



# ARCHITECTURAL DESIGN STANDARD



THE UNIVERSITY  
OF QUEENSLAND  
AUSTRALIA

DESIGN STANDARDS

The Cover to the UQ Architectural Design Standard explores both the culture of the existing Great Court as well as the layering of design information and issues that must be considered, co-ordinated, documented and delivered in a successful UQ project.

#### Document Register

Issue	Date	Description	Initials
Revision 1	18.10.21	Project Use	FN

## Definitions

When the word “shall” is used, this indicates the requirement is mandatory.

When the word “should” is used. This indicates the requirement is a recommendation.

## Abbreviations

ADPP	Associate Director Planning & Property
AV	Audio Visual
BIM	Building Information Modelling
BMU	Building Maintenance Unit
CIC	Campus Infrastructure Committee
CPTED	Crime Prevention Through Environmental Design
ITS	Information Technology Services
OH&S	Occupational Health and Safety
PCG	Project Control Group
PM	University of Queensland Project Manager
PREM	Project Review and Evaluation Methodology
SP	Site Planner
TOS	Technical Officer / Security
UQ	The University of Queensland

## Reference Documents

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

The designer is to coordinate between disciplines and standards. When conflicting requirements arise, they are to be brought to the attention of the PM or Superintendent for clarification and direction.

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# 01 Foreword

The intent of the University of Queensland's Design Standards is to provide all parties associated with the design process clear direction as to the culture of design, the responsibility of the designer(s) and the standards required (over and above the legislated minimums) for all build projects which the University funds.

The documents which make up these Standards are to be read together, as a whole, with equal consideration given to the University of Queensland's Project Management procedures, processes, directions and approvals, in the iterative process that well-designed projects require.

The University has determined that the process of 'design' continues through every phase of a project. For this reason these documents are applicable to all procurement systems and at all phases of a project.

# 02 Introduction

The architecture of the University of Queensland's buildings must be; culturally embedded, inclusive, safe, pragmatic, sustainable, flexible, innovative, cost effective and compliant. . .

## 2.1 Purpose

In line with the UQ Design Standard Master Document the UQ Design Standards detail the minimum design requirements for all UQ projects.

This Design Standard forms part of the University of Queensland's suite of Design Standards. A list of the UQ Design Standards is available in the UQ Design Standard Master Document.

This document is to be read with the suite of UQ Design Standard documents, as a whole, with equal consideration given to the University of Queensland's Project Management procedures and approvals, in the iterative process that well defined projects require.

## 2.2 Aesthetic Standards

All built environment works at the University of Queensland must be appropriate to the context of its setting in terms of scale, materiality and in meeting the university's vision.

UQ is committed to a high standard of architectural design. Building design shall achieve an optimum outcome for all campus users.

Temporary buildings, including demountable structures and containers, are undesirable and should not be considered for any UQ Campus.

Attachments including infrastructure and surface mounted services shall not be made to any building, existing or new, without approval from the UQ P&F Campus Planner. Sensitivity to the architectural outcome shall be considered for all services infrastructure.

All new buildings and external works are to reference the UQ Campus Master Plan and Site Development Plans (where they exist).

The principle for all built work is that it is to address all facades and all edges as active pedestrian zone to be respected with appropriate amenity, scale and materiality. There are no parts of any campus that are to be treated as if they were 'back of house'.

Wherever possible, buildings should be designed to communicate something about their purpose and use, to avoid structures that are unnecessarily indistinct or opaque.

At ground level, buildings should be transparent, porous and public, allowing internal activities to be revealed and facilitating pedestrian movement flows.

# 03 Planning Considerations

The planning requirements for the University of Queensland's buildings must be considered holistically in accordance with the wellbeing and functional requirements of all users.

## 3.1 Circulation

1. Circulation spaces shall suit the maximum building population.
2. Circulation spaces shall comply with AS1428.1
3. Circulation spaces and lobbies that servicing public spaces such as teaching rooms, shall comply with AS1428.2
4. Circulation spaces servicing timetabled spaces also serve as default waiting spaces. Designers shall size circulation spaces to suit waiting building occupants, in addition to circulation requirements. Waiting spaces shall not conflict with circulation spaces.
5. The size of the circulation space shall be negotiated by the UQ PM.
6. Circulation spaces to PC2 teaching laboratories shall consider providing additional space for student bag storage.
7. Circulation spaces shall ideally be open ended.
8. Circulation spaces shall support occupant safety, similar to Crime Prevention Through Environmental Design (CPTED) principles.

## 3.2 Teaching Rooms

### 3.2.1 General

1. Refer AV
2. All teaching spaces are to comply with the current UQ Teaching Standards Document.
3. In addition, the Collaborative Learning Space Design Requirements will be followed for any student learning

centre or collaborative learning space project.

4. The designer shall determine the floor to floor heights for each project. The preferred minimum floor to floor height for teaching spaces is 3.7 metres.

## 3.3 Laboratories

1. All Laboratories are to comply with the current UQ Laboratory Standards Document.
2. In addition, teaching laboratories are also to comply with the UQ Teaching Standards Document and the Collaborative Learning Space Design Requirements, as appropriate. Refer AV.
3. The designer shall determine the floor to floor heights for each project. The preferred minimum floor to floor height for laboratory spaces is 4.3 metres.

## 3.4 Staff Accommodation

1. Staff Accommodation facilities shall comply with the current version of the UQ Land, Buildings and Facilities document.
2. Staff Accommodation shall be provided at a ratio of 80% open plan work place to 20% offices and support spaces including meeting rooms.

## 3.5 Meeting Rooms

1. Refer AV
2. Meeting Rooms shall be provided in compliance with the current version of the UQ Land, Buildings and Facilities document.

3. All Meeting Rooms shall have acoustic properties that comply with the current Acoustic Standards document.
4. Meetings Rooms shall have audio visual capabilities as determined by UQ Information Technology Services
5. Meeting Rooms shall be provided in a variety of sizes, as determined by the Project Control Group and in accordance with UQ Land, Buildings and Facilities document.

### 3.6 Retail Facilities

Retail Facilities shall be provided in accordance with the UQ Retail Design Standard Document.

### 3.7 Amenities

1. Amenities shall be provided to all occupied floors, or a whole building / precinct strategy to be agreed with UQ prior to designing the project in question.
2. Amenities shall be designed without doors and airlocks whenever possible.
3. Direct sight lines from public spaces into amenities are not acceptable.
4. When more than 1 PWD toilet is required, left-handed and right-handed facilities shall be provided.
5. Shower facilities shall typically be provided at dedicated shower spaces such as End of Trip facilities.
6. All PWD Amenities shall include a duress alarm.

### 3.8 All Gender Facilities

1. In line with UQ's commitment to diversity and inclusion, the Project Control Group and the designer shall consider provision of all gender facilities.
2. All gender facilities shall be provided as required by the UQ Masterplan.
3. All gender facilities shall include:
  - a) Individual stalls with full height partitions.
  - b) Individual handbasins
  - c) Ventilation
  - d) Signage

### 3.9 End of Trip Facilities

1. End of Trip Facilities shall be provided as determined by the UQ PM and as required by the UQ Masterplan.

2. End of Trip Facilities shall comply with AS2890.3 and the Austroads Research Report Bicycle Parking Facilities: Guidelines for Design and Installation.
3. End of Trip Facilities should be planned such that bicycle movements are kept separate from pedestrian and vehicular movement.
4. End of Trip Facilities shall provide:
  - a) Secure bicycle and scooter parking for a minimum 7.5% or regular building occupants and 10% of students (calculated at 75% occupancy).
  - b) Change Rooms with showers at a minimum rate of 1x shower per 50 regular occupants for the first 200 occupants, plus 1x additional shower for every 200 occupants above 200.
  - c) 1x lockers for every 8x occupants.
5. The Project Control Group shall consider provision of an additional and dedicated gender neutral / non-binary Change Room and shower.
6. End of Trip Facilities will comply with CPTED principles.
7. End of Trip Facilities shall cater for electric vehicles including bicycles, scooters and mobility scooters. Refer to UQ E-mobility Plan, A 10 amp GPO shall be provided for each electric vehicle housed.

### 3.10 First Aid Room

1. A First Aid Room shall be provided as determined by the UQ PM and as required by the UQ Masterplan.
2. First Aid Room shall be located adjacent Public Amenities.
3. The First Aid Room shall be accessible to all users, compliant to AS1428.2 and consider the UQ Disability Action Plan.
4. The First Aid Room shall provide acoustic separation from public spaces. Minimum Rw50 separation, or as advised by the project Acoustic Engineer.
5. First Aid Rooms shall provide:
  - a) A minimum floor area of 10M<sup>2</sup>
  - b) Resilient flooring with a charged floor waste.
  - c) Wash hand basin
  - d) Emergency call button
  - e) Bins

- f) Furnishings: 1x single bed. 1x workstation. 2x chairs. Lockable storage unit.

### 3.11 Carers Room

1. A Carers Room shall be provided as determined by the UQ PM and as required by the UQ Masterplan.
2. Carers Rooms shall provide:
  - a) A minimum floor area of 10M2
  - b) Resilient flooring with a charged floor waste.

### 3.12 Parents Room

1. The Project Control Group may consider the inclusion of a dedicated Parents Room.
2. Inclusion of a dedicated Parents Room may be required by the UQ Masterplan.
3. The Parents Room shall be located adjacent, but separate to, public Amenities.
4. The Parents Room shall be accessible to all users, compliant to AS1428.2 and consider the UQ Disability Action Plan.
5. The Parents Room shall provide acoustic separation from public spaces. Minimum Rw50 separation, or as advised by the project Acoustic Engineer.
6. Parents Rooms shall provide:
  - a) Space to locate 2x prams / strollers.
  - b) Resilient flooring with a charged floor waste.
  - c) Wash hand basin
  - d) Laundry tub
  - e) Minimum 2 lineal metres of bench space.
  - f) Emergency call button
  - g) Bins
  - h) Furnishings: 2x wall mounted baby change tables. 3x chairs
  - i) Hold open door closers.
  - j) Kickplates to both sides of the door

### 3.13 Prayer Room

1. The Project Control Group may consider the inclusion of a dedicated Prayer Room.
2. Inclusion of a dedicated Prayer Room may be required to suit the UQ

Masterplan, or a campus precinct study.

3. Prayer Rooms shall be non-denominational.
4. The Prayer Room shall be accessible to all users, compliant to AS1428.2 and consider the UQ Disability Action Plan.
5. The Prayer Room shall provide acoustic separation from public spaces. Minimum Rw50 separation, or as advised by the project Acoustic Engineer.
6. Prayer Rooms shall provide:
  - a) A minimum floor area of 15M2
  - b) Carpet flooring
  - c) Neutral colours
  - d) A wet area / wash facility.

