Australasian Health Facility Guidelines

Part C - Design for Access, Mobility, OHS and Security

Revision 5.0
01 March 2016

COPYRIGHT AND DISCLAIMER

Copyright

Australasian Health Facility Guidelines

Address: PO Box 1060, North Sydney NSW 2059
Website: http://www.healthfacilityguidelines.com.au
Email: webmaster@healthfacilityguidelines.com.au

The AusHFGs are an initiative of the Australasian Health Infrastructure Alliance (AHIA). AHIA membership is comprised of representatives from government health infrastructure planning and delivery entities in all jurisdictions in Australia and New Zealand.

Disclaimer

AHIA gives no warranty or guarantee that the information in the AusHFG is correct, complete or otherwise suitable for use. AHIA shall not be liable for any loss howsoever caused whether due to negligence or otherwise arising from the use of or reliance on this information.

AHIA recommends that those seeking to rely on the information in the AusHFG obtain their own independent expert advice.

Index

01 INTRODUCTION

01.01 Background

This clause is currently under review / not applicable, but has been included for consistent HPU clause numbering.

01.02 Purpose

Part B covers the briefing and planning issues that result from the translation of health service delivery requirements into a brief for a physical facility. The framework of authority requirements is recognised and includes industry standards, codes and manuals that commonly apply to every project.

This section of the guidelines draws together a range of issues that guide the detailed planning of healthcare facilities, and looks in more detail at specific issues guiding the development of the detailed physical design for a facility. It begins by setting out a range of planning issues that are applicable to the physical design of any healthcare facility.

The information is presented so that it may be used as a benchmark for the designer, as information for the users involved in a project, and as a checklist for assessment of design and functionality. It is intended to support the professional skill, knowledge and judgement of an experienced designer in the development of a healthcare facility and educate those who aspire to be proficient in this complex field of endeavour.

01.03 Content

This part contains information regarding physical planning models and policies that are believed to contribute to the procurement of well-designed healthcare facilities.

It includes space standards and dimensions for commonly occurring building elements where these are not covered in the room layout sheets as standard components. Guidelines for designing facilities for people with a disability and an outline of wayfinding recommendations for healthcare facilities are provided.

Occupational Health, Safety and Welfare issues are addressed in terms of avoiding or minimising design practices that often contribute to hazardous or harmful features in the built environment.

Finally, design practices that enhance the security of people, premises and property are outlined in Section 790.

To avoid undue complexity, building regulation references are restricted to the Building Code of Australia (BCA). This approach has been adopted due to the similarity in approach and format between the BCA and the NZ Building Regulations in space standards and dimensions. Many of the cited Standards in the BCA are AS/NZS thus common to both jurisdictions or have a corresponding ISO or NZ Standard.

The requirement to comply with the relevant legislation, regulations, codes and policies for each jurisdiction is usually stated at the beginning of each section of this guideline to avoid undue repetition. This applies to any matter relating to the construction, use, operation and management of healthcare facilities where such compliance may be required.

For convenience Part C is available for download in separate Sections. These Sections are not stand alone and frequently each will cover a different aspect of one topic. Therefore Part C should be regarded as a complete document and not used without access to all Sections whether these are or are not referenced.

In many cases a concise generic term or title has been used in the text e.g. OHS. The correct terminologies and sources are acknowledged under references with abbreviations listed in Appendix A - Glossary and Abbreviations.

02 PLANNING

02.01 Planning

Planning of healthcare facilities requires an understanding of the appropriate relationships between the various service areas as well as an understanding of site constraints, and the need for conformity with a range of codes and guidelines.

A thorough assessment of the service planning requirements for the proposed project should be made prior to commencing capital planning.

Comply with the relevant legislation, regulations, codes and policies for each jurisdiction.

Good planning relationships can:

- increase the efficiency of operation;
- promote good practice and safe health care delivery;
- reduce risk to staff and patients;
- minimise recurrent costs;
- improve privacy, dignity and comfort;
- minimise travel distances;
- support a variety of good operational policy models;
- allow for growth and change over time;
- maximise accessibility, safety, security, OHS and infection control; and
- incorporate environmentally sustainable design (ESD) principles and policy.

02.02 Operational Policies

This clause is currently under review / not applicable, but has been included for consistent HPU clause numbering.

02.03 Planning Models

The design of healthcare facilities has evolved around a number of workable planning models. These can be seen as templates, prototypes or patterns for the design of new facilities. Typically each model will best suit a certain facility size and site condition.

None of these models overrides the need for compliance with Commonwealth State and Territory legislation and Departmental policy guidelines as applicable.

It is essential that the planning team defines a clear model of operation for the facility. This should be readily described in a simple and clear flow diagram. Planning teams are encouraged to seek planning relationships that can satisfy more than one operational model rather than satisfy limited, unusual or temporary operational policies.

Appropriate staff consultation should occur at all stages of the planning process as required by the relevant State and Territory legislation particularly where this covers the subject of employee's contribution in decision making that may affect their health, safety and welfare at work. For each AHIA jurisdiction see References and Further Reading.

Requirements for proximity to other components or for independent access to a unit will govern the planning relationships for each facility. The need for future expansion or change of function should also be reasonably anticipated in all designs.

The following general planning models and design notes are used to promote good planning, efficiency and flexibility for the design of healthcare facilities.

02.04 Planning Principles

FLEXIBLE DESIGN

In healthcare, operational policies change frequently. The average cycle may be as little as five years. This may be the result of management change, government policy, and turnover of key staff or change in the market place. By contrast, major healthcare facilities are typically designed for 30 years, but may remain in use for more than 50 years.

If a major hospital is designed very tightly around the operational policies of the day, or the opinion of a few individuals, who may leave at any time, then a significant investment may be at risk of early obsolescence.

Flexible design refers to planning models that can not only adequately respond to contemporary operational policies but also have the inherent flexibility to adapt to a range of alternative, proven and forward looking policies.

Further, flexible design should address future trends and changes in patient profiles, e.g. cultural background and the increase in the number of bariatric patients.

At the macro level, many of the commonly adopted planning models have proved flexible in dealing with multiple operational policies.

At the micro level, designers should consider simple, well proportioned, rectangular rooms with good access to simple circulation networks. Interior features should not be achieved by creating unnecessary complexity.

ROOMS SHARED BETWEEN UNITS

This concept refers to models that allow for changes in operating mode as a function of management rather than physical building change. 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. This is also an example of flexible design.

Designers should consider issues such as compatibility of use, access to treatment rooms, utility rooms, storage, etc and the supervision of patients when using swing beds or rooms, and in particular, the ability to switch nurse call systems to the new Staff Station.

The same concept can be applied to a range of Health Planning Units (HPU) to achieve greater flexibility for the management of these units.

OVERFLOW DESIGN

Some functions can be designed to serve as overflow for other areas that are subject to fluctuating demand. For example:

- waiting areas for different services can be collocated;
- procedure rooms can be equipped to provide capacity for emergency operating needs; and
- day and ambulatory care areas can be adapted for overnight use in emergencies such as those relating to natural disasters.

STAGED USAGE

Healthcare facilities of all sizes may be subject to fluctuating demand. It is desirable to implement a staged usage policy to close 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. In designing for staged usage or progressive shutdown ensure that:

- none of the requirements of these guidelines is compromised in the sections that remain open;
- the open sections comply with other statutory requirements such as fire egress;
- the open patient care sections maintain the level of observation required by these guidelines;
- two clinical areas are not separated by an area such as Administration with shorter opening times thus creating a potential security risk (isolation), and that the Medical Records Unit (24/7) is similarly not isolated from clinical areas;
- in the closed sections, lights and air conditioning can be turned 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 appropriately to the shutdown mode;
- the shutdown strategy allows access to items requiring routine maintenance; and
- a section can be isolated to facilitate the management of an outbreak of infectious diseases.

ZONING FOR HOURS OF OPERATION

The design should collocate units with similar operating hours where appropriate, to allow easy shutdown of larger floor areas or even whole floors after hours. This can bring significant benefits in operating costs, particularly in the areas of light and power, airconditioning and security.

ZONING - SECURITY

Create and maintain safe transit routes through the facility and ensure that it is not necessary for staff to traverse closed areas after hours.

Planning teams should take particular care to avoid the isolation of staff after hours. This can occur if 24 hr zones are located within, or between, eight hour zones e.g. clinical areas operating 24 hrs are separated by an administration unit that operates for eight hours each week day.

Note: ensure that medical records sections (often 24 hrs) are not isolated from clinical areas.

OPEN ENDED PLANNING

A healthcare facility designed within a finite shape, where various departments and functions are located with correct internal relationships may look and function very well at first. However, any expansion will be difficult. Some expansion requirements can be accommodated in new external buildings with covered links. But over time the site will become complicated with random buildings and long walkways.

The opposite of this scenario is to use planning models and architectural shapes that have the capability to grow, change and develop additional wings - horizontally or vertically - in a controlled way.

The configuration of the circulation system, both vertical and horizontal, on which all functions depend, is critical to the success of Open Ended Planning. Some of the concepts involved in Open Ended Planning policies include the following:

- major corridors located so that they can be extended outside the building;
- as far as possible, Health Planning Units (HPU) to have one side exposed to the outside to permit possible expansion;

- where the internal location of a critical care HPU ‘hard’ area is unavoidable, it should be adjacent to other ‘soft’ areas that can be relocated, such as large stores or administration areas;
- avoid HPU that are totally land-locked between corridors;
- 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 Main Entrance Foyer;
- roof design should consider expansion in a variety of directions;
- 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; and
- fixed internal services such as plant rooms, risers, service cupboards should be placed along major corridors rather than in the centre of HPU.

Note: Open Ended Planning policies can be applied to entire facilities as well as an individual HPU.

MODULAR DESIGN

This is the concept of designing a facility by combining well designed standard components. 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 300 or 600mm. These rooms can then be combined to create larger 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 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.

Modular design should not necessarily 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 ideal modules and then adopt them across all HPU.

In practice, especially in refurbished facilities, it is common for the ideal module to be adjusted to suit the particular circumstances.

Determination of materials and dimensional coordination that may reduce construction material waste may offer cost efficiencies.

SINGLE HANDING

On plan the option exists to use single (same) handed or mirror-image (mirror-reverse, handed) layouts for identical rooms and room modules such as suites. Typical examples include operating rooms and patient bedrooms with ensuite.

Single handing refers to situations where the room plan is repeated, the term is also used for the layout of furniture and fittings e.g. medical services panels.

Mirror-image, (mirror-reverse, handed) as the name implies refers to a reversal of (inverting) the image on one axis.

By standardising rooms, single handing may provide benefits such as enhanced patient safety, a reduced rate of errors, and more intuitive use by staff and patients.

In areas requiring a high level of staff training, such as in the Operating Unit, it may be more appropriate to hand all key rooms in identical manner. This makes the task of staff training easier.

For 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, etc.

At a micro level, medical gases may always be located to the left side of patient's bedhead regardless of the direction of approach. A similar situation may apply to the layout of consult/exam rooms to allow for right-handed examination of a patient.

It has been common practice in healthcare to use back to back room in pairs or module combinations. This use of mirror image planning can provide cost and planning efficiencies e.g. sharing of plumbing services and circulation spaces.

The issue of sound transmission from one room to another e.g. back to back patient bedrooms is usually attributed to common service penetrations or back to back recessed service panels and can be simply prevented with careful design and adequate construction methods or layout offsets.

Planning teams should consider and evaluate the benefits of single handing and mirror image design options on a case by case basis.

02.05 Planning Policies

STANDARDISED DESIGN

This concept is similar to modular design. Standardised design refers to modules, or standard components, designed to perform multiple functions by management choice.

For example, a typical patient single bedroom can be designed to suit a variety of disciplines 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 should the need arise.

Standardised design takes into account and allows for all requirements of compatible uses. The opposite of this policy is to specialise the design of each component to the point of inflexibility. The aim of this approach is to resist unnecessary variation between similar components, and to accommodate changes in functionality with one standard design.

Other examples of standardised design are:

- standardised operating rooms which suit a range of operations;
- bed cubicles in Day Surgery which suit both preoperative and postoperative care;
- offices that are standardised into only a limited number of types for example 9m2 and 12m2;
- and toilets that may all be designed for accessibility (access for people with disabilities), bariatric or unisex.

Note: In previous editions of Part C the term 'universal design' was used for the principles covered by this sub-section. The term 'standardised design' has been substituted since 'universal design' has been adopted in many countries to represent 'accessible design' and the use of the term in this way is now widespread.

02.06 Efficiency Guidelines

GENERAL

The concept of efficiency refers to the ratio between net functional area and circulation space. Over simplistic guidelines for efficiency will be misleading and not appropriate for different functional briefs.

Different circulation percentages should be provided for different generic types of planning units. Such a guide has been provided under the Schedule of Circulation Areas in this section.

Inadequate intra-unit circulation and travel allowances in briefing documents are not recommended as these can lead to undue pressure on designers to reduce sizes and therefore functionality. It should be noted that the circulation percentages are a guide only and apply to the HPU included in these guidelines under Generic Schedules of Accommodation.

Refer to Area Measurement Methodology in Appendix B.

NET FUNCTIONAL AREAS

In briefing documents, net functional areas represent the sum of individual room areas exclusive of any corridors.

If areas are measured off the plans, then the following measurement method will apply:

- external wall thickness is excluded;
- internal wall thicknesses and columns are included;
- wall thickness is divided equally between adjoining rooms;
- corridor walls are allocated to adjoining rooms; and
- passing service risers and service cupboard are excluded.

GROSS DEPARTMENTAL AREAS

Gross Floor Area (GFA) on a departmental basis is calculated by adding the net functional areas and intra-departmental corridors. These are corridors that are entirely within one department (HPU).

In calculating the departmental corridors the following should be taken into account:

- columns are included;
- service cupboards and passing risers are excluded;
- corridor wall thicknesses are excluded as these are included in room areas;
- fire stairs are excluded; and
- lifts and lift shafts are excluded.

TRAVEL

Travel represents arterial corridors that connect HPUs. Travel is required to allow passage from one HPU to another without going through the internal corridors of another unit. A target of 10-12.5% is appropriate for travel in a hospital of one to three storeys.

In calculating travel, the following should be considered:

- fire stairs are included once for each floor to floor connection;
- external wall thicknesses are included;
- lift shafts are excluded;
- service cupboards are excluded; and
- wall thicknesses are excluded as these are part of the Departmental GFA.

ENGINEERING

Engineering refers to the area of plant rooms and other service areas. In calculating the engineering allowance the following areas should be included:

- service cupboards;
- lift motor rooms; and
- service shafts and risers.

Lift shafts should be excluded.

The target of 10-12.5% applied to Gross Departmental Areas may be used for a typical one to three storey hospital building.

DEPARTMENT SIZES

The actual size for a department will depend upon its role as set out in the Service Plan and supporting Operational Policies and the organisation of services within the hospital. Some functions may be combined or shared provided that the layout does not compromise safety standards and medical and nursing practices.

If a function is to be combined or shared, the size will need to be adjusted to meet the combined needs of staff/units.

Note: Departmental sizes also depend on design efficiency. For guidelines on this subject refer to Schedule of Circulation Areas in this section.

ROOM SIZES

Room sizes may require adjustment in response to current or predicted usage and for Furniture, Fittings and Equipment requirements. The size of equipment for example, may change over time or for use, and this will need to be considered in determining room sizes for specific purposes e.g. bariatric equipment.

Ensure that consideration is given to the need to provide services to bariatric patients.

The recommended room / space areas given in the AusHFG represent a nominal area and not the actual or clear room area measured between finished wall surfaces. This nominal area is based on the principle of measurement from the centre lines of walls - in this case a wall thickness of

100mm. The convention of using a nominal area acknowledges that the actual area is proportionally less.

Refer to Appendices - Area Measurement Methodology Diagrams for examples.

From the user's perspective a nominal 9m2 Office (100mm thick walls) translates to an actual floor area of approximately 8.4m2, i.e. for every 1m of wall length, 0.05m2 of area should be deducted. Note: room shape will make no appreciable difference, but area reduction decreases proportionally as room size increases.

For wall thicknesses of 120mm and over, the actual room area should be increased to maintain the area which would have been produced if standard 100mm walls had been used. For example, a 9m2 room with 150mm walls will result in an actual area of 8.1m2 (difference of 0.3m2), this should be added back, to give an adjusted nominal area of 9.3m2.

Wall thicknesses are determined by function and construction, e.g. acoustic, recessed service panels, fire or smoke construction, masonry or hollow partition, or a combination of any of these. In some cases an estimate of wall thicknesses can be made using evidentially based information, known user requirements and/or standard rooms. In other cases wall thicknesses may be difficult to determine accurately until the detailed planning stage. An adjustment to compensate for wall thicknesses over 100mm should be made appropriate to the planning stage and information available.

The use of nominal areas and the measurement method set out above should be clearly communicated to user groups in the early stages of a project. Design decisions made with a clear understanding of this principle will assist in managing risk.

SCHEDULE OF CIRCULATION AREAS

The following Circulation Areas are recommended as a starting point for briefing typical Health Planning Units (HPU). Clearly circulation percentages will vary as a result of the configuration of the unit, including the use of a racetrack arrangement or double loaded corridors.

The figures given are a guide only and the Schedules of Accommodation provided within each HPU should be consulted for more detailed and accurate allowances. The actual spatial allocation will depend on the role delineation of the service, the re-use of existing buildings and the skill of the individual designer.

The provision of appropriate areas for circulation requirements will be tested during the preliminary design phases. Both under and over provision of circulation space should be avoided.

SCHEDULE OF ALLOWANCES FOR TRAVEL AND ENGINEERING

Refer to: NSW Health Standard Facility Cost Planning Guidelines (NSW Health 2004b).
The allowance for travel and engineering should be determined in conjunction with the planning team to take account of the requirements of the specific project.
Where no other information is available the allowance for combined travel and engineering should generally be as follows:

02.07 References

GENERAL

This Section should be read in conjunction with current versions of the following documents or web references. The list is not inclusive and additional references are provided within the text.

References for OHS, etc, that may impact on the subject of this Section are provided in the appropriate sections that follow.

AUSTRALASIAN

Australian Institute of Quantity Surveyors 1990, Australian Standard Method of Measurement of Building Works 5th Edition.

INDIVIDUAL JURISDICTIONS

NSW

NSW Health 2004a, Policy Directive 2005_060: Facility Planning Manual (The Process of), NSW Health.

NSW Health 2004b, Standard Facility Cost Planning Guidelines, NSW

Part C - Design for Access, Mobility, OHS and Security Health.

NSW Department of Services n.d., Total Asset Management System, NSW DSTA, www.tams.nsw.gov.au/home.as

State Government of New South Wales 2000, Occupational Health and Safety Act 2000, updated 2009, Clause 13, NSW Government, www.legislation.nsw.gov.au/fullhtml/inforce/act+40+2000+FIRST+0+

State Government of New South Wales 2010, Occupational Health and Safety Regulation 2001, updated 2010, NSW Government, www.legislation.nsw.gov.au/fullhtml/inforce/subordleg+648+2001+FIRST+0+N

QUEENSLAND

Queensland Department of Public Works 2009, Strategic Asset Management Guidelines, Queensland Government.

Queensland Health 1998, Planning and Design Guidelines, Section 1, Queensland Health.

VICTORIA

Victorian Office of Building 1996, Assessing the Condition of Constructed Assets: An Asset Management Guideline for the Victorian Public Sector, Office of Building Victoria.

FURTHER READING

DEGW 2006, NHS Research and Development Project B(01)16: Rethinking Hospital Design, London, UK.

Guenther, R & Vittori, G 2008, Sustainable healthcare architecture, John Wiley and Sons, Hobokeh, NJ.

NHS Estates 2002, SDC Healthcare Planning - Design Brief Guidance, NHS Estates.

Verderber, S & Fine, DJ 2000, Healthcare Architecture in an Era of Radical Transformation, Yale University Press.

03 SPACE STANDARDS AND DIMENSIONS

03.01 Corridors

PERFORMANCE REQUIREMENTS

The requirements set out in this section for corridor clear widths represent the recommended minimum required. These requirements take into account the need to allow for the safe movement of trolleys, beds, wheelchairs and other mobile equipment including the passing of such equipment.

In addition, provision should be made for situations where oversized additional equipment such as bed extensions or bariatric beds is in use. This may be provided for in a number of ways such as by increasing corridor clear width, including passing bays etc.

Refer to:

Section - 710 Doors - for the relationship between door clear width, corridor clear width and door openings in recessed bays.

Section - 730 Human Engineering - Access and Mobility, for accessibility issues.

Section - 790 Safety - Patient Handling and Lifting.

Draft Disability (Access to Premises - Buildings) Standards 2009 Australian Government Department of Health and Ageing.

INTER-DEPARTMENTAL CORRIDORS

The clear width of major inter-departmental corridors and public corridors generally should be as wide as is deemed necessary for the proposed traffic flow with a recommended minimum clear width of 2200mm. Where physical constraints exist, major inter-departmental corridors and public corridors should not be less than 2100mm.

The provision of wider sections of corridor will allow for the passing of trolleys / beds travelling in opposite directions.

Note: Allow a nominal overall width of up to 1650mm for an attended trolley bed.

GENERAL

The overriding principle in setting the minimum corridor clear width is the need to allow for a workable width that does not impede egress in the event of an emergency evacuation procedure.

Designers should note that the BCA specifies minimum corridor clear widths for Patient Care Areas. The requirements for certain areas may be higher than the BCA as fire safety and accessibility are not the sole focus of these guidelines.

Most large hospital HPU includes a range of patient and staff-only corridors. If staff-only areas are clearly designated by planning and are not required for patient access, then the guidelines for patient corridors do not apply.

Note 1: All stated corridor clear widths are measured clear of handrails, crashrails and obstructions. For design purposes and considering construction tolerances, allocate 100mm for each handrail.

Note 2: A healthcare facility complex may contain multiple parts with varying BCA classifications - or comprise a United Building. This Part covers Health- care Buildings (BCA classification 9a), containing patient care areas, adopting those definitions and their specific requirements (Australian

Building Codes Board 2009).

FREQUENT PATIENT TRANSPORTATION

In areas where patient beds, trolleys and stretchers will be moved frequently or regularly, such as inpatient units, operating units, birthing units and intensive care units, a 2200mm minimum clear corridor width is recommended. This dimension will accommodate the safe turning of trolleys and beds to ensure staff and patient safety, including situations where additional equipment such as bed extensions are in use or when other equipment is attached.

Even at this dimension, consider increasing the clear width of doorways into adjacent rooms and widening corridors at the entries to the affected rooms to accommodate turning trolleys and beds.

Corridor clear widths in the above areas may be considered at lesser dimensions when utilizing an existing building but special design and planning detail should be incorporated to overcome the problems of congestion and the potential risk to patients and staff in an emergency evacuation.

Note 1: In any event, the corridors may not be narrower than that required by the BCA for patient care areas. BCA Section D Access and Egress covers provision for escape, construction of exits and access for people with disabilities. See 710.6.05 regarding dispensation.

Note 2: For bed or patient trolley access into a bed lift from a corridor or lobby, allowance should be made for turning through 90° e.g. for a 2350mm long bed without extensions, allow a minimum turning circle of 2500mm (attendant at side of bed) or 2950mm with attendant at head of bed - a lift door recess excluded. Attachments and bed-lifters will increase this dimension. For double orthopaedic beams add 300mm.

INFREQUENT PATIENT TRANSPORTATION

In areas where infrequent trolley or bed movement is expected, corridor clear widths may be reduced to 1800mm in compliance with BCA clause D1.6.

Ensure that door clear widths do not restrict the movement of trolleys or beds from corridor to adjacent rooms including oversize or additional equipment e.g. bariatric, bed extensions, or other attached equipment.

MINIMAL PATIENT TRANSPORTATION

In outpatient units and areas not routinely used for patient transportation on trolleys or stretchers, the corridor clear widths may be reduced to 1200mm. Note: BCA clause D 1.6 requires 1000mm minimum.

Note 1: The provisions of the BCA Part D and requirements of AS1428.1: Design for access and mobility, Section 7 (Stds Aust 2010) when applied to doorways into or within a path of travel may determine the minimum corridor clear width.

Note 2: Consider the application of AS1428.2 (Stds Aust 2010) as a minimum to provide more universal accessibility and better protection against disability discrimination complaint.

NO PATIENT TRANSPORTATION

In areas where there is no patient transportation requirement, corridors with a minimum clear width of 1200mm are acceptable - providing they satisfy BCA exit travel distances and are in accordance with AS1428.1 covering accessways and circulation space at doorways. Refer to AS1428.2 for minimum guidelines for the passing of wheelchairs in corridors (Stds Aust 2010).

RECOMMENDED MINIMUM CLEAR WIDTH

In patient care areas corridors should have a minimum clear width of not less than 1200mm except where part of an existing facility or subject to a dispensation from BCA compliance.

FIRE DOORS

Fire compartment doors can, where necessary, be held open by magnetic hold-open devices connected to the fire alarm system. This ensures that these doors will not impede travel, create manual handling risks or create line of sight risks under normal circumstances.

Ensure minimum height clearances are provided to the underside of the closers and magnetic locks where these are fitted to the underside of door frames.

INTER-DEPARTMENTAL CORRIDORS

In these guidelines, inter-departmental corridors are referred to as travel. Refer to Section 705 Schedule Of Allowances for Travel and Engineering.

03.02 Ramps

PERFORMANCE REQUIREMENTS

Ramps may be required as part of general facility circulation. Ramps for access by people with a disability are frequently used for general access and for moving beds, ambulance trolleys and other equipment between different levels.

Where there is a requirement for bed or patient trolley circulation, provide ramps with the required slope, clear width and turning circles based on the size and weight of an occupied bed including a bed mover. These should consider larger turning circles and lower gradients than those needed for wheelchairs. As a guide, more appropriate dimensions would be slope 1:20, with rise of 750mm max between landings and 2500mm landing length.

Meet all OHS requirements for the movement of beds and equipment through risk analysis in consultation with end users. See Section 790 Safety - Patient Handling and Lifting.

The slip-resistance rating for materials used on slopes and ramps may vary from those used on horizontal surfaces, and should be selected for the incline and specific conditions of use. Refer to AS4586 Slip resistance classification of new pedestrian surface materials (Stds Aust 2004), and AS Handbook 197 An introductory guide to the slip resistance of pedestrian surface materials (Stds Aust 1999a).

Note 1: The minimum requirements for gradients and spacing of landings for ramps and walkways for egress and accessibility in class 9a and patient care areas are covered by BCA Section D which references AS1428.1 (Stds Aust 2010).

Note 2: Application of AS1428.2 (Stds Aust 2010) as a recommended minimum provides more universal accessibility and better protection against disability discrimination complaint.

03.03 Ceiling Heights

PERFORMANCE REQUIREMENTS

A minimum ceiling height of 2400mm is recommended for corridors, passages, recesses and non-treatment and non-activity areas e.g. offices.

A minimum ceiling height of 2700mm is recommended for treatment and activity areas e.g. therapy rooms, conference rooms, Intensive Care (open plan), kitchens, etc.

For bariatric patient care the use of high beds, high mattresses, and large slings should be identified. The resulting clearance above the bed may require an increase in standard ceiling heights if some types of bariatric manual handling equipment and lifting devices are used.

Aesthetic and other considerations may also lead to variations such as increasing standard ceiling profiles and heights.

Generally, a minimum ceiling height of 2700mm is recommended for mental health units with 3000mm for seclusion rooms.

In portions of remodelled existing facilities, the corridor ceiling height may be reduced to 2250mm but only over limited areas such as where a services duct crosses a corridor.

