

Appendix 1

General Health Facility Requirements

Requirements outlined in this section can be applied to all health facilities. More technical requirements are outlined with reference to relevant standards.

On-Site Parking

- ▶ The car parking requirements for health buildings are set out in the requirements of the Queensland Government's Integrated Planning Act and, in particular, in the Town Planning requirements of the Local Government Authority. In planning health facilities, advice should be sought from the Local Authority as to their requirements for on-site parking.

Site Layout and Access

- ▶ In planning site layout and access, careful consideration needs to be given to the requirements of Australian Standard *AS 1428 (Parts 1 and 2) Design for Access and Mobility* and to the Australian Government's *Disability Discrimination Act 1992*.

Energy Efficiency

- ▶ Energy efficiency means using less energy for heating, cooling and lighting as well as the use of energy saving appliances and equipment. The most common renewable energy source for us in buildings is solar energy.

- ▶ The following should be considered in developing an energy efficient facility:

Building Envelope	The building elements that separate the building interior from the outside environment: walls, floor, ceiling, windows, roof etc. Consideration should be given to their insulating properties of these elements.
Space Cooling and Heating	Energy efficient cooling and heating of buildings using automated controls, natural ventilation, sun shielding and insulating materials.
Water Heating	Use of solar energy and water saving fixtures.
Lighting	Use of efficient ceiling mounted fluorescents and other lighting sources.
Appliances and Office Equipment	Use of energy rated, low heat producing equipment.

Mechanical Services

- ▶ Comfort level air conditioning shall be provided throughout health facilities in accordance with Australian Standard *AS 1668*, and any other relevant design standards and guidelines.
- ▶ Air conditioning systems shall match the existing building where appropriate and shall be provided by means of air handling units serving individual zones where possible.

- ▶ Pressurisation consideration shall be taken into account for each space to ensure that spaces with dust free environment requirements are maintained.
- ▶ Air conditioning systems shall be provided with automatic controls operating under time-lock control. Provision is to be made for limited after-hours operation of the air conditioning system.
- ▶ General ventilation (including toilet exhaust ventilation) shall be provided throughout health facilities in accordance with Australian Standard AS 1668, and any other relevant design standards and guidelines.
- ▶ Specific ventilation (including fume cupboard exhaust, steam and heat exhaust, and dust extraction) throughout health facilities (including laboratories, sterilising areas and other relevant areas) shall be in accordance with Australian Standards (AS 1668, AS 2243, AS 2982, and other relevant design standards and guidelines).
- ▶ Appropriate fire services interfaces are to be provided for all items of mechanical services plant and equipment in accordance with Australian Standards AS 1668, AS 2982 and *Building Code of Australia*.
- ▶ Noise levels within the spaces shall conform generally with those specified in *Australian Standard AS 2107*, and also with any specific requirements nominated by Queensland Health.
- ▶ All mechanical services equipment (including controls and switchboards), shall be located in dedicated mechanical services plant rooms that are acoustically separated from the remainder of the facility. Plant rooms are to be arranged such that sufficient space is provided for maintenance access to all items of installed equipment. Minimum manufacturer recommended clearances around equipment shall be maintained.
- ▶ The mechanical services design shall comply with the relevant standards including, but not limited to:
 - AS 1324.1 - Air Filter for Use in General Ventilation and Air Conditioning: Application, Performance, and Construction
 - AS 1571 - Copper: Seamless Tubes for Use in General Ventilation and Air Conditioning
 - AS 1668.1 - Fire and Smoke Control in Multi-Compartment Buildings
 - AS 1668.2 - Mechanical Ventilation for Acceptable Indoor Air Quality
 - AS 1677.2 - Refrigerating Systems: Safety Requirements for Fixed Applications
 - AS 18621.2 - Refrigerated Package Air Conditioners
 - AS 2107 - Acoustics: Recommended Design Sound Levels and Reverberation Times for Building Interiors
 - AS 2243.1 - Safety in Laboratories: General
 - AS 2243.3 - Safety in Laboratories: Microbiological Aspects and Containment Facilities
 - AS 2243.6 - Safety in Laboratories: Mechanical Aspects
 - AS 2243.8 - Safety in Laboratories: Fume cupboards
 - AS 2982.1 - Laboratory Design and Construction: General Requirements
 - AS 3000 - Wiring Rules
 - AS 3500:1.1 - National Plumbing and Drainage: Water Supply: Performance Requirements
 - AS 3500:1.2 - National Plumbing and Drainage: Water Supply: Acceptable Solutions
 - AS 3666 - Air Handling and Water Systems of Buildings – Microbial Control
 - AS 4254 - Ductwork for Air Handling Systems in Buildings
 - SMACNA HVAC - Duct Construction Standard: Metal and Flexible
 - *Building Code of Australia*