### 3.14 Printer Areas

1. Projects shall include a dedicated printer area at the direction of the Project Control Group.
2. Printer areas shall be accessible to all users and consider the UQ Disability Action Plan.
3. Printer areas shall be located on each floor that contains occupied office spaces.
4. When provided, printer areas shall be located in a central location, preferably no further than 30M from the furthest workstation.
5. When located adjacent circulation spaces, printer areas shall be recessed so as to not interfere with circulation. A minimum of 1 metre of space is to be provided between the circulation zone and the equipment or fixtures.
6. The mechanical services to printer areas shall provide increased air change rates, or an exhaust system, as determined by the project mechanical engineer and approved by the UQ PM.
7. Printer areas shall provide:
  - a) A minimum of 2 metres of lineal bench space
  - b) Lockable storage
  - c) Space to suit UQ nominated Multifunctional Devices, including all required circulation space.
  - d) Bins: Recycling and Secure

### 3.15 Cleaners Rooms

1. All building projects shall include a Cleaners Room on every floor.
2. A central main Cleaners Store of minimum 10M2 shall be provided adjacent the services / delivery entrance.
3. A Cleaners Room shall be a minimum 6M2
4. For large buildings, Cleaners Rooms shall be provided at 2x per 1000M2
5. A Cleaners Room shall provide:
  - a) Resilient flooring
  - b) A charged floor waste with a sludge trap.
  - c) Space and services to suit the Ozone cleaning machine
  - d) Space and services, including ventilation, to suit the Ozone machine battery chargers.
  - e) Mop rails and bucket holders
  - f) Cleaners sink
  - g) Open storage shelves
  - h) UQ to advise on spatial requirement for wall mounted cleaning unit, if required.
9. Communications Rooms that require door grilles shall not be located on paths of egress.
10. Communications Rooms shall provide:
  - a) Anti-static resilient flooring
  - b) Minimum door leaf width of 1020mm
  - c) Doors to swing outwards
  - d) Clearance around each rack in accordance with the project electrical engineer and as per the UQ P&F Engineers advice.
  - e) Lined walls that extend to the soffit and no ceilings typically.
  - f) All surfaces are to be painted and or finished, or lined with an approved pre-finished material.
  - g) The main access door is to be electronically locked. All doors to have GM2 key barrels.

### 3.16 Communications Room

1. Communications Rooms shall be provided to all projects as required by the UQ Communications Standards Documents.
2. Communications Rooms shall be located as centrally as possible. Designers shall consider the 90-metre limitation of cable length in the planning phase.
3. Communications Rooms shall be provided in accordance with the approved designs as per the UQ Communications Standards Documents.
4. Communications Rooms shall be accessed off public spaces only.
5. Communications Rooms should not be located adjacent services risers, to avoid the need to reticulate services through the Communications Rooms.
6. Communications Rooms should not be located next to building core walls (or similar), so to not limit the comms cable distribution.
7. Designers shall coordinate services such that hydraulic and other drainage services do not travel directly over server equipment.
8. An acoustic engineer's advice shall be sought on the acoustic rating required to the walls and doors for all Communications Rooms.

### 3.17 Plant

1. Plant Rooms shall be provided as required by the project services engineers. Refer to the Mechanical Engineering, Electrical Engineering and Hydraulic Engineering Design Standards.
2. Plant Rooms shall be acoustically isolated to adjacent spaces as required by the project acoustic engineer.
3. Plant rooms shall be accessed off public spaces only.
4. Plant spaces at risk of flooding shall include a dry sump with pump and alarm.
5. The walls and soffits of Plant Rooms shall be painted to minimise dust.
6. The designers of Plant Rooms shall consider future expansion.
7. Plant Rooms shall provide:
  - a) A floor setback of 50mm typically. Designers shall confirm the depth of the setback for the project. Ramps at doorways shall be considered.
  - b) If a setback cannot be provided, doors to Plant Rooms shall have hobs to bund and contain liquids within the plantroom. All hobs shall be marked with black and yellow contrasting stripes. Note: a setback is preferable to a hob.
  - c) A waterproof trafficable membrane floor finish

- d) Bunding at all floor penetrations to prevent liquids tracking to penetrations.
- e) Space to store as-built drawings.
- f) Signage to advise project specifics – Refer Signage.

- 3. Lift Control Rooms shall provide:
  - a) Paint finished concrete floors
  - b) 50mm setbacks typically.
  - c) Finishes and fitout in line with Plant Rooms

### 3.18 Services Cupboards

1. Services cupboards shall be provided as required by the project services engineers. Refer to the Mechanical Engineering, Electrical Engineering, Dry Fire and Hydraulic Engineering Design Standards.
2. Services Cupboards should be positioned at the same location on each floor level.
3. Services Cupboards shall provide:
  - a) A paint finish to the floor
  - b) No ceilings typically
  - c) Steel angles fixed and sealed to the floor to provide a bund to any floor penetrations.
4. Hydraulic Services cupboards shall have a waterproof membrane floor.

### 3.19 Services Risers

1. Services Risers shall be provided as required by the project services engineers. Refer to the Mechanical Engineering, Electrical Engineering, Dry Fire and Hydraulic Engineering Design Standards.
2. Services Risers should be positioned at the same location on each floor level.
3. Services Risers are typically fire rated shafts.
4. If access is required to a Services Riser, a fire rated door and suspended steel walkway system shall be provided.
5. Access shall be off public spaces only.
6. The bottom of a Services Riser shall have a waterproof membrane floor finish and a drain.

### 3.20 Lift Control Rooms

1. Lift Control Rooms shall be provided as required by the vertical transportation engineer. Refer to the UQ Vertical Transport Standards Document.
2. Lift control Rooms shall be accessed off public spaces only.

### 3.21 Multi-Level Carparks

1. Multi-Level Carparks shall be designed in accordance with the UQ Civil Design Standards.
2. All Multi-Level Carparks projects shall include an architect for façade design.
3. Multi-Level Carparks shall have façade designs appropriate for their campus location.
4. Multi-Level Carparks shall be naturally ventilated typically.
5. Designers shall consider the security requirements of Multi-Level Carpark users in accordance with CPTED principles.
6. Security Call points shall be provided at each level to each staircase and as directed by the UQ PM.
7. Multi-Level Carparks should have open staircases typically.
8. Staircases are to be considered as public use stairs in addition any egress requirement.

### 3.22 Chemical Storage

1. Chemical Storage facilities shall be located at the back of house areas and adjacent vehicular loading docks.
2. Chemical Storage facilities should be located away from pedestrian areas.
3. Chemical Storage facilities shall be designed to appropriately match the building that they are associated with.
4. The University of Queensland Hazardous Area Assessments Design Standard and Dangerous Goods Storage Design Standard documents are to be consulted in the design of Chemical Storage.

### 3.23 Loading Docks

1. Loading dock areas shall be located at the back of house areas.
2. Loading dock location shall suit the separation of vehicular and pedestrian movement.
3. Loading dock design shall give priority to pedestrian safety.
4. Loading Docks shall include short term carparks and setdown areas as determined by the UQ Masterplan.
5. Delivery points shall provide a line of site to the Loading Dock.
6. Delivery points shall include an intercom connecting the Loading Dock, Facilities Managers Office and boom gate (as appropriate).

### 3.24 Services Coordination

Refer to Design Standard Master Document, Seismic Code.

The design team is responsible for all building and in-ground services coordination.

The designer shall take advice from all building services consultants and ensure a coordinated services path is provided.

The designer shall ensure access is provided to all services items that require maintenance.

The designer shall ensure that cable paths, including trays, are serviceable.



# 04 Technical Requirements

The following information sets out the minimum standard for all UQ built facilities.

## 4.1 Site Works

Designers shall consider the project site boundaries, hoarding location, and contractor access during the design phase. Consideration shall be given to neighbouring sites to allow the safe and normal operation of the campus during the construction phase of the project.

## 4.2 Demolition

All demolition works on Major Projects shall be undertaken in compliance with the C&D Waste Management Plan as approved by UQ PM. For both Minor Works and Major Projects waste should be tracked using the Waste Tracking form and submitted to UQ PM at project completion. Refer to Section 4.10.5 Construction Waste Management within the Design Standards Document.

Designers and the UQ PM should inspect structures to be demolished to access items that may be reclaimed or recycled.

Designers should consider re-use and adaption of existing structures over total demolition.

Designers shall ensure that hoarding for refurbishment projects adjacent occupied spaces shall be dust proof.

Designers for refurbishment projects shall consider all works outside the main project area, in particular works associated with services, including drainage, in areas below the main project area.

Designers shall consider the impact of services isolation on occupied areas adjacent to the main project area.

Designers shall consider demolition techniques that minimise noise issues to adjacent areas.

All penetrations in existing slabs, or beams, shall be reviewed by a structural engineer. Refer Structural Engineering Design Standard.

Common areas used to access construction sites are to be cleaned at the completion of every day.

Refer UQ Design Standards Master Document 'Hazardous Materials'

### 4.3 Fire Ants

Refer to the Environmental Design Standard.

### 4.4 External Works

Refer UQ Master Plan

Refer Landscape

Refer Crime Prevention Through Environmental Design (CPTED) – Design Standards Master Document

Refer Accessibility – Design Standards Master Document

Refer Stairs / Ramps / Balustrades

#### 4.4.1 General

The external scope of the project shall be identified at the early design phases, including all in-ground services connections and areas utilised for construction.

The edges of all projects shall be designed to seamlessly integrate with the existing levels.

The edges of projects shall consider the threshold and transition of finishes to existing conditions.

### 4.5 Landscape

CPTED design principles are to be considered in the design of all public spaces.

Refer to the Landscape Design Standard.

#### 4.5.1 General

Each campus has a specific character and quality that it is to be maintained and developed in accordance with its specific landscape strategy.

All landscaping design is to comply with the Landscaping and Irrigation Design Standard. If there is no specific Placemaking and Landscape Strategy for the campus in question the St Lucia Placemaking and Landscape Strategy document is to be adopted.

#### 4.5.2 Hardstand

1. Hardstand design is the responsibility of the architect / engineer / designer.
2. Hardstand types shall comply with the Landscaping and Irrigation Design Standard. Approved types of hardstand include:
  - a) Exposed aggregate concrete.

b) Granit pavers

c) Granit set pavers (not suitable for stairs)

3. Hardstand finishes shall comply with the Landscaping and Irrigation Design Standard. Finishes for small areas, or infill areas of hardstand may match existing adjacent finishes.
4. Service pits and the like shall be located within hardstand.
5. Pit lid types to front of house areas shall be infill type.
6. Hardstand areas for use by pedestrians shall suit the use of wheelchairs, electric wheelchairs and mobility scooters.
7. Shared zone hardstand areas should suit the safe use of bicycles, scooters, electric bicycles, electric scooters and the like. Consideration shall be given to provide separation between bicycles et al and pedestrians. Refer to the UQ E-Mobility Plan.