Note: Within egress routes the BCA Clause D 1.6 (Australian Building Codes Board 2009) provides a minimum unobstructed ceiling height of 2000mm, and door height of 1980mm. For class 9a health-care buildings ceiling heights are to be not less than 2400mm generally with exceptions as noted in clause F 3.1.

In areas where access is restricted e.g. drinking fountain recess, a minimum ceiling height of 2250mm is acceptable.

In rooms with ceiling-mounted equipment such as x-ray rooms, ceiling- mounted patient lifting devices may require increased ceiling heights and supporting structure. Ensure that heights reflect the equipment manufacturers' recommendations and are not less than the minimum BCA requirements.

In areas where bariatric manual handling equipment and lifting devices are to be used (both mobile or ceiling mounted), the minimum ceiling height required should be referred to the Project Control Group or appropriate user body for determination.

Equipment should be selected to avoid increasing existing ceiling heights or affecting overhead services e.g. airconditioning ducts and hydraulics, where possible.

For external areas such as entry canopies, ambulance entries and delivery dock canopies ensure that ceiling (soffit) heights provide adequate clearance for the vehicles expected to use them, and for the vehicle function e.g. overhead skip removal. Give special consideration to the impact of whip aerials fitted to emergency vehicles, or specialist emergency vehicles designed and fitted to transport bariatric patients which may result in increased vehicle height and width.

A risk assessment analysis should be conducted and include provision for such items as tour coaches and fire fighting vehicles at the main entry.

Provide plant rooms with adequate ceiling and door height clearance for equipment and allow safe access for service, maintenance and future replacement of equipment. A minimum ceiling height of 2400mm is recommended, with 2000mm clear below intermittent ductwork. Provide safety markings as required.

Reinforce the ceiling support structure or mount independently of the ceiling support structure where overhead patient hoists are to be installed. This should be noted in the project brief.

Where an increase in bariatric patient intake is predicted, in particular in acute patient care areas, the provision of adequate support for ceiling mounted equipment should be considered in terms of location (flexibility), method and timing (pre or post occupancy).

In addition, review the information provided by equipment manufacturers in terms of the needs of particular items of equipment for passage through full height door openings e.g. to ensuite bathrooms or that may affect the positioning of bed screen tracks or other such fixtures in multi-bed rooms.

03.04 Doors

PERFORMANCE REQUIREMENTS

Comply with the requirements of the BCA and AS1428.1 as applicable for the provision of doorways, including all related ancillary requirements such as construction, clearances, glazing, operation, hardware and signage.

Consider the application of AS1428.2 to door opening widths and circulation space as a minimum as this Standard provides more universal accessibility and better protection against disability discrimination complaint (Stds Aust 2010).

For areas occupied by patients with cognitive deficits and scheduled mental health patients, all necessary dispensations to the regulations should be sought and obtained.

AUTOMATIC DOORS

Automatic sliding doors may be used in high traffic areas and routes, including entry doors to facilities and departments. They may also be used successfully in areas where hands-off access is necessary, such as in access routes for critical care, ambulance and helicopter cases, entries to Operating Unit, etc.

Satisfy the requirements for emergency egress and fit automatic doors with sensors to activate opening that ensures safe use by infants, people with a disability, frail patients and visitors. Consider the use of electronic drop bolt locking where lock down security is required.

Note 1. Requirements for power operated doors are covered in Part D of the BCA.

Note 2. Automatic swing doors are not recommended on the grounds of safety, OHS, high maintenance and problems with wind gusts and air pressure differentials.

SLIDING DOORS

Sliding doors (single, dual, telescopic etc) may be used subject to compliance with the BCA (Australian Building Codes Board 2009) and AS1428.1 or AS1428.2 if adopted (Stds Aust 2010).

These guidelines recommend careful consideration when using sliding doors in healthcare facilities due to hygiene concerns, poor acoustic performance, maintenance problems and potential for locking in place.

Do not use cavity sliders in the following areas:

- HPU containing Patient Care Areas or Treatment Areas;
- HPU containing sterile equipment;
- HPU containing patient diagnostic equipment;
- catering facilities;
- laboratory areas; and
- mental health facilities.

Surface mounted sliding doors may be used subject to the requirements of accessibility, egress and access in emergency situations.

If used, sliding doors should resist warping or twisting. Top or bottom roller mechanisms, guides and channels should be fit for purpose and ensure safety of operation.

Note: BCA clause D 2.19 covers manually and power operated sliding doors in required exits in class 9a buildings.

DOOR SWING

Ensure that doors do not open into a zone which impedes the manoeuvring of patients / residents nor swing out into a circulation area in a manner that might obstruct traffic flow or reduce the required corridor recommended minimum clear width.

Some doors may be required to swing out or in both directions for reasons of patient safety e.g. patient bedrooms in mental health units, for reasons of staff safety such as in consultation rooms, or where they form part of an escape route.

In consultation rooms ensure that privacy, door seals and acoustic performance are not compromised.

Automatic swing doors are not recommended for the reasons as noted in Section 710 Automatic Doors.

DOORS IN THE PATH OF FIRE EGRESS

All doors on the path of fire egress are subject to the requirements of the BCA, whether single or double swinging leaves except where sliding doors (with conditions) are permitted for exits.

Note: Doors forming part of a fire or smoke compartment enclosure, should when in the closed position, maintain the integrity of the enclosing structure.

- Wherever possible use hold-open devices controlled by smoke detectors to assist the safe movement of patients, staff and equipment through doorways. Refer: Section 790 Safety - References and Further Reading.

Note: BCA sections D1 and D2 cover doorways in or forming part of a required exit in class 9a buildings (Australian Building Codes Board 2009).

LOCKING TO DOORS IN THE PATH OF TRAVEL

Written approval from the local Regulatory Authority (Fire Service / Building Authority) is mandatory before any exit doors in the path of egress travel are locked. Such written building approvals are to be kept for the life of the building.

The fire and evacuation plan for the building should also include appropriate operational procedures / training requirements for the opening of locked fire exit doors in emergency situations.

The operation of a fire alarm and manual override devices, including the fail- safe design of electronically locked exit doors in a path of egress travel, (automatically unlocked upon the operation of a fire alarm), are not to be configured / interfaced through, or be dependent upon the operational status of the fire alarm panel door switch.

Locked exit doors that are electronically locked and automatically unlocked upon the operation of a fire alarm are to have fail-safe manual override devices installed at the exit door including signage instruction for exit door unlocking.

In secure locations e.g. patients with cognitive deficits and scheduled mental health patients where patients / clients could be subject to harm if they operated the manual override device, manual overrides should be provided in secure locations such as at nurse stations or within / near the Fire Indicator Panel.

MENTAL HEALTH FACILITIES FIRE EGRESS

Latch and locking operation for doors associated with a required exit or path of travel are covered by the BCA clause D 2.21. Provisions are required for immediate unlocking by a fail-safe control switch or by hand. Dispensation should be sought for any variation of this provision.

DOORS - SECURITY

As a risk management measure all perimeter doors should be provided with locks to prevent unauthorized entry or exit. In the case of openings into a secure area or courtyard, security may still be breached in a variety of ways. Any decision to omit locks should be formally recorded.

The use of alarms to indicate the unauthorised use of perimeter doors not used for public access and the use of secure hinges (non-removable pins, etc) to doors identified by risk assessment should be considered.

Entry and exit points into a facility or department should be reduced to a minimum and provided with monitoring / access control as applicable. Provision should be made for use after hours and after dark.

The provision of electronic locks on access and cupboard doors to Pharmacies and to clean utility / medication rooms should be considered to provide both security and a record of access.

Do not implement security measures that adversely affect BCA egress and fire safety requirements.

For design standards refer to Section 790 Security - Building Elements - Doors.

DOORS USED BY PATIENTS

Use swinging single or double doors to rooms likely to be used by patients without staff assistance. See previous clause Sliding Doors.

Swinging doors will generally open from corridors and distribution spaces into rooms for safety, egress, etc. However, examples of some doors that may need to open out are:

- doors to small patient ensuites;
- doors to accessible toilets and showers;
- doors to small change cubicles; and
- doors in areas accessed by mental health patients to prevent patients locking / barricading themselves in the room.

Ensure that doors are easy to open and close (door weight) particularly where patients are using mobility aids such as walkers. A full height or a wide single leaf solid core door can be relatively heavy and can cause injury. Other lighter door leaf constructions that meet the required performance are recommended.

Doors required for emergency access to patients / occupants e.g. toilets, should open out or use special purpose hardware to enable an open out over-ride option for emergencies. Refer to Section 710 Emergency Access.

Locksets and door handles should address risks such as opportunities for self harm in areas where patients are assessed and treated as being at risk of suicide e.g. Emergency Departments, Mental Health Units.

For design standards refer to Section 790 Safety, and to Security - Building Elements - Doors.

Note 1: BCA Part D3 covering access for people with disabilities in 9a buildings applies to all areas normally used by the public, patients or staff, and references AS1428.1 (Stds Aust 2010) for these areas.

Note 2: The interpretation and implementation of the relevant parts of The Disability Discrimination Act (Commonwealth of Australia 1992) may require expert advice.

DOOR OPENINGS

Doors within separating corridors are covered by the BCA for doors in the path of fire egress. For the purpose of these guidelines all corridors are on the path of egress.

Note: The BCA clause D 1.6 (Australian Building Codes Board 2009) specifies minimum door clear widths on the path of travel to an exit within a Patient Care Area. Clauses D 2.19 and D 2.20 cover requirements for doors and hardware in required exits.

Provide the recommended minimum dimensions of 1200mm wide and 2030mm high for doors as clear openings to inpatient bedrooms in new areas to ensure clearance for the movement of beds.

In patient care areas and acute care areas in particular, the minimum clear opening dimensions may need to be increased for large sized beds and equipment e.g. bariatric beds exceeding 1200mm width.

For issues with large / heavy door leaves refer to Section 790 Safety. Door closers and hold open devices are dealt with later in this section.

This issue and provision for future trends, including cost benefit analysis, should be referred to the Project Control Group for a directive on policy.

Existing doors of lesser dimensions may be considered acceptable in some instances where function is not adversely affected and replacement is impractical e.g. Adult Mental Health Inpatient Units.

Note: Within a treatment or ward area the BCA. Clause D 1.6 specifies door clear widths relating to corridor clear widths.

To allow access for equipment expected to be used such as IV poles, fracture frames and electric beds, generally a door clear opening height of 2030mm high is adequate. Where necessary this may be increased to

2330mm high e.g. for bariatric equipment and other special circumstances.

Note: Satisfy all provisions for smoke capture at openings where applicable.

Ensure that doors are easy to open and close (door weight), as a full height or wide single leaf solid core door can be relatively heavy or require supplementary hinges and can cause injury. Choose a lighter durable alternative where possible. Special attention should be given to Seclusion Room doors.

A minimum opening clear width of 1200mm is recommended for doors into Seclusion Rooms such as in Emergency and Mental Health Units.

Refer: Section 790 Safety - References and Further Reading.

In general, clear door opening widths to rooms that may be accessed by stretchers, wheeled bed stretchers excluding beds, wheelchairs or persons with disabilities or using assistive devices should be a recommended minimum of 900mm. To allow access for hoists and shower trolleys, increase the clear door opening width to a recommended minimum of 1000mm. For clear door widths for bed access refer to the previous clause.

Manufacturers' recommendations for the equipment selected should be followed, and opening tolerances for new equipment, future use profiles, etc, should be considered.

Note 1: The BCA references AS1428.1 (Stds Aust 2010), where section 7 covers accessibility requirements and correlation between doors and circulation space at doorways.

Note 2: New South Wales Health PD 077 recommends doorway clear widths relating to traffic and room type (NSW Health 2005).

While these guidelines are intended to facilitate access by personnel and mobile equipment, consideration should be given to the size of furniture and special equipment that is to be delivered via these access ways.

Allow for egress, safe access for maintenance, service and replacement of equipment in all door openings and circulation routes to Plant Rooms.

EMERGENCY ACCESS

Provide doors and hardware that permit emergency access from outside the room to rooms identified through risk assessment. These may be defined as rooms that:

- are used independently by patients;
- have only one door;
- are smaller than 6m2;
- have less than 2.5m of clear space behind the single door;
- form patient bedrooms, bathrooms and ensuites in mental health facilities; and
- form secure rooms in mental health facilities.

Note: Similar areas used by visitors and staff should be considered for emergency access as a part of risk assessment.

MENTAL HEALTH SECLUSION ROOMS

In Mental Health Seclusion Rooms for OHS, patient safety and security, provide the following:

- two single leaf doors opening outwards and wide enough to accommodate a patient with two or more escorts. Ensure a suitable distance between doors and external locks; and
- lectronic locks connected to a non-interruptible power supply and with at least two locking points should be considered. Do not provide internal handles.

Doors and frames should be solid construction with multiple hinges and multiple locking points. Viewing panels should be constructed from non- breakable material with concealed fixings and designed to prevent removal from within the room.

DOOR HANDLES

PERFORMANCE REQUIREMENTS

Ensure that all door hardware is fit for purpose and complies with all relevant regulations, standards and policies including those applying within each jurisdiction.This includes all matters of OHS, user and patient safety, DDA (Commonwealth of Australia 1992) and accessibility, security, special requirements, durability, function, etc.

GENERAL

Lever handles are recommended for most hinged doors and pull handles for sliding doors.

Install handles between 900mm and 1100mm above the floor to BCA, D3 referencing AS1428.1 (Stds Aust 2010), and where applicable at an appropriate height to enable staff to easily open doors whilst supporting or manoeuvring patients or residents.

In areas with frequent staff movement by or through doorways, door handles should be selected with a shape that minimises the risk of snagging clothing or other items. Lever handles with a full return are recommended.

See AS1428.2 (Stds Aust 2010) for additional information on accessible door handles and hardware.

MENTAL HEALTH

In mental health facilities ensure that door hardware will not provide a support point for self-harm, staff-only areas excepted. Use only tested and approved anti ligature products specifically designed to prevent self harm.

Note: Typical hardware consists of recessed, concealed, flush door handles, and tapered doorknobs.

PAEDIATRIC ROOMS

In paediatric rooms where no latching is required consider providing two sets of push plate / pull handles - one at high level and one at low level. Door controls should meet AS1428.3 (Stds Aust 2010) as applicable to paediatric units.

LOCKS

Door handles may incorporate locks, snib latches, push buttons and indicators. Consider the use of flexible hardware systems where the functionality of the door may be changed without changing the hardware.

The type of locking function should be appropriate for the use of the room and prevent a person becoming inadvertently locked in a room.

Keyless entry systems may be required for controlled access areas.

PUSH PLATES / PULL HANDLES

In many instances a door latch is not necessary. Rooms that do not require latching may work well with only a push plate / pull handle and a self closer. Push plates / pull handles should be used in rooms that are used frequently by staff carrying objects e.g. Dirty Utility Rooms.

DOOR GRILLES AND UNDERCUTS

The heating, ventilation and airconditioning (HVAC) design may require door grilles or undercuts. These are usually required for return air, makeup air or pressure relief.

Door grilles or undercuts may be used in areas that do not compromise the requirements of the BCA and other requirements of these guidelines.

Do not use door grilles or undercuts in the following locations:

- areas with a particular air-pressurisation scheme, e.g. isolation;
- rooms requiring acoustic isolation and privacy;
- rooms requiring radiation shielding; and
- Fire Doors and Smoke Doors.

Do not use door grilles in any patient accessible areas within mental health facilities due to the potential for door grilles to suffer impact and damage, be used for self-harm or used as a weapon.

The following requirements and recommendations also apply to grilles and undercuts:

- door grilles should be positioned (above 290mm) to avoid damage by wheelchair footrests in areas used by people in wheelchairs, refer AS1428.1 fig 35 (Stds Aust 2010);
- door grilles are not recommended for bathrooms or ensuites; and
- large undercuts close to bathroom showers should not be used as they can result in water leaking or splashing into adjoining rooms.

As an alternative to a door undercut consider:

- an inward sloping door slot approximately 200mm above the floor to reduce water egress whilst providing the same functionality as a door undercut for bathroom showers; and
- ceiling grilles connected via flexible duct within the ceiling space.

HOLD-OPEN DEVICE

Door hold-open devices should be considered for doors that may need to remain open, such as doors on main traffic routes and delivery doors. Devices should meet the following recommendations:

- hold-open devices should be capable of activation and de-activation without any need for the staff to bend down, reach upwards or reach behind the door;
- hold-open devices should not be fitted to doors where this compromises doors that are required to achieve a specific air pressurisation or isolation scheme by these guidelines;
- hold-open devices should not be fitted to the side of a door that may permit a disturbed patient to lock the door from inside or where they may provide a potential hanging point for patients who are at high risk of self harm;
- in areas frequently used by staff holding objects or pushing trolleys, the use of delayed action combined self closer / hold-open device is recommended; and
- hold-open devices used for fire doors should comply with the BCA and be controlled either by smoke detectors or by activated fire alarms.

SELF CLOSERS

Self closers required for fire and smoke doors are covered under the BCA. This section deals with other door types.

Self closers should be provided for the following doors and rooms:

- doors required to achieve a certain airflow or air pressurisation scheme required by these guidelines;
- entrance doors to any area nominated as a restricted area by these guidelines including:
- operating unit;
- CSSU;

- kitchen;
- sterile stock room;
- isolation rooms; and
- birthing rooms.

Apart from the previous recommendation, the over-provision of self closers can lead to unnecessary capital expenditure and maintenance costs. Door closers should not be fitted where they exacerbate or create manual handling risks, where they impede the movement of patients or where they reduce the independence of patients.

The use of door closers to utility and other high use rooms should be referred to the Project Control Group. The use of delayed action closers is an option where there is a high incidence of staff carrying objects or wheeling trolleys.

Note 1. Refer to AS1428.1 clause 11.1.1 (Stds Aust 2010) for permissible maximum opening forces.

HARDWARE

Door hardware is a specialist subject covering a wide range of products and product options. The selection of hardware for healthcare is particularly complex. The services and advice of experienced industry support staff is recommended.

03.05 Interior Glazing

PERFORMANCE REQUIREMENTS

Interior glazing in the form of glazed panels within partitions or doors is often required for the safe and efficient operation of the door or space. When provided in this context it should be fit for purpose and comply with the relevant regulations, guidelines and standards, in particular:

- AS1288 Glass in Buildings - Selection and Installation (Stds Aust 2006)
- AS1905.1: Components for the Protection of Openings in Fire Resistant Walls - Part 1 - Fire Resistant Door Sets (e.g. glazing in fire doors) (Stds Aust 2005a).

GENERAL

Apart from aesthetic considerations interior glazing is used for a number of purposes, some of which include:

- OHS (employee safety);
- safety of patients, public and others;
- clinical observation of patients;
- security e.g. checking room occupation in emergency departments;
- work practices; and
- visual communication.

Glazed panels for both doors and partitions should be sized, positioned vertically and located to enable use by the majority of occupants i.e. 90% of the population when seated (eye height 685 - 845mm*), and standing (eye height 1405 - 1745mm*) and for persons in wheelchairs assume a seated eye height.

*From Table 1 in AS Handbook 59 - Ergonomics - The human factor - A practical approach to work systems design (Stds Aust 1994a).

Note: A variety of terms are used for interior glazing that include ‘viewing panels’, ‘observation panels’, ‘glazed doors’, etc.

The use of glazing in doors is similar to partition glazing in that it provides for all of the functional categories above, however the use and operation of doors present a separate OHS risk to staff and safety risk to occupants. Glazing is typically used in the following areas and situations:

- entry / exit to operating rooms or procedure rooms;
- scrub room to operating room;
- airlocks;
- clean and dirty utility;
- work rooms frequently used by staff;
- kitchens and pantries; and
- entry doors and doors across corridors.

Where glazing is required to areas for the functional purposes listed previously, it is usually provided in the form of glazed panels in partitions. The instances where these occur are too numerous to list however the following should be noted:

- rooms used to interview mental health or disturbed patients (mandatory in WA) including Mental Health Secure Rooms; and
- waiting rooms and other public areas - not in a direct line of sight.

There adjustable venetian blinds are provided these should be incorporated between glazing - integral assembly - for protection against damage and dust collection. Controls should be located to avoid misuse.

In cases where partition glazing is required as above but cannot be included due to room layout, furniture or fittings, glazed door panels can be used provided that any required obscuration can be achieved.

Interior glazing is not recommended in the following areas:

- rooms requiring acoustic isolation unless the panel can be designed to achieve the required rating; and
- where patient or staff privacy is required although safety requirements may need to be balanced against this in some situations.

Glazed panels should have a mechanism, device or material to obscure the glazing in the following areas:

- patient bedrooms to facilitate privacy; and
- staff areas when privacy is required.

Glazed panels should have the means (mechanism, device, material) to maintain the integrity of the level of protection or security required in the following and other similar areas:

- operating rooms and procedure rooms where a laser may be in use;
- rooms requiring x-ray or other radiation shielding; and
- rooms requiring electromagnetic shielding e.g. a Faraday Cage.

Door observation panels may be obscured glazing (varying grades) in areas where a clear vision of the room is not required. This type of glass or applied film may suit rooms where the primary concern is OHS, patient, staff or functional privacy. Obscured glass is usually adequate and is recommended in doors to the following rooms:

- Clean Utility;
- Dirty Utility;
- Operating and Procedure Rooms; and
- Examination / Treatment Rooms.

The type and grade of safety glazing should be fit for purpose e.g. avoiding potential risks for security, violence or self-harm in addition to complying with any the BCA requirements. Refer Section 790 Safety - Glazing and 790 Security - Building Elements, References and Further Reading.

03.06 Windows

PERFORMANCE REQUIREMENTS

Comply with the requirements of the BCA Part F4 Natural light and ventilation as applicable to class 9a buildings (Australian Building Codes Board 2009).

In addition to the BCA requirements it is recommended that all rooms occupied by patients or staff on a regular basis have glazed windows or doors to achieve external views and/or make use of direct or borrowed natural light where practical.

The external windows of all patient bedrooms should overlook external areas defined as the perimeter space around a building as well as naturally ventilated and lit atriums and courtyards.

To allow a view of the outside environment, the height of window sills should be level or lower than the sight line of patients in their beds or in a chair. See IEQ below.

Note 1: BCA clause F4.1 requires the provision of natural light to all rooms used for sleeping purposes in a class 9a building. This does not apply to the Operating Unit, Emergency Unit and similar areas.

Note 2: Where possible, the provision of external windows to ICU and CCU bed areas is required by these guidelines.

Note 3: For the purpose of this clause an internal atrium with artificial ventilation will be accepted if it complies with BCA requirements.

03.07 External Views

Windows and skylights can provide natural light, natural ventilation and views. These functions are often undifferentiated but each is separate and should be accessed separately.

Requirements covering natural and artificial light, and natural and mechanical ventilation - including airconditioning, are dealt with separately under the BCA under Part F4.

The provision of an external view as required by this guideline is not directly covered by the BCA which covers only the location and size of windows providing natural light under clause F4.2.

INDOOR ENVIRONMENT QUALITY (IEQ)

Access to external views and natural light is a part of optimising Indoor Environment Quality (IEQ) designed to assist in the healing process for patients, and to improve the working conditions for staff. See Further Reading below.

In addition to improving IEQ in general use areas, access to external views can be particularly beneficial for areas such as:

- trauma, critical, acute or long term care;
- general and intensive medical procedures;
- repetitive technical and clerical work processes; and
- deep plan clerical and work areas.

In all the above examples, and in similar areas, every opportunity should be sought to provide an external view. The need for external views is in direct proportion to restriction experienced by patients, the repetitive nature or intensity of a task, and some desk-bound clerical or technical tasks.

IEQ requirements are usually covered by jurisdictions under Ecologically Sustainable Development (ESD) Guidelines.

The importance of external views is reflected by the growth in research and evidenced-based literature on the subject.

Note: Some ESD Rating Tools and systems award credit points to External Views or Daylight and Views under IEQ.

03.08 Window Types

PERFORMANCE REQUIREMENTS

In multi-level hospitals with ducted airconditioning systems and in buildings in cyclone prone areas, it is not always possible or desirable to utilise operable (opening) windows. In these circumstances, fixed windows are acceptable with access for external window cleaning where required that complies with OHS regulations.

For Mechanical Services refer to Part E of these guidelines and the policies within each jurisdiction e.g. for the use of mixed mode airconditioning to utilise natural ventilation to minimise energy usage.

Note: Other factors affecting Indoor Environment Quality (IEQ) include external pollutant sources such as vehicle and building emissions, bushfires, and naturally occurring allergens or pollutants.

Provide operable windows as necessary to allow for ventilation in case of breakdown of mechanical ventilation systems e.g. airconditioning. The use of operable windows for this purpose should be regulated by the use of key operated sashes managed by staff.

Provide operable windows with hardware to control / restrict the degree of opening. Windows, fittings and hardware should be fit for purpose and comply with all relevant regulations and standards.

Refer to Window Security below and Section 790 Security - Windows.

Top hung awning windows may act as smoke / heat scoops from fires in storeys below and should not be used in multi-storey buildings.

If it is considered undesirable to allow patients to open windows for reasons such as avoiding potential problems with the central airconditioning then the opening section of the windows should be operated with a lock or ‘Allen key’ held by the staff. See previous clause.

Note 1: Fly screens should be fitted to the opening sections of a window or door as described above.

Note 2: The provision of opening windows also facilitates energy efficiency as artificial lighting and airconditioning systems may not be necessary at certain times of the day and year. However, Infection Control requirements may override this. Refer to Part D.

Note 3: To prevent unauthorised access through windows a restriction device should be used. This applies particularly to areas that may accommodate children or persons with dementia or confusion or mental illness.

Refer: AS2047 Windows in Buildings - Selection and installation (Stds Aust 1999b).

03.09 Window Size

PERFORMANCE REQUIREMENTS

Comply with the requirements of the BCA Part F4 (Australian Building Codes Board 2009) covering natural light and natural ventilation.

Window design and solar shading devices should incorporate ESD principles and comply with applicable ESD guidelines and regulations.

Privacy or shading where required should be provided without affecting the requirements of the BCA.

03.10 Window Cleaning

PERFORMANCE REQUIREMENTS

Make appropriate provision for window cleaning in accordance with the local regulations and guidelines.

GENERAL

The selection of methods used to clean the exterior window pane and facades is dependent on a number of factors such as roof types, balconies, shading devices, ledges, etc.

Windows and their opening function for cleaning may be influenced by the room use and interior fittings or furniture e.g. workstations.

Facade cleaning and maintenance methods should be designed to prevent people or other objects falling from heights and can be classified as:

- passive;
- active; and
- personal protective equipment.

The following are methods of cleaning used. However comply in each case with the relevant safety regulations.

- inward opening or pivoting sashes allow for the cleaning of the exterior surface in a safe manner from inside the building. Room use, fixtures and layout may prevent this option;
- with alternate fixed and opening sashes it is possible to open one sash to clean the next fixed sash - for this, provide anchorage points;
- a window cleaning ledge or balcony may be provided specifically for window cleaning (no patient access). For this provide anchorage points; and
- cleaning by using an extension (tucker) pole may be used for windows that are one level above the ground or accessible from a terrace or roof. For this water supply points should be provided.

Note: Refer to the relevant OHS legislation in each jurisdiction including:

State Government of New South Wales 2001, Occupational Health and Safety Regulation 2001, updated 2010.

State Government of Queensland 2009, Workplace Health and Safety Act 2008, Office of the Queensland Parliamentary Counsel.

Workplace Health and Safety Queensland 2007, Guide to the workplace health and safety obligations of designers of structures, Queensland Department of Employment and Industrial Relations.

