paths in the building in any way.

5.1.3 Safe working clearance

Safe working clearance shall be provided for all dry fire plant and equipment as required by the reference documents listed in Table 3–2.

Required safe working clearances shall be documented on plan layout drawings.

Required safe working clearances shall be physically marked out on the floor during the installation of dry fire plant and equipment.

Where floor marking is not practical, a sign is to be fitted to the front of dry fire plant or equipment, or otherwise in plain view, to describe the required safe working clearance that is to be kept clear.

5.2 Quality

Documentation issued formally by designers for design milestones shall be reviewed and verified by an engineer independent of the design team.

Documentation issued formally by designers for design milestones shall be approved for issue by the relevant discipline RPEQ.

Documentation produced by designers shall indicate the RPEQ number of the engineer who has supervised the work. The same RPEQ shall provide Form 15 certification where contracted to do so.

Documentation issued informally for information by designers need not be formally verified, however shall be quality checked by the designer to ensure the documentation is free from errors and omissions.

5.3 Design Deliverables

- Drawings and Schematics
- Fire Services Specification
- Cause & effect matrix
- Associated fire matrix

5.4 Approved dry fire contractors

The following Contractors are the only prequalified dry fire contractors to undertake Construction work for the university:

- Fireboar
- Grosvenor Fire
- ARA
- Microfire

5.5 Flexibility and robustness

The design of dry fire services shall incorporate the spare capacity identified in Table 5-1 for flexibility for future installations and/or modifications. Design documentation shall clearly demonstrate the spare capacity allowances.

Table 5–1 Spare capacity

Element	Spare capacity type	Requirement
Detection Loops	Spare capacity allowance for future expansion on each detection loop(s)	Detection cabling with a minimum of 20% spare capacity for future detectors and devices on each loop
Loop Cards	Spare capacity allowance for future expansion on each loop card in the Fire panel	Detection loops with a minimum of 20% spare capacity for future detectors and devices on each loop
Speaker Lines (including strobes)	Spare capacity allowance for future expansion on each speaker line	Speaker line with a minimum of 20% spare capacity for future speakers and strobes on each speaker line
Speaker Amplifiers	Spare capacity for the speaker amplifiers at the Fire panel as an allowance of future expansion	Speaker amplifiers at the Fire panel line with a minimum of 20% spare capacity for future speakers and strobes on each speaker line
Detection Battery capacity	Spare battery capacity at the Fire panel for future detectors and devices	Spare battery capacity for the detection system with a minimum of 20% spare capacity for future detectors and devices
OWS/EWIS Battery capacity	Spare battery capacity at the Fire panel for future speakers and strobes	Spare battery capacity for the OWS/EWIS system with a minimum of 20% spare capacity for future speakers and strobes

5.6 Sustainability

5.6.1 Materials

5.6.1.1 Equipment and components

All electrical equipment and components shall achieve RoHS compliance to minimise the presence of hazardous materials, including:

a. Lead (Pb): < 1,000 ppm

b. Mercury (Hg): < 1,000 ppm

c. Cadmium (Cd): < 100 ppm

d. Hexavalent Chromium (Cr VI): < 1,000 ppm

5.6.1.2 Cables

All consumer mains and submains cables shall be supplied to comply with Best Practice Guidelines for use of PVC in the Built Environment as published by the Green Building Council of Australia, or be supplied with low smoke, zero halogen insulation and sheaths.

5.7 Whole of life considerations

Project decisions relating to buildability, maintainability, plant and equipment selections, and system configurations shall be made with due consideration of whole of life impacts.

5.8 Tolerances

The tolerances required by all relevant Australian Standards and other reference documents shall be observed.

5.9 Acoustics

Refer to the Acoustic Design Standard for acoustic requirements and treatments required in connection with dry fire services. This includes:

a. Noise levels and other acoustic criteria relating to the operation of dry fire services and equipment

b. Mounting details for wall outlets to preserve acoustic ratings

c. Methods of sealing

d. Selection of sealants

06 Technical requirements

6.1 Dry fire supply

6.1.1 Dry fire supply topology

The University's St Lucia, Gatton and Long Pocket sites each have a master FDAS or FDCIE to which all buildings' fire panels are connected, via the main site wide fire services communication network. The make and model of fire indicator and EWIS panels permitted for use on each site is listed in Table 7–1.

The master FDAS or FDCIE is required to be modified each time a new fire panel is installed.

Alterations or additions to the existing site master FDAS or FDCIE shall only be carried out by the incumbent maintenance contractor for the site. The use of an alternate contractor for these works is not permitted.