#### 4.5.3 Softscape

1. Softscape is the responsibility of the Landscape Architect.
2. Overland flow is the responsibility of the Civil Engineer and is to be coordinated as required including architectural, landscape and services disciplines.
3. Drainage to garden beds is the responsibility of the Civil Engineer.
4. Services pits and the like should not be located within softscape.

### 4.6 External Steel

1. External steel structures shall not allow contact between dissimilar metals.
2. External steel design shall not rely on site welding, or cold galvanising “patch up”.

#### 4.6.1 Protective Coating

1. All external steel members shall be hot dipped galvanised.
2. Feature external steel members shall have a protective paint coating in addition to the hot dipped galvanised finish. The protective paint system shall have a minimum warranty of 15 years.

#### 4.6.2 Member Selection

1. External steel framing shall be designed to avoid water ponding. A hot dipped galvanised finish (HDG) often requires drain holes to tube sections. Designs shall not allow water

- to enter and sit within tube sections via the HDG drain holes.
- 2. External steel structures shall minimise roosting opportunities for vermin.
- 3. When designing for corrosive environments (including pools) open sections with visible connections for maintenance are to be used.

## 4.7 Carparks

- 1. Where required carparks shall be provided in accordance with the Civil Design Standard
- 2. The Project Control Group shall determine whether carparks, setdown and delivery areas are briefed items for a project.
- 3. All vehicular infrastructure shall be in accordance with the UQ Masterplan.

## 4.8 Termites

All projects adjacent the ground plane must consider termite management.

All new building projects shall include termite barriers.

Renovation projects to an existing ground floor structure shall include termite barriers. Existing termite barriers are to be inspected by an expert and their effectiveness reviewed with consideration of additional or repair works.

Physical barriers shall take precedence over chemical barriers.

Termite management systems shall provide a minimum 10 year installation warranty.

## 4.9 Waterproofing

### 4.9.1 General

Waterproof membranes shall be two layer fully bonded systems that provide a minimum 20 year warranty.

Waterproof membranes shall only be installed by the manufacturers recommended installers.

### 4.9.2 Basement Water Proofing

- 1. Basements shall be designed with a dry wall system, that provides access to the rear face of the wet wall. The dry wall shall be designed with a surface drain.
- 2. Basement walls shall have accessible waterproofing membranes

- 3. Insitu cast concrete walls and columns shall be avoided in basement design as it is difficult to maintain concrete cover.

### 4.9.3 Lift Pit Water Proofing

- 1. Floor and lift pits shall be fully tanked where below grade, or subject to hydrostatic pressure using a waterproofing membrane approved by the project PM. The approved waterproofing membrane shall have a guaranteed service life of minimum 20 years and projected service life equal to the service life of the covering structure.

### 4.9.4 Water Proofing Renovation Projects

- 1. Waterproof membranes and water stops shall be installed whenever slab infill is required to existing ground slabs. The new waterproof membranes and water stops shall reinstate the water tightness of the ground slab.

## 4.10 External Walls

### 4.10.1 Principles

- 1. The external envelope of the buildings shall be constructed of high quality, low maintenance materials. Pre-finished external surfaces shall be used in lieu of applied on-site finishes.
- 2. Façade treatment and window selection shall enhance adequate light and ventilation, provide easy access for maintenance and cleaning, provide suitable protection from the elements whilst optimising view and aspect.
- 3. Facades shall be non-combustible.
- 4. Facades shall be detailed to shed water away from building and pathways to avoid façade staining.
- 5. Bird roosting opportunities shall be minimised.
- 6. Parapet capping and window framing shall be designed to ensure façade staining is avoided.
- 7. Facades shall include sun protection systems including sun shades, external screens and performance glass to control glare and reduce building heat loads.
- 8. Facades shall not rely on curtains and blinds for solar performance. Curtains and blinds shall be used only for glare control.

9. Proposed sun control measures shall consider the short term capital cost, long term maintenance and operating costs, maintenance, cleaning and embodied energy useage.
10. The sun control measures adopted for the building shall be approved by the UQ PM.
11. Façade design shall consider the risk of bird strike to glazing. Refer to Glass Type.
12. Refer to the Structural Engineering Design Standards for Engineered Façade Systems
13. BMU design, if required, shall be integrated with the external walls in consideration of the building façade arrangement. BMUs shall be designed to be stored and concealed to reduce visual impact when not in use.

#### 4.10.2 Types of Walls

Maintenance free materials are preferred, as follows:

1. Clay brick.
2. Precast and off-form concrete.
3. Concrete block (with cavity).
4. Pre-finished, proprietary cladding systems
5. Pre-finished metal sheet

#### 4.10.3 Wall Construction

1. Wall design shall minimise long term maintenance
2. Control Joints shall be provided in all masonry walls. Joints shall be sealed to prevent water entry.
3. Single Skin Walls - all single skin external masonry walls shall be sealed against water entry.
4. Seal Junctions - form positive water seal at the junction of all walls and floors using rebates, weather strips and overlaps. Vertical heights should be a minimum 50mm.
5. Damp Proof Courses (DPC) – shall be provided to cavity masonry at floors, heads and sides of openings. Also ensure drainage of all DPC flashings.
6. Sealants - Refer Roofs
7. Sills - Provide minimum 50mm projection and minimum 1 in 10 fall to sills in masonry walls.

#### 4.10.4 Precast Wall Panels

Considerations during design and construction is to be given to:

1. Tolerances shall be nominated in specification that will allow

interface with the whole building structure.

2. The standard method of the weatherproof baffle system shall be used. i.e. pressurized joint at the external face.  
2 pack polyurethane sealant behind.
3. Ensure that the sealant used suits the width of the joint and allows for movement.
4. All sealants shall be UV stable.
5. For proper adhesion, ensure the recommended primers are applied as per manufacturer's specification.

#### 4.10.5 Fire Integrity Across Joints

1. The fire ratings of all materials used in joints shall be compatible with the fire rating requirements of the wall type.
2. Contractor to confirm sealant types used during construction and provide documented evidence that they comply with all code and certification requirements.

#### 4.10.6 Timber Wall Frame Fitting

1. Bottom timber plates shall be fixed with bolts to concrete floor slabs. The 'shot' nail method shall not be used.

#### 4.10.7 All Floors above Ground -Dry Wall Construction

1. Basement spaces shall be avoided as they are subject to local flooding. Refer flood map of St Lucia campus in UQ Structural Engineering Design Standard.

#### 4.10.8 Combustibility

1. All facades shall be non-combustible.
2. All components of facades shall be non-combustible. This includes, but is not limited to, cladding, support structure, sarking, insulation and thermal breaks.

#### 4.10.9 Cladding

1. All claddings proposed shall be demonstrated in PREM submissions to be non-combustible.
2. Aluminium composite panels (ACP) and expanded polystyrene (EPS) cladding shall not be used.

#### 4.10.10 Fire Engineering

Note: The focus on flammable cladding issues have given the QFES more power in approving compliance issues. Previously accepted fire engineered solutions are being rejected by

QFES and stricter compliance to DTS enforced.

should match existing - as approved by the PM.

#### 4.10.11 External Corners

1. External corners at risk of impact from vehicles, trolleys, or the like, shall be protected.
2. Corner protection shall be in the form of a physical barrier such as a kerb or bollard.
3. Corner protection in the form of steel angles, or the like, shall only be used in back of house areas.

### 4.11 Glazing

#### 4.11.1 Window Types

1. Glazing assemblies shall be commercial grade window wall, or curtain wall systems.
2. Fixed glazing assemblies shall be used typically.
3. Operable glazing should be (in order of preference):
  - (a) Commercial grade louvre systems
  - (b) Awning windows
  - (c) Sliding windows
4. All operable windows shall be lockable
5. Operable windows shall not provide opportunity for self-harm.
6. Physical security barriers such as screens shall be provided to all operable façade openings.
7. Glazing assemblies shall have commercial grade anodised aluminium frame systems.
8. Aluminium glazing frames shall be finished in commercial grade anodized finish, minimum thickness 25 microns. Or thickness grade AA25 as per AS1231-2000
  - (a) Commercial grade powdercoating finishes are acceptable in lieu of anodising.
  - (b) Finish colour to be in keeping with the design.
9. All air-conditioned buildings shall satisfy regulations in The Building Act in the event of power breakdown or plant failure.

#### 4.11.2 Existing Buildings

1. In case of complete building restoration, new windows shall be used with consideration to original design concept.
2. In case of small improvements and replacements, materials and types

#### 4.11.3 Samples

9. A sample of each of the following shall be provided prior to design approval for approval by the UQ PM:
  - (a) Sections for frames, sashes and louvres.
  - (b) Glass types, glazing systems, glazing compounds and sealants.

#### 4.11.4 Glass Type

1. Float Glass shall be clear or tinted as approved by the UQ PM - minimum thickness 5mm.
2. Semi-Obscure Patterned Glass shall be used for all external toilet windows where privacy is a consideration.
3. Toughened Safety Glass shall be used for:
  - (a) Parts of a glazed wall or partitions which could be mistaken for a doorway, or an unimpeded path of travel.
  - (b) Windows facing sports fields and assembly areas.
  - (c) Stairwell panels and access corridors.
4. Laminated Safety Glass shall be used as an alternative to toughened glass, only on approval of the UQ PM.
5. Polycarbonates should be used only when glazing frames are subject to excessive distortion, where major security is necessary, or where vandalism is a consideration.
6. Façade and glazing design shall consider bird strike. Use of ceramic frit, UV coatings and physical barriers including sun shades shall be considered to deter bird strike to all glazing.

#### 4.11.5 Glazing Compounds and Sealants:

1. All glazing compounds and sealants shall be non combustible.
2. Polysulphides and silicones shall be used as recommended by the manufacturer for external use.
3. Glazing gaskets shall be Neoprene or PVC wedges, to the approval of the PM.
4. All window assemblies shall have combination of silicone bead and neoprene wedges. Note that a silicone bead shall be laid onto the glass and under the wedge and shall form a continuous seal for the full frame perimeter.

5. Dry seal only, as per standard domestic assemblies shall not be used.
6. All window assemblies shall provide positive drainage to the external face of building.
7. All framing joints shall be sealed to ensure no water transfer between glazing panels, i.e., mullion to head or sill, transom to mullion or jamb.
8. All window assemblies shall be thoroughly sealed to sides of openings, on both internal and external faces.

#### 4.11.6 Glazing Accessories

1. Weatherseals – pile seals shall be aluminium, or plastic backed.
2. Extruded Seals shall be Neoprene.
3. Locks and Hardware shall be approved by the PM and Security Officer.