WorkCover NSW 2000, Guidelines for Building Facade Access Systems, WorkCover NSW.

Workplace Health and Safety Queensland 2007, Guide to the workplace health and safety obligations of designers of structures, Queensland Department of Employment and Industrial Relations.

Workplace Health and Safety, Queensland, 2009, Work at Heights, Department of Employment and Industrial Relations.

See also: Section 790 Safety - References and Further Reading.

03.11 Windows - Security

PERFORMANCE REQUIREMENTS

Conduct a security risk assessment and provide security risk mitigation treatments such as bars, security screens, security glazing, electronic security, locks, restrictors, etc, to external perimeter windows as appropriate to minimise unauthorised entry.

Where physical barriers are provided to windows in the form of non- removable bars, security screens, etc, ensure that fire safety including emergency evacuation is not compromised.

For building design standards refer Section 790 Security - Building Elements - Windows.

SUMMARY

Fixtures and Fittings refer to items that are generally factory made or otherwise manufactured off-site then installed in the building - see Glossary. Some fixtures and fittings may be present at the time of the completion of the construction or renovation. Others may be installed at a later date.

For the purpose of these guidelines all fixtures and fittings that are installed, that is fixed to the building, are part of the building and subject to the requirements of these guidelines. As such the relevant requirements of all parts of the AusHFG apply, in particular:

- ergonomics;
- human engineering;
- safety precautions;
- fire safety;
- security; and
- infection control.

Selection of Fixtures and Fittings is covered in detail in Part F of these guidelines.

Note: Consult with employees and identify, assess and control risks when selecting, purchasing and installing FF&E. Refer to OHS legislation and regulations in each jurisdiction.

Refer to:

Section 705 Planning Models for OHS consultation.

Section 790 Safety and Security for Precautions.

AS4145.3 Mechanical locksets for windows in buildings (Stds Aust 2001).

AS5039 Security screen doors and security window grilles (Stds Aust 2008).

AS5040 Installation of security screen doors and window grilles (Stds Aust 2003c).

03.12 Ceilings and Ceiling Finishes

PERFORMANCE REQUIREMENTS

Ensure ceiling types and finishes meet all relevant regulatory requirements, in particular the BCA criteria (Australian Building Codes Board 2009) for acceptable Fire Hazard Properties. Meet specific indices for flammability, spread-of-flame and smoke-developed, ensure fitness for purpose, and satisfy aesthetic, sustainability and life cycle requirements.

Ensure that suspended ceiling systems meet the structural requirements of the BCA including air pressure and earthquake resistance, and that any accessories e.g. acoustic pillows and acoustic flexible sheet materials used over perforated materials meet the required Fire Hazard Properties indices.

GENERAL

Ceiling type and finish have an impact on the aesthetics, acoustics and general atmosphere of a room. Ensure that the effect of the ceiling finish and colour do not adversely affect the level of lighting in a room.

SELECTING CEILING SYSTEMS AND FINISHES

Consider the following issues when selecting a ceiling finish.

Surface durability and soil resistance are key considerations where ceilings may be damaged or need to be kept clean. Other factors may include the need for effective noise reduction, light reflection, moisture resistance or the need to accommodate the support of heavy equipment such as medical imaging or other screening machines, patient lifters and other devices.

Ceilings should be easy to maintain and repair. Locally available standard systems are recommended to ensure continuity for replacement of damaged parts.

Ceilings will generally be subjected to the cleaning protocols documented in the Operational Policies for the facility or for the specific unit.

Access panels should be fit for purpose, minimise the ingress of dust and be secure i.e. accessed only with a special key tool to prevent unauthorised access.

Ceilings should comply with applicable ESD regulations and guidelines.

RESISTANCE TO SURFACE DAMAGE

Ceilings in corridors, emergency receiving areas and mental health units may need to withstand surface impact or other forms of abuse.

In any areas where inlaid ceiling panels frequently need to be removed for access, resistance to surface scratching and breakage is recommended.

The specification for the proposed finish should be adequate for the particular requirements for each location including resistance to impact and fracture, surface scratching, mould and air diffuser soiling.

INFECTION CONTROL

Each area within a facility will require a different degree of infection control management or standard of hygiene. Collaboration with the facility infection control representative and compliance with the current infection control policy in each jurisdiction is a required part of the risk management process.

Select and design ceilings to support the level of infection control management required in each space.

Ceilings are covered by AS Handbook 260 Hospital acquired infections - Engineering down the risk (Stds Aust 2003a) as follows. In Section 5 - Rooms suitable for Infection Control purposes - recommendations for ceilings for Type 4 and 5 rooms (standard isolation and respiratory isolation) include:

- ease of cleaning and suitability for cleaning methods to be used;
- continuous, impervious and durable finishes;
- elimination of joints, gaps and features supporting microbial growth;
- ability to withstand disinfecting and cleaning agents without deterioration; and
- sealed penetrations for fittings in walls and ceilings e.g. pipes, light fittings, for Type 5 rooms for respiratory isolation.

In areas requiring a pressure differential for infection control, ceilings and support systems should meet the individual performance criteria including structural soundness and stability e.g. air pressure change and earthquake forces.

Although ceilings rarely become soiled with any hazardous matter, use a smooth washable finish in areas where splash or spillage might occur e.g. Resuscitation Rooms in Emergency Departments, Operating Rooms or where routine washdown or isolation is required.

For further information regarding Infection Control refer to Part D.

USE OF ACOUSTIC FINISHES

Ceilings can be used independently or together with floor and wall finishes and furnishings to control the acoustic environment in occupied spaces.

For recommended sound levels refer to AS/NZS 2107: Recommended design sound levels and reverberation times for building interiors (Stds Aust 2000), in particular Table 1: Recommended design sound levels for different areas of occupancy in buildings. For OHS issues refer to Section 790 - Noise Reduction.

Materials should be selected to achieve the recommendations of AS/NZS 2107 while not compromising the medical or functional performance required in each area e.g. infection control, hygiene, OHS, cleaning, maintenance, etc.

Sound control includes reducing the transmission of air-borne sound from space to space, using the mass of the material layer e.g. solid plasterboard, fibre cement and/or reducing the reverberation time or reflected sound within a space by absorption e.g. using mineral fibre, perforated surfaces, etc. The industry label ‘acoustic’ is generally used to indicate low-mass, sound absorbent products.

Most acoustic ceiling tile products consist of absorbent materials with a porous surface and are generally used with a suspended grid system either exposed or concealed. Both of these factors usually exclude their use in areas where infection control or hygienic conditions are required.

Acoustic products specifically produced for use in clean areas should be assessed on their tested performance. Do not use acoustic and/or tiled ceilings where particulate matter may interfere with hygienic environmental control. The use of acoustic tiles should be avoided in areas where splash spillage can occur.

ACCESS TO SERVICES

Provide access to services and ceiling voids through ceilings as required except in areas such as Operating and Procedure Rooms, isolation and controlled environments. If access panels are used in procedural areas, they should be provided with an effective air pressure seal.

Suspended modular ceiling systems may be used where access to services is required and a smooth seamless finish is not required.

Access panels should be opened only with a special key tool to prevent unauthorised access.

Ceilings to patient areas in mental health units should be designed to prevent patients from accessing ceiling spaces.

In areas requiring security or restricted access e.g. cash holding, pharmacy, stores, medication / clean utility rooms and stores, suspended ceilings or partitions should incorporate measures to prevent unauthorised entry e.g. steel mesh, or locked access panels. In mental health units compressed fibre cement sheet may be required to reduce damage and prevent access.

AVOIDANCE OF DEFORMATION AND SAGGING

Sagging ceilings are often the result of moisture exposure in high humidity areas such as laboratories, kitchens, laundries, locker rooms, shower areas and indoor pools.

Ensure that exhaust and fan systems are appropriate e.g. dedicated, single use systems and adequate for processes and occupancy. Provide remote alarm indication of fan failure where required.

By avoiding where possible the following situations, the incidence of ceilings sagging may be reduced or removed:

- intermittent, seasonal use of facilities or long refurbishment where heating, ventilation, and airconditioning (HVAC) systems might be shut down for extended periods
- installation of ceiling systems prior to the activation of the HVAC system in new construction or renovation projects
- attempted refreshment of indoor air quality by increasing the percentage of outside air that is circulating through a ventilation system.

For airconditioning equipment installed within the ceiling space provide condensate pans and drains as necessary. Refrigerant and chilled water piping should have appropriate lagging and be supported along its length to prevent moisture from pooling and damaging the ceiling. Penetrations above the ceiling should be appropriately sealed to prevent the ingress of moisture and to maintain the integrity of fire / smoke compartments.

SUSPENDED AND EXPOSED GRID SYSTEMS

The design of suspended exposed grid ceiling systems should have adequate resistance to corrosion, fire and sagging, and be dimensionally stable.

Exterior soffit linings and support systems in adverse environments such as coastal locations and indoor hydrotherapy pools require special consideration.

03.13 Floor Finishes

PERFORMANCE REQUIREMENTS

Ensure that floor finishes meet all relevant regulatory requirements, standards and policy guidelines within each jurisdiction. They should adequately address the following issues:

- staff safety - OHS and manual handling;
- patient and visitor safety - slips, trips and falls;
- area function, sustainability and life cycle cost efficiency;
- infection and odour control;
- the needs of special user groups; and
- acoustic and aesthetic considerations.

Ensure that interior floor finishes meet the criteria for acceptable Fire Hazard Properties required by the BCA for class 9a buildings (Australian Building Codes Board 2009) specifically flammability, spread-of-flame and smoke- developed indices.

GENERAL

Floor finishes have an impact on various requirements within the AusHFG. Part D covers matters that affect management of infection prevention and control.This section of Part C covers aspects that affect access, mobility, OHS, manual handling and known floor safety issues e.g. slips, trips and falls (STF), maintenance, sustainability, etc. Ensure that floor finishes support the aims and requirements of the other parts of the AusHFG.

The selection of floor coverings can impact on staff work practices in the following ways:

- cleaning / maintenance procedures e.g. too rough a surface may lead to arm and shoulder injuries when using a mop;
- manoeuvrability of wheeled equipment relating to the degree of resistance to push / pull and turning forces;
- risk of slipping or tripping, and injury from falls; and
- fatigue on feet and legs from standing and walking - in this instance, the types of shoes worn by staff should also be considered.

Refer: Section 790 Safety - References and Further Reading for OHS regulations and guidelines in each jurisdiction.

Fire safety compliance is also a special consideration. A duty of care exists where professionals such as architects and interior designers are involved in the selection of products and purchasing officers and retailers / agents purchase replacement products.

Floor finishes also have a direct impact on the whole of life costs of any building where cleaning and maintenance is concerned. This is especially true in a healthcare facility. Lower initial capital cost may result in higher whole of life costs.

SELECTING FLOOR FINISHES

SUMMARY

Selection of floor finishes requires consideration of multiple factors, often calling for balance or compromise. Investigate alternative materials, arrange for realistic on-site testing, and check other existing installations with clinical, housekeeping and maintenance staff before selection. The following clauses set out the issues to be considered.

Also refer to TS-7 (NSW Health & CHAA, UNSW 2009).

MOVEMENT OF OBJECTS

Floor finishes should be selected to provide minimum rolling friction to wheeled equipment including beds, all trolleys, wheelchairs, etc to minimise the OHS risks to employees and others from manual handling and to allow independent mobilisation for persons using manual wheelchairs. This is particularly relevant to acute, rehabilitation, and other areas or situations where there is frequent use of wheeled equipment, hoists, etc. The movement of bariatric patients should be considered in all areas.

Consider the following when selecting floor finishes:

- wheels on equipment should be appropriate for the floor finish;
- rubber tread wheels (softer) suit smooth hard or resilient finishes, polyurethane (harder) suit softer textile finishes;
- if both carpet and vinyl is to be used in clinical areas, the wheeled equipment should be selected for the highest friction surface i.e. carpet; and
- equipment is generally supplied with a standard wheel diameter and tread material. While tread materials may be varied, the diameter cannot usually be varied.

Standard vinyl and similar resilient sheet products are the easiest materials for the movement of beds, hoists, trolleys and wheelchairs.

Carpet should be level short pile thickness, tufted loop pile construction, direct stick, dense (high ‘Pile Weight Density Factor’), heavy duty commercial grade or above. See limitations to use.

Bonded (flocked and needle punched) budget carpet has poor whole of life performance and now has limited use e.g. external, back of house, etc. The one-way pile characteristic can cause tracking problems with wheeled equipment.

For areas subject to heavy wheeled traffic foam-backed acoustic vinyl may be unsuitable as the resilience can provide resistance to movement and may deform or delaminate. A resilient backed vinyl with a heavy gauge wear layer should be used if this product type is sought.

Note: Fibres from carpet can collect in the wheel mechanism and increase maintenance and manual handling risks.

NOISE GENERATION AND SOUND ABSORBTION

Textile floor finishes reduce both impact sound (footfalls) and airborne sound. Although carpet is effective in corridor areas outside patient bedrooms where a great deal of noise can be generated, its use is circumscribed by resistance to wheeled equipment, OHS concerns and reduced infection control and

cleaning efficiency. Improved sound reduction should not be implemented in a manner that adversely affects employee OHS (manual handling) or patient safety e.g. slips, trips and falls.

Cushion backed acoustic vinyl, rubber and linoleum are also effective in minimising sound generation but are less effective than carpet. Ceramic tiles, terrazzo and similar hard surfaces generate sound from impact and reflect airborne sound. They also generate additional risk to safety from falls.

Sound level reduction data tests should be compared to determine if claimed advantages are beneficial.

EASY ON THE FOOT

Surfaces such as vinyl - standard and cushioned, rubber and linoleum and thin dense carpet are considered easy to stand on for long periods of time. Most OHS research indicates that surfaces such as ceramic tiles and terrazzo are too hard to stand on for more than a few hours. However this may be alleviated by suitable shock absorbent footwear. Hard surfaces are therefore not generally recommended in healthcare facility work areas and should be used with caution due to potential injury from falls with appropriate slip resistance coefficients where contamination is expected, especially in food preparation / servery, wet areas, etc.

INFECTION CONTROL

Each area within a facility will require a different degree of infection control management or standard of hygiene. Collaboration with the facility infection control representative and compliance with the current infection control policy in each jurisdiction is a required part of the risk management process.

Floor finish selection should support the level of infection control management required for each space. Selection should also satisfy any other specific functional or environmental criteria e.g. acoustic.

Carpet - tile and broadloom - with a good maintenance regime is acceptable for general use in patient care areas. Carpet is less easily cleaned than resilient or hard finishes and should not be used where there is a high rate of spillage or soiling or where smooth, impervious, seamless surfaces are required for infection control.

For further information refer to:

Part D Infection Prevention and Control 880 - Surfaces and Finishes.

Infection control policies within each jurisdiction.

AS Handbook 260: Hospital acquired infections - Engineering down the risk, when endorsed (Stds Aust 2003a).

TS-7 Floor Coverings in Healthcare Buildings (NSW Health & CHAA, UNSW 2009).

EASE OF CLEANING

Floor materials should be easy to clean and have wear resistance appropriate for the location involved. See Infection Control above.

WET AREAS

In areas subject to running water and regular wetting e.g. ensuites / showers, floor finishes should satisfy all relevant regulations and standards for safety. Installations should be durable and waterproof.

CONDUCTIVE FLOORING

Static conductive or anti static 'Astatic' flooring may be required in some areas e.g. areas with electro-medical equipment use or testing / repair facilities. Static control floors are categorised as ‘Static Dissipative’ and ‘Static Conductive’.

The degree of electrical resistance or conductivity required should be accurately briefed to ensure that the correct grade of anti static flooring and associated construction are selected.

Special grades of flooring are available for specific conditions. However for some applications standard flooring may be adequate.

Flammable anaesthetic agents such as ether, cyclopropane or ethyl chloride are no longer used for the treatment of humans. Previous anti static flooring requirements for these agents in theatres and gas storage areas are therefore no longer applicable except to veterinary procedures.

SELECTION AND INSTALLATION

Provide the slip resistance required and appropriate for different conditions. The following may be used as a guide:

- standard vinyl is suitable for dry areas where patients, public and staff are expected to wear shoes;
- safety vinyl is similar to standard vinyl and provides greater slip resistance for dry use and spills but may cause tripping for some users e.g. aged care, gait / mobility problems, etc;
- enhanced safety flooring with raised profile vinyl flooring balances slip resistance with ease of cleaning and is suitable for barefoot use in wet areas such as patient showers where water, soap and body fat are present;
- enhanced safety vinyl flooring suits non barefoot wet areas where trolley movement is also expected, such as Dirty Utility and CSSU Decontamination Areas;
- stone and terrazzo are sometimes used in entrance foyer areas. However, when wet, worn or poorly maintained these finishes may present a danger to staff and visitors from STF. To increase slip resistance only proven proprietary non-slip chemical or other treatments should be used.

Select floor finishes capable of maintaining slip resistant for areas such as showers and bathrooms, kitchens and similar work areas that are subject to traffic whilst wet.

Note: Floor finishes should be slip resistant where the presence of fine powder such as talcum powder on a smooth dry floor will constitute a slip hazard.

Refer to:

AS/NZS 3003: Electrical installations - Patient treatment areas of hospitals and medical and dental practices (Stds Aust 2003b).

AS/NZS 3661: Slip Resistance of Pedestrian Surfaces (Stds Aust 1994b). AS/NZS 4586: Slip resistance classification of new pedestrian surface materials (Stds Aust 2004).

BRANZ Bulletin 370: Slip Resistant Floors (BRANZ 1998).

BRANZ 018-2000: Selecting Flooring (BRANZ 2000).

Centre for Health Assets Australasia 2007, Wall and Floor Finishes for Wet Areas, University of New South Wales, Sydney (CHAA 2007).

CIRIA 2006: C652: Safer surfaces to walk on, reducing the risk of slipping (CIRIA 2006).

NSW Health & CHAA UNSW 2009, TS-7: Floor Coverings in Healthcare Buildings V1.1, NSW Health.

The Center for Health Design: Sound Control for Improved Outcomes in Healthcare Settings (Joseph & Ulrich 2007).

Stds Aust 1999, AS Handbook 197: An introductory guide to the slip resistance of pedestrian surface materials (Stds Aust 1999a).

WorkSafe Victoria 2007, A Guide to Designing Workplaces for Safer Handling of People (For Health, Aged Care, Rehabilitation and Disability Facilities), 3rd, edn, WorkSafe Victoria.

03.14 Wall Finishes

PERFORMANCE REQUIREMENTS

Ensure that wall finishes meet all relevant regulatory requirements, standards and policy guidelines within each jurisdiction. Also ensure that they are fit for purpose and adequately address requirements for safety, OHS, sustainability, life cycle cost efficiency, indoor environment quality (IEQ) e.g. acoustic and aesthetic value, and indoor air quality (IAQ).

Ensure that interior wall finishes meet the criteria for acceptable Fire Hazard Properties required by the BCA for class 9a buildings specifically indices for flammability, spread-of-flame and smoke-developed.

GENERAL

Wall finishes are often the largest visual element in an area and thus can have an impact on the aesthetic appeal of the space. Selection of appropriate wall finishes may help create a non-institutional atmosphere and assist in the healing process. Other aspects such as the ease of cleaning, infection control, fire safety and patient care requirements may need to be considered in the finish selection.

See Part D for infection control issues.

SELECTING WALL FINISHES

In addition to the performance requirements above select wall finishes to adequately address the following issues:

- durability and resistance to impact from furniture, trolleys, aggressive patients, etc;
- ease of cleaning and retention of appearance over time;
- fire hazard properties; and
- requirements for infection control.

Ceramic tiles are not generally recommended as a wall finish due to their potential to compromise infection control. They are also susceptible to damage, and if cracked or broken, individual tiles may be difficult to replace.

WALL PROTECTION

Wall protection is recommended to improve the longevity and retain appearance of most wall finishes particularly in patient care areas, service corridors and other areas where beds, trolleys and other mobile equipment are used.

SKIRTINGS

Skirting can perform a number of different functions by providing:

- vital protection from scuffing and marking by wheeled equipment, cleaning appliances and feet;
- a barrier against bacterial penetration and the build up of contaminants;
- effective and easy cleaning;
- accessible ducting for cable services;
- skirting heating. Skirting may be;
- a manufactured item in various materials profiles and sizes either separate or welded to the flooring, or

- coved and integral with the floor, formed on-site by dressing the flooring material up the wall.

Pre-formed vinyl skirting is available as flat, feather edge or as ducted skirting for services. Flat and ducted skirting is also available in metal. Flat is commonly used with textile flooring with a feather edge for resilient floors. Other factors influence skirting type e.g. sequence of trades, new or retro-fit work, protection of wall or integrity of skirting during carpet laying operations.

Integral coved, on-site formed, skirting involves dressing the floor material up the wall over a preformed coving fillet usually 20-38mm radius.

Coved skirting should be a minimum of 150mm high. The skirting can either be tapered at the top to provide a minimal horizontal dust catching edge or finished with a capping seal profile.

The combination of sheet resilient flooring with welded seams and integral coved skirtings, as described above, is generally recommended for all patient care, clinical, wet and other areas where hygiene, infection control, ease of cleaning and decontamination are desirable or required.

For semi industrial and food process / waste handling areas, seamless coatings, ceramic tiling, etc may be used as appropriate to function.

Where used for wet, clean or similar applications, vinyl wall finishes may be welded to the vinyl floor finish provided that both finishes are homogeneous with a matching or 2mm minimum thickness.

Note: The use of vinyl wall sheet products of 1mm thickness carried down over the skirting and glued with an overlap is not recommended for healthcare use.

CORNER GUARDS AND CRASHRAILS

Provide corner guards and crashrails to protect wall linings and finishes against damage from impact in:

- inpatient, outpatient and public circulation corridors;
- support services corridors, storage bays, equipment rooms; and
- any areas with trolley, mobile equipment or bed traffic.

Crashrail design should be appropriate for differing functional requirements e.g. inpatient units, back of house, loading docks.

Crashrail function is frequently incorporated in a dual purpose handrail / crashrail design. Ensure that the handrail and crashrail functions comply with AS1428 (Stds Aust 2010) and meet specific user requirements e.g. aged care.

Note: Additional lower crashrail or wall protection may be required for a particular damage pattern.

HANDRAILS

Provide handrails as required to provide assistance and support for patients and visitors, as required by the BCA and as a result of risk assessment. Each department should also be assessed individually for the requirements of staff and visitors with disabilities.

Free ends should be returned as these constitute a potentially serious head injury risk to children. Design should ensure no pinch points or grip obstructions from fixing brackets.

Refer to Section 730 - Grab Rails for additional detail, and to Section 790 - Safety for self harm issues.

SPLASH PROTECTION

Apply splash protection to walls in areas such as laboratories, Formula Rooms, Beverage Bays, Kitchens, Bathrooms, Showers, and Dirty Utility Rooms in addition to handbasins, scrub troughs, cleaners' and laundry sinks.

RADIATION PROTECTION

Radiation protection will depend on individual room requirements. Material used and the extent of radiation shielding should be determined by a Radiation Services consultancy in accordance with the governing regulations and guidelines.

For example: In Western Australia, The Radiation Safety Act - 1975 (State Government of Western Australia 1975); and The Radiation Safety Regulations - 1983 (State Government of Western Australia 1983) - as administered by The Radiological Council of Western Australia.

BENCH TOPS

Bench tops should have a smooth, impervious and durable finish and be resistant to stains. Joins should be avoided where possible for ease of cleaning. The design and the materials used should adequately meet all functional, sustainable and life cycle requirements. A range of products are suitable e.g. laminates, synthetics and stainless steel.

The junction between wall and bench top work surface may be sealed, provided with an upstand and/or wall protection, or designed with an upstand and/or cleanable gap, as required by function e.g. cleaning, infection control.

03.15 Handwash Facilities

PERFORMANCE REQUIREMENTS

Comply with the recommendations of Part D Infection Prevention and Control and the Standard Components for standard clinical and non-clinical basin types, fittings and locations.

In addition to the recommendations of Part D, and for any other special basin types, handbasins should be:

- large enough and taps and spouts positioned in such a manner to prevent splashing from the waste trap or from the bowl onto the floor creating a safety hazard;
- fixed at a height, including fittings, to suit the particular function, such as paediatric, accessible, and standard;
- securely supported with basins fixed to withstand an applied vertical load of not less than 115 kg on the front of the fixture; and
- located, including fittings, to permit their proper use and operation. Liquid soap dispensers should be located over the basin wherever possible.

Note: For accessible mirrors the BCA requires that these be located within 900mm of the floor. Since the preferred location of mirrors is over the basin some compromise is required.

TAPWARE

Particular care should be given to the clearances required for elbow lever action handles.

Standard handles with effective finger grips and non-thermal transmitting are preferred.

NO TOUCH TAPWARE

Decisions regarding the provision of ‘no touch’ basin tapware should be referred to the project control group for resolution. Issues to be considered include installed and maintenance costs, jurisdiction and area / district health service infection control policies, tapware type and function. The types of ‘no- touch’ tapware include:

- sensor operated with wave on / wave off;
- sensor operated - on demand;

- timed flow - touch operated; and
- foot or knee operated, etc.

Tapware should comply with AS/NZS 3718: Water supply - Tap ware (Stds Aust 2005b).

03.16 References

GENERAL

Further references are provided below. Ensure that current versions of the following documents or web references are consulted. The list is not exhaustive and additional references are provided above within the text.

AUSTRALASIAN

For Accessibility and Disability issues. Refer Section 730 and Further Reading.

Australian Human Rights Commission 2009, Australian Human Rights Commission homepage, Human Rights and Equal Opportunities Commission, www.humanrights.gov.au

INDIVIDUAL JURISDICTIONS

AusHFG Part B - Access for each jurisdiction.

AusHFG Part D Infection Prevention and Control.

FURTHER READING AND REFERENCES

Centre for Health Assets Australasia 2007, Wall and Floor Finishes for Wet Areas, University of New South Wales, Sydney.

Commonwealth of Australia 1992, Disability Discrimination Act 1992, Office of Legislative Drafting and Publishing, Canberra.

Department of the Environment and Heritage 2006, ESD Design Guide for Australian Government Buildings, 2nd edn, Australian Government.

Green Building Council Australia 2006, Healthcare V1, Green Star.

Green Guide for Health Care 2005, Green Guide for Health Care V 2.1, GGHC.

Joseph, A 2006, The Impact of Light on Outcomes in Healthcare Settings Issue Paper 2, Centre for Health Design, Concord, CA.

Joseph, A. and Ulrich, R. 2007, Sound Control for Improved Outcomes in Healthcare Settings, The Center for Health Design.

NSW Health 2005, PD 2005-077: Improved Access to Health Care Facilities, NSW Health.

STANDARDS AND REGULATIONS

Australian Building Codes Board 2009, The Building Code of Australia, Australian Government, State and Territory Governments of Australia.

BRANZ 1998, Bulletin 370: Slip Resistant Floors: Building Research Association of New Zealand.

BRANZ 2000, BRANZ 018-2000: Selecting Flooring, Building Research Association of New Zealand.

CIRIA 2006, C652: Safer surfaces to walk on - reducing the risk of slipping, CIRIA, UK.

NSW Health & CHAA, UNSW, 2009, TS-7: Floor Coverings in Healthcare Buildings V1.1, NSW Health.

State Government of New South Wales 2010, Occupational Health and Safety Regulation 2001 (updated 2010), NSW Government.

State Government of Queensland 2009, Workplace Health and Safety Act 2008, Office of the Queensland Parliamentary Counsel.

State Government of Western Australia 1975, Radiation Safety Act 1975.

