Volume 3

Queensland Health

Queensland Health

Capital Infrastructure Requirements

Volume 3 Architecture & Health Facility Design

Section 3.1 Principles

Queensland Government

Capital Infrastructure Requirements - Volume 3 Architecture and health facility design – Section 1: Principles

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1.0	Health Planning and Infrastructure Division, Queensland Health	First public release	28 May 2012	DDG, Health Planning & Infrastructure Division
1.1	Health Infrastructure Branch	Name changed from Capital Infrastructure Minimum Requirements to CIR Approved	5 April 2013	DDG, System Support Services
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3.0	Capital and Asset Services Branch	Updated to align with the new water risk management provisions under the Public Health Act 2005 (February 2017)	7 August 2017	DDG, Corporate Services Division
4.0	Capital and Asset Services Branch	Incorporation of BIM, updated references, refreshed layout, compliance statement and checklist process reviewed.	22 October 2020	DDG, Corporate Services Division

Contents

1 Introduction

1.1 Queensland Health Capital Infrastructure Requirements

The Capital Infrastructure Requirements (CIR) are provided as part of a suite of documents associated with development works by Queensland Health. Works may include:

- new construction
- redevelopment
- condition based asset replacement
- extension and annexure.

This document forms CIR *Volume 3 Architecture and health facility design Section 1 Principles*. The documents that form part of the CIR series include:

- Volume 1: Overview
- Volume 2: Functional design brief
- Volume 3: Architectural and health facility design
- Volume 4: Engineering and infrastructure.

Volume 3 outlines the requirements for architecture and health facility design with other volumes addressing the functional design brief and engineering requirements. The volumes of the CIR are intended to be independent but complementary. An individual discipline of planning, architecture or engineering should not be required to read other volumes, but this is recommended to completely understand the overall development process and requirements.

1.2 Architecture and health facility design requirements

The architectural requirements of the CIR comprise two sections:

- 'Section 1' contains the principles applicable to Queensland Health development. This section generally does not specify how compliance is achieved in detail but outlines overarching requirements and checkpoints which must be adhered to.
- 'Section 2' provides a manual and specifications it includes mandatory requirements, rationale, examples, checkpoints and relevant specification briefs for key items associated with architecture for health facility and healthcare development works by Queensland Health.
- For ease of reading, this document has been formatted as follows:
  a) Any text which appears in a blue box is an overarching principle or requirement of the item.

b) Any relevant rationale or examples follows the principle and is written in plain text as supporting information.

c) Checkpoints are listed in a white box at the end of each item. The checkpoints are for the designer's reference only and are not intended to be submitted for verification by Queensland Health. All deviations from compliance with the CIR must be raised via a non-conformance submission (Attachment A).

1.3 Overarching objectives

For all Queensland Health projects, the purpose of applying these requirements is to provide excellence in design through the application of best practice to:

- support continuous health delivery
- ensure business continuity
- deliver efficient, cost effective design
- address whole of life design considerations, including location and climate impacts
- be compliant with mandatory and 'other' performance guidelines.

Further discussion is provided regarding principles of design in this document.

1.3.1 Building performance evaluation

As outlined in *CIR Volume 1 Overview* (sub-section 4.5), Queensland Health requires all capital infrastructure projects to undertake a building performance evaluation (BPE).

The BPE scorecard developed in the capital infrastructure planning project phase, provides baseline information that will enable the establishment of outcome priorities and tasks and will ensure clarity regarding project objectives and performance goals.

1.3.2 Application of standards and codes

In the event of any conflict between the requirements contained in this suite of documents and the scope of works prepared by Queensland Health, the scope of works shall prevail.

In the preparation of this document references are made to the latest guides, codes and standards applicable. The user of this document must verify the latest guidance material available at the time work is to be carried out.

Reference standards and documents are noted in *CIR Volume 1 Overview.*

The requirements shall be those listed in legislation, mandatory and relevant standards and accepted good practice guides relevant to healthcare facilities. It is a pre-requisite that designers make themselves familiar with referenced documents as well as the relevant parts of any specific reference documents noted in individual sections.

Users of this guide are invited to provide feedback on any aspect of the standards that may be considered of benefit in order to facilitate continuous improvement in the design and operation of the healthcare facilities. Refer to Volume 1 for the feedback procedure.

1.3.3 Work health and safety

Comply with the federal and Queensland *Work Health and Safety Act 2011* and Regulations, as well as occupational health and safety policies and guidelines. This includes general Queensland requirements and specific Queensland Health requirements. The most stringent requirement shall apply in the event of any conflicts.

1.3.4 Deemed to satisfy

Queensland Health facilities shall be designed and installed as 'deemed to satisfy' i.e. meet the prescriptive requirements of the National Construction Code (NCC).

Performance based, alternate or fire engineered solutions shall only be allowed upon receipt of specific approvals as specified in *CIR Volume 3 Architecture and health facility design Section 2 Manual and Specifications* and in *CIR Volume 4 Engineering and infrastructure*.

1.4 Compliance requirements

The checkpoints have been provided in *CIR Volume 3 Architecture and health facility design Section 2 manual and specifications*. The checkpoints have been provided as tools to assist in completing planning and design tasks relating to the CIR.

The checkpoints are for the designer's reference only and are not intended to be submitted for verification by Queensland Health.

All deviations from compliance with the CIR must be raised via non-conformance submissions.

Where the designer cannot meet CIR requirements, has not provided risk-assessments or whole-of-life studies, or has proposed an alternate solution, a non-conformance declaration must be prepared and submitted within the relevant design stage report.

The onus is on the designer to report any areas of non-compliance.

2 Relation to models of care and service

2.1 Clinical service plan

Principle

The clinical service plan informs the functional design brief and the consequent design stages. The clinical service plan shall inform the required service delivery at the point of commissioning and should provide an estimated forward projection of at least 15 years from the point of service planning.

Longer term services requirements based on population assumptions and national and international trends should inform the future flexibility, adaptability and possible renewal requirements to be considered in the design.

The 15-year forward projection shall be tested in the future stages of the master planned scenarios. For a master plan to be preferred and adopted as the approved master plan, it shall respond in its future stages to all the future projections as a minimum requirement and demonstrate capability to respond to the longer-term assumptions.

2.2 Service delivery and care

Principle

The *Clinical Services Capability Framework* (CSCF) for public and licensed private health facilities has been designed to guide a coordinated and integrated approach to health service planning and delivery in Queensland. has been designed to guide a coordinated and integrated approach to health service planning and delivery in Queensland.

Refer to *Volume 2 Functional design brief* for details on the CSCF in relation to the functional design brief.

Within the framework, clinical services are categorised into six service levels with level one managing the least complex patients and level six managing the highest level of patient complexity. However, complexity of care may vary between modules. The size of the service and diversity of healthcare managed at each level will be greater as service levels increase

The role delineation for each service should be included in the health service plan. The functional design brief will confirm the CSCF level for each service and inform the design requirements.

The role delineation shall be considered in conjunction with the longer-term assumptions and shall be tested in the future stages of the master plan scenarios.

2.3 Models of care

Principle

The model of care specific to each department is based upon the Queensland Health's mission, values and strategic directions. The local models of care are included in the individual functional design briefs for each department.