#### 4.11.7 Maintenance and Cleaning

1. The window system shall be designed so that external glazing can be cleaned from within the building without infringing the requirements of regulatory authorities. (e.g Workplace Health and Safety Act).
2. Safety systems for cleaning windows shall be provided where the window opening is large enough to allow accidental passage of the human body.
3. If external access for window maintenance is required, the access shall comply with the relevant UQ standard. Refer to the current Design Inspection Guide – Working At Height Safety Systems.
4. Preferred designs for external maintenance access include:
  - (a) Permanent walkway gantry integrated with building sunshade
  - (b) Elevated work platform
  - (c) BMU / abseiling
5. The design and installation of all window assemblies shall allow for the glass to be removed and replaced easily.
6. Window venetian (horizontal) blinds shall not be used.

#### 4.11.8 Testing

1. It is mandatory that all windows, when closed, do not leak. Testing is required in accordance with the NCC, or as

directed by the project façade engineer.

2. All glazing assemblies shall also pass a continuous hose test on site as directed by the UQ PM

#### 4.11.9 As Built Details

1. Accurate as built records shall be provided for all glazing assemblies.
2. As built records shall provide details on glazing, framing, glass type, fixings, seals. The final set of shop drawings shall be included in the as built records. These must be provided to the UQ PM at Practical Completion.

#### 4.11.10 Warranty

1. Warranties shall be provided for all façade components.
2. A minimum warranty period of 10 years shall be provided for cladding materials and support structure.
3. A minimum warranty period of 10 years shall be provided for all glazing assemblies.
4. Maintenance requirements that affect warranty shall be provided in the Operational & Maintenance Manuals. These requirements shall be provided to the UQ PM to pass onto the Facilities Manager.

#### 4.11.11 Miscellaneous Issues

1. Rendered face blockwork shall not be used for external walls.
2. Window frames shall not be cast into precast concrete panels as they are difficult to remove for maintenance or replacement.
3. Rubber seals to windows shall not be used as the rubber tends to perish and shrink.
4. Large single panes of glass shall be sealed by wet sealing the glass using appropriate sealants.
5. Surfaces that allow dust and debris to adhere easily shall be avoided.

### 4.12 Sunshades and Solar Protection

1. Building orientation shall be considered regarding solar performance.
2. Sun shading devices shall be used for solar control on all exposed external walls as required.

3. Sun shading devices should shield the building from summer sun but allow winter sun to penetrate the building.
4. Sun shading devices shall prevent direct summer sun entering a building between 8.30 am and 5.30pm.
5. Sun shading shall consider light penetration into the building interior.
6. West and east facing external walls are vulnerable to high solar loads. The design of east and west facing external walls shall minimise solar loads entering the building.
7. Sun shading devices shall not hinder maintenance access to external walls and to glazing. The horizontal elements of sun shading designs can be designed to also provide maintenance access.

#### 4.12.1 Types of Sun Protection

1. Performance glass shall be provided to all exposed façade window assemblies.
2. Reflective films to glazing shall not be used.
3. Performance films to glazing should not be used
4. Reduced window size should be considered in conjunction with external sun control devices.
5. Curtain wall glass and large exposed areas of glass should not be used on facades facing the sun.
6. Horizontal venetians built into double glazed windows shall not be used.
7. Sunshade elements that should be considered include:
  - (a) Vertical and horizontal blades.
  - (b) Deep reveals in window treatment.
  - (c) Roof overhangs and hoods.
  - (d) Attached screens and low maintenance pergolas.
8. Sunshade design shall not allow direct contact between dissimilar metals.
9. Roosting opportunities for birds shall be minimised
10. Sun shading design shall consider facade maintenance access.
11. External steel framing shall be designed to avoid water ponding. A hot dipped galvanised finish (HDG) often requires drain holes to tube sections. Designs shall not allow water to enter and sit within tube sections via the HDG drain holes

## 4.13 Roof

### 4.13.1 Principles

The roof is a major element in a building design and plays a significant role in its building life cycle.

The following must be considered:

1. The roof shall act as a canopy to shade the facade and protect occupants from the impact of heavy rain and direct sunlight.
2. Water shall be shed quickly and effectively.
3. Downpipes shall be carefully considered as an integral element in the facade design but shall not be a major visual feature.
4. Roof shape shall be simple and minimise the risk of leaks.
5. Penetrations in the roof shall be minimised
6. Roof spaces shall be ventilated unless the project sustainability consultant advises otherwise.
7. Roof glare onto adjacent buildings shall be considered and minimised by roof orientation and finish.
8. All roofs shall be inherently accessible for maintenance purposes.
9. All roofs and roof access systems, shall comply with the current Working At Height Standards Documents – refer to the master document.
10. Consideration shall be given at the time of project scoping to the future vertical extension of any new building. If required, the future vertical expansion is to be included in the project brief and both the building structure (including footings) and the roof design shall be designed to suit future works.
11. All roofs shall be designed to suit maintenance traffic loads – Refer Structural Design Standard
12. All roofs shall have safety mesh complying to the current revision of AS/NZS 4389.
13. Designers shall consider issues of dissimilar metals and galvanic corrosion in roof design. For example: a stainless steel gutter may be used with a prefinished metal sheet roof, but direct contact must be avoided. The designer shall confirm the dissimilar metals strategy to the UQ PM.

## 4.13.2 Types of Roofs

### 4.13.2.1 General

1. Roofs shall be pitched and have eaves gutters.
2. Flat roof decks and box gutters should not be considered.
3. Roofs shall have overhangs and self-cleaning eaves gutters
4. Roofs and eaves gutters shall be designed to overflow beyond the building internal line in the event of downpipe blockage
5. Curved roofs shall have side sealing at the top of curved roof profiles.

### 4.13.2.2 Metal Sheet / Metal Tray Roofs

1. The minimum pitch for metal sheet roofing to be 3 degrees and in continuous sheets.
2. Metal sheet and metal tray roofs shall be pitched + 1 degree to the minimum pitch recommended by the manufacturer.
3. Metal sheet and metal tray roofs shall be of continuous sheets. If continuous sheets are not possible, the UQ PM is to approve the use of a proprietary overlap joint.
4. Fixings to metal tray roofs shall be concealed.
5. Metal sheet and metal tray roofs shall have corrugated profiles.
6. Roof sheet or tray types shall allow clipping type fixings for attachments such as solar panels.
7. Metal sheet or tray type shall suit the use of temporary anchor points for roof access. Refer Roof Access.
8. Metal roof sheets or trays shall have a minimum BMT of 0.48mm
9. Metal roof sheets or trays shall be turned down at gutters using specialised tools.
10. When located in corrosive environments (including pools and close to large numbers of fume cupboard exhausts), consideration is to be given to the choice of materials.

### 4.13.2.3 Tiled Roofs

1. Tiled roofs are generally not preferred.
2. Tiled roofs shall be a minimum of 17.5 degrees pitch, or greater to suit the manufacturers recommendations.

### 4.13.2.4 Membrane Roofs

1. Where a concrete slab is provided at roof level, a metal tray roof supported off the slab should be used for waterproofing. A membrane over a concrete roof is not acceptable.

2. A membrane roof system shall achieve a minimum 20 year warranty.
3. A membrane roof shall have a minimum fall of 1:30, or greater to suit the manufacturers recommendations.
4. Membrane Roofs shall be liquid membranes in lieu of sheet membranes.
5. Membranes shall not be covered with a poured concrete screed as a protective layer.
6. For trafficable roofs where work or recreation spaces are required, then removable means of protection shall be used, such as an IRMA system (inverted roof membrane application). Portable concrete paving slabs shall be used for ballast and not aggregate.
7. Membrane roof designs shall ensure the membrane drains. Space shall be provided between the membrane and the protective surface to suit drainage.

## 4.13.3 Roof Flashings

1. Roof flashing design shall minimise the use of sealants.
2. Flashings, cappings and the like shall be fabricated and installed in accordance with the manufacturers recommendations.
3. Parapet walls shall be fully flashed from capping to roof sheeting.
4. Flashing materials shall be:
5. Pre-finished steel 0.55 min BMT
6. Aluminium 0.3 min BMT
7. Copper 0.55 min BMT
8. Zinc Alloy 0.55 min BMT
9. Stainless Steel 316 grade 0.55 min BMT
10. Flashings shall be coloured to match the roof sheet material typically.
11. Documentation shall describe (at 1:5 scale) every flashing condition throughout the roof of a building.
12. Minimum lap 150mm for over and under flashings. Minimum 150mm lap for side flashings and to be fixed and sealed.
13. Refer sealants.

## 4.13.4 Visible Roofs and Colours

1. Metal Roofs shall be pre-finished steel, unless environmental conditions dictate otherwise (ie severe marine conditions).
2. Roof colour shall not be 'white' when roof is visible from neighbouring occupants.
3. Roof colours shall not be dark without prior approval.



4. All samples shall be approved before any building work commences.
5. All samples shall be approved prior to materials leaving the factory.

#### 4.13.5 Gutters

1. Gutters shall be commercial grade proprietary, or custom made, eaves gutters.
2. Gutters shall be sized by the project Hydraulic Engineer. Refer Hydraulic Engineering Design Standard
3. Gutters shall be sized to suit the locations, rainfall intensity and roof catchment per downpipe.
4. Rainfall intensity is to be calculated at once in 100 years (Q100)
5. The outside edge of gutters shall be minimum 25mm lower than the inside edge, as eaves gutters, unless increased by project Hydraulic engineer. (min 25mm freeboard).
6. All eaves gutters shall include under-flashing of min 300mm width
7. Internal gutters shall be avoided.
8. Gutter design shall consider leaf accumulation. Gutters shall include gutter guards if there is risk of leaf accumulation.
9. Gutter design shall avoid corrosion due to dissimilar metals and galvanic corrosion.
10. Gutters should be constructed from stainless steel of structural grade 304, 2B Mill Finish) 1.2mm thick with welded joints.
11. Gutters shall have a MINIMUM FALL of 1:150 and a minimum depth of 150.
12. Gutter design shall consider hail loads. Hail shall be prevented from entering gutters.
13. Gutter design shall consider freak storms that dump significant amounts of water in a short time.
14. If internal gutters are unavoidable, overflows shall be provided. The cross-sectional area of the overflows shall be at least equal to the cross sectional area of the downpipe.
15. Internal gutters shall be divided into sections (15 metres maximum) separated by expansion joints. An overflow shall be provided to each section.
16. Gutter design shall include expansion joints as required.
17. Welds in gutters shall be ground or sanded flush internally to ensure they do not affect the movement of water in the gutter.

18. Sumps shall be installed at the top of downpipes and rainwater heads.
19. Gutter brackets shall be stand-off type.

#### 4.13.6 Downpipes

1. Downpipe Design - Treatment of external rainwater pipes shall be presented to the UQ PM at the project Design Phase. The solution shall be clearly indicated on documents submitted to Buildings and Grounds Committee for approval.
2. Internal downpipes shall be avoided.
3. Provide tapered droppers to all downpipes.
4. Overflows from existing box gutters to be minimum 300mm wide by 300 long by 150mm high and provide additional spitters at the high end.
5. Grade 316 Stainless Steel (spirally welded) shall be used for all downpipes. Minimum downpipe diameter is 100mm.
6. Downpipe design shall avoid corrosion due to dissimilar metals and galvanic corrosion.
7. Downpipe sizing – number and size of downpipes to be calculated for Q100 storm rating and include vertical collection walls abutting. Provide calculations to the UQ PM to confirm sizes.
8. Downpipes shall be discharged over open grated drains. Downpipes shall not be connected direct to underground drainage or the stormwater system (particularly internally). Stop downpipe at a level to allow easy grate removal.
9. Downpipes shall not be built into structural concrete columns.
10. Downpipes shall be accessible for future maintenance and/or replacement.