State Government of Western Australia 1983, Radiation Safety (Attorney- General's Department) Regulations 1983.

Stds Aust 1994a, AS Handbook 59: Ergonomics - The human factor - A practical approach to work systems design, SAI Global.

Stds Aust 1994b, AS/NZS 3661: Slip Resistance of Pedestrian Surfaces, SAI Global.

Stds Aust 1999a, AS Handbook 197: An introductory guide to the slip resistance of pedestrian surface materials, SAI Global.

Stds Aust 1999b, AS 2047/Amdt. 1-2001: Windows in buildings - Selection and installation, SAI Global.

Stds Aust 2000, AS/NZS 2107: Acoustics - Recommended design sound levels and reverberation times for building interiors, SAI Global.

Stds Aust 2001, AS 4145.3: Mechanical locksets for windows in Buildings, SAI Global.

Stds Aust 2003a, AS Handbook 260: Hospital acquired infections - Engineering down the risk., Sydney, Australia, SAI Global.

Stds Aust 2003b, AS/NZS 3003: Electrical installations - Patient treatment areas of hospitals and medical, dental practices and dialyzing locations, SAI Global.

Stds Aust 2003c, AS 5040: Installation of security screen doors and window grilles, SAI Global.

Stds Aust 2004, AS/NZS 4586: Slip resistance classification of new pedestrian surface materials, SAI Global.

Stds Aust 2005a, AS 1905.1: Components for the protection of openings in fire-resistant walls - Fire-resistant doorsets, SAI Global.

Stds Aust 2005b, AS 3718: Water Supply - Tap ware, SAI Global.

Stds Aust 2006, AS 1288: Glass in buildings - Selection and installation, SAI Global.

Stds Aust 2008, AS 5039: Security screen doors and security window grilles, SAI Global.

Stds Aust 2010, AS 1428.(Set): Design for Access and Mobility, SAI Global.

WorkCover NSW 2000, Guidelines for Building Facade Access Systems, WorkCover NSW.

Workplace Health and Safety Queensland 2007, Guide to the workplace health and safety obligations of designers of structures, Queensland Department of Employment and Industrial Relations.

Workplace Health and Safety, Queensland, 2009, Work at Heights, Department of Employment and Industrial Relations.

WorkSafe Victoria 2007, A Guide to Designing Workplaces for Safer Handling of People (For Health, Aged Care, Rehabilitation and Disability Facilities) 3rd edn, WorkSafe Victoria.

04 HUMAN ENGINEERING

04.01 General

PEFORMANCE REQUIREMENTS

Comply with the relevant legislation, regulations, codes and policies for each jurisdiction, including:

- BCA - Building Code of Australia (including amendments)
- OHS - Occupational Health and Safety Acts and Regulations
- DDA - Disability Discrimination Act
- State or Territory jurisdiction level anti-discrimination legislation as applicable.

Note 1: The BCA requires access to and through a healthcare facility to meet AS1428.1 (Stds Aust 2010) unless provision of access is considered to be inappropriate to the particular use. Disability discrimination legislation reinforces this requirement but may reference or advise a preferred compliance with AS1428.2 (Stds Aust 2010).

Note 2: Exclusions are conventional sanitary facilities. There are particular requirements for accessible facilities and for areas where people with relevant disabilities are excluded usually for OHS reasons.

GENERAL

The subject of Human Engineering covers aspects of the design that permit effective, appropriate, safe and dignified use by all people including those with disabilities. It includes occupational ergonomics which aims to fit the work practices, FF&E and work environment to the physical and cognitive capabilities of all people.

As the requirements of Occupational Health and Safety (OHS) and anti- discrimination legislation will apply, this section needs to be read in conjunction with the section on Safety and Security in these guidelines in addition to OHS related guidelines.

The Building Code of Australia Part D covers some aspects of access for persons with disabilities. The Disability Discrimination Act unlike the BCA is a complaint based instrument. Section 23 covers discrimination in relation to means of access to, and within, premises (Commonwealth of Australia 1992).

Where the BCA or any other law and the DDA cover the same issue, the more demanding requirement or broader interpretation will apply in addition to the mandatory requirement [AHRC]. Seeking expert advice is advised for interpretation of the DDA in relation to accessibility matters.

AS1428 Design for Access and Mobility covers various aspects of design for people with disabilities. AS1428 is often referred to in these guidelines and should be followed in relevant areas. Human Engineering for able bodied persons also requires careful consideration. Some of the common issues are covered in this section.

There is increased public awareness of barriers that make reasonable utilisation of facilities difficult or impossible for the physically impaired. A healthcare facility will have a high proportion of occupants, patients and visitors who are unable to function without some form of assistance. Some staff may also be impaired. To ensure minimum patient dependence on staff and others, consideration should be given to designing for optimum patient independence and enhanced staff productivity.

Consideration should be given to the wide range of disabilities including:

- mobility impairment;
- visual impairment;
- hearing impairment;
- cognitive impairment e.g. patients with brain injury or dementia; and

- mental illness.

In addition, cultural and literacy issues should be considered as they can impact on access and safety.

Design buildings and services to acknowledge and address the needs of a wide range of users including:

- able bodied people;
- bariatric visitors and patients;
- clients being assisted by one or more people e.g. a reluctant mental health patient;
- clients and visitors with baby prams, carrying or walking with young children;
- staff pushing beds, patient trolleys, other wheeled equipment;
- clients and visitors with a walking frame or other mobility aid such as a stick or using a wheelchair independently;
- clients and visitors with impaired vision;
- clients and visitors with literacy issues;
- staff who may have a permanent or temporary disability; and
- maintenance staff needing access to engineering plant.

04.02 Planning

To minimise overall costs and to avoid the need for expensive modification of finished work, initial designs should include specific consideration of the needs of the physically, visually, hearing and mentally impaired. The majority of requirements can be easily accommodated during the planning stage at little or no additional cost. Modifications required at a later time may be prohibitively expensive or impractical.

04.03 Australian Standard 1428

AS1428: Design for Access and Mobility parts 1 to 4, covers the issues of access for people with disabilities, and particular attention is given to access ways and circulation (Stds Aust 2010). Continuous traffic paths are required for use by people using wheelchairs. Provide facilities for people with ambulatory disabilities and for people with sensory and cognitive disabilities.

The sections of AS1428 (parts 1 and 4) referenced by the BCA are mandatory. AS1428.2 contains more inclusive provisions and extends to elements beyond the compass of the BCA including furniture and fittings. AS1428.3 is seldom referenced being reserved for facilities designed exclusively for children and adolescents with disabilities.

Consider omitting on-ground tactile indicators in certain situations as these may cause tripping for users with walking frames, sticks, impaired gait, etc and an adverse affect on patients with spinal problems transported by trolley over these raised indicators.

These guidelines require that a minimum number of rooms be sized and designed for use by people with disabilities regardless of the anticipated number of patients with disabilities. These are covered in the relevant sections of the HPU in Part B.

Note: AS1428 parts 1 and 2 address identical building elements but nominate different criteria for them. The latter is more inclusive and may be preferred as a basis for design to suit the widest number of people with disabilities. Compliance with AS1428.2 will also achieve compliance with AS1428.1. The differences apply to:

- width of path of travel;
- distance between landings at ramps;
- range of handrail heights;

- clear width of doorway openings; and
- circulation space at doorways and sanitary facilities.

DEPENDENT PATIENTS

AS1428 primarily considers access by people with disabilities who are independent. Give consideration to access by people who are physically dependent and who may be assisted by one, two or more people and/or who may be transported on a bed or trolley. These considerations will have significant implications for the slope, clear width and turning circles on ramps, clear width of doors and corridors, size of lifts and vehicle access.

04.04 Handrails and Grabrails

Provide grabrails and handrails as required by the BCA as a minimum. In addition provide these for the purposes of patient / visitor safety and assistance in mobility. Locations and layout in patient care and public areas should be determined by risk analysis.

The design, sizing and fixing of grabrails and handrails should comply with AS1428 parts 1 and 2 as applicable e.g. withstanding applied forces of 1100 N, clearances, etc.

Care should be taken to ensure the elimination of hand obstruction, and free ends that may snag clothing, equipment or cause head injuries to children.

Grabrails, handrails, vertical adjustable shower supports, towel rails, soap holders, footrests and any other fixture that may be used for support should have sufficient anchorage and strength to resist the sustained concentrated load of a falling and heavy person.

Consider the design of grabrails in areas such as emergency departments and mental health units where patients may self-harm, and where aged patients and comorbidity are issues. Only approved anti-ligature fittings should be fitted.

Refer to Section 710 - Corner guards and crashrails.

04.05 Ramps

The minimum requirements for pedestrian ramps for egress and accessibility in class 9a, patient care areas and other classifications are covered by the provisions of the BCA section D, and in AS1428 parts 1 and 2. The intent and objectives of The Disability Discrimination Act should also be considered with regard to routes affected by the location of ramps (Commonwealth of Australia 1992).

Pedestrian ramps may be required for general facility circulation activities such as moving beds, ambulance trolleys and other equipment between different levels. The design should also satisfy OHS and manual handling requirements e.g. wider ramps, longer landings and reduced gradients. Refer to Section 710 - Ramps.

Ramps in other areas such as service vehicle, goods handling and loading areas should comply with good design and safety practices, Australian Standards (where applicable) and be fit for purpose e.g. use by pallet movers, tugs, trolley trains, fork lift, etc. Where these ramps also serve an egress or accessibility function the BCA, AS1428, as referenced by the BCA, and DDA intent and objectives will apply.

Note 1: To avoid possible disability discrimination issues consider locating ramps as closely as possible to stairways and/or lifts serving the same levels and not using ramps to connect levels greater than 3.5 metres apart.

Note 2: Consider designing ramps providing pedestrian access to meet AS1428.2 enhanced / additional requirements.

Vehicle ramps including curbs, crash barriers / rails, signage, etc should comply with the relevant Australian Standards and other relevant traffic or local authority regulations. Vehicle ramps should not be relied upon for pedestrian movement.

04.06 Staircases and Balconies

All open staircases, balconies, mezzanines, suspended walkways, etc pose a risk of injury from falling to patients, children and others, including patients intending self harm. Address this issue and also design to prevent objects falling or being thrown which may injure people at lower levels.

Stair design is governed by the BCA. However, ensure ease of use for patients and visitors by appropriate selection of tread and riser dimensions within the formula provided.

Treads should be slip resistant without causing tripping. Any non-slip inset or applied strips or nosings should not cause a trip hazard. Luminance contrast for tread edges should comply with AS1428.1 and stairs should be adequately lit.

Consideration should be given to passive security measures such as the removal of concealment spaces through the use of natural light and providing increased visibility for users.

Note 1: The BCA distinguishes between ‘required’ stairs e.g. for egress and ‘non-required’ stairs, ramps, etc with differing requirements.

Note 2: Consider designing to AS1428.2 to enhance accessibility.

BALUSTRADES AND HANDRAILS

Provide balustrades and handrails as required by the BCA, and to meet the objectives and intent of the DDA. In addition to BCA requirements, all stairs for use by patients and visitors should be provided with continuous handrails to both sides of the stairs.

In addition the design should incorporate the relevant requirements for risk factors identified through risk assessment analysis under AS/NZS ISO 31000:2009 (Stds Aust 2009).

Note: It may be considered necessary to increase the minimum BCA heights for balustrades and barriers.

04.07 Overview

Design and built facilities to minimize negative risk to patients, staff, visitors and maintenance personnel in accordance with AS/NZS ISO 31000: Risk Management (Stds Aust 2009).

Badly designed recurring elements such as workstations and the layout of critical rooms have a great impact on the Occupational Health and Safety (OHS) of staff and the welfare of patients.

Designers should be vigilant to ensure that designing out one risk doesn’t result in the introduction of another e.g. in designing out a security risk do not create creating a manual handling risk.

The field of Ergonomics covers some aspects of the design of objects for common use. Research indicates that there is disagreement on some aspects of ergonomic standards such as the best sitting posture or angle of view for monitors but on most ergonomics issues there is broad agreement.

It is not appropriate for any standard to be regarded as ideal for every person. It is also unreasonable to expect all items to be designed in such a way that they can be adjusted for all users.

Given these limitations, the role of ergonomics standards is to provide a reasonable and common base for design. It is strongly recommended that the actual design allows for modification or provides a choice of amenity.

The recommendations included in these guidelines are those commonly required in healthcare facilities and apply generally to purpose made and built-in furniture items. Purchased items will be subject to the purchasing policies of each jurisdiction.

For items covered and not covered in these guidelines, it is highly recommended that reference is made to the following as appropriate:

- AS Handbook 59: Ergonomics - The human factor, A practical approach to work systems design (Stds Aust 1994a)
- AS1428: Design for Access and Mobility - Part 2: Enhanced and Additional Requirements - Buildings and Facilities (Stds Aust 2010)
- AS3590.2: Screen-based Workstations - Part 2: Workstation Furniture (Stds Aust 1990)
- AS/NZS4443: Office Panel Systems: Workstations (Stds Aust, 1997b).

A workplace occupied by a single user for extended periods of time should be capable of adjustment or modification to suit that user.

Facilities used more casually by a variety of users should be designed to anticipate their various needs. The opinion of specialist ergonomists or OHS professionals may be necessary in particular cases.

Conventional work surface heights for seated users are not suitable for people who use wheelchairs and in this case dual-height surfaces should be provided. In addition to the references nominated above, see AS1428.2 Section 24 Furniture and Fitments (Stds Aust 2010).

Bench heights and widths in laboratory and similar work areas should be designed taking into account the type of work to be performed. Refer to AS/NZS2243: Safety in laboratories, Part 1: Planning and operational aspects (Stds Aust 2005).

04.08 Staff Station

GENERAL

A Staff Station may be used for a variety of purposes:

- a clerical workstation;
- reception;
- staff base;
- reporting station or sub-station; and
- clinical observation with a level floor.

Part of a typical Staff Station may be used as a workbench or workstation. For ergonomic recommendations, refer to the appropriate sections of this guideline.

DESIGN

Staff stations with high and low counters serve a number of different and often conflicting functions. For example:

- separation of public and staff for staff safety, security of information and desktop items, etc - provided by a front panel and top counter overhang; and
- enabling of communication, passing of items depending upon overall counter depth/reach, a surface for patients to write, including use by persons with disabilities including staff and others.

Some of these multiple functions are often solved by varying parts of the staff station to suit particular functions such as wheelchair usage.

Typically, the height of the front panel, the depth and projection of the top counter, and the worktop depth compete for the different functions.The ergonomic and OHS requirements for keyboard and screen use will dictate worktop depth and top counter projection back over the worktop. The use of flat screens overcomes

excessive overall depth and cross counter reach problems caused in the past by CRT displays units. See Screen Based Equipment.

Note: Attention should be paid to the placement of overhead high-intensity down-lighting especially in reception areas as these may be reflected in the rear surface of eyewear worn by counter staff causing an OHS problem.

RISK MANAGEMENT

OHS risk assessment should be undertaken with respect to the staff station design and the placement of equipment within the zone of frequent use e.g. paging computer, reception switchboard, nurse call and other frequently used equipment, items and actions.

Testing using existing units or informal, temporary mock-ups is recommended to avoid the inconvenience and cost of rectification.

The recommendations that follow are within the dimensional ranges recommended in AS3590.2: Screen-based workstations - workstation furniture (Stds Aust 1990). It should be noted that the latter are based on the use of CRT type monitors - now generally replaced by LCD flat-panel display units with a shallower average depth.

04.09 High Counter

DESIGN

A high counter is used to shield objects, equipment and records from inappropriate viewing. A high counter may also provide a convenient writing surface for visitors and staff, and may be referred to as a parcel shelf or service counter. A high counter used for direct interaction between staff and visitors or patients should be designed to allow for the transfer of objects across the work surface without excessive reaching becoming necessary.

Flat panel displays should be used with an effective work surface width of 750mm. The use of CRT displays is not recommended as these require excessive width.

In conjunction with a work surface designed at 720mm above the floor, the recommended height of the top counter is 1150mm above the floor. This height will allow a seated person sufficient privacy to work whilst being able to see visitors who are standing or sitting. According to AS 3590.2, the recommended maximum height to the top counter above floor level is 1200mm above the floor level (Stds Aust 1990).

Take care when determining the counter design as high counters can make it difficult for staff and clients to communicate, especially where the client is of short stature, a child, in a wheelchair or if the client or staff member is hearing impaired. This can exacerbate the risks of frustration and aggression. High and wide counters can also create risk and difficulties for staff who do not fit into the average percentile design range for height and reach.

Security risk assessments to AS/NZS ISO 31000 should form the basis on which to determine the type of mitigation works / security treatments required e.g. whether to have barriers or the type of barrier (Stds Aust 2009).

04.10 Wheelchair Access

Apply the requirements of AS1428.2 clause 24 to the public / patient side of the Staff Station and reception counters by providing dual surfaces 730mm and 850mm high. Finished tops, heights and clearance beneath for adjustable, single and double unit instances in addition to knee and foot clearances and limits of reach are also covered.

04.11 Low Counter

In some situations, a lower counter at which staff and patients sit may be considered. These have the advantage of creating a more intimate situation.

They are easily accessed by people of all heights and those who may be in a wheelchair. It has also been stated that people are less likely to become aggressive and physically threatening when they are seated.

04.12 Security Barriers

PERFORMANCE REQUIREMENTS

All counters provided for public / staff interaction should be subject to a security risk assessment to AS/NZS ISO 31000: Risk Management (Stds Aust 2009). Ensure appropriate security / risk mitigation treatments are implemented.

Where it is necessary to provide a security barrier at a counter, the design including associated access doors should allow for the type of interaction required including:

- the transfer of small objects and speech;
- accessibility standards e.g. ergonomic, hearing / vision impairment;
- the needs of special user groups e.g. mental health, cognitive impairment;
- OHS and security requirements;
- passing large or special objects e.g. pharmacy; and
- transfer of mobile transfer equipment/containers e.g. goods, cash.

The barrier may be an open grille, glazed, or some other material / method e.g. monitor / intercom. If an operable security grille or similar device is provided, ensure that the function and operation complies with OHS and duty of care requirements.

The design of the barrier should be fit for purpose e.g. protects counter-staff from thrown objects / liquids or attack with an object or weapon. Glazed screens should comply with AS2208: Safety glazing materials in buildings (Stds Aust 1996) and AS/NZS2343: Bullet resistant panels and elements, as required (Stds Aust 1997a).

Refer: Section 790 - Safety - Screens and Grilles.

04.13 Workbench

GENERAL

Workbenches may be designed for two typical work practices - sitting position or standing position. For example, some nursing staff may prefer the workbench in a Staff Station to be used in the standing position or high sitting position, whilst some staff prefer the lower sitting position. Both options are equally valid and acceptable, however the ergonomic standards for the two will vary.

SITTING POSITION

A workbench surface used in the sitting position should be 730mm above the floor. See options under AS1428.2 clause 24 (Stds Aust 2010). With a recommended minimum depth of 750mm, this will accommodate the use of a keyboard with a flat panel display, other desktop equipment and provide for future changes in use.

Note: A minimum depth of 600mm is adequate for casual use of notebook computers e.g. write-up bays, lounge areas, etc.

STANDING POSITION

This position suggests that the primary use of the workbench will be in the standing position. However allowance may be made for the use of this type of workbench while sitting.

If the bench is almost exclusively used in the standing position with a requirement for occasional typing, the bench height of 1000mm above the floor is recommended. If the bench is mostly used in the standing position with occasional typing in the sitting position, a bench top height of 900mm is recommended. The first option is most often requested for staff stations, reporting stations and smaller reception counters. The second option - 900mm - is most often used in utility rooms, laboratories, beverage bays, kitchens and similar areas.

FOOT SUPPORT

The use of footrests in the sitting position is recommended as required. Chairs used at workbenches used in the standing position should have foot support rings and be height adjustable.

BENCH SUPPORT

A workbench should be able to support the weight of persons sitting or standing on it, in addition to any equipment located there.

04.14 Screen Based Equipment

GENERAL

Screen based equipment (SBE) and personal computers are used in a variety of ways. It is difficult to dictate a particular position to suit all people. The following guidelines represent the most typical preferences and standards.

Design of SBE workstations should be considered in conjunction with planning for FF&E. Reused computers may differ from new equipment and the design of the workplace should respond to the actual equipment used.

COMPUTER SCREENS/MONITORS

The term VDU (visual display unit) used in AS3590.2 relates to CRT (Cathode Ray Tube technology). CRT displays have now generally been replaced by flat panel display units, also referred to as screens or monitors (Stds Aust 1990).

Older CRT VDUs require a deeper worktop with a consequent reduction of work surface depth. In most cases these units have now been replaced by newer technology.

SCREEN POSITION

The exact horizontal location of the screen should be adjustable to suit different users. The vertical position of the screen will depend on the height of the user. For recommended location and viewing angles refer to AS3590.2 (Stds Aust 1990).

LAPTOP / NOTEBOOK COMPUTERS

Worktops should generally be designed to accommodate a separate keyboard and flat panel display. Although the use of laptops is common, any proposed reduction in design standards should be carefully considered.

It is recommended that laptops used for frequent or prolonged typing should be used with a separate keyboard and mouse, and preferably connection to a normal size screen. Local area network (LAN) access may be wireless or by connection to a data outlet.

Security issues should be considered in the selection of laptops. Their use in areas accessible to the public should be carefully considered with locking cables and devices provided.

04.15 Workstation - Typical

These guidelines apply to the typical L-shaped workstation as well as desks with or without a return.

Workstations for screen based equipment are covered by AS3590.2: Screen- based workstations - Workstation furniture. However, AS1428.2 clause 24 should take precedence for user accessibility. Reduce the worktop depths as required by AS3590.2 if flat screen displays are to be used - see below.

A median height of 730mm is recommended for a fixed height work surface. For screen based work while in a seated position, AS3590.2 provides for 680mm - 720mm. For adjustable worktops the height range can vary from 660mm - 840mm, and 610mm to 1010mm depending on the product. One height will not suit all users. It is strongly recommended that flexibility be built into the construction if adjustable-height units are not installed.

To accommodate a keyboard and flat panel display a 750mm deep work top is recommended. If a CRT monitor is required (non standard) increase the work top depth to 900mm.

The depth of the return to the main work surface may be between 450mm and 750mm with 600mm as a general standard to accommodate under bench storage and file / drawer units.

A standard recommended configuration for a workstation includes one work surface of 750mm wide and one work surface of 600mm wide. The use of 750mm for both work surfaces should be considered to allow for flexibility in use and the accommodation of computer peripheral equipment. It is important to allow a computer position that does not require a person to sit with their back to the door, especially where this may be a security risk.

If a computer is positioned in the corner, angle the corner with a minimum dimension of 400mm wide. Refer to AusHFG Standard Components: Office - workstation.

Design workstations with adequate knee space to allow for turning without obstruction. A modesty panel should be included in some locations. Round edges if one end of the workstation forms a meeting table.

Provide workstations with a safe cable management system. The simplest will involve an open tray under the work surface. In proprietary workstations, electrical and data wiring may be internally run with outlets above the work surface. Alternatively these outlets may be on the adjoining wall at a height of 550mm above the floor level with access to the work surface via the cable tray and a cable access cap.

Comply with the relevant regulations and Australian Standards for all services and connections built in or connecting to workstations. Adequate power and data connections should be provided to avoid the use of adaptors, etc. Surge protection should be provided to distribution boards supplying computer and associated equipment.

04.16 Shelving

GENERAL

Shelving should be fit for purpose and adequately address all issues of depth, reach, spacing, strength and cleaning. See General Performance requirements.

Shelving described in this section may be in the form of joinery shelf units, adjustable wall strip systems, upright medical record and filing systems, metal racking products, pharmacy systems or similar devices and shelves within a cupboard.

The location of shelving should not adversely affect any other functions e.g. clearances over work surfaces, use of wheeled bins (lid opening), door swings, effective cleaning, etc. Shelving includes the provision of adequate support structures within partitions for wall-hung systems.

DESIGN CRITERIA

DEPTH (front to back)

The recommended depth for shelves below a workbench is the approximate full width of the bench. The recommended average depth for wall-mounted shelves is 350mm. This will suit wall cupboards in utility rooms or over workstations. If a door is provided over the shelf unit, 350mm should be the total depth.

Shelf height will affect a functional shelf depth. 1250mm is a recommended maximum height for full reach into a shelf for men and women, whereas below 700mm high the reach into a shelf becomes increasingly difficult. 550mm is the maximum reach depth for women and 600mm for men.

The recommended depth of shelves for medical records shelving units is 400mm. This depth allows for metal dividers.

REACH AND SPACING

The maximum shelf height should not exceed 1700mm for women/combined use, increasing to 1850mm for men. Library stools will improve reach and approved steps are recommended for heights over 1950mm. However, this is for long term storage only. A minimum shelf height of 300mm is recommended although 150mm is usual in shelving units. However, a minimum height of 300mm is recommended for handles, etc on items stored below this height.

The recommended starting point for wall mounted shelves above a work surface designed at 720mm above the floor is 1370mm above the floor. This brings the underside of the shelf to 650mm above the desk.

The recommended starting point of wall mounted shelves above a work surface designed at 900 - 1000mm above the floor is 1520 - 1600mm above the floor. This brings the underside of the shelf to 1500 - 1580mm above the floor.

Shelves above a workbench should be a minimum of 600mm clear above the bench to accommodate computer monitors that should be set at an appropriate ergonomic height for users.

A typical Medical Records storage unit will be a joinery or standard metal adjustable shelving unit approximately 2100mm high with seven shelves starting from 150mm above the floor. Note: Files are generally 305 x 240mm stored horizontally. A library stool, not a step ladder, should be used to improve reach.

The recommended depth for wall shelves used for the storage of linen is 450mm spaced 400mm apart vertically.

Where possible and practical, all shelving should be adjustable. Typically, the first and last shelf in a joinery unit will be fixed.

Note: Only use an adjustable shelf support or fixed shelf connecting system adequate for the intended loading and use. Standard metal support pins used with drilled holes may be inadequate and recessed metal strip support systems may compromise infection control.

STRENGTH

Shelves should be designed to suit the weight of the objects most likely to be stored upon them. It should be noted that adjustable shelves are not as strong as fixed shelves. Additional strength may be gained by using thicker and/or stronger material or by providing an edge downturn.

ACCESS CLEARANCES

Adequate clear access space should be provided in front of shelves to ensure effective and safe use such as removal of items, stepping back, bending, squatting, turning or as required by:

- OHS regulations and guidelines;
- use of equipment e.g. steps, fork lift, etc;
- wheelchair access - as applicable to area function - unusual for engineering or central stores; and

- BCA for egress if applicable for medical record stacks, etc.

ACCESS FOR PEOPLE WITH DISABILITIES

The height range of shelving suitable for use by people with disabilities is nominated in AS1428.2 (Stds Aust 2010). The design of any shelving should recognise this range.

Note: For shelves in sanitary facilities refer AS1428.1 section 10 (Stds Aust 2010) and BCA clause F2.4 (Australian Building Codes Board 2009). All accessible toilets should be provided with a shelf.

04.17 References

Australasian

Commonwealth of Australia 1992, Disability Discrimination Act 1992, Office of Legislative Drafting and Publishing, Canberra: www.comlaw.gov.au/ComLaw/Legislation/ActCompilation1.nsf/0/31452800B62A28B7CA256FC00020014A/$file/DisabilityDiscrimination1992_WD02.pdf

Australian Government Department of Health and Ageing 2009, Disability (Access to Premises - Buildings) Standards 2009, Attorney- General's Department, Australia, www.ag.gov.au/premisesstandards

Individual Jurisdictions

NSW

NSW Department of Commerce State Procurement 2005, Contract 308: Workstations.