The design should promote and support an integrated model of care with the primary goals of ensuring that clients receive quality, coordinated care, and that gaps, duplication and fragmentation in the provision of services are minimised. The overarching vision in Queensland's future health facilities is an integrated healthcare approach where the primary focus will shift to the patient/consumer rather than a system which focuses on the health service provider and health delivery setting.

Within this framework, patients/consumers will move seamlessly within the primary and secondary setting depending upon their health condition and its severity. This healthcare approach will not be limited to patient care based on treatment and rehabilitation. Integration of care will also include activity between services, such as those provided by other Queensland Health services—with external providers and partners and consumers collaborating to deliver illness prevention and health promotion.

The overarching vision of the Hospital and Health Service (HHS)—in combination with the mission, values and strategic directions of Queensland Health and the above guiding principles—shall underpin the facility planning approach to the overall proposed design of the facility.

Checkpoint

The design team is responsible for implementing the models of care principles in its departmental planning and will demonstrate the outcome in:

- clustering services to create critical mass and foster clinical collaboration/communication/delivery of multi-disciplinary care—for example, allied health services and facilities collocated with outpatient and inpatient units
- clear wayfinding for patients, staff and the public
- collocation to provide staffing benefits—for example, outpatients services and clinical department offices
- attract and retain health professionals—with contemporary training facilities and equipment
- facilities that are inclusive, appropriate to community needs, client and family focused

- facilities for patients with particular needs, responding to the specific requirements of the health service plan
- the critical adjacencies between the department
- enhancing access to services by streamlining the patient flows, mapping the patient journeys, indicating access points for patients as close as possible to where they have to be
- optimising the available skilled workforce by shortening routes, maximising single lift journeys and removing bottlenecks by separating flows and access points
- optimising opportunities for staff development and continuous access to education and research through the provision of physical space and resources required
- provides a therapeutic setting for the delivery of health services by:
  - adopting evidence-based design (EBD) principles (refer item 3.2.3)
  - adopting salutogenic design principles for patient, staff and visitors.
- using the 'crime prevention through environmental design' (CPTED) principles.

2.4 Models of service

Principle

The model of service specific to each non-clinical department shall be in support of the Queensland Health's mission, values and strategic directions. Refer to www.health.qld.gov.au for details. The local models of service are included in the individual functional design briefs for each department.

The design shall promote and support an integrated model of service with the primary goals of ensuring that clients receive quality, coordinated care, and that gaps, duplication and fragmentation in the provision of services are minimised. The overarching vision in Queensland's future health facilities is an integrated healthcare approach where the primary focus will shift to the patient/consumer rather than a system which focuses on the health service provider and health delivery setting.

The overarching vision of the HHS—in combination with Queensland Health's mission, values and strategic directions and the above guiding principles—shall underpin the facility planning approach to the overall proposed design of the facility.

Checkpoint

The design team is responsible for implementing models of service principles in its departmental planning and will demonstrate the outcome in:

- providing a welcoming and supportive service
- collocations of services to facilitate a patient-centred service delivery, such as cashier, admissions, bookings or travel
- facilitation of an efficient admission and discharge process
- optimising the available skilled workforce through:
  - a centralised management of clinical divisions and non-clinical areas, such as human resources, property maintenance, finance, information technology, medical records
  - a centralised management system of logistics, waste handling and maintenance provisions based on a 'just in time' principle.
- a collaborative and transparent workplace environment
- an inspiring and healthy workplace
- enhancing access to services by streamlining the service delivery flows using lean thinking principles to optimise the flows and avoid congestions and cross-contaminations
- separation of public and service flows by mapping of service journeys, indicating access points for service provision as close as possible to where the services are received in the facility
- delivers support services in the safest and most efficient manner.

3 Health facility planning and design

Principle

The planning of health facilities requires general knowledge of the appropriate relationships between the various components. Certain components (also referred to as hospital planning units or health planning units (HPUs)) need to be adjacent or close to other components.

Most components must be accessible independently without having to go through other components. In short, the planning of a health facility requires a certain logic which is derived from the way the facility functions.

The design team shall analyse facility-specific departmental relationships and compare these with benchmarking and appropriate best practice examples to determine the relationships and adjacencies. These will inform the facility plan and encourage effective and efficient facility function. It is important that these relationships and adjacencies consider both current and future requirements of the department as indicated in the health service plan and functional design brief. It is important that the planning of the facility considers the implementation and staging of operational works and minuses disruption.

3.1 Key project drivers

Principle

The project drivers shall be in response to the *My health, Queensland's future: Advancing health 2026*. Taking into consideration the operating environment, a number of key drivers of change in Queensland Health's future operations have been identified.

The drivers for change shall include as a minimum:

- a growing and ageing population
- economic, fiscal and health technology impacts
- a growing burden of disease, particularly in relation to chronic conditions
- the health impacts of socioeconomic disadvantage and cultural and linguistic diversity
- the rate of burden of disease from all causes among Aboriginal and Torres Strait Islander Queenslanders
- the dispersion of Queensland's population across the state
- workforce challenges
- the project drivers shall include as a minimum:
- to design a contemporary leading health service, which maximises efficiency and provides a welcoming, healing environment for patients
- to deliver a facility where the healthcare community integrates education, health facility, medical research and training
- to deliver an inviting, caring and memorable place that is sustainable now and into the future within an environment that supports quality of patient care
- to deliver a facility that supports the delivery of accessible, cost effective and high-quality patient services for Queensland
- to deliver a facility that uses innovative and evidence-based design principles to reflect changing healthcare practices, workplace patterns, user expectations, community aspirations and environmental responsibility
- to deliver a facility which will attract and retain high quality, committed and inspired staff.

3.1.1 Project size

Principle

The health facility size will be categorised in accordance with the tiers below. The capital works projects will be categorised into tiers. There are four tiers:

- Tier 1—Project value greater than $1 billion
- Tier 2—Project value between $100 million and $1 billion
- Tier 3—Project value between $20 million and $100 million
- Tier 4—Project value lower than $20 million

For Tier 1–3 or other complex projects, the CIR will assume greater relevance.

For Tier 4 capital projects, or minor, including refurbishments and extensions, some sections of the CIR will have lesser relevance.

Refer *to CIR, Volume 1, Overview and application, Section 4.4 for Scope for application*

3.1.2 Project type

Principle

Projects undertaken by Queensland Health can be categorised generally as:

- refurbishment or redevelopment of existing facilities
- expansions to existing facilities
- new works.

The planning and design of the project shall be consistent with the project type, such that particular considerations need to be made depending on the project type.

3.1.2.1 Refurbishment

A facility will be refurbished to suit a new use or a new model of care. Refurbishments can vary between:

- cosmetic refurbishment—minor works only. Mainly layout works, very minor building services adjustments
- moderate refurbishment—medium fit-out and services renewal

- major refurbishment—mostly involves complete renewal of building services and fit-out works.

Refurbishments are generally required to be staged and require a decanting strategy.

Considerations during refurbishment shall include:

- assess the impact on existing layout, partitioning, ceilings and building services systems and whether they are suitable for re-use
- establish the condition of existing space and remaining life
- assess the compliance of existing layouts and whether suitable for proposed re-use
- the complexity or simplicity of the staging of the works, and assess the impacts on operation of existing departments
- the suitability and cost effectiveness of re-use when the buildings for its current function
- the suitability and cost effectiveness of an adaptive re-use if the buildings are not suited for use of its current function
- assess impacts to water quality.