#### 4.13.7 Roof Access

1. Design of roof access is an essential part of roof design and methods adopted shall be included in presentation drawings.
2. All parts of roof must be accessible.
3. Roof access shall be provided by (in order of precedence):
  - a) By extending the fire stairs to the roof level.
  - b) By internal / external access ladders of a maximum angle of 75 degrees and handrails, leading to a roof hatch.

- c) By a pull-down ladder system, leading to a roof hatch. Note: A roof with an Risk of Insipient Spread of Fire (RISF) fire rating will require a fire rated roof hatch.
- 4. Roof designs shall provide the ability to work safely at heights. The design criteria shall include the required Hierarchy of Controls required to work safely at heights. All of the above is to be in accordance with the relevant UQ standard. Refer the current UQ Design Inspection Guide – Working At Height Safety Systems. Including as follows:
  - a) Solid construction with perimeter fence.
  - b) Aluminium walkway with handrails.
  - c) Elevated work platform.
  - d) BMU / abseiling
  - e) Work / procedures and restraint systems
  - f) Temporary Anchor Fall Arrest System.
- 5. Access for maintenance staff shall be considered. Lifting points for transport of tools should be provided.

#### 4.13.8 Roof Insulation

- 1. All roofs shall be insulated.
- 2. All roof spaces shall be ventilated, unless advised otherwise by the project Sustainability Consultant.
- 3. The “R” rating of specified materials shall be included in documentation.

#### 4.13.9 Sealants

- 1. Mechanical flashings shall be used to provide weather tightness. Under and over physical sheet flashings should be used whenever possible.
- 2. Reliance on sealants to provide weather tightness shall be minimised.
- 3. Specification, detail and methodology of proposed sealants shall be provided in documentation for PREM review.

#### 4.13.10 Vermin Proofing

- 1. Roofs shall be designed to be vermin and bird proof.
- 2. Extent and method of sealing and closing off roof sheeting shall be provided in documentation for PREM review.
- 3. Bird roosting opportunities shall be minimised.

#### 4.13.11 Lightning Protection on Roof

- 1. All exposed roofs are to have lightning protection. (Refer Electrical Engineering Design Standard).
- 2. A continuous conductive link shall be provided from the roof top to ground.

#### 4.13.12 Rooftop Structures

- 1. Roof design shall consider future structures being erected on top.
- 2. Penetrations shall be minimalised to roofs.
- 3. If penetrations are required they are to be located in the same alignment, or at the ridge flashings.
- 4. Roof attachments shall be secured by clipping systems, rather than penetrations.

#### 4.13.13 Water Storage and Tanks

- 1. Water tank storage shall be considered for all roofs
- 2. Collected water shall be used for irrigation, or grey water only.

#### 4.13.14 Other Important Issues

- 1. Roof design deflections shall be maintained in the buildings life cycle and shall be included in the design calculations. Refer Structural Design Standards
- 2. Dissimilar Metals: Roof, gutter and downpipe design shall not allow direct contact between dissimilar metals
- 3. Roof sheeting shall not be surface fixed
- 4. Roofs shall not have box gutters that run through the centre of the building.
- 5. Rooftop plant and equipment shall not be located within 3 metres of the roof edge.
- 6. Roof top plant room shall have finished floor heights a minimum of 50mm higher than water out flow.
- 7. Pipe work that penetrates through the roof shall be detailed to show method of sealing penetrations or configured through a goose neck arrangement so that pipes are `sealed on a horizontal surface.  
No corrugated pipe should be used as it is difficult to seal.
- 8. Duct work penetrations shall be flashed from ridge to lower side of penetration

### 4.14 Soffits

#### 4.14.1 General

1. All suspended soffits shall be designed to suit wind loads as nominated by the project engineer.
2. All suspended soffits shall be designed to remove the risk of panels falling.
3. All linings, claddings, panels or the like on a soffit shall be mechanically fixed.
4. Soffits shall minimise roosting opportunities for vermin.

#### 4.14.2 Exposed soffits to PT slabs

1. When the underside of post tensioned concrete structures is to remain exposed, signage shall be installed to indicate the location of the PT tendons. The signage shall be in the form of a 75mm x 30mm brass marker plate permanently fixed to the column head and to the underside of soffit at 'X' meter centres, to read "SUSPENDED CONCRETE FLOORS ARE POST TENSIONED. WHERE FIXING DEPTH INTO CONCRETE SLABS IS GREATER THAN 30mm, FIXING LOCATION TO BE COORDINATED WITH POST TENSIONING LOCATIONS"
2. Alternatively, the signage shall be installed within Plant Rooms and Distribution Board (BD) cupboards.

#### 4.14.3 Concealed soffits to PT slabs

1. The location of all PT tendons is to be marked in yellow paint strips to all concealed slab soffits. The paint strips shall run the full length of the PT tendon.

### 4.15 External Doors

#### 4.15.1 General

External Doors shall be sized to suit the function and building population.

For principle building doors, refer to Main Entrance

External doors should provide universal access in compliance with AS1428.2

Solid external doors should avoid dark coloured finishes.

#### 4.15.2 External door types

1. Anodised aluminium frame and 1.5mm solid aluminium sheet panels adhesive bonded to all faces of a solid core door.
2. Aluminium frame with fixed glass panels.

3. Fire rated - solid core timber, faced externally with anodised aluminium sheet.
4. Non fire rated solid core, aluminium clad.
5. Fixed metal inverted V louvres (anodised aluminium) and frame, e.g., for plant rooms.
6. Timber framed and glazed doors.

#### 4.15.3 Door Dimensions

Generally, the minimum requirements for external doors are:

- |                                   |            |
|-----------------------------------|------------|
| 1. Size                           | 2040 x 920 |
| 2. Vertical Stiles                | 90mm       |
| 3. Top Rail - minimum             | 125mm      |
| (to suit mounting of door closer) |            |
| 4. Bottom Rail - minimum          | 125mm      |
| 5. Thickness - minimum            | 40mm       |
| 6. Edge Strip – minimum           | 10mm       |

#### 4.15.4 Fire Escape Doors: Refer AS 1905.1.

1. The final fire exit doors shall open in direction of escape. It is preferable that all fire doors open in the direction of escape.
2. Fire door metal frames shall be filled with grout. Documentation is to be submitted by the builder to the PM confirming the mortar filling.
3. Fire door frames shall be mounted with ties.
4. Hardware mounting height shall be 1000mm above floor to comply with AS1428.2
5. Access control and Security Systems require specific attention (refer the – Security Design Standard Documents).
6. Provide secondary doors with closers.
7. Fire doors may be held open via electronic hold open devices integrated with the fire detection system. Designers are to consider the security and air movement consequences of such arrangements.

#### 4.15.5 External Door Frames

Pressed metal door frames shall be as follows:

1. Standard pressed metal gauge frames shall be used.
2. Fully welded frames shall be used. Knock up units shall not be used.
3. Metal frames in masonry construction shall be filled with grout.

Documentation is to be submitted by the builder to the PM confirming the grout filling.

4. Hinges shall be securely welded into frame.

#### 4.15.6 External Hardware, Keys and Accessories Refer to the Security Design Standards Documents.

1. Use only approved supplier with approved cylinder types to conform with the UQ master key system. Generally, the selection of the Grand Master Key System for a new building is shared only with the Technical Officer / Security (TOS), the preferred locksmith and the building user.
2. The initial selection and design of door furniture shall be specified by the designer ONLY.
3. Striker plates shall be fitted to all deadlocks.

### 4.16 Main Entrance

#### 4.16.1 General

Building entrances shall:

1. Be easily identifiable by visitors approaching the building.
2. Channel all incoming and outgoing movement past a single point of control / reception, for security.
3. Sized to suit maximum building occupation such that all persons entering or exiting the buildings at peak hours can do so via the main entrance.
4. Stairs shall be avoided at the Main Entrance
5. Overhead Protection shall be provided externally at the main entrance to shield the entrance from the elements. The overhead protection shall extend to the full width of the Main Entrance. The overhead projection shall extend from the entry door, a minimum of 30 degrees to intersect with the projection.

#### 4.16.2 Access

The main entrance to all buildings shall provide equitable access for all users, in accordance with AS1428.2, The Access to Premises Standard and the Disability Discrimination Act.

Equitable access to the main entrance shall be provided (in order of preference):

1. By on grade access
2. By walkways with a maximum 1 in 20 slope in compliance with AS1428.1
3. By ramps with a maximum 1 in 14 slope in compliance with AS1428.1

#### 4.16.3 Security

The Main Entrance shall have lighting to provide security and safety for all users. Refer Security Design Standards Documents

Lighting at the Main entrance shall be controlled by a photo-electric cell.

The main entrance shall be designed in accordance with CPTED principles

#### 4.16.4 Signage

Signage shall be provided at the Main Entrance. A directory board signage shall be clearly identifiable at the Main entrance which indicates the occupants and amenities.

All signage shall be compliant to the UQ Signage Standards Documents and include tactile signs for persons with disabilities.

#### 4.16.5 Main Entrance Doors

1. The Main Entrance for high traffic facilities shall have electrically operated, sliding glass automatic doors. Refer Security Design Standards Documents. The automatic door shall have a manual override.
2. The Main Entrance for low traffic facilities shall have a hinged door.
3. Main Entrances that have hinged doors shall have hold open door closers, or floor springs.
4. The door clearances to main entrances shall comply with AS1428.2
5. The door closer action on all hinged doors shall suit access for people with disabilities, in compliance with AS1428.2
6. Automatic glass doors shall have edge protection to leading edges to avoid damage.

#### 4.16.6 Main Entrance Floors

1. The external flooring material shall be a durable hardstand material. Refer Landscape Design Standards Documents
2. The external floor surface at the Main Entrance shall have a slip rating that complies with the current version of AS4586
3. A slip rating test shall be carried out on site to confirm compliance with AS4586 is achieved for all projects.

4. The main entrance shall have an external trafficable grated drain for the full width of the entry door, if there is any risk of water ingress.
5. The Main Entrance shall have a recessed floor mat.
6. The floor mat shall be located internally at the entrance door and be protected from the weather.
7. The floor mat shall be removable and easily re-installed
8. The floor mat well shall be a watertight recess
9. The floor mat well shall have a drain. If the drain requires a trap, it shall be charged.
10. A direct stick floor mat shall not be used.
11. The floor mat shall be securely fixed to eliminate potential trip hazards and shall be installed to meet AS1428.2 Section 7 in terms of being flush with adjacent surfaces for wheelchair accessibility.
12. Foyer Floors shall use floor finishes that are easy to clean, are non-slip and resist tracking during inclement weather.