NSW Department of Commerce State Procurement 2006a, Contract 123: Office Furniture.

NSW Department of Commerce State Procurement 2006b, Contract 247 - Executive Furniture.

NSW Health 2005, PD 2005-077: Improved Access to Health Care Facilities, NSW Health.

QLD

Queensland Health 1998, Planning and Design Guidelines, Section 1, Queensland Health.

SA

Department for Transport Energy and Infrastructure 2006, Disability Access Guide, Government of South Australia.

Government of South Australia 2004, Compliance Obligations of Building Asset Owners, Government of South Australia.

Tasmania

Department of Premier & Cabinet, Tasmania 2005, Disability Framework for Action 2005 - 2010: a whole-of-government framework for Tasmanians with disabilities, Department of Premier and Cabinet.

State Government of Tasmania 1992, Disability Services Act 1992, www.austlii.edu.au/au/legis/tas/consol_act/dsa1992213/

Victoria

State Government of Victoria 2006, Disability Act 2006, Victoria, www.legislation.vic.gov.au/

WA

Disability Services Commission 1999, Buildings - A Guide to Access Requirements, Disability Services Commission.

Disability Services Commission n.d., Disability Access and Inclusion Plans for Local Government, Disability WA.

Disability WA 2009, Disability Services Commission, www.disability.wa.gov.au/index.html

State Government of Western Australia, 1993, Disability Services Act 1993, www.austlii.edu.au/au/legis/wa/consol_act/dsa1993213

Standards

Stds Aust 1990, AS 3590.2: Screen-based workstations - Workstation furniture, SAI Global.

Stds Aust 1994a, AS Handbook 59: Ergonomics - The human factor - A practical approach to work systems design, SAI Global.

Stds Aust 1994b, AS 1735.12: Lifts, escalators and moving walks - Facilities for persons with disabilities, SAI Global.

Stds Aust 1996, AS/NZS 2208: Safety glazing materials in buildings, SAI Global.

Stds Aust 1997a, AS/NZS 2343: Bullet resistant panels and elements, SAI Global.

Stds Aust 1997b, AS/NZS 4443: Office Panel Systems - Workstations, SAI Global.

Stds Aust 2005, AS/NZS 2243.1: Safety in laboratories - Planning and operational aspects, SAI Global.

Stds Aust 2009, AS/NZS ISO 31000: Risk Management, SAI Global.

Stds Aust 2010, AS 1428 (Set): Design for Access and Mobility, SAI Global.

Further Reading

Australian Human Rights Commission 1998, Advisory Notes on Access to Premises, Human Rights and Equal Opportunities Commission, www.hreoc.gov.au/disability_rights/standards/Access_to_premises/premises_advisory.html

Goldsmith S., 2000, Universal Design, Architectural Press, Woburn.

Littlefield D., 2001, Metric Handbook: Planning and Design Data, 3rd ed., Elsevier Science & Technology Books.

NHS Estates 1995, Health Building Note 40: Common Activity Spaces, NHS Estates.

Sawyer A., & Bright, K 2007, The Access Manual: Auditing and Managing Inclusive Built Environments, Blackwell Publishing, Oxford.

The Centre for Accessible Environments n.d., Centre for Accessible Environments, www.cae.org.uk

Vision Australia 2007, Fact Sheet: Accessible Design For Public Buildings, Vision Australia, www.visionaustralia.org.au/info.aspx?page=721

05 SIGNAGE

05.01 General

PERFORMANCE REQUIREMENTS

Provide appropriate and comprehensive wayfinding for all healthcare facilities. Signage should clearly identify staff, patient and visitor areas and clearly identify restricted areas.

Comply with the requirements of the BCA and DDA, and with all relevant legislation, regulations, codes and policies including those within each jurisdiction. Comply with the requirements for relevant Statutory Authorities e.g. roads, aviation, local authorities, utility providers, etc.

Comply with the relevant security acts and regulations within each jurisdiction, and all policies governing the function and use of healthcare facilities e.g. access, safety, processes, building services / components and maintenance.

Design wayfinding to assist and enable patients and visitors to navigate around the facility with ease, and adequately address the needs of persons with disabilities.

Wayfinding develops and expands upon previous concepts of providing signage. Corporate identity requirements may in turn have an impact on the wayfinding strategy employed.

Wayfinding and corporate identity have become highly specialized subjects. Any system developed or adopted should be evidence based. At site level an approved documented system is essential and a method of developing a comprehensive strategy should be followed rather than the use of a prescriptive signage manual.

This section provides general guidance where no comprehensive wayfinding policy or guideline exists. However, in such cases, it is recommended that a policy be developed with specialist assistance.

Signage should be used to define those areas where public access is allowed or restricted, providing a first line of defence against intruders.

TYPEFACE

The Helvetica typeface has been in general use for public and healthcare signage since the 1970's, with sign making and engraving equipment set up for this typeface. It was adopted by the National Health Service (NHS) in the UK and by NSW Health in the TS-2 signposting guide in 1974 (NSW Health & CHAA 2009).

The introduction of CAD and CAD/CAM expanded the choice of typeface and materials. A sans serif lettering style is still recommended for general healthcare signage. Frutiger Bold provides improved recognition and comprehension to Helvetica Medium, and there are other alternatives such as Meta and Arial.

The use of Title case or Capitalized text - upper case for the first letter and lower case for the rest of the word - is recommended for legibility and for general signage, while upper case is recommended for the Main Entry sign.

Note: The BCA, some Australian Standards and other regulatory signage may require or recommend the use of Helvetica as a typeface.

PICTOGRAMS

Pictograms aid comprehension, help overcome language difficulties and provide a means to rapidly identify services.

Australian and International Standards symbols or pictograms should generally be used in preference to custom designs to avoid ambiguity. The use of accompanying text with pictograms aids comprehension and is often required.

Refer to:

AS1428: Design for access and mobility, parts 1 and 2 (Stds Aust 2010).

ISO 7001: Graphical symbols - Public information symbols (ISO 2007).

Size of letters in relation to reading distances, mounting heights, etc, should comply with the relevant signage standards and include Braille and tactile requirements.

Compliance with the intent of the DDA requires consideration of lighting, lettering and symbol size, tactile, auditory and visual safety information. Ensure that signs do not reflect light and are not affected by glare e.g. in front of bright backgrounds.

SIGNAGE MATERIALS

Selection will be influenced by a number of factors including fitness for purpose, life cycle costs and flexibility requirements.

Many of the traditional signage systems employed powder-coated aluminium planking with screen-printed lettering. New products and processes now offer greater design flexibility and more cost effective solutions.

Vinyl-cut self-adhesive lettering has proved to be a practical and economical option for internal and external signage, and can be changed easily over time. However it is vulnerable to vandalism in public areas and removal can damage some surfaces.

The use of direct stick lettering on door surfaces should be assessed against the difficulty in repainting and the incurred cost penalty. Signs using removable slats may require a locking device to prevent unauthorized removal.

Acrylic, synthetic and composite boards are increasingly used, as is computerized laser cutting of most materials. Sandblasting, in lieu of engraving, is now common and older machinery with limited fonts / pictograms is being replaced by more versatile modern equipment.

05.02 External Signs

PERFORMANCE REQUIREMENTS

HELIPADS

Ensure that the marking and signage for Helicopter Landing Areas complies with the requirements of the Regulating Authority.

Refer to:

CAAP 92-2 (1) - Guidelines for the establishment and use of helicopter landing sites (Civil Aviation Safety Authority Australia 1996).

DHS Victoria - Capital Development Guidelines. 6.7: Air Ambulance Helipads (DHS Victoria 2003).

CASR 133 - Commercial Air Transport Operations - Rotorcraft (Civil Aviation Safety Authority Australia 2000).

GENERAL

External directional signs should have reflective letters on a contrasting background. A gloss finish that reflects light may be difficult to read. The signs should preferably be steel or aluminium construction with a durable finish.

EXTERNAL ILLUMINATED SIGNS

External illuminated signs are used for Emergency Department, the Main Entry and Night Entry.

Note: Emergency Department or Emergency Unit is referred to in these guidelines. The sign however should read ‘EMERGENCY’.

ROAD MARKINGS

Road markings such as parking bays, arrows, symbols and instructions should follow the relevant Road Authority policies and applicable Australian Standards. Refer to AS 2890: Parking facilities, parts 1 and 6 (Stds Aust 2009c).

ROAD SIGNS

Accreditation standards may require that the facility has directional road signs sufficient to enable it to be easily located from the major access roads in the area.

The entry to the Emergency Unit should be clearly signposted by an illuminated sign that is visible from the main entry points to the Hospital site.

For ease of comprehension, all on-site road signage should continue the use of public road signage that complies with the requirements of the local council and/or the roads and traffic authority for each jurisdiction.

05.03 Internal Signs

PERFORMANCE REQUIREMENTS

Comply with the relevant Acts, regulations and policies of the authorities for safety symbols and symbolic signs including all referenced Australian Standards, Occupational Health and Safety and Disability Discrimination requirements, and the policies within each jurisdiction.

BED NUMBERING

Bed numbering should be shown outside the patient bedroom with one number per bed.

In bedrooms with more than one bed, all bed numbers or the range of numbers should be shown on the sign outside the room. For example:

- beds 78 & 79; or
- beds 78 to 81.

In bedrooms with more than one bed, display the bed number at the bedhead.

Bed numbers outside the room should be clearly visible from the corridor and not be obscured by other objects or wall returns.

The provision of a room number is optional. When provided it should not visually compete with the bed numbers.

PATIENT INFORMATION

It is no longer recommended that signs display information about a patient such as patient details, doctor identification and special instructions at the patient bedhead or in a visible place within the patient bedroom.

This is considered inappropriate due to the requirement for the privacy of patient records. Designers and managers wishing to install patient information holders in the rooms are advised to fully consider the impact on patient privacy.

DOOR IDENTIFICATION

Door / frame numbering or tags may be required as part of an asset management and maintenance system / register. This constitutes a separate labelling system and should not be confused with standard room signage. Unlike room signs, door labels are generally small, unobtrusive and may use a simple bar code.

IDENTIFICATION SIGNAGE

Identification signs located on doors or preferably on walls adjacent to doors require the following considerations:

- the format used should allow easy replacement of the sign or sign message when the room function changes; and
- it may be appropriate to deliberately omit identification on certain doors used only by staff.

DIRECTIONAL SIGNAGE

Non-illuminated directional and area identification signs should be as follows:

- ceiling or wall mounted;
- text on contrasting background - dark lettering on light background preferred;
- a guide for the patient or visitor until they reach a room or door sign for the intended destination; and
- not obscure other critical ceiling fixtures such as emergency lighting or fire exit signs.

Serious consideration should be given to the provision of alternative / additional low level signs in Braille in hospital entrance foyers leading to major departments and lifts. Although this is not a mandatory requirement, it may become a requirement of the Disability Discrimination Act (Commonwealth of Australia 1992) in the future. It is recommended that such signs be installed immediately above the handrail required by AS1428: Design for access and mobility (Stds Aust 2010).

05.04 Fire Services Signs

PERFORMANCE REQUIREMENTS

Install fire services and exit signs in accordance with the following as applicable:

- Building Code of Australia (Australian Building Codes Board 2009).
- AS2444: Portable fire extinguishers and fire blankets - Selection and location, SAI Global (Stds Aust 2001).
- AS2293.3: Emergency escape lighting and exit signs for buildings, SAI Global (Stds Aust 2005a).
- AS2419.1: Fire hydrant installations - System design, installation and commissioning, SAI Global (Stds Aust 2005b).
- AS2441: Installation of fire hose reels, SAI Global (Stds Aust 2005c).

Note: Cantilevered wall signs in preference to wall or ceiling signs are recommended for the ready identification of Fire Service equipment under emergency conditions.

05.05 Miscellaneous Signs

GENERAL

Miscellaneous signs, illuminated and non-illuminated, are to be provided as required. The signs and colours used should meet the requirements of the relevant legislation, regulations and standards.

Refer to Part B for signs, symbols or marking required for individual HPU including security, hazard and safety signage.

In addressing specific location requirements, multi lingual signs and symbols should also comply with relevant disability discrimination and associated regulations and policies.

Signage identifying the presence of CCTV monitoring is recommended in public areas as a deterrent to antisocial, violent or criminal activities. Refer to Section790 - Security.

05.06 References

Individual Jurisdictions

NSW

NSW Health & CHAA, UNSW, 2009, TS-2: Wayfinding for Health Facilities, NSW Health.

Queensland

Wayfinding design guidelines, CRC for Construction Innovation, compiled by Apelt, R., Crawford, J., Hogan, D, n.d., 18 May 2010, supported by Queensland Government Disability Services, http://www.construction-innovation.info/index.php?id=1097

Victoria

DHS Victoria 2003, Capital development guidelines 6.7: Air Ambulance Helipads, Department of Human Services, Victoria.

Further Reading

Australian Building Codes Board 2009, The Building Code of Australia, Australian Government, State and Territory Governments of Australia.

Barker, P & Fraser, J 2000, Sign Design Guide, JMU Access Partnership and Sign Design Society, London.

Civil Aviation Safety Authority Australia 1996, CAAP 92-2: Guidelines for the establishment and use of helicopter landing sites, Civil Aviation Safety Authority Australia.

Civil Aviation Safety Authority Australia 2000, CASR 133: Commercial Air Transport Operations - Rotorcraft, Civil Aviation Safety Authority Australia.

Commonwealth of Australia 1992, Disability Discrimination Act 1992, Office of Legislative Drafting and Publishing, Canberra.

ISO 7010 2003, Graphical symbols - Safety colours and safety signs - Safety signs used in workplaces and public areas, International Organisation for Standardisation.

ISO 7001 2007, Graphical symbols - Public information symbols, International Organisation for Standardisation.

Miller, C, et al. 1999, Wayfinding: Effective Wayfinding and Signing Systems; Guidance for Healthcare Facilities, The Stationary Office, London.

Stds Aust 2001, AS 2444: Portable fire extinguishers and fire blankets - Selection and location, SAI Global.

Stds Aust 2005a, AS2293.3: Emergency escape lighting and exit signs for buildings, SAI Global.

Stds Aust 2005b, AS2419.1: Fire hydrant installations - System design, installation and commissioning, SAI Global.

Stds Aust 2005c, AS2441: Installation of fire hose reels, SAI Global.

Stds Aust 2009c, AS/NZS 2890 (Set): Parking facilities, SAI Global.

Stds Aust 2010, AS1428 (set): Design for Access and Mobility, SAI Global.

Uebele, A 2007, Signage Systems and Information Graphics, Thames & Hudson, New York.

06 SAFETY AND SECURITY PRECAUTIONS

06.01 Introduction

PERFORMANCE REQUIREMENTS

Comply with the relevant Occupational Health and Safety (OHS) legislation, regulations, codes and policies within each jurisdiction, and with relevant safety regulations issued by individual Regulatory Authorities.

GENERAL

Safety and security issues are of prime importance as their neglect can generate considerable, yet avoidable, costs to healthcare facilities if patients, staff / contractors or visitors are injured or property is damaged or stolen. This section provides advice on the design of facilities to facilitate safety and security, and to minimise capital and recurrent costs related to these. It also provides references to assist in accessing specific information e.g. in regard to the selection of duress alarms.

Refer to Part B - General Requirements, for further detailed information on OHS and sources of information. See also References and Further Reading in this section.

The focus on OHS legislation is the safety of all people in the workplace. Other safety aspects of the built environment are covered separately and may be found within general regulations such as the BCA and utility supply authorities.

Specific HPU processes, activities or materials are covered by regulations and may require specific design input, consultations, documentation and approvals regarding access, security, and labelling, warning alarm and communications systems. These may include:

- building maintenance, fixed walkways, ladders, hatches, window cleaning, roof safety, etc;
- plant rooms, substations, liquid gas storage, etc;
- electromagnetic interference, radiation, toxic materials, etc;
- helicopter landing areas, Police, Fire Brigade, etc;
- building services; and
- laboratories, radiotherapy, etc.

DESIGN ASPECTS

Design of a project may impact on the OHS of employees and the health and safety of others in the workplace including patients and visitors. These design issues are discussed in more detail in Part B under each HPU.

Design spaces so that manual handling risks are minimised giving particular attention to the following:

- slope / gradient of ramps;
- turning circles for equipment;
- size of rooms;
- placement of fittings e.g. toilets to ensure nurse access / assistance to patients;
- location of services and fittings;
- height and widths of doorways;
- floor coverings and changes in floor levels;
- location, size and configuration of storage spaces; and
- fitting of door closers and door holders.

Note 1: Where subject to regulation, it may be necessary to increase minimum dimensions or to decrease slopes in specific cases e.g. turning circles and ramps.

Note 2: Ramps, if required for general use by BCA or DDA, can constitute a potential OHS manual handling risk for transporting patients or goods. Minimum required gradients should be reduced where assistive devices such as bed movers or tugs are used. Alternatively provide a lift. See Section 710 - Ramps.

Note 3: Refer to Section 790 - Patient Handling and Lifting and Section 790 - Goods Handling.

Ergonomics requires matching the workplace design and layout to the human form including its physical and cognitive capabilities. Examples of this include:

- height, depth and width of counters and workbenches including taking into account any equipment that may be used on the bench;
- positioning of bedpan racks;
- positioning of viewing panels in doors;
- positioning of light switches, door handles and handrails / grabrails;
- ensuring correct height of monitors;
- push / pull forces for doors and similar items;
- ability to accommodate bariatric patients who may need oversized equipment;
- overhead head hoist facilities for bariatric patients including positioning;
- design of units for people with dementia; and
- clarity of signage and directional cues in accordance with BCA and Standards.

Refer: to Section 730 - Ergonomics.

Selection of furniture, fittings and equipment (FF&E) should reduce risks to employees and others. Consider the compatibility of different types of FF&E with each other. Examples of these considerations include:

- drop down grab rails in ensuites / bathrooms to allow staff access to patient;
- infill grabrails in mental health units;
- compatibility of hoists with beds;
- emergency access to bathrooms / toilets / ensuites; and
- tamper proof airconditioning outlets and light fittings in mental health units.

Then designing public access throughout the facility, issues to be addressed include control methods for access / egress, restrictions signage and monitoring.

Further detailed security issues include:

- ability to observe waiting areas;
- application of Crime Prevention Through Environmental Design (CPTED) principles;
- location of car parks, pathways to and from car parks, and staff entries including provision of parking for afternoon and night staff;
- lighting;
- organisation of HPUs so that staff are not working in isolation, especially when 8-hour operational areas close down for the day;
- design of reception counters;
- choice of glazing;
- location of security office;
- location and installation of duress alarms so staff can effectively summon assistance;

- location and installation of CCTV systems;
- location and installation of intercom systems and call buttons;
- design of waiting rooms and risk free furniture; and
- provision of escape routes.

Ensuring patient and visitor safety may require designing the facility to minimise risks for patients who may be confused, disoriented or have cognitive or sensory impairment. It may also require consideration of patients who may be behaviourally disturbed or at risk of attempting self harm. Examples include:

- design of stairwells and balustrades to reduce risk of accidental or deliberate falls e.g. avoid open vertical shafts between stair flights, bridge walkways, etc;
- design of rooms to accommodate bariatric patients and the equipment needed to provide them with healthcare;
- design of doors including hinges in mental health unit and dementia / aged care unit patient rooms;
- choice of glazing methods and materials;
- choice of light fittings and the provision of dimmed direction lighting between bed and ensuite;
- consideration of infection control issues;
- choice of flooring type for the elderly to reduce slips, trips, and injury from falls;
- design of floor finish junctions, borders, patterns and colours to avoid causing frustration and confusion; and
- design of signage.

06.02 Floor Finishes

Safety Issues to be considered in the selection of floor finishes are covered above and in Section 710 - Finishes - Floor Safety.

Refer also to TS-7 Floor Coverings in Healthcare Building (NSW Health & CHAA, UNSW 2009)

06.03 Glazing

PERFORMANCE REQUIREMENTS

Comply with the requirements of the BCA, with the relevant security Acts and regulations within each jurisdiction and with the recommendations of AS/NZS ISO 31000 (Stds Aust 2009).

Based on the security risk assessment and risk mitigation plan, particularly for sites listed under the national CI (critical infrastructure) listing. Consider blast rated external glazing for Emergency Departments and ICU.

Design glazing in accordance with AS1288 (Stds Aust 2006a) as applicable to public buildings including glazing in balustrades, windows, doors, partitions, screens, etc.

For all internal and external glazed panels subject to possible breakage including doors, sidelights, windows, balustrades, etc, comply with the following standards:

- AS/NZS2208: Safety Glazing Materials in Buildings (Stds Aust 1999a);
- AS1288: Glass in buildings-Selection and installation (Stds Aust 2006a);
- AS Handbook 125: The glass and glazing handbook (Stds Aust 2007);
- AS2047: Windows in buildings - Selection and installation (Stds Aust 1999). As entrance areas can be the site for aggressive incidents, provide all of these with safety glazing.

Glazing including mirrors in emergency departments, drug and alcohol units, mental health units and community mental health facilities or other high risk departments should be safety glazing or an equivalent product such as a custodial care product. This should be selected to meet the specific user requirements e.g. holding rooms, seclusion rooms. Refer to individual HPU for details.

Safety glazing should also be used for wall openings in activity areas such as recreation and exercise rooms and for shower screens, internal doors and full height windows, including glazing in paediatric, acute mental health, emergency units, community health and other high risk departments.

Glazing should be selected to prevent the following risks:

- patients accessing out of bounds areas;
- patients absconding;
- patients self harming e.g. cutting or ingesting fragments; and
- preventing staff from reaching a safe place.

Safety glazing materials include toughened, laminated, wired glass, or combinations of these (bullet resistant), plastic materials (polycarbonates), films, etc. Some of these are defined in AS/NZS2208 (Stds Aust 1999a). Mirrors, lights, etc for custodial use are available where a similar risk is identified.

Refer to: Section 710 - Interior Glazing and Windows.

06.04 Hazardous Substances, Dangerous Goods, and Glutaraldehyde

PERFORMANCE REQUIREMENTS

Comply with the relevant legislation within each jurisdiction, with the relevant regulations and policies of each regulating authority and with the appropriate industry guidelines.

HAZARDOUS SUBSTANCES AND DANGEROUS GOODS

This section does not extend to the management issues relating to these materials except where the built environment or management practices affect each other. Materials that form part of the building fabric, fit-out or come under general household categories are also outside the scope. Other parts of the AusHFG cover specific materials as they relate to specific departments, materials or processes e.g. radiotherapy, pathology, laboratory processes, medical gas storage, waste holding, etc.

Hazardous substances comprise radiological sources, harmful biological materials, and hazardous chemicals. The number and types of materials applicable to healthcare facilities are extensive and are covered only in general terms and by the provision of appropriate reference to primary sources.

Dangerous goods are covered by The Dangerous Goods (Storage and Handling) Handling Regulations and are subject to a United Nations international classification system with nine classes. They may be corrosive, flammable, explosive, oxidizing or reactive with water and are subject to the HAZCHEM code and identification for emergency personnel.

Hazardous Materials and Dangerous Goods are covered by individual industry material safety data sheets (MSDS). These include information on characteristics and safe handling.

The management of these materials in healthcare facilities, involves transportation, storage, use and disposal of hazardous materials and controlled waste. This includes the security aspects of fire, accident, and unauthorized removal / misuse. These issues are all comprehensively covered by legislation, standards and Codes of Practice available from the relevant Safety Authority.

06.05 Noise Reduction

PERFORMANCE REQUIREMENTS

Comply with the relevant legislation within each jurisdiction.

Design and construction should address ‘hearing conservation’ aspects of the work environment. The occupied floor area (OFA) should be designed to maintain internal noise levels at an appropriate level in accordance with Indoor Environment Quality (IEQ) requirements or recommendations.

The major design issues to consider include:

- design workplaces to minimise the occupants’ exposure to noise. Noisy machines and activities should be remote or isolated from other work areas;
- provide acoustic enclosures to noisy equipment where practicable;
- provide noisy work areas such as workshops with acoustically absorbent ceilings or other means to reduce the amount of noise impacting on other staff working nearby;
- ensure that checking noise levels of equipment is an integral part of equipment selection/ purchasing procedures;
- consider the impact of ultrasonic noise generation, and provide effective solutions. Refer to AS/ NZS 2243.5 (Stds Aust 2006c).

Note 1: Acoustic separation for privacy reasons is a different subject covered separately in these guidelines.

Note 2: Nuisance noise is also an issue as it can degrade patient comfort and impair staff function even though it may not be of a sufficient level to cause hearing loss.

Note 3: The building and mechanical services design should achieve ambient internal noise levels in accordance with Table 1 of AS/NZS 2107 (Stds Aust 2000b).

Note 4: Noisy environments can exacerbate the risk of client aggression, anxiety and cause discomfort. Quiet, low stimulus areas should be provided in emergency departments and in mental health, aged care, maternity and in paediatric units.

Refer also to Section 710 - Floor, Wall and Floor Finishes, and to Sound Control for Improved Outcomes in Healthcare Settings (Joseph & Ulrich 2007).

06.06 Insect Control

External doors that open directly into food preparation areas and that are used for service deliveries or regular access should be fitted with air curtains, flexible doors or an equal control system to restrict the ingress of insects. Flyscreen doors which can be propped open, and electronic insect traps within the kitchen, should not be used as the only means of insect control.

For flyscreen requirements to door and window openings refer to Section 710 Building Elements - Doors, and Windows. Flyscreens are generally required to all opening windows used for ventilation.

06.07 Patient Handling and Lifting

PERFORMANCE REQUIREMENTS

Comply with the relevant sections of OHS legislation within each jurisdiction and with the relevant regulations and policies of each regulating authority.

Poor workplace and FF&E design are major contributing factors to staff and patient injuries especially in patient rooms, toilets, bathing areas and corridors. These injuries are costly and preventable. Poor design may also increase patient dependency and negatively impact on productivity.

Restricted space may lead to constrained and awkward postures during handling tasks and poor workplace design may lead to unnecessary or double handling of patients / residents. The design and selection of FF&E including beds should be addressed.

Particular attention should be given to OHS risk reduction in the manual handling issues relating to bariatric patients and to adequately provide for the needs of these patients.

The BCA addresses questions of access for people with disabilities but it does not consider the extra needs of access for people with disabilities who require assistance or for the accompanying carers.

Given the requirements of OHS legislation to provide safe premises and plant and to identify, assess and eliminate / control risks, design facilities to:

- facilitate the implementation of operational and other policy procedures that effectively eliminate or reduce the need for patient handling and double handling e.g. door and corridor widths should allow for a patient's bed to travel with them rather than require repeated transfers from bed to trolley.
- accommodate the storage and safe use of manual handling aids including patient hoists, commodes, wheelchairs, walking belts, slide sheets and patient scales. The quantity and size of equipment, functional space for use of equipment and storage close to proximity of use should be considered including space requirements for the use and storage of bariatric equipment.
- adequately provide for the accommodation, movement and treatment of bariatric patients.

To comply with OHS legislative requirements, manual handling decisions should be taken in consultation with employees e.g. direct care staff and business unit managers in order to achieve the best risk management solutions and a unity of commitment.

Consider manual handling needs during the design phase for bedrooms and ensuites designed for the use and treatment of bariatric patients including the installation of overhead hoists and storage for bariatric equipment.

Refer to:

National Code of Practice for the Prevention of Musculoskeletal Disorders from Performing Manual Tasks at Work (Australian Safety and Compensation Council, 2007a).

Also refer to References and Further Reading for regulation and policy within each jurisdiction and to Part F - Project Implementation for FF&E.