3.1.2.2 Redevelopment

A redevelopment involves a major partial renewal of the health facility. In most cased this would involve more than 50 per cent of the facility and thus would imply that the facility would have to be upgraded to comply with current standards. A redevelopment is generally required to be staged and requires a decanting strategy.

A brownfield renewal project is a redevelopment which entails 100 per cent renewal of an existing facility. This requires careful consideration to business continuity and project staging. A successful decanting strategy in the master will influence the planning of the facility.

Considerations during redevelopment shall include:

- establish the condition of existing space and remaining life
- assess the compliance of existing layouts and whether suitable for proposed re-use
- the complexity or simplicity of the staging of the works, and assess the impacts on operation of existing departments
- the suitability and cost effectiveness of re-use when the buildings for its current function
- the suitability and cost effectiveness of an adaptive re-use if the buildings are not suited for use of its current function
- the integration of the new building services and systems with the existing buildings
- assess impacts to water quality.

3.1.2.3 Expansion

The facility will be expanded. In general, minor adjustments will occur to the existing facility. If expansion is a major component, it would classify as a redevelopment.

Considerations during expansion shall include:

- assess the impact on existing services systems and identify the potential for extension or expansion
- establish the capacity of existing facilities and whether these are sufficient or can be extended or augmented—for example size of kitchen
- where staging of the works is required assess the impacts on operation
- assess the impacts on operation of existing departments of existing systems
- assess impacts to water quality.

3.1.2.4 New works

This is a greenfield project on a vacant site. The site could have had a previous use, but is considered totally vacated and redeemed from any object, structure or contamination prior to the new works.

Considerations for new projects shall include:

- local and state planning regulations
- the integration with the urban fabric
- the impact on surrounding properties
- assess the impact of proposed new works on existing utilities to the site
- assess the impact of proposed new works on existing transport and access to the site
- assess the environmental impact of proposed new works the site
- assess impacts to water quality.

3.1.3 Planning models

Principles

Departmental adjacencies shall be informed by an understanding of the broader clinical and operational requirements of the facility and by the individual functional briefs.

The planning shall consider the co-location of appropriate services due to their clinical and/or 12/24-hour functions. Co-location must be considered with both horizontal and vertical connectivity. Patient, staff and visitor flows within the health facility also inform departmental adjacencies. The importance of maintaining patient safety and security in the movement of both high and low acuity patients should be reconfirmed and identified in the functional design brief and/or user group consultation.

The design team shall develop flow diagrams and planning models for:

- the whole-of-hospital facility including partnering facilities in the proximity
- each department or service unit.

These will be developed within the site constraints and with reference to design guidelines including, but not limited, to the AusHFG and need to conform to the CIR and other relevant codes.

Checkpoint

The design team is responsible for implementing planning models principles in its departmental planning and will demonstrate the outcome through:

- provision of whole of hospital planning models in relation to the design concept
- provision of planning models for each department/service unit in relation to the design concept.

3.2 Project and design objectives

Principles

The project objective shall, as a minimum, provide a building that:

- is fully compliant with the brief and end user requirements
- represents current best practice for similar facilities
- responds to site specific and climatic parameters
- responds to the cultural requirements of the end users
- embodies ESD principles where appropriate
- is flexible enough to respond to changing needs and future expansion requirements
- represents good value for money over the lifespan of the facility.

In response to these objectives, the design objectives should include as a minimum:

- increase the efficiency of the operation
- deliver a patient focused environment
- integrate evidence-based design
- safe environment, including a safe water supply
- future proofing
- adaptability and flexibility
- increase retention of staff and support staff attraction
- connectivity space
- a focus on whole of life
- the provision of a modern digital health facility
- innovative design concepts
- business continuity strategies
- stakeholder relationship management
- campus amenity
- partnerships
- scalability for regional context
- the use of building information modelling.

3.2.1 Increase the efficiency of operation

3.2.1.1 Minimise recurrent costs

Principle

Facility planning and design must seek to minimise recurrent costs associated with the facility since the ongoing operational costs of a health facility quickly surpass the cost of construction.

Checkpoint

The design team is responsible for implementing minimise recurrent cost principles in its departmental planning and will demonstrate the outcome in:

- design that encourages better healing to reduce re-admissions
- design that supports best practice in healthcare
- design that encourages staff retention
- safe patient environments to prevent falls, infections and minimise readmissions
- safe staff environments to prevent and minimise workplace health and safety incidents
- design that is based on low energy usage and small carbon footprint
- design that is based on low maintenance and longevity of materials
- design that recognises the importance of maintenance and servicing not only for the building but also for furniture, fittings and equipment (FFE) especially important in rural and remote areas).

3.2.1.2 Efficient planning

Principle

Minimising the travel distances between critical functions and access points is crucial in health planning. It is critical to optimise both patient and staff flows in order to use resources most efficiently and deliver operational cost savings.

Rationale/example

Ambulatory care departments with high patient and visitor numbers can be located on the ground or first floor close to a dedicated entry reducing the demand on the lifts and avoiding major congestion to other parts of the main circulation.

Checkpoint

The design team is responsible for implementing efficient planning principles in its departmental planning and will demonstrate the outcome in:

- planning layouts based on lean thinking principles

Planning layouts which limit the maximum travel:

- between lift cores
- along corridors between departments
- planning layout which cluster medical and administrative functions
- planning layouts which consider collocation of appropriate facilities.

3.2.1.3 Operational zoning

Principle

Planning and design shall consider the operating hours of departments and locate them in common zones which can be 'shut down' when not in use. This facilitates operational efficiencies and a reduction in energy usage as well as an increased level of safety during out of hours operation.

Checkpoint

The design team is responsible for implementing operational zoning principles in its departmental planning to facilitate:

- operational efficiencies through shortening of travel distances for staff during 'off-peak' times
- power reduction through departmental 'shut-downs' after hours
- improved safety for patients and staff through limited access after-hours.

3.2.1.4 Reduced energy usage

Principle

The facility must demonstrate its environmentally sustainable approach in first instance by reducing the energy use. For detailed energy reduction principles, refer to *CIR Volume 3 Architecture and facility design Section 2 Manual and Specifications*, 2.1.10 Environmental sustainability) and to *CIR Volume 4 Engineering and infrastructure.*

Checkpoint

The design team is responsible for implementing reduced energy usage principles in its departmental planning and demonstrate the outcome in but not limited to:

- maximise daylight to reduce energy consumption
- provide natural ventilation to suitable areas
- provide shading to reduce heat loading and reduce energy consumption for cooling
- reduce energy outside times of usage by planning to facilitate operational zoning
- reduce energy by using operational models that minimises energy use such as the use of stairs instead of lifts for staff
- reduce energy by using technology that minimises energy.

3.2.2 Patient focus design

Principle

The facility must support patient-centred models of care and support a positive experience for patients, family members and carers. The facility plan and design shall provide:

- a healing and uplifting environment
- for the requirements of the patient journey
- spaces that support and allow diversity
- spaces that support and allow privacy
- flexibility to support differing patient comfort.