## 4.17 Stairs / Ramps / Balustrades

### 4.17.1 General

1. Stair riser and going proportions shall be project specific to suit the project conditions. It is preferred that all stairs have no less than 305mm 'going' and no more than 165mm 'rise'. Refer NCC rules for compliance.
2. All external stairs, ramps or walkways shall be well illuminated. Overhead fittings shall be used. Bollard lights shall be avoided except where approved.
3. Safe maintenance access to overhead services above stairs and ramps shall be provided.
4. All external stairs, ramps over two stories in height shall be designed to prevent self-harm by jumping.

### 4.17.2 External stairs

1. All external stair treads and landings shall have positive falls to achieve drainage and avoid ponding.
2. Drainage on suspended external stairs or ramps shall include spitters / regulets, or the like, to direct water towards stormwater services and minimise the risk of staining. Positive

falls to the building exterior shall be used in lieu of floor wastes to stair landings.

3. External stairs of steel construction shall consider future access for maintenance inspections.
4. Refer to Landscape
5. Finishes for external landscape stairs shall be consistent with finishes as described in Landscape

### 4.17.3 External Fire stairs

1. External fire stairs shall have a minimum of 1200 clear width.
2. External stair design shall minimise habitat for vermin.
3. External stair lighting design shall consider spiders and geckos. Recessed downlights should be considered.
4. For Major Projects the designer shall consider providing a space at each entry landing of each fire stair to allow a single wheelchair to remain outside of the circulation zones, within the fire compartment of the stair. All facilities require a procedural process to use this feature for fire exit purposes.

### 4.17.4 External Circulation stairs

1. External circulation stairs are discouraged.
2. External circulation stairs shall provide protected movement to users in all weather conditions.

### 4.17.5 Internal Fire stairs

1. Fire stairs shall have a minimum clear width of 1200mm
2. Fire stairs may also be used as communication stairs.
3. Fire stairs used as circulation stairs shall suit the maximum building population
4. Fire stairs used as circulation stairs shall have a standard of finish equal to adjacent public spaces.
5. Fire doors with hold open devices connected to the fire detection services may be used to encourage use of circulation stairs. Mechanical systems and the movement of air shall be considered if doors are to be held open. Security shall be considered if doors are to be held open.
6. For Major Projects the designer shall consider providing a space at each entry landing of each fire stair to allow

a single wheelchair to remain outside of the circulation zones, within the fire compartment of the stair. All facilities require a procedural process to use this feature for fire exit purposes.

#### 4.17.6 Fire Warden Stations

1. Major Projects shall provide a space adjacent the fire stairs and warden intercom point (WIP phone) to house the Fire Warden Equipment, on every floor.

#### 4.17.7 Internal Circulation stairs

1. Circulation stairs are encouraged to improve health and wellbeing of building users.
2. Use of circulation stairs to reduce lift numbers is to be approved by the UQ PM.
3. Circulation stairs shall have a standard of finish equal to adjacent public spaces.

#### 4.17.8 External Ramps

1. Refer to Landscape
2. Walkways, as defined by AS1428.2 are preferable to ramps.
3. External ramps shall comply with AS1428.2
4. External ramps shall have a clear width to suit the peak population of users. The minimum clear width shall be 1200mm.
5. Finishes for external ramps shall be consistent with finishes as described in Landscape.

#### 4.17.9 Internal Ramps

1. Internal ramps should be avoided
2. Walkways, as defined by AS1428.2 are preferable to ramps.
3. Internal ramps shall comply with AS1428.2
4. Internal ramps shall have a clear width to suit the peak population of users. The minimum clear width shall be 1200mm.

#### 4.17.10 Balustrades

1. Balustrades shall comply with AS1428.1
2. Public balustrades shall be of a minimum height of 1350 above finished floor.

3. Balustrade design shall consider crowd loading. Crowd loading shall be calculated by the project Structural Engineer.
4. Balustrade uprights and base connections shall be designed by project Structural Engineer.

#### 4.17.11 Handrails

1. Handrails shall comply with AS1428.2
2. External handrails shall be constructed of 316 grade stainless steel with a polished finish, unless approved otherwise by the UQ PM.
3. Site welding and 'patch up' cold galvanising shall be avoided.
4. Handrail design shall consider design loading. Design loading shall be calculated by the project Structural Engineer.
5. Handrail connections and support shall be designed by the project Structural Engineer.

### 4.18 Vertical Transportation

1. Refer the Vertical Transportation Design Documents
2. All passenger lift cars shall comply with AS1428.2 and the Access to Premises Standard.
3. The Project Control Group shall advise if a lift is required to be an emergency lift and or stretcher lift, as a briefing item.
4. Lift pits shall comply with the Vertical Transportation Design Documents
5. The UQ PM shall advise on the type of Lift Emergency Phone system. GSM diallers are preferred.
6. Passenger lift cars shall have a standard of finish equal to adjacent public spaces.
7. Stainless Steel shall be used in lift interiors. Sheets shall be minimum 1mm thick, 304 grade No. 4 satin finish, adhered to backing panels.
8. Goods lifts shall have a robust finish with replaceable timber bump rails.
9. All lifts shall include protective curtains for contractor use.

### 4.19 Interiors

Ensure that quality materials are selected to best suit the required functions. All wall, floor and ceilings shall be low maintenance and

long lasting. Floors shall be non-slip and heavy duty where required.

9. Junctions of flooring types shall not pose trip hazards.

## 4.20 Floors

### 4.20.1 Types of Floor Finishes

Floor finishes are as follows:

1. Carpet shall be used in areas not at risk of water damage, including flooding. Carpet shall not be used in wet areas or at drinking fountains.
2. Direct stick carpet tiles shall be the default carpet type. Carpet tiles shall be dimensionally stable.
3. Broadloom carpets may be used in feature areas.
4. Carpet quality shall be equal to or above a commercial grade carpet.
5. Resilient Finishes including vinyl, marmoleum and rubber.
6. Floor Tiles
7. Timber
8. Finishes for wet areas, laboratories and heavier duty spaces shall suit the particular needs of the user brief and UQ PREM approvals.
9. All floor finishes shall comply with the slip ratings as per AS4586-2013
10. All flooring products must be tested to AS4586-2013. Products described as equal to AS4586 2013 shall not be used.
11. No VOC adhesives shall be used for any flooring.

### 4.20.2 Miscellaneous Important Issues

1. Carpet - Direct Stick method in accordance with AS 2455.
2. Carpet batching - Carpet laid in a single area and of a single specified type, quality, colour and design, shall come from one manufacturing batch and colour coded dye lot.
3. Carpet gripper shall not be used where direct stick method is specified.
4. Carpet edge trims shall be used at all free edges of carpet
5. Carpet on stairs shall be used with an approved non-slip nosing.
6. Maintenance and wear and tear of surfaces shall be considered in high use areas.
7. Stair tread nosing shall be an aluminium extrusion with a non-slip insert top face. Insert nosings are preferred over 'plant on' nosings.
8. Anti-static floorings shall be used in specialised services rooms such as Data Rooms.

### 4.20.3 Floor Slab Penetrations

1. Refer Plant Rooms
2. Refer Service Cupboards
3. Refer Services Risers
4. Fire separation shall be maintained at all floor slab penetrations.
5. Floor slab penetration fire separation systems that can be damaged by liquids shall be banded.
6. All floor penetrations in laboratories shall be designed to be watertight by sealing penetrations or providing banding to prevent liquids entering the floor below.
7. Structural slab movement joints shall maintain fire separation and prevent liquids entering the floor below.
8. All floors in service cupboards shall be finished with a paint on membrane system as a minimum.

## 4.21 Walls and Partitions

### 4.21.1 Types of Wall Materials and Application

1. Internal walls should be non-load bearing to maximise building flexibility.
2. Load bearing internal walls shall be minimised to areas such as building cores, stairs, lift shafts, services risers and amenities.
3. Masonry (bricks and blocks) shall be used for robustness, acoustic and security purposes.
4. Walls exposed to wind loads including within Lobby spaces, or similar spaces that have large external openings, shall be designed to accommodate wind loads.
5. Wet areas shall be lined with water resistant sheet materials on framed construction and finished with water resistant materials. Pre-finished waterproof sheet materials, or tiles are examples of appropriate materials / finishes.
6. All wet areas shall have an inner lining of marine grade ply between 300mm and 2100 AFFL to enable flexibility in fittings and fixtures.
7. Dry Areas - plaster board on steel or timber studs used for all general internal walls. Stud spacing at 450 maximum centres is preferred.

8. Splashbacks for amenities, kitchens or in wet laboratories may be wall tiles, stainless steel or solid glass.
9. Acoustic Boards - acoustic boards shall be chosen to suit special requirements particular to the job. Refer the Acoustic Standards Documents.
10. All wall panels, boards, or the like that sit above 1200mm from the floor shall be mechanically fixed or be fitted with a restraint device whether inclusive of surface mounted items or installed within a grid system. Adhesive fixing alone is not acceptable.
11. Stainless Steel shall be used in lifts and in special hygiene conditions such as medical and vet operating rooms, laboratories and food preparation areas. Sheets shall be minimum 1mm thick, 304 grade No. 4 satin finish, adhered to backing panels.
12. Animal Rooms shall be finished in pre-finished panels.
13. All wall framing shall comply with the seismic requirements as per AS 1170.4.
14. All external corners in main corridors shall be protected from damage by impact.
15. Linings shall not be directly fixed to masonry.
16. Stud sizing / wall thickness shall be considered in the context of in wall services (particularly for in wall horizontal plumbing runs).

## 4.22 Internal Doors & Hardware

### 4.22.1 General

Internal doors shall comply with AS1428.2, with the exception of doors to Plant or maintenance spaces.

Refer also Electrical Engineering Design Standard

Internal doors to Lecture Theatres, Teaching Spaces, Meeting Rooms and public corridors off Lobby spaces shall comply with AS1428.2

### 4.22.2 Internal Framed Doors

Solid internal door types shall be either:

1. Solid core doors with 4.5mm hardboard and solid timber edges.
2. Solid core doors with 6mm thick waterproof ply and solid timber edges
3. Solid core doors with decorative timber veneer (self backed)
4. Medium density fibreboard

Hollow core doors shall not be used.

Glazed internal doors shall be either:

1. Proprietary aluminium framed doors
2. Timber framed glazed doors
3. Solid core doors with vision panels.

Top rails shall be at least 125mm deep to accept door closers.