06.08 Soft Furnishings

PERFORMANCE REQUIREMENTS

Ensure that soft furnishings comply with the relevant safety and environmental legislation and other relevant policies within each jurisdiction, including infection control, hygiene, cleaning, procurement, whole of life costs and risk management policies.

Soft furnishings in the internal built environment include mattresses, curtains, bed, cubicle and shower screens, upholstery, finishes, and wall and floor coverings including tracks, fittings, sealants or adhesives.

Certain materials emit internal air pollutants in the form of Volatile Organic Compounds (VOC). To reduce the detrimental impact on occupant health select only materials that meet recommended benchmarks for low VOC content or emissions.

The BCA Section C Fire Resistance covers fire hazard properties including floor materials, floor coverings, wall or ceiling lining materials. Soft furnishings are only covered under this context. They are not included under Non-Combustible Materials which deals with sheet lining materials.

Consider the special safety risk factors and duty of care issues associated with acute mental health and aged care behavioural units. Consult with appropriate staff representatives.

Fabric should be capable of withstanding standard healthcare laundry treatment without losing its inherent properties.

06.09 Goods Handling

LOADING DOCKS

Loading docks should be designed to provide a level surface for loading / unloading. Match average tailgate heights and allow for vehicles with both end and side goods access. Proprietary lift / platforms whether built-in or mobile may overcome problems with extreme vehicle cargo floor height disparities.

Canopy clearance heights including services and projections should allow for maximum vehicle heights and for overhead dumpster operations. Vehicle height warning notices and overhead horizontal swing bars should be provided.

06.10 References and Further Reading

GENERAL

This Section should be read in conjunction with current versions of the following documents or web documents. The list is not inclusive and additional references are provided within the text and by the core reference document. It includes references for Safety.

AUSTRALASIAN

ARPANSA 2008, Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) - Legislative Framework, Australian Radiation Protection and Nuclear Safety Agency. Plus various recommendations and Codes of Practice available from: www.arpansa.gov.au

Australian Building Codes Board 2009, The Building Code of Australia, Australian Government, State and Territory Governments of Australia.

Australian Council for Safety and Quality in Health Care (ACSQHC) 2005, Preventing falls and harm from falls in older people: Best practice guidelines for Australian hospitals and residential aged care facilities, ACSQHC.

Australian Safety and Compensation Council ASCC (formerly NOHSC), www.ascc.gov.au

Australian Safety and Compensation Council 2007a, National Code of Practice for the Prevention of Musculoskeletal Disorders from Performing Manual Tasks at Work, Commonwealth of Australia.

Australian Safety and Compensation Council 2007b, National Standard for Manual Tasks, Commonwealth of Australia.

Australian Safety and Compensation Council 2009, Hazardous Substances Information System, Safework Australia.

CSIRO 2009, Management of Chemical Hazards, CSIRO2009.

Department of the Environment and Heritage 2004, Chemical Information Gateway Department of the Environment and Heritage.

NOHSC 1994a, NOHSC 1008: Approved Criteria for Classifying Hazardous Substances, National Occupational Health and Safety Commission, Commonwealth of Australia.

NOHSC 1994b, List of Designated Hazardous Substances [NOHSC: 10005 1994], 2nd ed., National Occupational Health and Safety Commission, Commonwealth of Australia.

NOHSC 1994c, National Code of Practice for the Control of Workplace Hazardous Substances: National Occupational Health and Safety Commission, Commonwealth of Australia.

New Zealand Department of Labour 2005, Workplace Health and Safety Strategy for New Zealand to 2015, Department of Labour.

Parliament of New Zealand 1992, Health and Safety in Employment, Act 1992 (HSE Act).

Safe Work Australia 2009, Safe Work Australia.

Worksafe New Zealand 2009, ACC WorkSafe Cycle, Accident Compensation Council.

INDIVIDUAL JURISDICTION

ACT

ACT Parliamentary Council 2004, Occupational Health and Safety Regulation 1991, Government of the Australian Capital Territory.

ACT Parliamentary Council 2009, Occupational Health and Safety Act 1989, Canberra.

ACT Workcover 2000, Guidance on the Safe Moving of Clients, Occupational Health and Safety Council.

ACT Workcover 2004, Occupational Health and Safety Act 1989: A Guide for Users, Government of the Australian Capital Territory.

TAMS n.d., Waste Management and Hazardous Materials, Department of Territory and Municipal Services, Canberra

NEW SOUTH WALES

NSW Health 2001, Policy Directive 2005_224: NSW Public Health Services - Policy and Best Practice Guidelines for the Prevention of Manual Handling Incidents, NSW Health.

NSW Health 2005a, Guideline 2005_070: Occupational Health & Safety Issues Associated with Management Bariatric (Severely Obese) Patients, NSW Health.

NSW Health 2005b, Policy Directive 2005_351: Provision of First Aid Facilities and Personnel, NSW Health.

NSW Health 2005c, Policy Directive 2005_409: Workplace Health and Safety: Policy and Better Practice Guide, NSW Health.

NSW Health 2006, Policy Directive 2006_010: Guidelines for the Safe Use of Hazardous Substances and Dangerous Goods, NSW Health.

NSW Health 2009, Personel / Workforce - Occupational Health and Safety, NSW Health.

State Government of New South Wales 2000, Occupational Health and Safety Act 2000.

WorkCover NSW 2003, Codes of Practice - Hazardous Substances List, WorkCover Authority of NSW.

NORTHERN TERRITORY

Northern Territory Department of Justice 2007, Workplace Health and Safety Act 2007, Northern Territory of Australia.

Northern Territory Department of Justice 2008, Workplace Health and Safety Regulations, Northern Territory of Australia.

QUEENSLAND

State Government of Queensland 2008, Workplace Health and Safety Regulation 2008, Office of the Queensland Parliamentary Counsel.

State Government of Queensland 2009, Workplace Health and Safety Act 2008, Office of the Queensland Parliamentary Counsel.

Workplace Health and Safety Queensland 2001, Manual Tasks Involving the Handling of People Code of Practice 2001, Queensland Department of Justice and Attorney-General.

Workplace Health and Safety Queensland 2007, Guide to the workplace health and safety obligations of designers of structures, Queensland Department of Employment and Industrial Relations.

Workplace Health and Safety, Queensland 2010a, Manual Tasks Code of Practice 2010, Queensland Department of Justice and Attorney-General.

Workplace Health and Safety, Queensland, 2010b, Hazardous materials, Queensland Department of Justice and Attorney-General.

SOUTH AUSTRALIA

SafeWork SA n.d., Safework SA, Government of South Australia.

State Government of South Australia 2009, Occupational Health, Safety and Work Regulations 1995 (Version 2009), South Australia Attorney-General's Department.

State Government of South Australia 2010, Occupational Health, Safety and Welfare Act 1986 (version 2010), South Australia Attorney General's Department.

TASMANIA

State Government of Tasmania 1995, Workplace Health and Safety Act 1995.

State Government of Tasmania 1998, Workplace Health and Safety Regulations 1998.

Workplace Standards Tasmania 1999, Annonated Workplace Health and Safety Regulations 1998, Workplace Standards Tasmania.

VICTORIA

State Government of Victoria, Occupational Health and Safety (Manual Handling) Regulations 1999.

Worksafe Victoria 2000, Manual Handling (Code of Practice No 25), Worksafe Victoria.

Worksafe Victoria 2005a, Designing Safer Buildings and Structures, Worksafe Victoria.

Worksafe Victoria 2005b, Manual handling - Risk management in a large organisation.

Worksafe Victoria 2007, Designing Workplaces for Safer Handling of People, Worksafe Victoria.

WESTERN AUSTRALIA

State Government of Western Australia 1984, Occupational Safety and Health Act 1984, West Australian Department of Commerce.

State Government of Western Australia 1996, Occupational Safety and Health Regulations 1996, Department of Commerce.

State Government of Western Australia 2006, Code of practice: Violence, Aggression and Bullying at Work, Commission for Occupational Safety and Health, Department of Commerce.

WA Health 1991, OP 0111/91: Control of Workplace Hazardous Substances - National Model Regulations, Western Australia Department of Health.

WA Health 1999, OP 0953/99: Management and Use of Hazardous Substances in Health Department Workplaces, Western Australia Department of Health.

WA Health 2007a, Guidelines for Engineering Services, Western Australia Department of Health.

WA Health 2007b, Western Australia Health Facility Guidelines for Infection Control, Government of Western Australia.

Worksafe WA 2000, Code of Practice: Manual Handling, Commission for Occupational Safety and Health.

Worksafe WA Commission 2003, General duty of care in Western Australian workplaces, Commission for Occupational Safety and Health.

STANDARDS

ARPANSA 2008, ARPANSA Home: Australian Radiation Protection and Nuclear Safety Agency.

Australian Council for Safety and Quality in Health Care (ACSQHC), 2005, Preventing falls and harm from falls in older people: Best practice guidelines for Australian hospitals and residential aged care facilities, ACSQHC.

Stds Aust 1997, AS 4485: Security for health care facilities, SAI Global.

Stds Aust 1999, AS 2047/Amdt 2-2001: Windows in Buildings - Selection and installation, SAI Global.

Stds Aust 1999a, AS/NZS 2208:1996/Amdt1:1999: Safety glazing materials in buildings, SAI Global.

Stds Aust 2000a, AS2021: Acoustics - Aircraft noise intrusion - Building siting and construction, SAI Global.

Stds Aust 2000b, AS/NZS 2107: Acoustics - Recommended design sound levels and reverberation times for building interiors, SAI Global.

Stds Aust 2001, AS/NZS 4801: Occupational health and safety management systems - Specification with guidance for use, SAI Global.

Stds Aust 2003, AS/NZS 4187: Cleaning, disinfecting and sterilizing reusable medical and surgical instruments and equipment, and maintenance of associated environments in health care facilities, SAI Global.

Stds Aust 2004a, AS 1940/Amdt 2-2006: The storage and handling of flammable and combustible liquids, SAI Global.

Stds Aust 2004c, AS 2430.3: Classification of hazardous areas - Examples of area classification, SAI Global.

- AS 2430.3.1: General
- AS 2430.3.3/Amdt 1-2007: Flammable Liquids

Stds Aust 2004d, AS 4332/Amdt 1-2005: The Storage and Handling of Gascylinders, SAI Global.

Stds Aust 2005, AS/NZS 1269: Occupational Noise Management, SAI Global.

Stds Aust 2006a, AS 1288/Amdt 1-2008: Glass in buildings - Selection and installation, SAI Global.

Stds Aust 2006b, AS 1216: Class labels for dangerous goods, SAI Global.

Stds Aust 2006c, AS/NZS 2243: Safety in Laboratories Set, SAI Global.

- AS/NZS 2243.3-2002/Amdt 1-2003: Safety in Laboratories - Microbiological aspects and containment facilities.
- AS/NZS 2243.4-1998: Safety in Laboratories - Ionizing Radiations.
- AS/NZS 2243.5-2004: Safety in laboratories - Non-ionizing radiations - Electromagnetic, sound and ultrasound.
- AS/NZS 2243.8-2006: Safety in Laboratories - Fume cupboards.
- AS/NZS 2243.9-2009: Safety in Laboratories - Recirculating fume cabinets.

Stds Aust 2007, AS Handbook 125: The glass and glazing handbook, SAI Global.

Stds Aust 2008, AS/NZS 1596: Storage and Handling of LP Gas, SAI Global.

Stds Aust 2009, AS/NZS ISO 31000: Risk Management, SAI Global.

Stds Aust 2010, AS 2436: Guide to noise and vibration control on construction, demolition and maintenance sites: SAI Global

Stds Aust 2010a, AS 1428 (Set): Design for Access and Mobility, SAI Global.

Stds Aust 2010b, AS 2436: Guide to noise and vibration control on construction, demolition and maintenance sites, SAI Global.

GLUTARALDEHYDE

For detailed design and ventilation requirements for the use of glutaraldehyde in health care settings, refer to:

Department of Labour 1992, The Safe Occupational Use of Glutaraldehyde in the Health Industries, Health and Technical Services, Department of Labour, New Zealand.

Ecospecifier 2009, Ecospecifier: Products, Knowledge, Solutions, www.ecospecifier.org/

Green Building Council Australia 2009, Healthcare V1, Green Star, www.gbca.org.au/rating-tools/green-star-healthcare-v1/1936.htm

NSW Health 2005, Policy Directive 2005_108: Policy and Guidelines for Safe Use of Safe Handling of Glutaraldehyde in NSW Public Health Care Facilities, NSW Health.

State Government of Queensland 2000, Environmental Protection (Waste Management) Policy, Office of the Queensland Parliamentary Counsel.

OTHER

Joseph, A & Ulrich, R 2007, Sound Control for Improved Outcomes in Healthcare Settings, The Center for Health Design, www.healthdesign.org/research/reports/documents/CHD_Issue_Paper4.pdf

06.11 Definition

PERFORMANCE REQUIREMENTS

Conduct security risk assessments in accordance with:

- the legislation, policies, and guidelines of each jurisdiction or agency
- AS/NZS ISO 31000: Risk Management (Stds Aust 2009a).
- AS4485.1: Security for healthcare facilities - General requirements (Stds Aust 1997c).

The following are recommended for use as required - subject to the approval of each jurisdiction or agency:

- AS/NZS Handbook 167: Security Risk Management (Stds Aust 2006a).

GENERAL

Complete a security risk assessment with subsequent corrective action prior to the occupation of new, renovated or refurbished facilities.

INTRODUCTION

This section is limited to physical design and infrastructure. Content relating to security management procedures is generally excluded except where these subjects interrelate.

Security risks can arise from two main sources:

- internal risks - human and non-human
- external risks - human and non-human.

Ensure that ‘design for terrorism’ strategies are followed for all buildings subject to this classification. Refer to the relevant legislation, regulations, codes and policies within each jurisdiction.

OHS legislation demands that all risks of violence be identified, assessed and eliminated / controlled. It also makes good financial sense to address security risks.

The impact of security incidents can be considerable in human and financial terms and include:

- workers' compensation claims
- public liability claims
- adverse publicity and reputation
- personal costs to staff and visitors from theft and vandalism
- recruitment and retention costs
- high maintenance costs e.g. from vandalism of security lighting, CCTV and graffiti
- high insurance costs and cost of replacing or replacing stolen or damaged facility property.

PURPOSE AND SCOPE

Minimise and, where possible, eliminate foreseeable risks associated with the facility design.

Identification of potential areas of risk and options for risk control should be addressed during the planning, design and construction phases of a healthcare facility project in order to achieve a safe, functional and affordable solution.

Adopt the planning and design standards outlined in the clauses that follow as the recommended standard to be achieved.

However it is recognised that in a number of circumstances, departure from these requirements will be necessary to meet operational requirements or to manage any unusual risks that might be specific to a particular circumstance or location. As for other departures from these guidelines, these will normally be subject to subsequent departmental approval process within each jurisdiction.

Within each jurisdiction the relevant legislation including Protective Security Manuals (PSM), take precedence over these guidelines. Note: PSM define the base level of security for all government buildings.

It should be noted that government departments cannot exempt facility capital developments from legislative requirements such as planning, environmental protection, OHS and discrimination laws.

06.12 Recurrent Costs

Consider the issue of recurrent costs in the context of the provision of an appropriately designed and constructed safe working environment in a healthcare facility. Safety and security issues should be addressed during the planning process and security risk assessment, and incorporated into the design of the facility.

If the planning and design process follows the requirements of this guideline and an appropriate level of consideration of safety and security issues is undertaken, there should be no significant increase in recurrent costs. In fact, addressing and minimising security risks should be expected to reduce costs.

Recurrent costs are also increased by injuries to staff, patients or other persons, or damage to property that may arise from poor design. In the case of safety and security issues, this includes the direct and indirect costs associated with crime and violence.

06.13 Crime Prevention through Environmental Design

Crime Prevention Through Environmental Design (CPTED) is a situational crime prevention strategy that focuses on the design, planning, structure and use of a built environment or space. CPTED has benefits beyond crime prevention.

It aims to influence the behaviours of people to improve the desired use of a place whilst minimising the undesired use or the undesired behaviours of a person within that place.

By employing appropriate design and place management principles, the opportunity and consequences of unwanted behaviours may be eliminated or reduced.

To implement CPTED principles on a project, refer to the specific policies applicable within that jurisdiction.

CPTED is primarily accomplished through the work of architects, engineers, builders, landscape gardeners and those who develop purchasing procedures.

The four main CPTED principles are:

- Territorial Reinforcement - stimulates community ownership and policing. It includes maintaining the space so that it has a clean and well cared for appearance, using actual and symbolic territorial markers such as signage and site maps and the location of activities to avoid conflict.
- Surveillance - through supervision by those who overlook or pass through spaces. It includes effective sightlines between public and private space, effective use of lighting and paths to group people, landscaping, strategic positioning of buildings and activities, and use of CCTV.
- Access Control - through physical and symbolic barriers that attract, channel or restrict pedestrian and vehicle movement e.g. paths, roads, fences, lines of lighting, signs, gardens, gates, locks and doors. This should make it clear where people can and can't go, and more difficult for criminals to reach potential victims and targets.
- Space Management - is linked to territorial reinforcement. It ensures that space is well used and maintained e.g. by coordination of activity and rapidly repairing vandalism or graffiti.

Note: The application of CPTED and other situational crime prevention strategies is a cost effective strategy in reducing unwanted behaviour and improving the desired behaviour and use of the space.

The Police Local Area Command where a new / refurbished facility is located should be consulted on the CPTED implications of the proposed design in all stages of planning.

Note: Some jurisdictions may mandate or recommend the use of government security risk assessors for design assessments.

06.14 Internal Security Risks

PERFORMANCE REQUIREMENTS

Conduct security risk assessments in accordance with:

- the legislation, policies, and guidelines of each jurisdiction or agency
- AS/NZS ISO 31000: Risk Management (Stds Aust 2009a)
- AS4485.1: Security for health care facilities - General requirements (Stds Aust 1997c).
- the following are recommended for use as required - subject to the approval of each jurisdiction or agency:
- AS4485.2: Security for health care facilities - Procedures guide (Stds Aust 1997c)
- AS/NZS Handbook 167: Security Risk Management (Stds Aust 2006a).

CLIENT RELATED VIOLENCE

Design is a key factor in the prevention and management of client related violence. It is particularly relevant for high risk areas such as:

- mental health inpatient units;
- community mental health centres;
- emergency departments / units, including prisoner holding facilities;
- drug and alcohol units / methadone clinics;

- aged care units;
- brain injury and rehabilitation units;
- any location where staff may work alone in isolation or for extended hours; and
- any area where child protection or domestic violence may be an issue e.g. paediatric inpatient, maternity and birthing units.

The prevention and management of client related security risks has implications for the design of units and the selection of FF&E. For example consider:

- perimeter security - doors and windows, entrances, the property perimeter including fences and access control;
- controlling access to the buildings, individual HPU and rooms; and
- ensuring rooms can be locked where utensils, tools, surgical instruments, etc are kept - especially if these may be taken and used as a weapon.

In kitchen / beverage, utility and staff rooms, and in departments such as emergency, consider:

- cash handling and transit routes - see note 1 below;
- location of shops, vending machines and banking facilities;
- avoiding areas where staff work alone, in isolation or for extended hours - see note 2 below;
- location and design of car parks - see note 3 below;
- location, design and lighting of access routes to car parks, bus stops, and between entrances and the street;
- provision of duress alarms, intruder alarms, proximity alarms and CCTV;
- design of reception areas;
- design of consultation rooms, treatment rooms, triage areas and staff stations to avoid entrapment points;
- design and location of staff stations;
- glazing - see note 4 below;
- visibility and lines of sight; and
- cultural requirements influencing the size of personal space, privacy of groups or the need for a patient to have an escort. The use of a facility by some cultural groups may have implications for the size and design of waiting rooms, consultation rooms, palliative care units, mortuary viewing rooms and similar areas.

Notes:

1. Cash handling should be treated according to the outcome of the security risk assessment and treatment plan e.g. use of cash collection agencies to reduce the security risk.
2. State and agency specific guidelines cover staff working in isolation.
3. Car park design around the precinct of the emergency and ICU departments should be considered in relation to terrorism related risks.
4. Obscuring e.g. sand blasting treatments may be required for glazing where determined by the security risk assessment.

Fittings, fixtures, furnishings and furniture should not facilitate attempts at self harm - hanging, asphyxia, ingestion, cutting - or as a weapon against others.

Risk items may include: picture frames with glass face or sharp edges, IV poles, furniture / door handles, hooks, hydraulic fixtures / fittings, curtains / blinds including cords / tracks, building trim or similar items.

In high risk mental health and custodial areas, light fitting types and performance ratings should be fit for purpose. Properties include resistance to impact and tamper / weather proofing. Fittings that appear less institutional plus anti-ligature and custodial grade fittings are available as required.

INTERIOR ENVIRONMENT

In addition to functional design principles there are a number of other design strategies that should be considered for high risk areas. These include the use of:

- calming colours and soft furnishings;
- diversion opportunities e.g. TV, paintings, water features, views;
- use of calming textures and lighting;
- appropriate placement of seating in accordance with personal space requirements.

The methods employed should be based on professional and evidentially based advice applicable to the specific user group.

Advice on risk control strategies is included in each specific HPU. However the specific requirements for projects within each jurisdiction should be followed.

06.15 Security Risk Management

PERFORMANCE REQUIREMENTS

Conduct security risk assessments in accordance with:

- the legislation, policies, and guidelines of each jurisdiction or agency;
- AS/NZS ISO 31000: Risk Management (Stds Aust 2009a); and
- AS4485.1: Security for health care facilities - General requirements (Stds Aust 1997c).

The following are recommended for use as required subject to the approval of each jurisdiction or agency:

- AS4485.2: Security for health care facilities - Procedures guide (Stds Aust, 1997c); and
- AS/NZS Handbook 167: Security Risk Management (Stds Aust 2006a).

Areas of potential threat should be identified by consulting with employees and user groups, managers, the OHS committee, security personnel and the Police Local Area Command Crime Prevention Officer.

This coordination should occur during all stages of the planning, design, construction and occupation phases to ensure that all issues are adequately addressed and funded.

Known high risk areas have been listed above. However there is a potential for violence in any part of the facility including indoor or outdoor environments.

The planning process, having identified and documented the relevant risks, should then eliminate or minimise those risks through suitable planning and design solutions.

It is not intended that these guidelines will identify all risks in all facilities. Planners, designers and managers are expected to undertake a detailed risk analysis of their facility, taking into account its location and all of the circumstances that are appropriate to that facility. This process should include consultation with a wide range of stakeholders.

In undertaking the risk analysis and the risk management process, consider the differences between remote / rural facilities and metropolitan facilities.

Issues such as response times to violent events should be addressed not only by the facility design but also by operational policies.

In some rural and remote areas lengthy Police response times may directly influence the design and safe minimum size of a facility. The minimum number of staff required for patient restraint can only be provided if adequate staffing levels are available and this is determined by bed numbers or other measures of facility size and throughput.

Patient safety is similarly dependant on adequate staffing in terms of the capacity for rapidly responding to medical emergencies and multiple high triage level presentations.

06.16 Design for Security

PLANNING AND DESIGN

The issue of security is raised throughout the guidelines in areas such as hardware and external lighting. However, give consideration to the overall solution. For example facility size should be sufficient to warrant safe minimum staffing levels that require a minimum of four staff and no staff working alone or in isolation.

Good initial planning and detailed design are needed to overcome the main problems.To be avoided are opportunities for concealment and unauthorised access.To be managed appropriately are the containment and management of certain categories of patients and incidents.

Ensure that safe circulation is provided within the facility including external circulation, circulation within and connecting departments, and links between buildings, preferably enclosed, for the safe transit of patients and staff.

This can only be achieved if the security coordinator is consulted at all stages of the project including planning, design, pre-occupation and post occupation. It is difficult and costly to design-out or rectify security risks if security has not been thoroughly considered in the planning, design and occupation phases.

Note: Occupational violence prevention, emergency response, fire safety, ergonomics, health and safety, etc, are covered in other sections of this document.These should be included in an integrated assessment / review process.

SECURITY PROCEDURES

A healthcare facility, even without an emergency department, is often functioning for 24 hrs per day. Visitors and staff enter and leave the building at all times often on an informal and unscheduled basis. After hours or at night there is greater potential for unauthorised entry into the building. At these times, attacks on visitors and staff are more likely to occur especially when they are walking to and from car parks, bus stops or other transport.

The work environment may increase or decrease the risks associated with occupational violence and aggression depending on a range of issues, which are set out in the next clause.

Address the following issues with respect to security in every healthcare facility:

ENTRY / EXIT ISSUES

Manage access to various areas and departments including:

- by relatives / visitors;
- by clients / patients; and
- entry of personnel visiting or working within the hospital.

Manage movement of staff between various areas and departments including:

- recording access to sensitive areas such as pharmacies, mortuaries and medication/clean utility rooms;

Manage entry to facility grounds e.g. as appropriate prevent after hours access to and through the grounds by pedestrians and vehicles to minimise unauthorised entry and vandalism.

PATIENT SAFETY AND SECURITY

Address issues of patient safety and security by:

- reducing triggers for conflict with patients and relatives e.g. through design of waiting rooms, reception areas, signage;
- minimising the risk of illegal removal of babies and children from maternity and paediatric units;
- managing wandering and/or absconding patients from emergency departments, aged care, paediatric and mental health units;
- management and supervision of hydrotherapy pools;
- management of mental health and other behaviourally disturbed patients - provide safe areas for containment and observation, adequate personal space, prevention of patients absconding e.g. proximity alarms and low stimulus environments; and
- managing risks associated with the security of Police and Corrections.

Officer weapons and equipment

- managing the security of prisoners;
- managing the risk of contraband such as drugs, alcohol or cigarette lighters being brought into high risk units such as acute mental health units; and
- management of the security of acute mental health units in accordance with the recommendations and policies within each jurisdiction - e.g. in NSW - Mental Health Sentinel Events Review Committee.

STAFF SAFETY AND SECURITY

Address issues of staff safety and security associated with:

- admission of patients especially where close contact occurs with the patients being admitted and their relatives, and where conflict may occur;
- the risk of violence from non-custodial, alcohol or drug affected parents;
- visitors;
- working after hours;
- working in isolation;
- movement of staff between various areas and departments especially after hours;
- staff movement around hospital sites e.g. to and from public transport, car parks, staff accommodation and movement between buildings;
- clinical state of patients;
- access to assistance and support from colleagues;
- ability to observe patients and others, and provide early intervention; and
- access to alarms and the provision of personal duress alarms or fixed alarms as appropriate.

SECURITY OF PROPERTY

In terms of security of property, address the following issues:

- location of public telephones in retail areas;
- cash handling;

- furniture, fittings and equipment;
- furniture in waiting areas;
- computer, high tech, AV equipment, etc;
- personal effects - staff;
- personal effects - patients;
- access control;
- intruder / door alarms;
- car park security; and
- CCTV with digital recording.

SECURITY AND CONFIDENTIALITY OF RECORDS AND FILES

Address security and confidentiality in regard to:

- medical records;
- financial records;
- employee files;
- medico-legal files; and
- computer networks, infrastructure, systems, and hardware.

SECURITY OF DRUGS AND OTHER SUPPLIES

Address the security of drugs and other supplies especially in regard to:

- dangerous drugs and drugs of addiction
- radioactive substances
- storage and bulk storage of hazardous materials
- other supplies / stores
- electronic access to pharmacies and other drug storage areas / cupboards to enable access monitoring
- CCTV surveillance with digital recording of sensitive areas.