Rationale/example

Some examples of patient focus design initiatives include:

- The provision of patient accommodation configured in small self-contained pods of single patient bedrooms for high acuity and acute recovery overnight beds.
- Pods which are modular and identical in design and layout that house all the functions and general equipment to support the delivery of care to patients— whilst minimising the need for staff to leave the pods in the provision of their primary tasks.
- All overnight patients have access to views, natural light and the ability to access external green space within reasonable proximity to their bedroom.
- Overnight high acuity and acute recovery patients will have the ability to access outdoor areas to access natural air.
- A generational shift for the design of patient accommodation, including the provision of single bedrooms rather than an old 'tried and tested' traditional approach to patient-care accommodation design.
- Technical suites and Intensive care units (ICU), including cardiothoracic intensive care are co-located on a single 'hot floor' with direct access between them to provide key functional relationships.
- Imaging services are decentralised in order that dedicated services are provided for and in close proximity to: emergency department, outpatients and inpatient units.
- Clinical groupings can be created to link stages of the patient journey.
- Art and design is used to recognise the diversity of patient communities and reflects these cultures and to reinforce the connection to the gardens and parklands.
- Providing patient accommodation which facilitates involvement by a patients' family or carer in the patient's ongoing care; and providing patient accommodation that is comfortable, safe, private and which preserves a patients' dignity and which allows for gender separation.

Checkpoint

The design team is responsible for implementing patient focused design principles in its departmental planning and demonstrate the outcome in:

- providing a healing and uplifting environment by:
  - using and incorporating materials, finishes and colours that are conducive to the comfort of facility users incorporating the use of natural light generally throughout the facility
  - incorporating the use of natural light particularly in areas in the facility that will be occupied by patients and staff
  - providing views of nature and the external environment from the facility
  - incorporating outdoor garden areas into the facility with access for patients, family members and carers and for the provision of physical therapy
  - enabling fresh air into the facility and to provide localised temperature control to patient areas

  - minimising noise, vibration and odour transfer between discrete spaces in the facility
  - facilitating the maintenance and general cleanliness in the facility
  - incorporating art into the facility and facilitating the provision of music throughout the facility
  - providing a high standard of patient accommodation
  - providing patient accommodation which facilitates involvement by a patients' family or carer in the patient's ongoing care
  - providing patient accommodation which is comfortable, safe, private and which preserves a patients' dignity and which allows for gender separation
  - providing patient accommodation which contains high quality bathroom and toilet facilities, entertainment and communication systems
  - providing patient accommodation which is comfortable, safe, private and which preserves a patients' dignity and which allows for gender separation.
- to provide for the requirements for the patient journey by:
  - minimising unnecessary patient movement to other areas in the facility
  - minimising unnecessary patient movement to imaging services
  - enabling the potential for the provision of clinical services and clinical support services within the patient bedroom
  - ensuring clinical areas can be grouped to support the patient journeys for specific clinical services.
- to provide spaces that support and allow diversity:
  - cultural, linguistic and spiritual needs of patients, carers and families, including a specific focus on the needs of Aboriginal and Torres Strait Islander people
  - to provide for the needs of specific groups within the community, including the frail elderly and people with disability.
- provide spaces that support and allow privacy:
  - maximise the independence and privacy of consumers, while allowing staff to supervise them as and when necessary.
- provide flexibility to support differing patient comfort:
  - provide individual lighting controls for building occupants.
  - provide individual temperature and ventilation controls for the occupants.
  - provide acoustic comfort refer to ‘Section 3.2.3 Evidence-based design’ for more detail on acoustic comfort.

3.2.3 Evidence-based design

Principle

EBD addresses building design and design features with the objectives of improving health outcomes. Established links between the environment and reduction in stress, sickness, fatigue, medication, length of stay, incidence of accidents and re-admissions data has verified that factors—such as natural light, orientation, view, air quality, privacy, acoustics, colour, signage, appropriately designed corridors and artwork—have a measurable effect on healing and the wellbeing of patients and staff alike. The design team must be cognisant of the continuous development in EBD practice and adopt appropriate and relevant principles in the facility design.

3.2.3.1 Visual access to outdoor areas

Principle

Visual connection to the outside via windows is critical for staff and patients. The design of the new buildings shall provide penetration of the maximum level of natural light from all possible sides into the building spaces. Views from within the building shall be maximised by extensive external glazing and associated sun shading and orientation considerations.

Checkpoint

The design team is responsible for implementing visual access to outdoor areas principles in its departmental planning and demonstrate the outcome in:

- main corridors or circulation spines within the building will be designed to be open at each end to provide extended views from out of the buildings and to allow the penetration of natural light
- low sills in all bedrooms proposed to maximise views for patients in bed positions
- courtyards to keep floor plates narrow and maximise access to daylight
- fully glazed open-ended corridors provided to enhance natural light and outlooks in inpatient unit areas
- fully glazed waiting areas
- fully glazed lift lobby and stair cores.

3.2.3.2 Physical access to outdoor areas

Principle

Access to outdoor areas and sunshine is highly desirable, particularly for long-term and Indigenous patients. The functional design brief shall define its mandatory requirement status.

Checkpoint

The design team is responsible for implementing physical access to outdoor areas principles in its departmental planning and demonstrate the outcome in:

- at least two designated and programmed places of respite with direct physical connection to the natural environment
- at least one place of respite must be easily identifiable and accessible to patients and visitors, and at least one place of respite must be dedicated to staff
- places of respite can be indoor or outdoor, and their combined area must be equivalent to no less than five per cent of the gross departmental area. Each place of respite must have a minimum size of 25m2 and contain an area of vegetation of no less than 30 per cent.

3.2.3.3 Acoustic impact on healing

Principle

Good acoustics have positive effects not only on patients but also staff. These include improved quality of patient care, better sleep quality at home and better speech intelligibility (Blomkvist et al.,in press). Health facilities should therefore accord high priority to creating much quieter environments.

The aim of the acoustic design process is to design spaces with a noise environment suitable for their intended purpose. The ideal acoustic environment is to minimise extraneous and intrusive noise, while using a certain level of broadband background noise to assist with acoustic privacy/masking (e.g. the air conditioning to provide background noise).

Checkpoint

The design team is responsible for implementing acoustic principles in its departmental planning and demonstrate the outcome to:

- avoid or reduce unnecessary noise
- minimise high internal noise events such as intercoms and trolley noise
- minimise noise build-up with the installation of acoustic absorption in the form of acoustic ceiling tiles and wall panels and carpet where practicable
- obtain reasonable levels of acoustic privacy ratings between acoustically relevant spaces, such as consulting rooms, inpatient units, meeting/interview rooms, offices and theatres
- exclude extraneous external noise sources to an acceptable level
- a reasonably high level of broadband background noise, equal to levels recommended in AS2107 or other health design guidelines currently under review. Too low background noise levels can lead to an increase in adverse acoustic privacy issues.

Special acoustic considerations apply during construction and refurbishments where existing facilities will remain operational. The design team shall:

- undertake a review of spaces where a significant change of use will occur and assess the potential for upgrades where the existing partitions are to be retained
- provide acoustic partition ratings to new partitions
- appropriate site and crane layout and orientation
- application of recommended building constructions
- consideration of access and routing for construction vehicles.