As part of these works, the contractor appointed for the works shall update zone block diagram(s) and campus node diagram(s). All block diagram shall be submitted in electronic format (DWG / PDF) for review prior to installation.

Where required by UQ, the contractor appointed for the works shall also install network cards, including two media cards, andAS1670.1compliantcabling to incorporate the FDCIE into the fire detection network.

Where changes are made to fire alarm panel programmes, all networked panels on the site wide system shall be updated to reflect the latest additions or deletions. All new alterations works shall be fully integrated into the master FDAS or FDCIE software, with update of colour graphic backgrounds .

These works shall also only be carried out by the incumbent maintenance Contractor for the site. The use of an alternate contractor for these works is not permitted.

6.1.2 Fire alarm panels

6.1.2.1 General

All new fire alarm panels shall be addressable and networkable with the site's master FDAS or FDCIE. Fire alarm panels that are located at Fire Control Centres (FCCs) at Designated Building Entry Points (DBEPs) shall be located in a designated cupboard with appropriate signage to AS 1670.1 and AS 1670.4 to indicate a FDAS, FDCIE, EWCIE etc. is inside. All clearances in front of the panels for QFD access to comply with AS 1670.1 and AS 1670.4.

All new fire alarm panels shall be of the same manufacture as the site's master FDAS or FDCIE to ensure compatibility with the analogue addressable site-wide communications system.

The fire alarm panels proposed on projects shall be submitted and approved for use by UQ prior to procurement and installation.

All equipment shall be designed and manufactured to AS 7240 (set) and installed to AS 1670 (set).

New Fire Alarm panels shall also be integrated with the UQ Mass Notification System, with emergency warning systems equipment

selection taking into consideration the requirements of the Mass Notification System.

6.1.3 Field devices

6.1.3.1 General

New analogue detectors added to an existing fire alarm panel and shall utilise the same device protocol. All devices are to be fully addressable. New conventional detectors shall not be installed without client approval.

Thermal (heat) detectors shall be installed within areas where there is a likelihood of unwanted alarms (due to excessive dust, insect ingress, steam, and the like), for example, bathrooms with shower areas, lunch rooms, kitchen, plantroom etc. Thermal detector shall be the sealed type. Consideration of ceiling height is to be made when utilising thermal detection.

Concealed space detectors shall be installed using a “Famco” type bracket or have a ceiling access hatch so the detector can be readily accessible for ongoing maintenance and can be easily replacement if required.

Remote indicators shall be installed for all concealed space detectors and detectors located within service cupboards and risers.

6.1.3.2 Visual warning devices

The following areas shall be provided with visual warning devices:

- Laboratories
- Animal houses / enclosures
- Large lecture theatres
- Amenities for people with disabilities
- Noisy Plantrooms
- Other areas as required by UQ for specific area

All other areas as required by NCC, AS 1670.1 and AS 1670.4.

6.1.3.3 Detectors in Lift Shafts

Detection installed within lift shafts or other services shafts shall be readily accessible for maintenance and inspection without the need to enter the shaft. (Eg. Use of MASDS)

Where access can be provided in a manner that is consistent with the DtS provisions of the NCC, solutions shall be submit for approval prior to implementation.

6.1.3.4 Fire extinguishers and blankets

The location and type of portable fire extinguishers and fire blankets shall be in accordance with the National Construction Code (NCC) and AS 2444.

6.2 Unwanted alarms

6.2.1.1 General

An unwanted alarm is defined as an emergency alarm signal at a time where there was no emergency requiring the attendance of the local Fire Safety and Rescue Authority. UQ sites are subject to unwanted alarms which add significant cost to UQ operations.

During the design phase, the designer shall produce an unwanted alarms report to detail how unwanted alarms will be mitigated for UQ review, prior to QFD submission.

The format of this report shall follow the local Fire Safety and Rescue Authority’s guidelines and shall be approved by UQ prior to submission of the report to the local Fire Safety and Rescue Authority (eg the Queensland Fire and Emergency Service).

Where unwanted alarms are caused due to failure on the part of the Principal Contractor or Trade Contractor to follow UQ’s hot works or isolation procedures, the Principal Contractor shall be liable for payment of fees incurred for the attendance by the local Fire Safety and Rescue Authority (eg the Queensland Fire and Emergency Service).