These issues are addressed on a unit specific basis within the relevant sections of these guidelines. A checklist is also provided for each unit to assess the response of the building brief to each issue listed.

In determining specific requirements and design, the impact of new technology and clinical work practices should be reviewed in relation to safety and security prior to adoption.

Give consideration to any additional facility requirements that result in a secure and safe environment for staff, patients and visitors.

06.17 Building Elements

PERFORMANCE REQUIREMENT

Conduct security risk assessments for building elements with reference to:

- the legislation, policies, and guidelines of each jurisdiction or agency;
- AS/NZS ISO 31000: Risk Management (Stds Aust 2009a); and
- AS4485.1: Security for health care facilities - General requirements (Stds Aust 1997c).

The following are recommended for use as required - subject to the approval of each jurisdiction or agency:

- AS4485.2: Security for health care facilities - Procedures guide (Stds Aust, 1997c); and
- AS/NZS Handbook 167: Security Risk Management (Stds Aust 2006a).

ACCESS CONTROL

In consultation with staff and key stakeholders, all Health Services should ensure that all reasonably foreseeable security risks associated with access to workplaces are identified and assessed. These should be eliminated where reasonably practicable, or effectively controlled.

Effective access control measures include:

- securing perimeters, including doors, windows, rooflights, access hatches, etc;
- controlling access to the land on which the facility is situated e.g. fences, roads, traffic and pedestrian access and flow;
- providing safe access and exit especially after hours and during emergencies;
- controlling access to vulnerable areas;
- ensuring accessible building envelope elements are not readily removable or breakable; and
- provision of electronic access control and monitoring as applicable, in preference to traditional locking systems.

Specific access control measures include:

- instituting staff identification systems that allow members of the organisation to be identified and combining this with card key entry systems;
- access system head end software and hardware for user administration;
- restricted keying system to prevent duplication with protocols to manage keys;
- restricted keying systems to defined areas on a need to access assessment basis, to avoid multiple area access; and
- clear signage.

Note: Budget mechanical keypad locks are not regarded as providing adequate security as combination codes can be passed on and are not secure.

DOORS

Ensure that all opening external building perimeter doors are lockable.

Perimeter doors should meet the following building design standards:

- be fitted with a quality single cylinder lockset that complies with fire regulations. Refer: AS4145.2 - Locksets and hardware for doors and windows - Mechanical locksets for doors and windows in buildings (Stds Aust 2008b);
- have a metal frame or have a strip of metal securely mounted to the frame from the top to the bottom of the lock-side with allowance for the lock tongue to be inserted;
- have protected hinge pins in order to resist removal by either replacing the existing hinges with fixed pin or security butt hinges or having dog bolts installed to prevent pins being removed;
- have entry alarms or warning buzzers fitted to doors that need to remain unlocked or open, or fail to close properly, ‘door open too long’ (DOTL), or to indicate that someone has entered the area;
- have alarms fitted to doors that are normally externally locked to signal when the doors are chocked open or fail to close properly;

- electronic locks on staff only access doors;
- electronic access to sensitive areas e.g. pharmacies and other drug storage areas / cupboards;
- CCTV and adequately lighting to all after hours public entries and exits; and
- video / CCTV intercoms to all after hours restricted entries to allow screening of members of the public presenting at the door.

Fire isolated exit doors should meet the requirements of the BCA.

The glazing in doors and door screens should comply with AS/NZS 2208/Amdt 1 - Safety Glazing Materials in Buildings (Stds Aust 1999a) for safety; and for security be designed to prevent the breakage and removal of glazing to obtain entry. See also Section 710 - Window Security and 790 - Glazing.

WINDOWS

Openable windows create security problems. These include the need to address glazing requirements, appropriate locking, the ability of people outside looking in to private areas and the potential to facilitate break-ins.

All opening windows and doors to the building envelope should be provided with key operated locks either mechanical or electronic.

Minimise entry through perimeter windows by the use of options such as:

- reinforcing windows to resist unauthorised entry;
- using heavy gauge glass bricks or laminated glass panels in areas which require natural light but no ventilation that are securely mounted in the frame;
- permanently closing unused windows by fixing with bolts or screws;
- fitting key operated locks to all other windows; and
- fitting security grilles provided fire evacuation is not compromised.

Ensure that glazing, in addition to complying with AS 1288 - Glass in Buildings - Selection and Installation (Stds Aust 2006c):

- for safety, complies with AS/NZS2208/Amdt 1 - Safety Glazing Materials in Buildings (Stds Aust 1999a); and
- for security, is designed to prevent the breakage and removal of glazing to obtain entry.

See also Section 710 - Window Security and 790 - Glazing.

Note: The application of security film is not recommended as a durable or effective solution.

Note: Sites identified as Critical Infrastructure (CI) sites may need to use blast resistant glass.

SCREENS AND GRILLES

Generally, operable external windows, vents and doors should be fitted with flyscreens. Doorways that are used on a regular basis such as service and main entrances need not be flyscreened but should be fitted with a self- closing device.

Other exceptions to the above are windows in multi-storey or fully air- conditioned buildings that are used for service access or that pivot / swing / tilt for cleaning purposes.

Security grilles, and appropriate impact resistant glass and/or an electronic security system, as indicated by a risk assessment, should be installed wherever high security areas have external windows. This includes pharmacy stores and workrooms, medical records stores and other areas that are not occupied 24/7.

Special consideration should be given to the design of counters in areas where the protection of staff from violence or criminal acts is required.

Design issues should include the provision of glazed screens, pass through documents / currency trays, and communication systems. Consider the design of doors / hardware, viewing panels and partitions / ceilings adjacent to counters.

The design should respond to the anticipated types, levels and sources of violence including projectiles such as liquids, objects and firearms. It may be necessary to seek advice from the Police or an independent security consultant.

Refer to:

- AS/NZS 2208/Amdt 1: Safety Glazing Materials in Buildings (Stds Aust 1999a); and
- AS/NZS 2343: Bullet-Resistant Panels and Elements (Stds Aust 1997a).

Security screens to doors should be locked so as to prevent unauthorised entry from outside the building or facility. Where security screen doors are used in clinical or residential aged care areas, a risk assessment should be carried out to determine if these should be locked to prevent patients absconding, with fire exits controlled electronically or by staff. Security screens should not compromise an emergency exit.

06.18 Key Areas for Security Provision

The following notes are supplemented by a detailed risk analysis and response in the individual HPU in Part B.

Comply with:

- the legislation, policies, and guidelines of each jurisdiction or agency
- AS/NZS ISO 31000: Risk Management (Stds Aust 2009a)
- AS4485.1: Security for health care facilities - General requirements (Stds Aust 1997c).

The following are recommended for use as required - subject to the approval of each jurisdiction or agency:

- AS4485.2: Security for health care facilities - Procedures guide (Stds Aust, 1997c)
- AS/NZS Handbook 167: Security Risk Management (Stds Aust 2006a).

ENTRY / EXIT

Minimise public access points and control access to all areas of the workplace.

Ideally visitors should have access to one main entrance. Security should be placed at this entrance if necessary, in particular for after hours use.

The use of bollards should be considered to prevent criminal access by vehicles (ram-raids) or other malicious use in locations identified through the process of risk assessment e.g. emergency department, entry foyer ATMs. The provision of bollards should not create OHS or other issues.

However, support services such as emergency response teams should have maximum access to all areas of the workplace to assist their intervention in emergency incidents. This should be facilitated by the keying system. The use of electronic card key access is preferable to manual key systems.

Staff should also have ready access to exits as escape routes if an aggressive incident occurs.

All staff, including sessional specialists and casual staff, should be provided with training on aggression minimisation and emergency response procedures.

In aged care, behavioural, paediatric and acute mental health units, locking to doors in egress routes for patient safety considerations such as prevention of absconding should be subject to risk assessment to determine the method to be used. Refer to Section 710 - Mental Health Facilities Fire Egress.

EMERGENCY DEPARTMENT

Provide an additional security office adjacent to the Emergency Department.

Ensure secure separation of treatment areas from public areas and that utility rooms are secure including storage of sharps, etc. There should be secure / restricted access to adjacent staff areas.

Security barriers may include glass fronted counters and access doors with card or keypad access.

Provide CCTV with DVR at entrances and waiting areas, and notices advising, or displays indicating that CCTV is operating.

Provide an ambulance entrance with the same or higher level of security protection as the main public entrance.

Provided duress alarms in the form of fixed alarms for counter staff and mobile location finding alarms for staff who do not work in a fixed location e.g. clinicians, wards-persons, cleaners, security officers.

Note 1: A secure, quiet, low stimulus, sound attenuated area for the management of patients who may be behaviourally disturbed, noisy or at risk of absconding should be provided. As patients can remain in this area for a long period of time, a securely located TV monitor that can be controlled by staff should be considered.

Note 2: A gun safe located in a private room off the ambulance entry should be provided for police use. Provide for four weapons with one separately lockable compartment for each weapon. Consult with local area commander regarding specifications and requirements.

Refer to Emergency Dept Security, Section 5 in AS4485.2: Security for health care facilities (Stds Aust 1997c).

RECEPTION / WAITING AREAS

Reception and waiting areas should be easily identifiable and accessible to patients and visitors. The design and layout should provide reception staff with a clear view of all persons in the waiting area. The activities of clinical staff should not be visible from the waiting room or reception area.

Personal space is especially important in waiting areas particularly in emergency departments where clients are more stressed. Cultural differences are also an issue for consideration - consider local demographics.

Persons experiencing high levels of tension may need greater interpersonal distance between themselves and others.

Reception areas should be spacious and quiet with comfortable seating. Seating should be either individual or bench type with the option of floor attachment - see following clause.

To reduce boredom, activities such as television, toys, books and games should be provided. Public telephones should be provided to enable ready communication with friends, relatives and employers.

In areas identified by risk assessment, furniture should be attractive and comfortable, but should be selected with regard to safety (injury from design features), and security (possible use as a weapon). Seating, whether bench, individual chair or combined unit, should be attached to the floor.

Colour is an important factor and should be selected for its calming rather than stimulating qualities.

Climate control will help maintain a comfortable and calming environment.

Easy access to amenities such as phones, water and snack dispensers, and public toilets is important to enhance comfort and reduce stress levels.

Seating should be spaced to allow room for baby strollers, wheelchairs and mobility aids. It should be selected and spaced to allow for bariatric people to sit comfortably.

To reduce the incidence of vandalism or client frustration, waiting areas should be clean and well maintained with all fittings in working order.

All waiting rooms should be provided with CCTV with DVR and have clear anti-violence signage.

Unless a glass barrier is provided, Emergency Department counters should be high enough to discourage an adult climbing over them. They should also be wide enough to make it difficult for a client to strike a staff member.

The design should be ergonomically sound so desks or counters do not introduce new risks. For example, while inquiry desks can be designed to be wide enough to make it difficult for a client to strike a staff member or high enough to make it difficult to climb over, this will not protect a staff member from thrown objects or liquids, and may introduce manual handling risks as a result of the staff member constantly having to lean forward.

It should be noted that high counters can also increase client frustration as they can make communication more difficult especially where a client is of short stature or in a wheelchair.

Use risk analysis to determine the most appropriate design strategies to control security risks.

Provide vertical partitions to the extent required, to allow for some privacy when people are discussing private matters with staff, and provide each counter with a duress alarm system.

A well designed screen that does not impede communication should be installed in high risk areas such as emergency departments, drug and alcohol units and mental health areas. Provide appropriately placed openings or document transfer trays for communication or passage of documents.

The ends of the reception counter should be closed to prevent client entry into staff areas. Entry doors should be full height and fitted with security access. A one-way viewing panel or the provision of a video intercom with remote door unlocking from reception and/or the staff station will enhance security of these doors.

TREATMENT / INTERVIEW AREAS

Separate sound insulated rooms should be provided to isolate distraught or emotionally disturbed patients, families or friends, people with acute behavioural disturbance, and intoxicated or very noisy people.

Treatment, interview, meeting and consultation rooms that are likely to be used by clients should be fitted with two doors on different walls to allow easy escape by staff in the event of an incidence. The rooms should be designed so that the client is not positioned in a way that obstructs staff access to a door.

One door should lead in from the public area and the other from a corridor, staff or public area. Where possible, ensure that doors open outwards to assist staff to exit quickly.

Treatment and interview rooms that may be used by patients at risk of violent or aggressive behaviour should be subject to a risk assessment to determine the best system for duress alarms according to the clinical need. Fixed duress alarms may be out of reach when an incident occurs or interfered with by patients or others. Connection to a location finding mobile duress alarm system eliminates this risk. Provide glass viewing panels to doors, or to at least one door to a room, to allow observation by colleagues.

PHARMACY

As part of the risk management process for the Pharmacy Area, consider the following risk control strategies and implement as required:

- construct walls, floor and ceilings of the pharmacy out of solid material, or reinforce partitions or ceilings with security mesh
- provide as few windows as possible
- extend walls, where practicable, to the underside of the floor slab above to prevent any intrusion over the wall
- reinforce windows on the perimeter walls to prevent entry; existing windows may be reinforced with shatter resistant film or by replacing the glass with laminated glass
- incorporate laminated glass windows into the design of the front of the pharmacy to enable staff to carry out transfer operations with safety, while maintaining communication with staff and patients
- design a two door entry approach i.e. one door for the public and hospital staff to access glass transaction windows and a separate door for the entry of pharmacy staff to the pharmacy.

- provide the ability to secure open areas at the front of the pharmacy after hours e.g. by a locked door from the corridor or locked shutter door.
- fit doors to the pharmacy with quality single cylinder dead locks to comply with fire regulations; where practicable locks should be key code or card operated externally, and fitted with either a turn snib or handle internally to enable occupants to escape in emergencies.
- ensure doors are kept closed and locked to restrict entry
- install an intruder alarm system that complies with Australian Standards and incorporates a duress alarm/s to enable staff to activate the alarm in the event of an emergency.

Restrict access to the pharmacy to authorised staff only and control this by:

- fitting single cylinder key, code or card operated dead locks to perimeter doors
- fitting a restricted keying system to the locks in order to prevent duplication of keys
- strictly regulating the issue of keys, codes or cards at all times including provision for after hours access
- keeping doors closed and locked to restrict entry
- installing closed circuit television monitors at access doors to screen entry of personnel and record any access to the pharmacy after hours
- fitting key card electronic locks on drugs cupboards containing dangerous or addictive drugs.

Refer to AS4485.2: Security for health care facilities - Section 12 Pharmacy and Pharmaceuticals Security (Stds Aust 1997c).

CAR PARKING

Where staff parking is provided under or within close range of the workplace, this area should be well lit and protected from the elements where possible. In high-risk areas monitor car parks using security personnel or cameras.

RISK CONTROL STRATEGIES

Implement the following security measures as identified by risk analysis, or as standard security measures where applicable:

- provide, where practicable, afternoon and night shift staff with designated, controlled parking spaces as close as possible to the facility with direct line of sight to the building, and connected to the facility by well lit paths;
- ensure entry to designated staff parking areas in dual purpose car parks is controlled by gates in the afternoon and night e.g. boom gate could be left up in the morning and put down about 1-2 hours before afternoon shift commences so they are operated by staff pass cards. Exit boom gates should operate automatically i.e. after a certain time a card is needed to enter but exit can occur any time;
- ensure vehicle entry to car parks is by automated gates or doors, via camera and intercom, or by passing through an entry / exit gate staffed by security personnel;
- provide CCTV or CCTV/DVR surveillance;
- display signs in car parks reinforcing theft awareness e.g. park smarter, lock it or lose it;
- display signs that advise that regular patrols are undertaken and CCTV monitoring is in place;
- landscape design should eliminate elements that provide concealment for intruders and provide maximum visibility, particularly near routes and entries;

- ensure single and multi-storey car parks have good lighting, emergency telephone or intercoms direct to security staff or switchboard. Refer to AS 1158: Lighting for roads and public spaces (Stds Aust 2010);
- ensure as few dark corners and support columns in the design as possible;
- allow flexibility to close some sections, entrances and exits during low traffic periods;
- provide approved locks on exits intended for emergency exit only;
- ensure frequent patrols by security staff;
- restrict parking of delivery vehicles restricted to designated spaces only;
- ensure a secure overnight car park with good lighting and regular security patrols is provided for facility vehicles. A fenced compound or lock-up garage is preferable; and
- provide security for bicycles and motorcycles e.g. lockers or storage areas, a stationary rack that secures the frame and both wheels without a chain, or a stationary object the user can lock the frame and wheels to with their own cable chain and lock.

Refer to AS4485.2: Security for health care facilities, Section 5 Car Park Security and Control (Stds Aust 1997c).

LOADING DOCKS

Goods delivery, loading and unloading areas and entries / exits should be well lit. Security provisions such ASCCTV and controlled access should prevent unauthorised entry to the facility through these areas.

06.19 Building Services

PERFORMANCE REQUIREMENTS

Ensure that security risk assessment for building services comply with:

- the legislation, policies, and guidelines of each jurisdiction or agency
- AS/NZS ISO 31000: Risk Management (Stds Aust 2009a)
- AS4485.1: Security for health care facilities - General requirements (Stds Aust 1997c).

The following are recommended for use as required - subject to the approval of each jurisdiction or agency:

- AS4485.2: Security for health care facilities - Procedures guide (Stds Aust 1997c)
- AS/NZS Handbook 167: Security Risk Management (Stds Aust 2006a). Note: Building services in general should comply with Part E or the engineering services policies and guidelines issued by individual jurisdictions as applicable.

SECURITY EQUIPMENT AND SYSTEMS

The provision of systems should consider the following:

- closed circuit television (CCTV);
- digital video recording (DVR);
- pan tilt zoom cameras programmed by the DVR to carry out surveillance rounds;
- head end PC for interface into security system and regularly backed up;
- files for software restore functions;
- easily upgradeable security hardware / software;

- serviceability of hardware - availability of replacement equipment and access to technicians;
- central monitoring with response protocols;
- adequately sized flat screen monitors;
- dedicated monitoring room or staffed location for monitoring purposes; and
- uninterrupted power supply (UPS) for security system.

SECURITY LIGHTING

As part of the facility security risk management process ensure that internal and external lighting is sufficient to eliminate, where reasonably practicable, or control security related risks and meet the relevant Australian Standards.

Security lighting should be appropriate for the intended purpose. Where CCTV cameras are installed, white light may be required to achieve correct colour rendering and improve ability to identify persons and activities, while sodium discharge (yellow) lamps may be used to reduce incidence of graffiti.

Provide security lighting (internal and external) to improve security in the vicinity of the light, and to assist CCTV functionality.

External security lighting should be vandal resistant and mounted to restrict tampering.

Design posts for security lights so that they do not provide a ladder or foothold to allow access to the light fitting.

Ensure security and safety lights are connected to the essential services supply.

Locate lights to gain the maximum benefit and coverage, while complying with the relevant requirements of AS4282: Control of the obtrusive effects of outdoor lighting (Stds Aust 1997b).

For external security and safety lighting provide lighting levels to AS4485.1 (Stds Aust, 1997c) to ensure safe access / egress from the workplace including footpaths / accessways and car parking areas.

Install lighting to eliminate dark spots, and ensure light levels that will deter criminal acts, allow facial recognition and assist in preventing slips, trips and falls. Where the facility does not have dedicated on-site parking, consultation regarding street lighting should occur with the relevant authority.

Ensure lighting used meets the relevant parts of AS1680 series (Stds Aust 1998b), AS1158 series (Stds Aust 2010), AS4485.1 (Stds Aust 1997c) and AS2890 (Stds Aust 2009c) where applicable.

Determine the needs of areas requiring special lighting treatment e.g. entrance foyers, emergency departments, staff entry and exit points, pharmacies and car parks and any area where CCTV is used.

ALARM SYSTEMS

As part of the facility security risk management process, health services should establish their requirements for alarm systems e.g. duress and intruder alarms to ensure that staff members, patients and health service assets are secure.This should include a formal commissioning process with documentation e.g. points lists, functional descriptions and operational manuals provided at handover.

Ensure that a regular review of all alarm systems occurs as part of the risk management process. This should include a formal and documented testing and maintenance regime.

In assessing the requirement for alarms, health services should consider the following issues:

- potential for violence against staff;
- the type of work being carried out by staff;
- staff working in isolation;
- cash handling;

- goods and equipment stored in the area;
- level of external security risks;
- level of internal security risks;
- exits that may be left open by staff or patients;
- the security needs of 'at risk' patients such as wandering elderly patients in wards, mental health patients, or children at risk of unauthorised removal from the facility;
- potential for use of emergency exits e.g. fire escapes by thieves to remove assets;
- potential for break in via doors and/or windows to remove assets; and
- potential for break into and theft of vehicles.

Ensure alarm systems are connected to uninterrupted power supply (UPS) circuits/battery backup, with alarm system back up capability.

In assessing the requirement for alarms health services should consult with staff working in or using relevant areas or facilities such as:

- mental health services;
- emergency departments;
- pharmacy and other drug storage areas;
- women's health and maternity unit;
- youth health units;
- sexual assault units;
- cash handling and storage areas;
- isolated facilities / units;
- car parks and grounds;
- vehicles e.g. ambulances;
- alcohol and other drugs services;
- aged care wards / dementia units / brain injury units / rehabilitation units; and
- community services.

INTRUDER ALARM

Intruder alarm systems are highly recommended for parts of healthcare facilities that are closed after hours.

The provision of intruder alarm systems should be based on security risk assessments to AS/NZS ISO 31000 (Stds Aust 2009a) and are required in the following areas:

- pharmacy units where dangerous drugs (schedule 8) are kept;
- all satellite pharmacy rooms where dangerous drugs (schedule 8) are kept;
- all drug safes where dangerous drugs (schedule 8) are kept;
- mortuary areas where bodies are stored;
- external doors or windows to baby nurseries including NICU and paediatric units; and
- Clinical Records Unit and any remote archival areas.

Many different intruder alarm systems are available. The required intruder alarm systems have at least the following provisions, in terms of coverage and functionality:

- reed switches for doors and windows
- movement detectors to cover spaces that can be used for access.

If required intruder alarm should adequately indicate the location where security has been breached. Acceptable systems may indicate the location by:

- a local audible alarm subject to loudness having no adverse effect on patients, or increasing intruder aggression;
- a remote indicator panel with a readout;
- a security signal sent to a 24 hour monitoring base or Security Room, or to Staff Station computers;
- a general audible alarm and security pager signal indicating the location on pagers carried by nominated staff;
- another system with equal or better functionality; and
- one or more of the above in combination, especially where 24 hour security offices or staff stations are not available.

The integration of nurse call systems with security systems including the intruder alarm, duress alarm and video with the nurse call system, is recommended for both large and smaller facilities e.g. Multi Purpose Service (MPS) units.

Nurse call and pager systems should generate a different noise and signal for different events.

Ideally the alarms will transmit the location of the duress / intrusion to alphanumeric pagers / alarm transceivers carried by staff. In a small facility such as a MPS, this may be transmitted to all staff. In a larger facility, the signal would be transmitted to response staff and managers in charge of the facility / shift.

Alternatively, the system will send a security signal to a dedicated Security Office or the 24 hour Staff Station(s). The signal as well as video surveillance images may be seen on standard computer monitors that also pinpoint the location of the intrusion.

Both intruder alarm activated CCTV/ DVR and internet capability for central monitoring should be considered for inclusion as necessary. It should be noted that staff should never investigate an intruder alert alone.

The relevant requirements from the Australian Cabling Regulations, Australian Standards and International Electro-Technical Commission standards should be incorporated into all aspects of commissioning, installing, activating and maintaining intruder alarms.

DURESS ALARM

A duress alarm system is a signal for assistance sent by persons who are under attack or threatened by the situation they face. The main purpose of the alarm will be:

- to seek assistance for staff who may be directly exposed to a threat of violence
- to indicate inappropriate or aggressive behaviours by visitors or patients.

Systems should notify a 24 hr central processing unit and directly notify response staff (minimum of three recommended) with the location of the alarm, and locate the call source to within 5m (indoors) and 10m (outdoors).

Duress alarms may be integrated into a combined communications system, as previously noted. This is particularly valuable in smaller facilities where staffing levels are comparatively low and staff may occasionally work alone.

The effectiveness of the duress alarm system will depend on the adequacy of the installation, adequate training, policies, procedures, testing and maintenance programs and the capacity for response.

Conduct a security risk assessment to AS/NZS ISO 31000: Risk Management (Stds Aust 2009a) to determine the need for and type of duress alarm systems to be installed, including higher risk areas such as:

- all staff stations;
- all reception counters;
- consultation and treatment rooms where there is a risk of aggression from behaviourally disturbed patients;
- pharmacies, cash handling and other areas determined as being high risk;
- mental health inpatient units and community health centres;
- emergency departments / units;
- confused and disturbed elderly (CADE) and aged care units;
- drug and alcohol units;
- brain injury units;
- anywhere that staff work alone or in isolation;
- areas where child protection may be an issue;
- car parks and grounds; and
- areas presenting a target for robbery e.g. pharmacy, cash handling, ATMs, etc.

There are two generic types of duress alarms recommended for use:

FIXED

This type of duress alarm is intended to call for discreet assistance without causing local alarm to the aggressor or others who may be present. The signal is sent to a Remote Security Office or 24 hr Staff Station and to pagers carried by response staff.

Fixed alarms may be used in well defined areas where there is no or little opportunity for an aggressor to get between a staff member and the alarm button, and the person works from a static position e.g. where staff are behind a screen such as a pharmacy distribution window or behind a counter. Fixed alarms may not be appropriate for areas accessible to patients and the public e.g. corridors as mischievous tampering with alarms may occur.

Call button or pendant locations should be standardized for use by different staff members and visiting staff and should acknowledge possible changes in room layout.

Where applicable buttons should be placed out of sight to avoid aggressive behaviour caused when staff are seen to activate the alarm. For safe operation call buttons, wall and concealed, should be raised and not be flush with the plate or surrounding surface.

Note: AS/NZS 3811: Hard wired patient alarm systems (Stds Aust 1998a) provides for incorporation of a patient activated duress function.

MOBILE

Mobile duress alarms may be used where the staff member is mobile in the course of their work in areas such as inpatient units or emergency departments where there is a risk of being confronted by aggressive behaviour.

Mobile duress alarms should be worn attached to the clothing e.g. clipped to a pocket or belt. They should not be worn around the neck.

Ensure that mobile duress alarms for use within a facility and the immediate area comply with AS4607: Personal response systems (Stds Aust 1999c). This standard references other legal, regulating and insurance requirements.

The device should send a signal to a Remote Security Office or 24 hr Staff Station, and to pagers carried by at least three response staff. The device is automatically activated if the staff member collapses to the floor

(man down capability). The system should indicate the location of the staff member at the time of the signal activation.

Provide location finding mobile alarms to all staff who work in medium to high risk environments and who do not work in a fixed position e.g. nurses, medical officers.

For detailed information refer to the guidelines and policies within each jurisdiction or agency e.g. NSW Health: Protecting People and Property (NSW Health 2005c).

CLOSED CIRCUIT TELEVISION (CCTV)

PERFORMANCE REQUIREMENTS

Provide CCTV and DVR capability on the basis of security risk assessments to AS/NZS ISO 31000 (Stds Aust 2009a), and comply with the legislation and policies of each jurisdiction or agency.

Refer to AS/NZS 4806 Closed Circuit Television (CCTV) (Stds Aust 2008c) for information relating to the installation and use of systems for remote monitoring and security surveillance.

This standard references AS2201 (Stds Aust 2008a) and ISO standards covering control centres and other related legislation guidelines covering broadcasting, evidence, privacy and OHS.