3.2.4 Safe environment

Principle

Queensland Health requires all its facilities to be a safe environment for patients, staff and visitors. Safe environments will be achieved by consideration of infection control, and safety in design legislation in the planning and detailed design of the facility.

Checkpoint

The design team is responsible for implementing safe environment principles in its departmental planning and demonstrate the outcome in:

- complying with infection control requirements. Refer to *CIR Volume 3 Architecture and facility design Section 2 Manual and Specifications; CIR Volume 4 Engineering and infrastructure*, and Australasian Health Facility Guidelines (AusHFG) for more details
- using CPTED principles. Refer to *CIR Volume 3 Architecture and facility design Section 2 Manual and Specification*
- responding to the required safety in design legislation. Refer also to *CIR Volume 3 Architecture and facility design Section 2 Manual and Specification sub-section 1.20 Safety in design*.

3.2.5 Future proofing

Principle

Queensland Health requires all its facilities to consider the required strategy for future proofing. Future proofing is the ability of the design to not prohibit but anticipate future expansion and future modification. It does not include the provision of future requirements, but rather the ability of the design to allow the future requirements to be added to the facility without major operational and cost impacts.

Checkpoint

The design team is responsible for implementing future proofing principles in its departmental planning and demonstrate the outcome in:

- Level 1 future proofing: Application of soft space policy
- Level 2 future proofing: Application of individual departmental expansion
- Level 3 future proofing: Application of facility expansion
- future proofing will be expressed in area allowances/opportunities per department per level of future proofing
- future proofing of the facility design and architecture needs to be coordinated and integrated with the engineering approach to future proofing
- each design stage, from master plan to detailed design, the design shall anticipate the longer term trends and forecasting and demonstrate the future proofing ability of the design—in relation to the future requirements and demonstrate the intent of the design to facilitate these future requirements
- Future proofing, aided by selection of building grid, that suits varying planning functions and an economical, adaptable and structural type appropriate to local construction

capabilities—for example a structural grid that allows good flexibility by using larger structural grids (such as 8.4 m, 9.6 m, 10.8 or other approx. grid size).

3.2.5.1 Application of 'loose fit' policy

Principle

Loose fit planning refers to planning models that cannot only adequately respond to contemporary operational policy but have the inherent flexibility to adapt to a range of alternative, proven and forward-looking policies. The facility and its infrastructure shall be planned and designed to make specific allowance for future expansion and/or adaptability. The master plan design philosophy shall consider flexibility of internal layout, effective expansion and/or replacement strategy.

This includes consideration of:

- facility design to accommodate future models of care and emerging trends in clinical practice
- building services accessibility
- infrastructure capacity
- current and future information communication technology (ICT) requirements
- future changes in the size of medical equipment required
- changes in government legislations and standards.

Checkpoint

The design team is responsible for implementing 'loose fit' principles in its departmental planning and demonstrate the outcomes in:

- an efficient building footprint enabling space for future growth vertically and horizontally
- building structure, construction and provision of building services to be easily modified to respond to change and expansion
- critical zones including, but not limited to, the emergency department, medical imaging, operating suite, ambulatory care and cancer care services can expand in the future without disrupting ongoing operational activity
- an extended lift core for future performance class 1 rooftop helipad
- provision of an infrastructure loop sited to maintain space for building growth
- provision of core infrastructure in locations which will not obstruct change or expansion, and which will continue to provide 'back bone' services and access throughout the life of the building

- provision of convenient access to building services that could require change or expansion in the future
- appropriate building grid and floor to floor heights
- identification of spatial provision only and/or shell space only for specified future requirements such as laboratories, CT scanner or MRI
- facilitating future changes to incorporate wet areas providing necessary falls and floor finishes and other service requirements to considered areas
- rooms designed to allow for possible subdivision in the future with the addition of a partition
- providing a number of operating theatres designed with sufficient space to facilitate the adoption of new technologies
- the pharmacy department designed to allow for robotics to be incorporated into the production and processing of pharmacy needs, if required in the future
- providing the ability to introduce automated logistics such as automatic guided vehicles
- where possible, materials will be selected to allow for maintenance and replacement with local or readily available materials.

3.2.5.2 Access to equipment

Principle

The design of the facility shall consider the needs of the operator to safely access equipment for:

- replacement
- renewal
- maintenance:
  - day-to-day internal and external maintenance—for example, building cleaning, minor repairs or replacing light globes
  - regular programmed maintenance i.e. mechanical and electrical plant and equipment (i.e. monthly, bi-monthly and quarterly)
  - yearly overhaul maintenance, such as chillers.

Checkpoint

The design team is responsible for implementing access to equipment principles in its departmental planning and demonstrate the outcome in:

- access points and routes for maintenance
- access for replacement of equipment and plant for operators and parts
- access for renewal of equipment and plant for operators and entire plant.

3.2.5.3 Position of services

Principle

In the consideration of future proofing the facility, services shall be positioned so as not to restrict future adaptability and expansions, including:

- location of in-ground services shall anticipate the future expansions of the master plan
- building services shall anticipate the future expansions of the master plan
- plant location shall anticipate the future expansions of the master plan by not physically hindering expansions
- individual zones/components of the facility shall be designed in zones to allow for their maintenance and servicing to be conducted independently. This allows for services, especially air conditioning to be easily shut-off in a single zone during maintenance
- position of access panels
- location of hydraulic fixtures and fittings should be accessible for cleaning and maintenance regimes in order to maintain delivered water quality.

Rationale/example

Inpatient unit services shall be positioned in a way to allow ceiling tracks to be retrofitted to accommodate bariatric patient requirements.

Checkpoint

The design team is responsible for implementing position of service principles in its departmental planning and demonstrate the outcome in:

- overlay between position of services and each of the future proofing levels
- listing of approved additional provisions as result of future proofing requirements.

3.2.5.4 Scalability

Principle

The facility needs to be able to respond to the service needs and changes caused by medical and ICT progress. This will result in the requirements of certain departments to expand or contract or to become redundant within the facility.

Rationale/example

The digitisation of medical records will make the filing areas obsolete and leave a large footprint un-utilised. This space should be positioned so it can be scaled back and re-used by its neighbouring department.

Checkpoint

The design team is responsible for implementing scalability principles in its departmental planning and demonstrate the outcome in:

- scenario development of the scalability of individual departments
- considering the effect on building services of scalability in the scenarios.

3.2.6 Adaptability/flexibility

Principle

The facility will serve the current and future generations and therefore must accommodate ongoing changes in:

- facility population
- healthcare disease patterns
- treatment modalities and care models
- work practices
- medical, information and communication technology advances
- research and education
- building design and construction innovation
- supplied water quality.

Checkpoint

The design team is responsible for implementing adaptability and flexibility principles in its departmental planning and demonstrate the outcome by:

- being modular in approach and design
- incorporating the capacity for areas to be adapted for a range of different functions in the future, with minimum disruption to the provision of clinical services and clinical support services
- providing for spaces to be used for different or evolving clinical services
- providing areas that can easily be used for a variety of functions on a day-to-day basis
- locating fixed elements within the facility so that they do not adversely affect the ability to expand the facility
- being designed and located to allow for future growth of the footprint of the facility
- collocating activity zones requiring highly specialised infrastructure, equipment or staff utilising shared facilities, support services, resources and equipment
- identifying and planning for expansion zones for the future, both externally and internally through the careful placement of unallocated space.