Electrical Services

- ▶ Electrical services are to be provided throughout the facility to comply with all current codes and regulations, Supply Authority regulations and requirements, BCA requirements, Australian Standards and (where applicable) room data sheets issued by the users. The specific requirements in the room data sheets are to be finalised after consultation with end users and/or client representatives.
- ▶ Unless noted otherwise, electrical services shall include, but not be limited to, the following:
 - High or low voltage electricity supply as appropriate
 - General lighting and power services
 - Specific lighting and power to specialist treatment areas and laboratories
 - Fire detection and alarm services
 - Emergency evacuation lighting in buildings
 - Communications (voice and data) services
 - Security services
- ▶ Emergency generator supply will generally not be provided, except where specifically briefed in the room data sheets. Consideration should, however, be given to maintaining electrical services to the following if relevant:
 - Pharmaceutical refrigerators
 - Communications equipment
 - Sensitive data services

Reference is also to be made to *Clause 2.1 'General' in AS 3009 "Emergency Power Supplies in Hospitals"*.

- ▶ Electrical distribution boards are to be provided throughout the facility as required, allowing for:
 - 20% spare capacity in sub-main cables
 - 33% spare poles in each distribution board
 - The location of distribution boards in separate distribution board cupboards in non-patient areas
- ▶ All electrical services are to comply with relevant standards including, but not limited to the following:
 - *AS 3000* – Current edition of Wiring Rules
 - *AS 3008* – Electrical installations – selection of cables part 1 – cables for alternating voltages up to and including 0.6/1:kV
 - *AS 3003* – Electrical installations – patient areas of hospitals, medical and dental practices and dialyzing locations
 - *AS 2500* – Guide to the safe use of electricity in patient care
 - *AS 2293.1* – Emergency evacuation lighting in buildings
 - *AS 2243.1* – Safety in laboratories – electrical aspects

Power Services

- ▶ Provided power services are to meet the functional requirements of the building as described in the room data sheets
- ▶ Electrical services to laboratories are to comply with *AS 2243.7*
- ▶ Electrical services to dental units are to comply with relevant clauses in *AS 3003*
- ▶ Electrical services in PWD areas shall comply with the relevant standards in the *AS 1428* series
- ▶ RCD protection 30 mA/30 mS is to be provided to all power outlets
- ▶ Cleaners outlets are to be on separate circuits

- ▶ Fridges, freezers etc shall be on separate circuits
- ▶ Spare capacity of 20% (current rating) is to be provided in each general purpose power outlet circuit
- ▶ A maximum of 15 GPOs are to be provided on each 20A circuit, subject to current rating of equipment

Lighting

- ▶ General lighting provided throughout the facility is to comply with the minimum requirements of AS 1680.1 and the relevant standards in the AS 1680.2 series.
- ▶ Lamps used for interior lighting should generally be of the following types:
 - 18W and 36W T8 fluorescent lamps
 - 14W and 28W T5 fluorescent lamps
 - Compact fluorescent lamps typically 18W or 26W as appropriate
- ▶ Colour corrected fluorescent lamps are to be provided in the dental surgeries and in the ceramics room of dental laboratories. Details of lamps as follows:
 - Colour temperature 4200 degrees K
 - Colour Rendering Index CRI92
 - Compliant with AS 1680.2.5 – 1997
- ▶ The number of lamp types and wattage is to be limited. Particular attention is to be paid to energy conservation requirements and implementation of lighting controls as appropriate. Special consideration is to be given to maintenance of lights with respect to access and selection of ‘colour correct’ and ‘long-life’ lamps.
- ▶ In special circumstances, low voltage dichroic lamps or similar may be used to enhance or complement the architectural ‘feel’ of the building or to provide a welcoming ambience to the facility.

Communications

- ▶ The following communication services are to be provided to health facilities:
 - Lead-in voice communications cabling for carrier services (eg Telstra, Optus etc).
 - Lead-in wide area network data cabling if required by users.
 - A communications room to serve the health facility subject to the 90m rule.
 - Additional communications room(s) if dictated by size of building (typical size of communications room varies from a cupboard to a room 3.5m x 3.5m).
 - Building distributor (voice)
 - Data rack – typically 45RU located in the communications room.
 - All horizontal and backbone cabling required for voice and data services.
- ▶ Horizontal cabling to all communications outlets shall be integrated voice and data using 4 pair UTP category 6 cables.
- ▶ Voice and data horizontal cabling shall be terminated utilising a pair management system. Alternatively in small installations, RJ45 patching systems may be preferred. Requirements are to be discussed with the client and/or end users or their IT personnel.
- ▶ Fibre optic cable shall be 62.5/125 µm multimode or 9/125 µm single mode, depending on applications and system requirements. Number of cores is to suit requirements + 25% spare capacity or 4 spare cores in each cable whichever is the larger.