VIDEO SECURITY

Video security should be considered for all areas that may be used after hours. Video security is required in the following areas:

- Emergency Unit after hours patient entrance;
- Ambulance Bay after hours entrance;
- any entrance used for access to a birthing unit after hours;
- any other entrance that is used for the above purposes after hours;
- any locked area where access is granted by a staff member without the ability to view the person requesting access;
- other areas identified by a risk assessment as requiring a duress alarm;
- corridors, courtyards and secure rooms in the Acute Mental Health Unit which cannot be adequately observed from a staff station; and
- other units where access control is desirable e.g. Intensive Care Unit, Paediatric Inpatient Unit and Maternity Inpatient Unit.

The video security system provided at entrance points should have the following features:

- show those who intend to enter with their facial features being recognisable;
- include an intercom system to communicate with those who intend to enter; and
- provide a remote signal to open the door.

The video security system provided in mental health units should have the following features:

- adequately cover hidden areas;
- camera protected and discreet;
- the direction of the camera should not be obvious; and
- required signage to indicate use of surveillance.

The monitoring point for video security may be a dedicated Security Office or a 24 hr Staff Station complying with legislative requirements. The duress response should be discussed with staff working in the vicinity of video security.

The need to escort the person seeking entry to their destination should be considered in the implementation and operation of a video / intercom entry system.

Note: The provision of video security at the main entrance of a health facility is highly recommended.

System specifications should be based on a security risk assessment to AS/NZS Handbook 167 (Stds Aust 2006a) and should consider:

- colour;
- digital video recording capability (8 channel minimum) linked via LAN to interface with computers in identified areas;
- protection of individual rights with the use of CCTV / DVR used for monitoring / recording patients e.g. in acute mental health units; and
- lighting and clarity of picture.

Note 1: Consider also new communication technologies e.g. leaky wire/aerial, locally operated networks and interchange ability with other systems.

06.20 Property

PEFORMANCE REQUIREMENT

Ensure that security risk assessments comply with:

- the legislation, policies, and guidelines of each Jurisdiction or Agency;
- AS/NZS ISO 31000: Risk Management (Stds Aust 2009a); and
- AS 4485.1: Security for health care facilities - General requirements (Stds Aust 1997c).

The following are recommended for use as required - subject to the approval of each jurisdiction or agency:

- AS4485.2: Security for healthcare facilities - Procedures guide (Stds Aust 1997c); and
- AS/NZS Handbook 167: Security Risk Management (Stds Aust 2006a).

GENERAL

To minimise the risk to property, all attractive portable items such as calculator, cameras, tape recorders, laptop computers, PDA, etc should be stored separately in locked areas. Only designated staff should have access to these areas.

The following areas require specific attention.

CATERING

Ensure that external doors can be locked at all times, with only one exit point that can be visually monitored by the Catering Officer. Fire Exit doors should only be opened from the inside, and should have an audible alarm.

STORES

Locate, as far as practical, the Stores away from public areas, change and lunch room areas.

Restrict entry / exit to the Store to only one door that can be visually monitored from the Supply Officer’s office. Fire exit doors should only be opened from the inside and should have an alarm that activates when opened.

Ensure that stocks held in other areas are securely stored and not easily accessible to patients and unauthorised staff. Where possible, inpatient unit stores should be locked and accessible only to the nurse or unit manager or their delegate.

Consider providing CCTV surveillance.

PATIENTS' PROPERTY

Provide a means of securing individual wardrobe lockers or closets for clothing where these are provided.

STAFF PROPERTY

Provide staff with a lockable storage area e.g. locker or cupboard for safe keeping of their property.

Ensure car parks have good lighting and CCTV coverage to deter assault, theft and vandalism.

06.21 Medical Gases

Ensure access to any storage areas is restricted by use of doors, barriers and signs. Sources are to be secured against unauthorised removal, tampering, vandalism and misuse. Design should comply with relevant Australian Standards and the regulations and policy of the regulating authority e.g. bulk oxygen storage.

The requirements of the Dangerous Goods Act and Regulations may apply to the design of locked areas and the provision of signage. Ensure adequate ventilation and relevant OHS provisions as required.

Refer to AS 1940: The storage and handling of flammable and combustible liquids (Stds Aust 2004), and to AS 2030 (Stds Aust 2009b) Parts 1 - 5 covering the storage and transport of compressed gases.

06.22 Radioactive Substances

Ensure stores including waste stores are properly marked with approved warning signs and that regulations regarding their use are posted at access points.

Ensure access to all storage areas is restricted by use of doors, locks, barriers and signs. Signs should be secured against unauthorised removal and tampering.

Security equipment required to protect Irradiator rooms should be endorsed by Security Construction and Equipment Committee, ASIO (SCEC) e.g. Type 1 alarm system (Australian Security Intelligence Organisation 2006).

Comply with Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) Code of Practice for Security of Radioactive Sources (ARPANSA 2007).

06.23 Mail and Other Deliveries

Health services should screen all incoming mail at a central processing point for the workplace. The point at which mail passes through this central point between arrival and delivery to the relevant officer will vary according to the size and function of the workplace.

Access to mail should be controlled to prevent theft, unauthorised access to, or removal of mail, confidential or sensitive documents, or valuables.

Consider the training / testing of mail room staff and conduct a security risk assessment to address possible threat from handling and opening articles of mail e.g. contaminant control in mechanical ventilation systems.

Note: Specific mail screening and security risk treatments will apply to Critical Infrastructure (CI) listed sites.

Refer also to AS4485.2: Security of healthcare facilities - Section 4 Protection of Information (Stds Aust 1997c).

06.24 References and Further Reading

GENERAL

This Section should be read in conjunction with current versions of the following documents or web references. The list is not inclusive and additional references are provided within the text.

Subject matter is restricted to physical design and infrastructure, with engineering services covered separately.

AUSTRALASIAN

ARPANSA 2007, Security of Radioactive Sources: Code of Practice, Australian Radiation Protection and Nuclear Safety Agency.

Attorney-General's Department 2006, Australian Government Protective Security Manual, Attorney-General's Department.

Australian Council on Healthcare Standards 2006, EQuIP 4, Australian Council on Health Care Standards.

Australian Government Protective Security Manual 2006, (modified 2009), Attorney-General's Department.

Australian Security Intelligence Organisation 2006, Security Information Catalogue, ASIO.

Emergency Management Australia 2003, Handbook: Critical Infrastructure Emergency Risk Management and Assurance, Commonwealth of Australia.

Mayhew, C 2000a, Preventing Armed Robbery: A Practical Handbook, Violence in the Workplace, Australian Institute of Criminology, Canberra.

Mayhew, C 2000b, Preventing Client-Initiated Violence: A Practical Handbook, vol. 30, Research and Public Policy Series, Australian Institute of Criminology, Canberra.

Mayhew, C 2003, Preventing Violence against Health Workers, paper presented to WorkSafe Victoria Seminar on 13 May 2003.

INDIVIDUAL JURISDICTIONS

ACT

ACT Health 2006, Preventing and Managing Aggression and Violence in ACT Health: Quick Reference Guide, ACT Health, Canberra.

NSW

CHAA UNSW 2007, Wall and Floor Finishes for Wet Areas, Sydney: Centre for Health Assets Australasia, University of New South Wales.

NSW Health 2003, Design Series 36: NSW Health Guidelines Safety and Security, NSW Health.

NSW Health 2005a, Policy Directive 2005_234: Effective Incident Response Framework for Prevention & Management in the Health Workplace, NSW Health.

NSW Health 2005b, Policy Directive 2005_315: Zero Tolerance Response to Violence in the NSW Health Workplace, NSW Health.

NSW Health 2005c, Policy Directive 2005_339: Protecting People & Property: NSW Health Policy / Guidelines for Security Risk Management in Health Facilities, NSW Health.

NSW Health 2009, Personnel / Workforce - Occupational Health and Safety - NSW Department of Health, NSW Health.

NSW Health & CHAA UNSW, 2009, TS-7: Floor Coverings in Healthcare Buildings V1.1, NSW Health.

QUEENSLAND

Queensland Health 2004, Safety and Security Policy, Queensland Health.

SA

South Australia Health 2009, Security, South Australia Health.

State Government of South Australia 2002, Dangerous Substances Regulations, Attorney-General's Department.

VICTORIA

DHS Victoria 2008, Design Guidelines for Hospitals and Day Procedure Centres (DGHDP), Part E - Building Services and Environmental Design, Department of Human Services, Victoria.

WESTERN AUSTRALIA

WA Health 2007a, Guidelines for Engineering Services, WA Department of Health.

WA Health 2007b, Western Australia Health Facility Guidelines for Infection Control, Government of Western Australia.

STANDARDS

For the following standards, check for the most recent version prior to use. Dates shown were current at date of preparation of this document.

Stds Aust 1995, AS 4400: Personal privacy protection in health care information systems, SAI Global.

Stds Aust 1997a, AS 2343: Bullet Resistant Panels and Elements, SAI Global.

Stds Aust 1997b, AS 4282: Control of the obtrusive effects of outdoor lighting, SAI Global.

Stds Aust 1997c, AS 4485: Security for health care facilities, SAI Global.

- AS4485.1: General requirements
- AS4485.2: Procedures guide

Stds Aust 1998a, AS/NZS 3811: Hard-wired patient alarm systems, SAI Global.

Stds Aust 1998b, AS 1680: Interior lighting, SAI Global.

- AS 1680.1-1990: Interior lighting
- AS 1680.2.0-1990: Recommendations for specific tasks and interiors
- AS 1680.2.1-2008: Circulation spaces and other general areas

Stds Aust 1999a, AS/NZS 2208:1996/Amdt1:1999: Safety glazing materials in buildings, SAI Global.

Stds Aust 1999b, AS 4421-1996/Amdt1-1999: Guards and Patrols, SAI Global.

Stds Aust 1999c, AS 4607: Personal response systems, SAI Global.

Stds Aust 2001, AS 4145.3: Mechanical locksets for windows in buildings, SAI Global.

Stds Aust 2002a, AS3016: Electrical installations - Electric security fences, SAI Global.

Stds Aust 2002b, AS 3745: Emergency control organization and procedures for buildings, structures and workplaces, SAI Global.

Stds Aust 2002c, AS ISO 15489.1: Records management, SAI Global.

Stds Aust 2003a, AS 1725: Chain-link fabric security fencing and gates, SAI Global.

Stds Aust 2003b, AS 3555.1: Building elements - Testing and rating for intruder resistance - Intruder-resistant panels, SAI Global.

Stds Aust 2003c, AS 5040/Amdt 1-2007: Installation of security screen doors and window grilles, SAI Global.

Stds Aust 2004, AS 1940/ Amdt 2-2006: The storage and handling of flammable and combustible liquids, SAI Global.

Stds Aust 2006a, AS Handbook 167: Security Risk Management, SAI Global.

Stds Aust 2006b, AS 1216: Class labels for dangerous goods, SAI Global.

Stds Aust 2006c, AS 1288/Amdt 1-2008: Glass in buildings - Selection and installation, SAI Global.

Stds Aust 2006d, AS/NZS ISO/IEC 27001: Information technology - Security techniques -Information security management systems - Requirements, SAI Global.

Stds Aust 2008a, AS 2201(Set): Intruder alarm systems, SAI Global.

Stds Aust 2008b, AS 4145.2/Amdt 1-2009: Locksets and hardware for doors and windows - Mechanical locksets for doors and windows in buildings, SAI Global.

Stds Aust 2008c, AS 4806 (Set): Closed Circuit Television (CCTV), SAI Global.

Stds Aust 2008d, AS 5039: Security screen doors and security window grilles, SAI Global.

Stds Aust 2009a, AS/NZS ISO 31000: Risk Management, SAI Global.

Stds Aust 2009b, AS 2030.1-5: Gas Cylinders, SAI Global.

Stds Aust 2009c, AS/NZS 2890 (Set): Parking facilities, SAI Global.

Stds Aust 2010, AS/NZS 1158 (Set): Lighting for roads and public spaces, SAI Global.

AX APPENDICES

AX.01 Glossary and Abbreviations

This Document adopts the terms and meanings used in the BCA and Australian Standards, in addition to the following abbreviations. Common abbreviations for NZ, States and Territories and Government Agencies are used without additional explanation.

Refer also to Part A Section 50 - Glossary of Terms.

ABBREVIATIONS
AHRC Australian Human Rights Commission (formerly HREOC)
AS Australian Standard
AS/NZS Australian and New Zealand Standard
AusHFG Australasian Health Facility Guidelines (this document is a part of these)
BCA Building Code of Australia
CCTV Closed Circuit Television
CI Critical infrastructure
CPTED Crime Prevention Through Environmental Design
DDA The Disability Discrimination Act
ERM Emergency Risk Management
ESD Ecologically Sustainable Development
FF&E Furniture, Fittings and Equipment (see Glossary) includes Fixtures and Fittings
HFG Health Facility Guideline
HPU Health Planning Unit
HREOC Human Rights and Equal Opportunity Commission, see AHRC
HVAC Heating, ventilation, and Air-conditioning
IEQ Indoor Environment Quality
ISO International Standards Organization
OHS, OHSW Occupational Health and Safety (and Welfare)
PCG Project Control Group
SA. HB Standards Australia. Hand Book
AS/NZS Standards Australia/Standards New Zealand
SDC Sustainable Development Commission, UK
VOC Volatile Organic Compound

ORGANISATIONS
ABCB Australian Building Code Board
AIQS Australian Institute of Quantity Surveyors
ASCC Australian Safety and Compensation Council (formerly NOHSC)
CAE The Centre for Accessible Environments (UK)
CASA Civil Aviation Safety Authority Australia
GBCAUS Green Building Council of Australia
NHS Estates National Health Service Estates (UK)
NOHSC See ASCC
AS/NZS Standards Australia/Standards New Zealand

GLOSSARY

Accessible
Accessible by people with disabilities.

Critical infrastructure
A service, facility or a group of services or facilities, the loss of which will have severe adverse effects on the physical, social, economic or environmental well being or safety of the community.

Designated Hazardous Substance

A substance listed in the Hazardous Substances Information System (HSIS) provided by the Australian Safety and Compensation Council (formerly NOHSC) as a designated hazardous substance.

Equipment*
Refer ‘Fixtures’, term used for kitchen, laundry, sterilising equipment etc.

Emergency Risk Management
A systematic process that produces a range of risk treatments that reduce the likelihood or consequences of events.

Fixtures*
Fixed items that require service connection e.g. electrical, hydraulic, mechanical and includes basins, light fittings, clocks, medical service panels etc.

Fittings*
Fixed items attached to walls, floors or ceilings that do not require services such as curtain and IV tracks, hooks, mirrors, blinds, joinery, pin boards etc.

Furniture*
Loose furniture e.g. desks, joinery, beds, etc.

Hazardous Substance
Identified on an MSDS as having an exposure standard or being a hazard to health in the ‘health hazard information’ section of the MSDS. See also Designated Hazardous Substance.

Vinyl
PVC (polyvinylchloride).

Visitor
Any person visiting the facility including contractors, public, medical and services staff, etc.

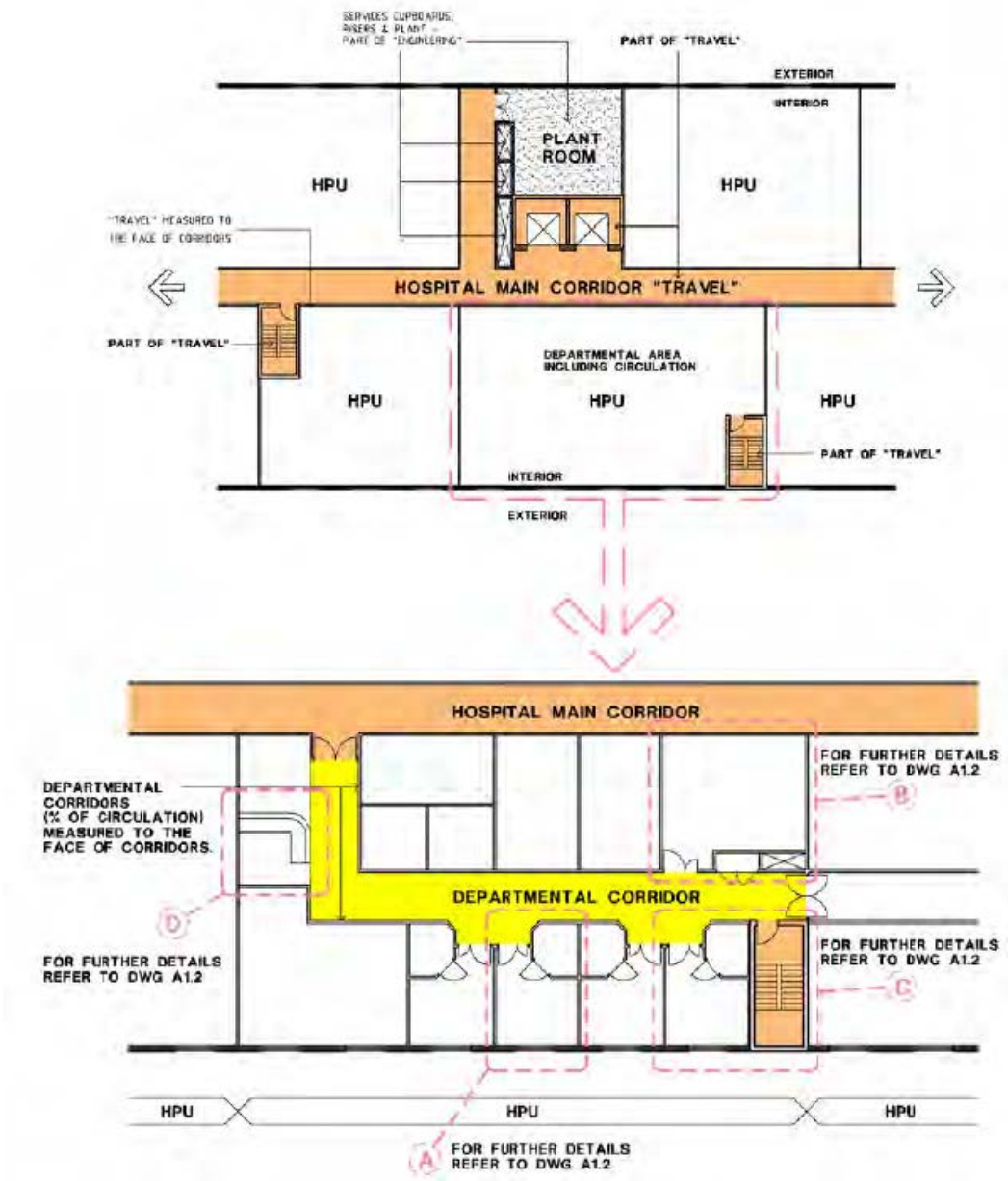
Sustainable/sustainability
General term for ESD

Wayfinding
Strategy to assist people in finding their way.

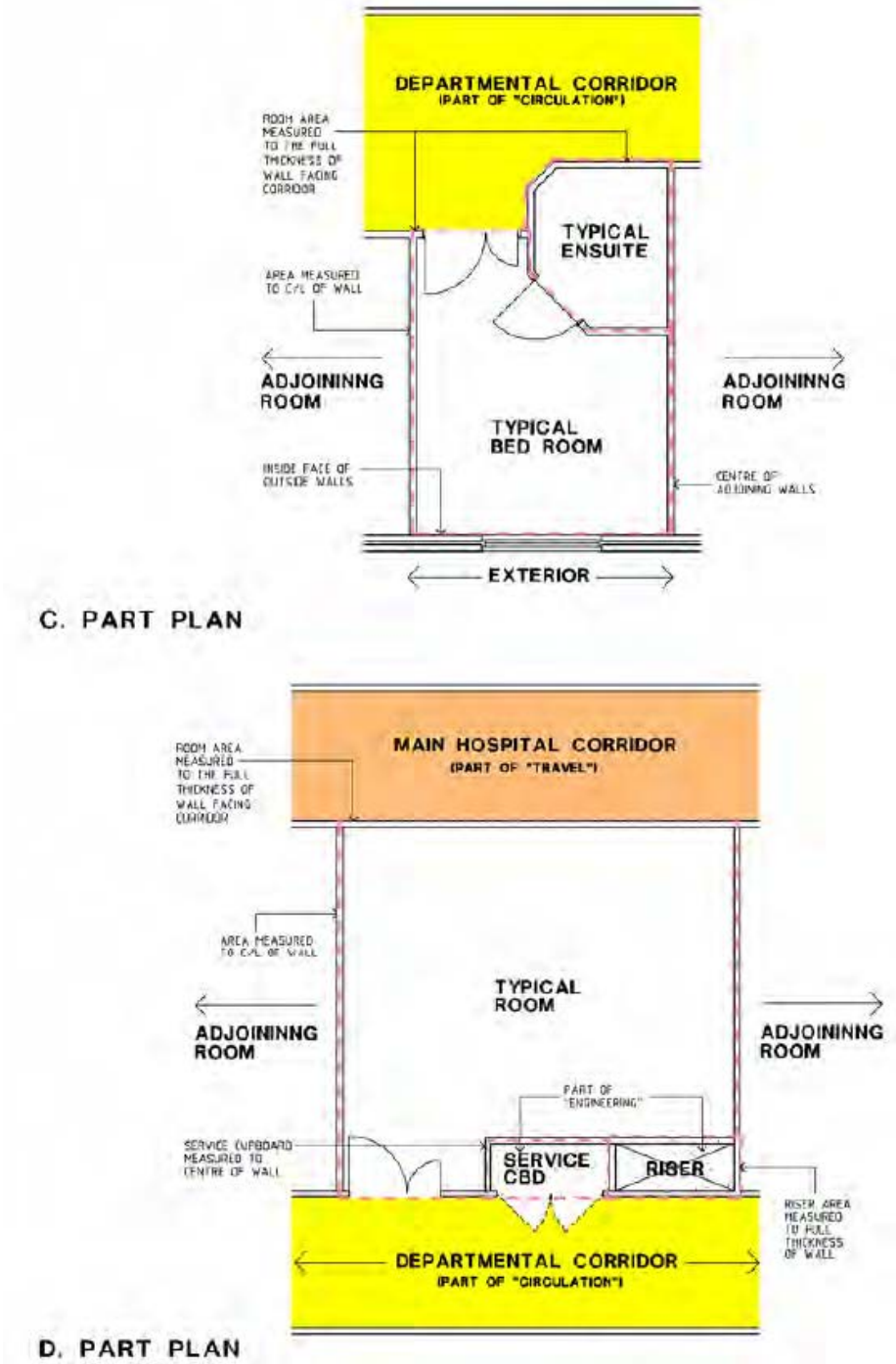
* For further information on FF&E and Fixtures and Fittings refer to the Standard Components Room Data Sheets (RDS) ‘How to use’.

AX.02 Area Measurement Methodology

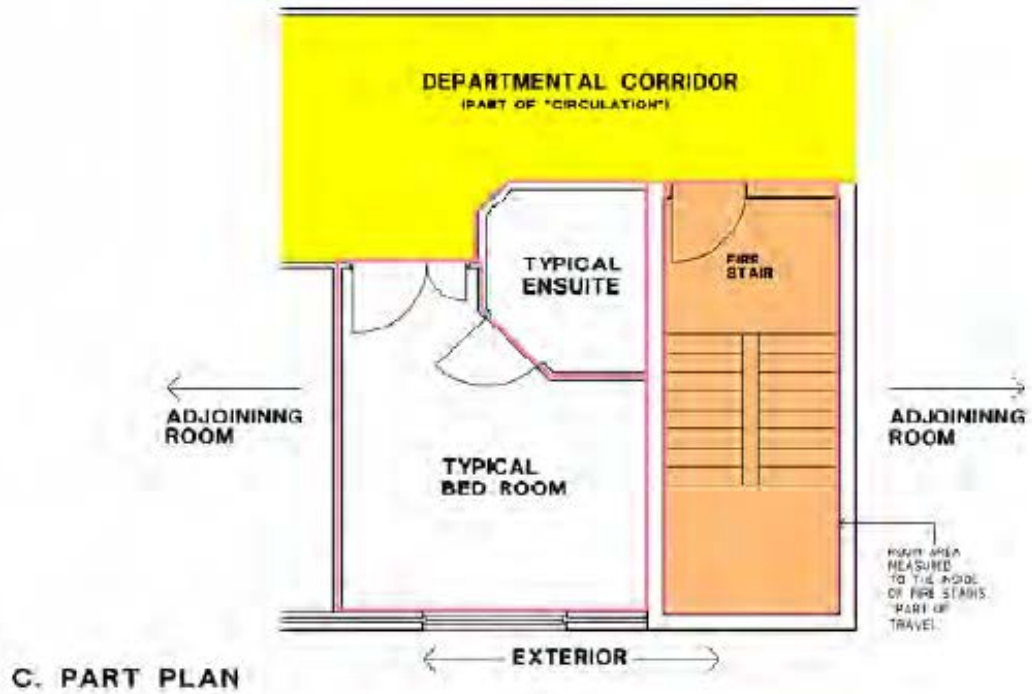
Diagrams referred to in 705 Planning Policies - Room Sizes.



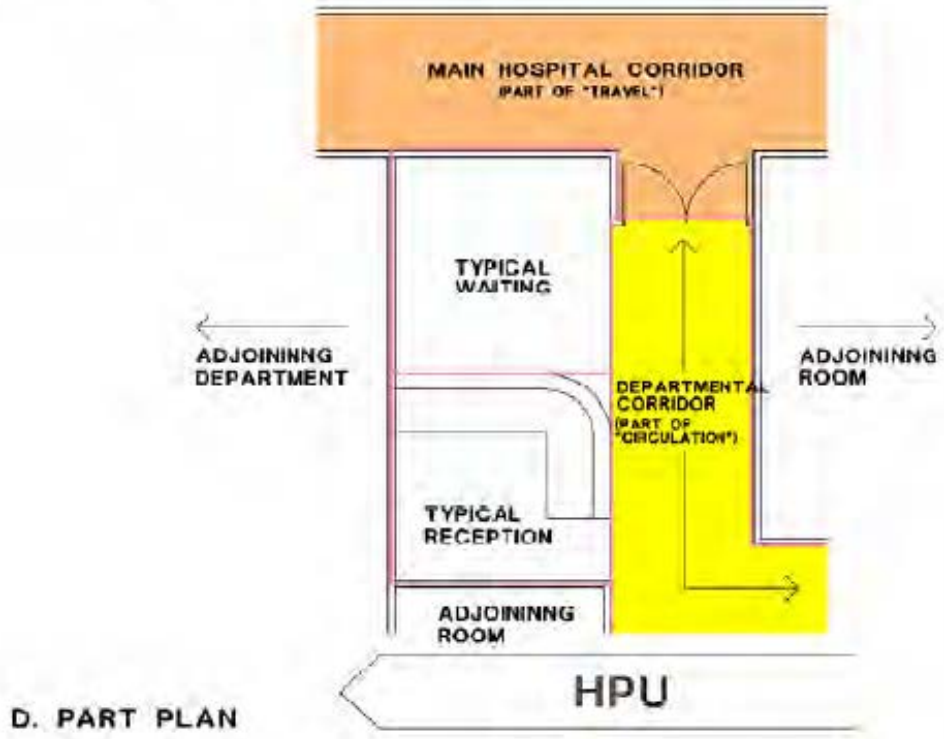
DWG A1.1 (Drawing reproduced from DHS Victoria, 2004, Design Guidelines for Hospitals and Day Procedure Centres, Department of Human Services, Victoria).



DWG A1.2 part (Drawing reproduced from DHS Victoria, 2004, Design Guidelines for Hospitals and Day Procedure Centres, Department of Human Services, Victoria).



C. PART PLAN



D. PART PLAN