Building structure by:

- providing a building chassis which will accommodate different internal layouts and establishing a structural grid that allows good functionality and flexibility based on a value for money versus flexibility comparison
- establishing a floor to floor height that enables services zones within the buildings in a structured and modular approach based on a value for money versus flexibility comparison
- designing so that changes in the structure are not required to accommodate relocations of other elements
- considering the use of topping slabs to provide greater flexibility for considered areas within the building
- limiting post-tensioning so as to allow maximum capacity for future floor penetrations
- reviewing the floor capacities by increasing the KPa's of various areas to allow greater flexibility for heavier loading and activities
- providing the footings, foundations and additional requirements, such as risers and lift and stair locations for at least an additional two or more storeys in considered areas—particularly the facilities for car parking and alternative usages, such as private health facility, offices or medical consulting
- considering the provision of under croft or shell areas for short term expansion or decanting provisions
- considering load capacity of uppermost slab to be sufficient to carry construction loads for any new storeys.

3.2.7 Increase retention by design

Principle

In Queensland there is great demand for qualified, experienced health sector resources and competition is strong among facilities in the state and with other states and overseas facilities. The planning and design of a health facility shall support the attraction and retention of well trained, committed and motivated staff.

It shall also facilitate ongoing employee satisfaction through support of staff wellbeing, including the facilitation of physical, social and psychological wellbeing.

The design of the workplace will impact significantly on the physical wellbeing and therefore similar design principles of access to light and views also have a major impact on staff.

Checkpoint

The design team is responsible for implementing retention based design principles in its departmental planning and demonstrate the outcome by:

- clinical offices collocated adjacent staff lounges away from patient and public areas
- provision of staff amenity supporting staff wellbeing
- visual access to natural light, landscaped areas and outdoor vistas
- provision of design that stimulates communication and collaboration between staff.

3.2.8 Connectivity space

Principle

Connectivity space or non-clinical space needs to provide flexible and adaptable spaces that can adapt to changes in the domains for work, education and research within the health sector and to promote connectivity and collaboration amongst users.

These spaces are classified into three functional categories. These categories do not reflect a particular organisational structure, rather they respond to specific core activities that take place and for which adequate spaces shall be provided:

- workspace
- teaching
- research.

Rationale/example

Non-clinical space supports activities, such as administration, teaching and learning and research. It is accessed by a combination of staff, students, patients, visitors, volunteers and the public.

For workspace this means moving away from the traditional model by which space was allocated which enforced hierarchy and supported predominantly routine process tasks. The change in work practice, service delivery and communication calls for greater speed and flexibility across all organisational systems—dictating the creation of an innovative, sustainable and flexible workplace model.

Similarly for teaching and learning spaces, the workforce is required to acquire competencies throughout the life of employment. This emphasis on lifelong learning, and in particular a focus on creating more authentic learning experiences, has seen significant changes in how the learning process is conceptualised. As new modes of learning emerge and technology advances, the nature of spaces in which learning occurs is becoming increasingly diverse. Teaching and learning can take place anywhere and everywhere, at any time.

These shifts highlight the need for the design of the teaching and learning space, to create flexible and multi-use spaces that support a multiplicity of learning styles and multi-modal learning practices.

Finally, the nature of research is also changing. Increasingly research is being carried out by multidisciplinary teams who require a variety of spaces in order to support their different but complementary activities. The result is hybrid research and laboratory environments in preference to large blocks of homogenous space.

Increased automation in laboratories has caused a shift in the dominant effort of research from the act of doing an experiment to the process of analysing and understanding the

outcomes. This shift has resulted in research activities requiring increasing amounts of workspace for office-based working that supports collaborative teaming in addition to simply supporting individual concentrated effort.

In addition to supporting the functional requirements and work flows of user groups, the shared nature of non-clinical space can also serve to transform organisational culture by facilitating collaboration between previous disparate teams, building new understandings and appreciation of others within the facility.

Checkpoint

The design team is responsible for implementing connectivity space principles in its departmental planning by:

- supporting functional requirements and work flow while enabling and adapting to changing work practices
- facilitating change and growth over time by creating open, flexible and adaptable spaces
- optimising space utilisation
- making visible the process of work, interaction and achievement
- fostering communication, collaboration and teamwork
- inspiring lifelong learning and innovation
- promoting space as a shared resource and discourage ownership
- attraction and retention of staff by delivering quality space that supports professional communities of practice
- unifying and connecting all parts of the facility.

3.2.9 Whole life costs

Principles

Queensland Health is committed to the principles and practices of strategic asset management which focuses on whole of life management of assets underpinned by the fact that the cost of building assets over their lifecycle is many times greater than the capital cost of construction.

Checkpoint

The design team is responsible for implementing whole-of-life principles in its departmental planning by placing emphasis on efficiency, long life, low maintenance, easy access, easy replacement and low running costs, resistance to environmental factors, such as sun, rain, temperature, humidity, salt air and pollution.

This includes but is not restricted to:

- all materials and surfaces both internal and external

- lighting systems
- furniture and fixtures
- efficient use of labour—for example, minimise walking distances
- all services including: mechanical, electrical, information technology (IT), hydraulic
- external issues, such as landscape and gardens irrigation
- resistance of all above to the effects of disasters, natural or manmade, such as flooding, extreme wind and rainfall, terrorism
- a whole-of-life register will be submitted in PDP, SD, DD and contract documentation (CD) stages identifying building components, anticipated product or materials choice, replacement terms and costs which are relevant to the project
- building information models will be used as a basis where appropriate.

3.2.10 Digital health facility and ICT provisions

Principle

The fast-changing nature of ICT in a healthcare environment requires a holistic approach and a very high level of flexibility and adaptability.

The importance of the development of an ICT strategy and the integration with the planning and design is paramount to the success of the operation of the facility. The design team shall therefore integrate the strategy in the early design stages in close consultation with Queensland Health.

The ICT strategy and its detailed requirements are determined by the Health Service Information Agency (HSIA). This department will assist in formulating project specific strategies and requirements. Please refer to their website for detailed procedures and design processes

Checkpoint

The design team is responsible for implementing digital hospital and ICT principles in its departmental planning through collaboration and integration of the ICT strategy and requirements of Queensland Health. Items to be considered include, but are not limited to:

- eHealth requirements
- ICT convergence
- patient entertainment systems
- mobile devices
- bedside terminals (or alternatives)
- data room
- communications room

- patient records management
- wireless coverage.

3.2.11 Innovative design concepts

Principle

Queensland Health advocates the adoption of innovative design concepts based on national and international examples or trends in order to ensure the project will deliver the best outcomes. Innovative approaches should be underpinned by:

- research
- implemented on exemplar projects
- application in other industries, tested with relevant principles.

Potential areas for consideration include, but are not limited to:

- change by management
- overflow design
- progressive shut down
- open ended planning
- modular design
- universal design principles
- single-handed design
- provision of outdoor air to patients.