### 4.22.3 Internal Door Dimensions

Generally, framed internal doors shall comply with the following:

- |                          |                                   |
|--------------------------|-----------------------------------|
| 1. Size                  | 2040 x 920                        |
| 2. Vertical Stiles       | 90mm                              |
| 3. Top Rail - minimum    | 125mm                             |
|                          | (to suit mounting of door closer) |
| 4. Bottom Rail - minimum | 125mm                             |
| 5. Thickness - minimum   | 35mm                              |
| 6. Edge Strips – minimum | 10mm                              |

### 4.22.4 Internal Fire Escape Doors: Refer AS 1905.1.

1. It is preferable that all fire doors open in the direction of escape.
2. Fire door metal frames shall be filled with mortar. Documentation is to be submitted to the PM confirming the mortar filling.
3. Fire door frames shall be mounted with ties.
4. Hardware mounting height shall be 1000mm above floor to comply with AS1428.1
5. Access control and Security Systems require specific attention. Refer Security Standards Documents.
6. Provide secondary doors with closers.
7. Fire doors may be held open via electronic hold open devices integrated with the fire detection system. Designers are to consider the security and air movement consequences of such arrangements.

### 4.22.5 Internal Door Frames

Pressed metal door frames shall be as follows:

1. Standard pressed metal gauge frames shall be used.
2. Fully welded frames shall be used. Knock up units shall not be used.
3. Metal frames in masonry construction shall be filled with mortar. Documentation is to be submitted to the UQ PM confirming the mortar filling.
4. Hinges shall be securely welded into frame.



#### 4.22.6 Internal Hardware, Keys and Accessories Refer Security Standards Documents.

1. Use only approved supplier with approved cylinders to conform with the UQ master key system. Generally, the selection of the Grand Master Key System for a new building is shared only with the UQ Technical Officer / Security (TOS), the preferred locksmith and the building user.
2. The initial selection and design of door furniture shall be specified by the designer ONLY.
3. Striker plates shall be fitted to all deadlocks.
4. The UQ PM is to determine if a general upgrade of hardware is triggered by refurbishment projects.

### 4.23 Ceilings

#### 4.23.1 General

1. All occupied, or publicly accessible internal spaces shall have a ceiling, or approved finished soffit, unless approved otherwise by the UQ PM.
2. Plant rooms, lift motor rooms, services cupboards and the like shall have a painted soffit.
3. New building shall have suspended ceiling systems with drop down panels for access to services and shall accept surface mounted services.
4. Ceilings in Lobby spaces or similar spaces that have large external openings shall be designed to accommodate wind loads.
5. All ceiling support framing shall comply with the seismic requirements as per AS 1170.4.
6. All ceiling linings, panels, board systems, or the like, shall be mechanically fixed. Adhesive fixing alone is not acceptable.
7. Mechanical fixings or restraint device required to each individual ceiling tile, acoustic panel, or the like whether inclusive of surface mounted items or installed within a grid system.
8. Heavy ceiling systems including timber panel systems shall be supported by systems that suit the weight. Mechanical fixings with restraining device are required. Documentation is to be submitted verifying the support system suits the ceiling type.

9. A Form 15 is to be provided for the ceiling design. A Form 16 is to be provided for the ceiling installation.
10. Trafficable ceiling spaces shall have a minimum clear height of 2100mm and shall be illuminated. Access is to be provided by permanent ladder or stair.
11. Documentation shall be provided by the contractor to the PM confirming the specified product was installed.

#### 4.23.2 Ceiling Types

1. Ceiling types shall include
  - a) suspended tile systems.
  - b) set board systems including plasterboard and fibre cement
  - c) proprietary panel systems
  - d) proprietary timber batten systems with suitable mechanical fixings.
2. The default ceiling type shall be suspended 1200 x 600 acoustic tiles in a two-way grid system.
3. The grid system ceilings used shall be two-way grid of white exposed T-Bars with 1200 mm x 600 mm drop in panels.
4. Vinyl faced plasterboard or fibre cement may be used where special acoustic properties are not required.
5. Vinyl faced fibre cement tiles shall be the default ceiling used in laboratories, toilets, showers and food preparation kitchens.
6. When non-proprietary ceilings and suspension systems are used, all components shall be mechanically fixed and include a restraining device, with all details submitted to the PM for approval.
7. All ceiling panels shall be stable in conditions of changing air humidity.

#### 4.23.3 Access Panels

1. Access panels shall be 600 x 600 minimum and have the concealed frame type.
2. All access panels shall hinge down and have a safety chain.
3. All access panels shall be lockable.

#### 4.23.4 Services

1. Safe access shall be provided to all ceiling mounted equipment by removable ceiling tiles or access panels.
2. All ceilings shall be designed to suit the total load of services.

3. Large equipment and feature elements such as pendant lights and data projectors shall not be supported off ceilings. The designer shall provide a separate support structure as required.
4. All services support framing shall comply with the seismic requirements as per AS 1170.4. This work is to include a Form 15 and Form 16 for both design and installation of services supports.
5. All concealed services shall be identified by signage on the ceiling, including VAV, duct heaters, fire dampers, valves, concealed smoke detectors – Refer Mechanical, Electrical, Dry Fire and Hydraulic Design Standards
6. The coordination of all in-ceiling services shall be performed by the designers.

#### 4.24 Colours and Finishes

##### 4.24.1 General

In general colour selections are to be based on pragmatic and contextual issues, not user group preference.

1. Choice of paint colours shall be controlled by the task or function. In order of priority:
  - a) Code Requirement
  - b) Task or Function
  - c) Context
2. Room colours for screen-based equipment shall be based on providing comfortable backgrounds and to reduce reflectivity.
3. Paint colours shall enhance spaces in refurbishment projects and address OH & S requirements.

#### 4.25 Colour Sample Material Board

1. A sample board complete with range of materials and finishes illustrating the proposed colour scheme of a project shall be provided for consideration by the Planning Cell in Property and Facilities and for approval by the CIC and Senate where called for.
2. Sample boards are used as a reference for future maintenance - size approx 600 x 450.
3. Sample boards shall have a schedule attached to the backing

board as a record of brand and colours used.

4. Sample boards shall be presented in a sealed pocket to protect from dust.

#### 4.26 Amenities

##### 4.26.1 General

1. Finished surfaces in amenities shall be durable and easily maintained.
2. Floor wastes shall be provided in all amenities.
3. Fixtures including paper towel dispensers, hand dryers, soap dispensers and toilet roll holders shall be briefed items for consideration and approval of the Project Control Group and UQ Maintenance.
4. Low use amenities shall use paper towel dispensers.
5. High use public amenities shall use rapid hand dryers. The designer shall consider the acoustic implications of rapid hand dryers.

#### 4.27 Retail Outlets

1. Refer UQ Retail Design Standard
2. Where kitchen facilities are used to prepare food commercially for the public, space should be provided to install mechanised dishwashing capacity to support reusable containers and tableware. This includes the additional infrastructure, supplies, and materials required to support washing such as cleaning agents, dish racks, dish drying and storage area.

#### 4.28 Staff / Student Kitchens / Tea Points

1. All kitchens / tea points shall provide a chilled / boiling water unit.
2. All kitchens, tea points and the like shall be compliant for wheelchair access to the benchtop, sink, chilled / boiling water tap, microwave, and a power point
3. All kitchens / tea points shall include a fridge, benchtop and storage space.
4. All kitchens / tea points shall include general and recycling waste bins.
5. The PCG shall determine any specialised waste bin requirements,

such as soft plastics and organic waste.

- d) Whiteboards
- e) Noticeboards
- f) Blinds
- g) Curtains

## 4.29 Joinery

### 4.29.1 General

1. Fixed joinery shall be avoided.
2. Mobile furniture items shall be used in lieu of fixed joinery, unless there is an NCC requirement or the unit requires a fixed services connection such as electricity, plumbing, drainage or gas.
3. Social seating areas shall provide power outlets and USB charging ports

### 4.29.2 Reception Desks

1. Provision for wheelchair users shall be made on both sides of all reception counters.

## 4.30 Furniture

Refer to the current UQ FF&E Standards Documents.

All furniture selections shall be commercial grade.

All furniture selections shall be via the UQ Procurement Protocols.

### 4.30.1 Adjustable Height Workstations.

Adjustable height workstations are preferable for ergonomic and other health reasons.

Designers shall determine the services strategy for adjustable height workstations, for the approval of the UQ PM.

Adjustable height workstations shall have power outlets that move with the benchtop via a soft wiring system that complies with the current version of AS3000.

Adjustable height workstations shall have data outlets that move with the benchtop via path leads of a maximum 10 metre length to a data outlet.

## 4.31 Fitments

1. The Project Control Group shall determine the procurement of all fitments.
2. Fitments may be Group 2 Items: provided by UQ and installed by the builder.
3. Fitments include items such as
  - a) Paper towel dispensers
  - b) Soap dispensers
  - c) Wall mounted bins

## 4.32 Blinds

Manual roller blinds with visual light transmittance (VLT) less than 10% shall be installed to control glare in all regularly occupied spaces, including offices, teaching spaces, computer labs, and other suitable areas as practical.

Automated blind systems shall be avoided due to cost and reliability issues. If automated systems can benefit the project, the design team must demonstrate this benefit and seek approval from the UQ PM to include in the design.

## 4.33 Appliances

1. The Project Control Group shall determine the procurement of all appliances.
2. Appliances may be Group 2 Items: provided by UQ and installed by the builder.
3. Appliances are typically Group 3 items, supplied and installed by UQ.
4. Appliances must have an energy star rating of at least one star below the highest available. The following energy star ratings are required as a minimum:
  - a) Air conditioners - 6 Star
  - b) Clothes dryers - 9 Star
  - c) Clothes washers - 4.5 Star
  - d) Dishwashers - 5 Star
  - e) Refrigerators - 5 Star
  - f) Computer Monitor / Display Screens - 8 Star
  - g) Televisions - 7 Star

## 4.34 Drinking Fountains

Drinking fountains shall be provided on every floor.

Drinking fountains shall have a level, impervious floor.

As a default, drinking fountains should provide able bodied access, PWD access compliant to AS1428.2 and a bottle filling station.

The external water refill station signage shall be used for interior and exterior drinking fountains.

### 4.35 Operable Walls

The manufacturers and their Operable Wall products shall be approved by the UQ PM.

Operable walls shall comply with the Collaborative Learning Space Design Requirement document.

All operable wall systems shall be easily used by all building users.

Operable walls within acoustic walls shall maintain the required acoustic performance.

Operable wall systems that require a floor track shall not be used.

The project structural engineer shall design, document and certify the support structure for all Operable Walls.

### 4.36 Fire Extinguishers

Refer to the Dry Fire Design Standard

Fire Extinguisher and associated statutory signage design shall be by UQ P&F. Refer Contacts Schedule

UQ's requirement for fire extinguishers may be additional to minimum statutory requirements.

The UQ PM shall provide a fire extinguisher design during the project Design Development phase for coordination by the design team.