Security

- ▶ The following security services should be provided:
 - Monitoring of all external doors using balanced and concealed reed switches
 - Internal PIR movement detectors strategically located, particularly where drugs are stored
 - Duress alarm points at reception area and at other locations if required by users
 - Monitoring of all fire exits
 - Back to base monitoring, subject to agreement with users
- ▶ Proximity card access control to staff entrance may be required depending on location and security risk.
- ▶ Electronically controlled access to some external or internal doors may also be required – refer to room data sheets and/or discuss requirements with users.
- ▶ Digital video surveillance may also be required to high risk areas – discuss CCTV requirements with users.
- ▶ The security systems shall comply with the following standards:
 - AS 4485.1
 - AS 4485.2
 - Relevant standards in the AS 2201 series

Emergency services

- ▶ An emergency lighting system is to be provided throughout the facility to comply with *BCA* and *AS 2293* and *AS2276*. The following requirements are to be complied with as applicable:
 - A single point distributed emergency lighting system is to be provided complete with a single monitoring and testing network.
 - Emergency lighting systems shall match the existing central monitoring system where applicable.
 - Emergency evacuation lighting is to be provided in all patient areas including patient toilets.
 - Exit lights with cold cathode type fluorescent lamps, or similar type long-life lamps will be provided.
 - Emergency lighting batteries shall be dual-rate premium range, high temperature 70°C nickel cadmium type.
- ▶ An Emergency Warning and Intercommunication System (EWIS) is to be provided throughout the facility to comply with *AS 2220 Part 1 and 2* if the building is more than 25m in height.
- ▶ An automatic fire detection and alarm system is to be provided throughout health facilities (class 5 building) if:
 - The building has a rise in storeys of more than three (unless other provisions are provided such as a sprinkler system compliant with *BCA Section 1.5*, zone smoke controlled system in accordance with *AS/NZS 1668.1*, or automatic air pressurisation system for fire isolation exits as outlined in *BCA Section E2*).
 - It is required by users.
 - It is an extension to an existing system within a building.
- ▶ Where required, the fire detection and alarm system shall be installed to comply with *AS 1670, Building Code of Australia*, and shall incorporate:
 - ▶ Addressable analogue detectors.
 - ▶ Point type smoke detectors in paths of egress.

- ▶ Return and supply air smoke sampling detectors.
 - Interface to Emergency Warning and Intercommunication System (EWIS) where applicable.
 - Manual break-glass alarm points within paths of egress and adjacent fire isolated exists.
- ▶ Care should be taken not to locate smoke detectors over heat generating equipment.

Piped Gas Services

- ▶ Reticulated piped gas services (including compressed air, vacuum, extraction systems and town gas throughout the facility, including laboratories and surgery areas) are to be provided in accordance with all relevant design standards and guidelines.
- ▶ All plant and equipment necessary to facilitate the reticulation of these gases (including vacuum pumps, compressors, receivers, pressure regulators, filters, valving, drains, traps and outlet fittings) are to be provided in accordance with all relevant design standards and guidelines.
- ▶ Appropriate fire services interfaces are to be provided for all necessary items of piped gas services plant and equipment including emergency gas shut-off valves, in accordance with *Australian Standards AS 2982, AS 5601*, and the *Building Code of Australia*.
- ▶ Plant and equipment are to be accommodated in rooms that are acoustically separated from the remainder of the building.
- ▶ The design of piped gas services is to comply with the relevant standards including, but not limited to:
 - *AS 1432 – Copper Tubes for Plumbing, Gas Fitting and Drainage Applications*
 - *AS 2896 – Medical Gas Systems: Installation and Testing of Non Flammable Medical Gas Pipeline Systems*
 - *AS 5601 – Gas Installations*

Signage and Art

- ▶ Signs used in health buildings should comply with NSW Health Department – *Signposting for Health Care Facilities*, or relevant Queensland Health signposting policy.
- ▶ Queensland Government public art policy, Art Built-in, commits a proportion of building project costs towards the integration of art and design by Queensland artists and art workers. Art Built-in seeks to integrate art and design into public buildings. To achieve this, the policy embraces the involvement of Queensland’s artists in the planning, design and development stages of the building project
Art Built-in Policy applies to all Government building projects with a capital works budget of more than \$250,000.