Rationale/example

The design team is responsible for in implementing innovative approach principles in its departmental planning and demonstrate the outcome in:

- stacking of critical clinical departments—for example, interventional suite directly above the emergency department and imaging—with departments with the highest volume of public contact such as emergency department and imaging and outpatient clinics, located on the ground floor
- efficient health facility street. Linkages between departments and travel distances both horizontally and vertically are very important for efficient health facility planning. A primary circulation hierarchy establishes a legible circulation framework which allows future building or expansion of individual departments without compromising the circulation system and way finding

- collocation of ambulatory care services with its own 'front door'. This area has a high visitor flow and a clear address will ease the potential congestion of the main inpatient circulation route
- strong adjacencies within the clinical building are provided. These include medical imaging that needs to be close to emergency services and rehabilitation therapy services
- providing ground level access to the Emergency Department (ED) for emergency and public drop off. It is easily accessible so that the public delivering an ambulant patient are not confused
- locating the ICU/HDU/Coronary Care Unit (CCU) to allow direct access from the interventional suite
- the public lift core has been designed to allow a future additional lift
- the helipad hot lift should provide direct access to the emergency department, interventional suite and ICU.

Checkpoint

The design team is responsible for implementing innovative design principles in its departmental planning by demonstrating the innovations and their proof.

3.2.11.1 Change by management

Principle

The facility shall be planned and designed to allow for changes in operating mode as a function of management, as opposed to a change in physical building.

Rationale/example

For example, two inpatient units can be designed back-to-back so that a range of rooms can be shared. The shared section may be capable of isolation from one or the other inpatient unit by a set of doors.

This type of sharing is commonly referred to as swing beds. It represents a change to the size of one inpatient unit without any need to expand the unit or make any physical changes. The same concept can be applied to a range of planning models to achieve greater flexibility for the management.

Checkpoint

The design team is responsible for implementing change by management principles in its departmental planning by identification of zones and spaces that can sustain changes in operational mode.

3.2.11.2 Overflow design

Principle

The facility shall be planned and designed so that selected areas can serve as overflow for other areas that are subject to fluctuating demand.

Rationale/example

For example, a waiting area for an emergency unit may be designed so that it can overflow into the health facility main entrance waiting area.

An emergency unit procedure room or a birthing room may be designed specifically to provide an emergency operating room for caesarean sections in case the standard allocated operating room is not available.

Any area that includes bed bays, such as an emergency unit, may be designed to absorb the available open space and provide room for additional beds in case of natural disasters.

Checkpoint

The design team is responsible for implementing overflow design principles in its departmental planning by identification of zones and spaces that can serve an overflow purpose.

3.2.11.3 Progressive shutdown

Principle

The facility shall be planned and designed to accommodate a progressive shutdown which closes off certain sections when they are not in use. This allows for savings in energy, maintenance and staff costs. It also concentrates the staff around patients and improves communication and security. Refer also Item 3.2.1.2

Checkpoint

The design team is responsible for implementing progressive shutdown principles in its departmental planning by:

- identification of zones and spaces that can be closed off during shut down whilst ensuring
  - none of the requirements of the CIR are compromised in the remaining open sections
  - the open sections comply with other statutory requirements, such as fire egress

- the open patient care sections maintain the level of observation required by the CIR
- in the closed sections, lights and air-conditioning can be shut off independently of other areas
- the closed sections are not required as a thoroughfare for access to other functions
- nurse call and other communication systems can adapt to the shut-down mode appropriately
- the shut-down strategy allows access to items requiring routine maintenance.

3.2.11.4 Open ended planning

Principle

The design team shall use planning models and architectural shapes that have the capability to grow, change and expand (horizontally or vertically) in a controlled way.

Checkpoint

The design team is responsible for implementing open ended planning principles in its departmental planning and demonstrate the outcome in:

- major corridors must be located so that they can be extended outside the building
- as far as possible, HPUs should have one side exposed to the outside to permit possible expansion
- if a critical HPU must be internal, it should be adjacent to other areas that can be relocated, such as large stores or administration areas
- external shapes should not be finite
- external shapes should be capable of expansion
- finite shapes may be reserved for one-off feature elements, such as a main entrance foyer
- roof design should consider expansion in a variety of directions
- avoid HPUs that are totally land-locked between major corridors
- stairs should not be designed to block the end of major corridors
- the overall facility flow diagram should be capable of linear or radial expansion whilst keeping all the desirable relationships intact
- fixed internal services such as plant rooms, risers, service cupboards should be placed along major corridors rather than in the centre of HPUs.

Open ended planning policies can be applied to entire facilities as well as individual HPUs.

3.2.11.5 Modular design components

Principle

This is the application of designing a facility by combining perfectly designed standard components. This assists in creating a more economical outcome as fabrication, transportation and construction is less complex through the standardisation of the building form. The use of the AusHFG standard component library will assist in this regard.

Rationale/example

For example, a designer may create a range of patient bedrooms, a range of utility rooms and other common rooms that are based on a regular grid, such as 600 mm. These rooms can then be combined to create larger planning units, such as an inpatient unit. The inpatient unit can then be used as a module and repeated a number of times as required.

This approach, in the hands of a skilled designer has many benefits. Modules can be designed only once, to work very well. No redesign is necessary to adjust to different planning configurations. Instead the plan is assembled to adapt to the modules. Errors in both design and construction can therefore be minimised.

The opposite to this approach is to start from a different architectural shape for each HPU, divide it into various shapes for the rooms, then design the interior of each room independently. This approach, in the hands of a skilled designer can also result in satisfactory solutions, but at a higher risk of errors and at a greater cost. For example, in a typical health facility, one might find 10 dirty utility rooms which are entirely different.

Modular design shall not be seen as a limitation to the designer's creativity, but a tool to achieve better results. Designers are encouraged to consult with clients and user groups to agree on perfect modules, and then adopt them across all HPUs.

Checkpoint

The design team is responsible for implementing modular design principles in its departmental planning and show evidence of:

- a minimum of 80 per cent standard components in room design across the entire facility
- a minimum of 80 per cent standard components in joinery, finishes and fittings across the entire facility.

3.2.11.6 Universal design

Principle

The main principle of universal design is to resist unnecessary variation in similar components, where the change in functionality can be accommodated in one standard design.

Rationale/example

For example, a typical patient single bedroom can be designed to suit a variety of disciples including medical/surgical/maternity and orthopaedics. Such a room can be standardised across all compatible inpatient units. This will permit a change of use between departments if the need arises. Such universal design must take into account the requirements of all compatible uses and allow for all of them. The opposite of this policy is to 'specialise' the design of each component to the point of inflexibility.

Other examples of universal design are as follows:

- universal operating rooms which suit a range of operations
- bed cubicles in day surgery which suit both pre and post-operative functions
- offices which are standardised into only a limited number of types for example, 9 m^2 and 12 m^2
- toilets may all be designed for disabled access or as unisex.

Checkpoint

The design team is responsible for implementing universal design principles in its departmental planning and demonstrate this by identifying universal design initiatives and the quantity of repetition.

3.2.11.7 Single handed design

Principle

Single handing refers to situations where mirror image (handing) may not be necessary. In areas requiring a high level of staff training, such as in operating suites, it may be more appropriate to 'hand' all key rooms in identical manner. This makes the task of staff training easier and may also reduce the possibility of mistakes.