### 4.37 Signage

#### 4.37.1 General

All projects shall provide signage in accordance with the UQ signage standards. The Designer is to liaise with UQP+F/signage on proposed signage including room names and numbers as well as sign types.

All project signage is to comply with the UQ External Signage Manual and the Internal Signage Manual. Note: The External Signage Manual is specific to the St Lucia Campus. For signage works on all other campus, the External Signage manual shall be used as a template and to the direction of the UQ PM.

Building names, floor numbering/labelling and room numbering must be confirmed prior to developing any signage, with UQ P&F. Refer Contacts Schedule

The designer is to obtain approval for the signage package prior to the manufacture and installation of signage.

4.37.2 Process for future penetrations Signage shall be provided within Plant Rooms to provide advice regarding future floor slab penetrations.

The details of this signage are to be agreed with UQ during the design process

#### 4.37.3 Warning signage for post tensioned concrete slabs Refer to Soffits

All buildings with post tensioned concrete construction shall include warning signs/placard on all Electrical Distribution Boards and Main Switch Board to alert future Contractors and Facilities Management personnel of the risks and hazards of drilling and coring into the floors.

Unless otherwise agreed, wording for the warning side is:

#### **CAUTION**

*The concrete floor slabs and beams in this building contain post-tensioning cables critical to the building structural integrity, plus cast in concrete electrical services.*

*Accurate location of post-tensioning cables, reinforcement and building services by X-ray or scan is mandatory prior to any coring or drilling of the slabs and beams.*

*Under no circumstances shall any additional services be installed through the concrete floor slabs and beams without approval from UQ Property and Facilities Division. "As Built" drawings are available for information purposes only through PF Assist on 07 3365 2222 EW <https://www.pf.uq.edu.au/pfassist> and do not remove the Contractors responsibility to X-ray or scan prior to any proposed work involving drilling or coring.*

The sign/placard is to be a warning sign with standard Yellow and Black colours.

Font size is to be a minimum 20pt.

### 4.38 Acoustics

Acoustic performance is an essential element of successful university design.

All projects shall be designed in accordance with the Acoustic Standards Documents.

Spaces may require acoustic separation from adjacent spaces to function. The project

acoustic engineer shall determine the separation performances required, in accordance with the Acoustic Standards Documents.

Spaces, including teaching spaces and open plan offices may require absorptive materials to provide acoustic comfort or a specific acoustic functional requirement. The project acoustic engineer shall determine the acoustic performances required, in accordance with the Acoustic Standards Documents.

All acoustic designs shall coordinate with the teaching and AV requirements of any given space.

All acoustic panels, boards or the like shall be mechanically fixed and require a restraint device.

#### **4.39 AV**

Refer to the Communications Standards Documents and the Collaborative Learning space Design Requirements.

The UQ PM shall contact UQ Information Technology Services, AV Projects when a project requires AV equipment.

The Project Control Group and the design team shall work with Information Technology Services, AV Projects to determine the AV brief for all projects.

Teaching Spaces, Meeting Rooms and Collaborative Learning Spaces should have a requirement for AV equipment.

Information Technology Services, AV Projects shall specify AV equipment and cabling requirements.

The designers shall include the infrastructure and services requirements to achieve the AV brief, in the project design.

Designers shall provide space and services to suit all AV equipment.

Designers shall incorporate ventilation requirements to suit AV equipment.

Building Contractors shall coordinate with UQ Information Technology Services to allow site access to suit the installation of AV Equipment during construction phases.

Building Contractors may be required to install brackets and structural supports to suit AV equipment.

#### **4.40 Vending Machines**

The PCG shall determine if vending machines are to be provided.

Vending machines shall be located at convenient locations adjacent spaces such as foyers and building cores. Vending machines shall not be included in feature spaces.

Vending machines shall not disrupt pedestrian movement.

The design team shall consider access, movement and servicing of vending machines.

General and recycling bins shall be provided adjacent all vending machines.

#### **4.41 Bins**

##### **4.41.1 General**

For Minor Works within existing buildings:

1. The designer shall provide space for waste and recycling bins within the fit-out in accordance with the UQ Waste Infrastructure Guideline.
2. If the refurbishment involves a change in use (e.g. from office to food & beverage, or to a use that involves hazardous materials), an Operational Waste Management Plan must be prepared. The plan may be produced in consultation with the relevant staff in the Sustainability Office and Campus Operations, or by a suitably experienced consultant.

For new buildings and Major Projects within an existing building:

1. The project team, including the UQ PM and Project Superintendent, shall develop a project specific Operational Waste Management Plan that identifies the material streams into / out of the building, the type and number of bins required, storage requirements, the need for loading docks or other material handling equipment. The plan shall co-ordinate with any applicable precinct or campus plans or strategies regarding waste, recycling and materials handling.
2. The plan shall be prepared by a suitably experienced consultant and approved by the University Project Manager in consultation with Sustainability Office, and Campus Operations.

Refer to section 4.11 Waste Management in the UQ Design Standards

The design team shall consult with the PCG, UQ PM, Project Superintendent and UQ Properties & Facilities Sustainability Team to develop a project waste management plan. The waste management plan shall consider the locations, movement, lift access, collection and operational expenditure associated with waste

The UQ PM shall seek approval of all external bin types and locations, from UQ Properties & Facilities Sustainability Team.

The UQ PM shall seek approval of all internal bin types and locations, from the building manager.

The design team shall consult with the PCG to determine if compaction or sorting facilities are required.

#### 4.41.2 Precinct Bin Stores

Precinct Bin Stores are to be provided in accordance with the UQ Master Plan.

Precinct Bin Stores shall be located in back of house and low use pedestrian locations.

Precinct Bin Stores shall be screened from general view.

Precinct Bin Stores shall have:

- a) Hardstand floors
- b) A grated field drain
- c) A hose cock
- d) An externally rated double GPO.
- e) Double doors, as a minimum.
- f) External lighting

Precinct Bin Stores shall be naturally ventilated

The design team shall ensure safe large vehicle movement (MRV and garbage truck as a minimum) is provided to the Precinct Bin Stores.

The hardstand areas adjacent Precinct bin Stores shall be designed to suit large vehicle loads and withstand 'tire scrubbing' from vehicle manoeuvring.

#### 4.41.3 External Bins

Refer to the Landscape Architecture Standards Documents

External bins shall be located adjacent building Main Entrances.

As a minimum, external bins shall include general and recycling waste receptacles.

Typical external bins shall be a proprietary or custom enclosure, to suit 240L wheelie bins and mounted on a hardstand surface.

External bins shall not disrupt pedestrian movement.

#### 4.41.4 Internal Bin Stores

All buildings shall include a centralised bin store capable of storing the buildings waste to suit efficient waste collection.

An external bin store adjacent the buildings service entrance is preferable to an internal store.

Internal bin stores shall be of robust finishes.

Internal bin stores shall have a floor waste, a hose cock and an externally rated double GPO.

Internal Bin Stores shall have double doors, as a minimum.

Internal Bin Stores shall be ventilated spaces. Natural ventilation should be provided by fixed blade louvres with vermin mesh. Mechanical exhaust may be provided if determined to be necessary by the PCG or design team.

Internal Bin Stores are not a bin wash facility.

#### 4.41.5 Internal Bins per Floor

A general and recycling waste station consisting of 2x 240L wheelie bins housed within an enclosure, shall be provided to every building floor.

Designers shall confirm with UQ Properties & Facilities Sustainability Team, locations and numbers of a general and recycling waste station consisting of 2x 240L wheelie bins housed within an enclosure.

Internal bins shall be located in convenient locations such as foyers or building cores.

#### 4.41.6 Specialised Bins

The PCG shall determine the need for any specialised bins.

The design team shall allow for the specialised bins as required.

The UQ PM shall seek approval for all specialised bins from UQ Properties & Facilities Sustainability Team.

Specialised bins may include:

- a) Soft plastics
- b) Batteries
- c) E-waste
- d) Mobile phones

- e) Florescent tubes and lamps
- f) Toner and inkjet cartridges
- g) Furniture and office supplies
- h) Organic waste
- i) Animal waste
- j) Polystyrene (expanded polystyrene EPS)
- k) Chemical waste
- l) Clinical waste
- m) Cytotoxic waste
- n) Radioactive waste

tables is reviewed and confirmed by a structural engineer prior to construction commencing on site.

#### **4.42 Refurbishment**

Refer to Sustainability  
 Refer to Penetrations  
 Refer to Waterproofing  
 Refer to Security

Designers shall consider adaptive re-use of existing building elements  
 Designers shall consider the amenity of the adjacent spaces affected by a refurbishment project. Construction works shall be managed not to unduly disrupt adjacent spaces, particularly in regards to noise and services shutdowns.

All services shutdowns must be advised to all relevant parties a minimum of 1x week in advance. In buildings / fitouts where laboratories and experiments are run, the contractor is to provide a schedule of shutdowns before commencing works on site. Whenever possible, services shutdowns shall occur outside of normal operating hours. Designers shall understand the full scope of works that extend beyond the main project area, in particular in regard to services.

Designers of hydraulic drainage services for refurbishment projects shall consider the access to and amenity of the floors below the project.

Latent non-compliances discovered during refurbishment projects shall be identified to the PM. Latent non-compliances regarding fire separation shall be made good, as a minimum, to an equal standard of the existing construction.

All new penetrations in existing slabs, beams, structural walls and all structural elements shall be reviewed by a structural engineer, prior to the commencement of any work. Refer Structural Engineering Design Standard

The contractor shall ensure all joinery fixed to existing walls, including overhead shelves and cupboards and fixtures such as baby change

## Contacts Schedule

Reason for Contact	Organisation/Group	Name	Contact Detail
Campus Planning	Property & Facilities Division	Tim Sweeney	+61 411 152 400
Occupational Work Place Health and Safety			
Safety in Design			
Audio Visual (AV)	Information Technology Services, AV Projects	Luke Lickfold	+61 7 334 63005
Fire Extinguisher Design			+61 401 696 327
Signage	Officer Signage	Stephen Lascelles	+61 421 098 240
Hazardous Materials			
BIM Requirements	Senior Coordinator Digital Modelling	Christian Dorst	+61 477 217 050 c.dorst@uq.edu.au
UQ Vision Documents	<a href="https://about.uq.edu.au/strategic-plan/vision-mission-">https://about.uq.edu.au/strategic-plan/vision-mission-</a> <a href="https://about.uq.edu.au/strategic-plan/long-term-objectives">https://about.uq.edu.au/strategic-plan/long-term-objectives</a> <a href="https://about.uq.edu.au/strategic-plan/medium-term-strategic-focus-areas">https://about.uq.edu.au/strategic-plan/medium-term-strategic-focus-areas</a> <a href="https://teaching-learning.uq.edu.au/">https://teaching-learning.uq.edu.au/</a> <a href="https://research.uq.edu.au/research-overview">https://research.uq.edu.au/research-overview</a>		