6.2.1.2 Temporary fire protection

At the commencement of all refurbishment projects, the Principal Contractor shall ensure that temporary fire protection is installed throughout construction zones as follows:

a. After strip-out of the area has been completed, thermal detectors and MCPs shall be installed as a temporary measure

b. UQ's Fire Safety Section has thermal detectors, bases and MCPs for loan to projects for the duration of refurbishment projects.

c. Detectors shall be isolated during normal working hours and activated again at the completion of each work day, and on weekends or public holidays, where no workers are on site

d. At the completion of projects, the thermal detectors, bases and MCPs shall be returned to UQ's Fire Safety Section

e. If the Contractor declines to install temporary thermal detectors, the Project must engage the incumbent fire contractor to run an Obscuration report on the detectors for that building prior to works starting. The findings relevant to the works area will be kept, and then another report will be run at Practical Completion/handover stage. If there are detectors that have been contaminated by dust etc throughout the works and are now reading levels close to the alarm threshold, the cost of having these detectors replaced will be with the Contractor. Detector caps shall not be used on smoke detection in construction zones. Instead, isolations shall be requested per item (c)

f. Repair or replacement costs shall be charged to the Principal Contractor for any items found to be deficient or damaged

6.3 Gas suppression

The following areas shall be provided with gas suppression systems:

- Major ITS Communications rooms
- Other critical server / data rooms nominated by UQ

UQ shall nominate the preferred gas type, which may include but not limited to:

- IG-55
- IG-541
- NOVEC 1230

6.4 Multipoint Aspirating Smoke Detection systems (MASDs)

The following areas shall be provided with MASD systems:

- Major communications rooms. Any spaces with a ceiling height 10m or greater, or where access to detection is impractical
- Any spaces provided with gas suppression protection
- Large auditoriums
- Large lecture theatres
- Lift shafts (see 6.1.3.3)
- Car parks with jet fans
- Other areas as nominated by UQ

6.5 Emergency Warning and Intercom System

Buildings that require an EWS or EWIS system shall incorporate the following:

- EWIS/EWS zones agreed with UQ
- Evacuation sequence agreed with UQ (where required)
- Locations of WIPs/ECPs/MCPs agreed with UQ

Provide a multi-zoned EWIS to all buildings in excess of three levels in height, or as required by a project specific Fire Engineering Report. This system shall be fitted electronic voice chips for both alert and evacuation signals, and shall incorporate a minimum of one WIP per level or zone.

The EWIS / OWS proposed on projects shall be submitted and approved for use by UQ prior to procurement and installation.

All equipment shall be designed and manufactured to AS 7240 (set) and installed to AS 1670 (set).

6.6 Building Occupation

6.6.1 Defects inspection

A defects inspection shall be conducted as soon as practical following commissioning and shall be completed by incumbent maintenance contractor, in addition to the party who has

engaged the incumbent maintenance contractor. Consulting engineers shall also attend, where applicable.

Additional defects inspections of concealed spaces will be completed by UQ personnel prior to the installation/re-instatement of ceilings.

A report outlining all defects shall be provided to the Contract Administrator, such that the Principal Contractor and Trade Contractor can make the necessary rectifications.

6.6.2 Completion

On all projects, approval for occupation shall be sought from the local Fire Safety and Rescue Authority (eg the Queensland Fire Department), Building Certifier and UQ prior to practical completion.

Such approvals shall be coordinated by the Building Certifier where engaged.

Complete integrated system testing of the detection system and all connected systems shall be undertaken as per the cause-and-effect matrix.

Additionally, witness testing shall be completed to the satisfaction of the relevant UQ representative.

Final project completion is subject to the delivery of as-built documentation and baseline data. This includes, but is not limited to:

- As-built drawings / schematics / as-wired plans
- Warranty Details
- Cause and Effect Matrices / Fire Matrices
- Integrated system test and commissioning results
- Baseline data

07 Schedules

7.1 Equipment selections

Table 7–1 Equipment selections

Campus	Fire indicator panel type (Manufacturer / make and model)	EWIS panel type (Manufacturer / make-model)
St. Lucia	➢ Simplex 4100ESi	➢ Tyco / Vigilant QE20
Gatton	➢ Simplex 4100ESi	➢ Tyco / Vigilant QE20
Long Pocket	➢ Simplex 4100ESi	➢ Tyco / Vigilant QE20
Herston	➢ Simplex 4100ESi	➢ Confirm with UQ

Note: These panel types may change without notice. Designers shall confirm the appropriate fire panel type (make and model) with UQ on each and every project.

Appendix A – Project specific design standard deviations

This appendix will be supplied in a completed form to describe deviations from these standards that are permitted for specific projects.

Project name and number

Completed by: *name*

Dated: *date*

Design Standard Reference	Approved deviation