Rationale/example

It is common design practice to design identical and adjoining planning modules in mirror image. This is most common in the assembly of patient bedrooms with ensuites. It is commonly believed that this is also more economical.

The concept of single handing is the exact opposite.

In a hypothetical example, a staff member entering any operating room, regardless of its location and approach from corridor will find the service panel on the left, X-ray viewer on the right and the door to the sterile stock room in the front.

In another example, at micro level, medical gases may always be located to the left side of patient's bedhead regardless of the direction of approach.

Checkpoint

The design team is responsible for implementing single handed design principles in its departmental planning and demonstrate this by identifying single handed design initiatives and the quantity of repetition.

3.2.11.8 Business continuity

Principle

The importance of health facilities dictates that continued operation is crucial to the business that operates inside, and the patients who rely on its service. Continuity of service must be considered of paramount importance. In cases where interruption of service is un-avoidable, a management approach will be considered in the design.

Checkpoint

The design team is responsible for implementing business continuity principles in its departmental planning and demonstrate this through:

- staged delivery to retain 24/7 live health facility functionality; or a managed approach otherwise
- developing strategies and design to allow for limited disruption and continuity during future expansion projects.

3.2.11.9 Stakeholder relationships

Principle

Ultimately, a health facility is designed to service the community within which it is located. The design, construction and ongoing operational requirements shall consider the impact on a wide variety of stakeholders. Consultation with key stakeholder groups shall be part of the planning and design process.

It is important to stress that 'stakeholder consultation' does not mean putting together a 'wish list' of user requirements, instead the designer must use knowledge of healthcare standards in addition to the CIR to guide and establish appropriate and workable parameters for each component of the new facilities.

Checkpoint

The design team is responsible for implementing stakeholder relationship principles in its departmental planning and demonstrate this through consultation with, but not limited to, the following parties:

- local authorities
- other government departments such as local government and planning and transport and main roads
- transport authorities, such as Queensland rail and local transport providers
- community reference group
- indigenous reference groups
- adjoining land owners
- utility providers, such as electricity, water, gas, communications
- Queensland Fire and Rescue Service
- education providers
- training providers
- Red Cross
- collocated private industry providers.

3.2.11.10 Provision of amenity

Principles

The facility shall provide amenity for patients, staff and visitors. Hospitals remain important civic buildings and have an opportunity to provide a role far beyond the healing and care function but deliver a form amenity to the surrounding precinct. This will further support the de-institutionalising of the health facility.

Rationale/example

Facility amenity can be provided by:

- the health facility in the form of amenity for:
  - patients
  - staff
  - visitors
  - partners in or nearby the health facility.

Checkpoint

The design team is responsible for implementing facility amenity principles in its departmental planning and demonstrate this through consideration of the provision of:

- dedicated patient amenities
- dedicated staff amenities
- medical staff amenities
- a staff dining area
- visitor amenities, indoor and outdoor
- end of destination facilities.

3.2.11.11 Patients

Principle

The facility shall contain a patient amenity which shall provide a respite, meeting and relaxation environment appropriate to the patient and the family needs.

Rationale/example

Consideration shall be given to Indigenous users who have a strong preference to gain respite from air conditioning and to meet and relax in a naturally ventilated environment i.e. one which is not air conditioned.

Potential for a patient lounge with 'flexible operating modes', such as an air conditioned space, with the external windows and shutters closed, or a naturally ventilated space with the external windows and shutters open to allow cooling breezes to enter the room.

3.2.11.12 Staff

Principle

Staff amenities shall be provided for the convenience, comfort and safety of staff, including a place of relaxation away from patients and visitors. Consideration shall be given to staff retention and attraction during the planning and design of these facilities. The functional design brief shall define the mandatory status.

Rationale/example

Staff amenities to be provided in the facility can include:

- staff facilities (including toilets and showers)
- bag lockers in a secure location
- gymnasium for health promotion and recreation
- staff dining area
- courtyard
- bicycle facilities
- group share accommodation for short–term visiting and some on-call staff.

3.2.11.12.1 Medical staff facilities

Principle

Senior and resident medical officer (RMO) facilities can include dedicated lounge areas, overnight accommodation, computer bays and support services. They should be located in an area that is not isolated and therefore safe at night and with ease of access to the clinical areas.

3.2.11.12.2 Staff dining

Principle

The facility shall contain a staff dining area where staff can dine in the isolation of patients' family and visitors.

Rationale/example

Access to the staff dining during public operating hours should be via a staff access only doorway.

Food services provision to the staff dining is not mandatory, but if this is available, the provision of food from the main kitchen or from a private operator should be considered. The emphasis will be on quick delivery of food, with reference to relevant Queensland Health policy regarding healthy choice food options.

Staff have limited time to purchase and consume food and therefore provision for 'short order cooking' is not preferred.

Staff self-serve facilities in the form of boiling water units and microwave ovens should provide to enable staff to use the dining facility 24hrs/day to heat meals and make their own beverages.

3.2.11.12.3 Visitors

Principle

Visitor amenities should be provided for the convenience, comfort and safety of visitors. Spaces should be provided to allow visitors and patients to recuperate and relax in an indoor and outdoor environment for improved social wellbeing.

3.2.11.12.4 End of destination facilities

Principle

Provide facilities for pedestrians and cyclists for staff and visitors to reduce dependency on private transport. Provide visitor bicycle parking of one space per 30 beds that is signposted and provided in an accessible location that is within 10–30 m of a major public entrance.

Secure visitor bicycle storage is to be weather protected and have undercover access to the main entrance of the building.

Secure bicycle parking, showers, change rooms, dry room and ironing facilities should be provided for staff in accordance with the targets for cycling and walking as determined in the transport management plan of the project or the applicable sustainability targets.

3.2.12 Partnerships

Principle

Opportunities for collocation with private partners and private integration for the delivery of certain services must be considered as early as possible in the project process.

Checkpoint

The design team is responsible for implementing partnership principles in its departmental planning and demonstrate this through consideration of, but not limited to, the following parties:

- education facilities
- research facilities
- training facilities
- private health facility operators
- private specialist services
- aged care providers
- key worker housing providers
- childcare providers
- retail, such as cafeteria, florist, pharmacy.

Appendix A - Non-Conformance Declaration (Architectural)

The designer is required to adhere to the design principles and requirements outlined in *CIR Volume 3 Architecture and health facility design Section 1 Principles* and *Section 2 Manual and Specifications.*

Where the designer cannot meet these requirements, has not provided risk-assessments or whole-of-life studies, or has proposed an alternate solution, a non-conformance declaration must be prepared and submitted within the relevant design stage report.

The onus is on the designer to report any areas of non-compliance.

The following format shall be used:

Project: .....

Design phase:.....

Discipline: .....

CIR clause/ requirement	Reason for non-conformance	Design report reference	Client (Y/N)
Eg 2.3.6.6 Security Lighting Risk Assessment within Volume 4.2	*Internal fitout only, no external lighting required*	*CDR Section 10.7*	

<< additional lines to be added as required >>

Signed:..... **Date:** .....

Name: .....

Company: .....

Client review comments: .....

.....

.....