ACCESS AND MOBILITY

General

501786 730 .1.00 PEFORMANCE REQUIREMENT

Comply with the relevant Acts, regulations and policies of each Controlling Authority, including:

-BCA – Building Code of Australia;
-OHS – Occupational Health and Safety Act
-DDA – Disability Discrimination Act

It is a requirement of these Guidelines that sections of a Health Care Facility designed for frequent use by people with disabilities comply with the relevant sections of the AS 1428 series. It is, however, not a requirement of these Guidelines that a facility comply with every part of the AS 1428 series in every area of the health facility. Parts of the Health Care Facility may be specialised for use by patients (or staff) with particular disabilities. In such areas, the needs of the most common disabilities shall be considered and allowed for.

'Specialisation' is not seen by these Guidelines as ‘non-compliance’ in relation to AS 1428.

600369 730 .1.05 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 AS 1428 series covers certain aspects of design for Access and Mobility for people with disabilities. These are 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.

501787 730 .2.00 There is increased public awareness of barriers that make reasonable utilisation of facilities difficult or impossible for the physically impaired. A hospital 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, consideration should be given to design provision for optimum patient independence and enhanced staff productivity.

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

+ Mobility impairment;

+ Visual impairment;

+ Hearing impairment;

+ Cognitive impairment eg patients with brain injury or dementia;

+ Mental illness.

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

501788 730 .3.00 The design of buildings and services should acknowledge the needs of a wide range of users who may include:

+ Able bodied people;

+ Clients being assisted by one or more people (eg a reluctant mental health patient);

+ Clients/visitors with baby prams, carrying or walking with young children;

+ Staff pushing beds, patient trolleys, other wheeled equipment;

+ Clients/visitors with a walking frame or other walking aid such as a stick;

+ Clients/visitors with impaired vision;

+ Clients/visitors with literacy issues;

+ Staff who may have a permanent or temporary disability;

+ Maintenance staff needing access to plant.

Planning

501789 730 .4.00 To minimise overall costs and to avoid the need for expensive modification of finished work, initial designs shall 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.

Australian Standard 1428

501790 730 .5.00 The AS 1428 - Design for Access and Mobility Parts 1, 2 & 3 cover the issues of access for people with disabilities. Particular attention is given to access ways and circulation. Continuous traffic paths are required for consistent linkages suitable for use by people using wheelchairs. Facilities shall be provided for people with ambulatory disabilities and for people with sensory disabilities.

Parts of the AS 1428 series are referenced in the BCA and must be complied with. For these requirements refer to both the BCA and AS 1428.

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 Planning Units in Part B. These Guidelines cover the everyday use of facilities by able bodied persons.

501791 730 .6.00 DEPENDENT PATIENTS

AS1428 primarily considers access by people with disabilities who are independent. Consideration also needs to be given 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, width and turning circles on ramps, width of doors and corridors, size of lifts and vehicle access.

Consideration of safe access by staff, patients and visitors who may be disabled or who may be assisting or transporting a person with a (permanent or temporary) disability is also a requirement of the Occupational Health and Safety Act 2000 and Occupational Health and Safety Regulation 2001 in that provision of safe premises and the identification, assessment and elimination/control of all risks are required.

Grab Rails

501792 730 .7.00 The design, sizing and fixing of grab rails and hand rails is nominated in AS1428 - Design for Access and Mobility.

It is highlighted that the fixing of such supports 'shall be able to withstand a force of 1100N applied at any position and in any direction without showing visible signs of deformation or loosening of the fittings.' (VIC WorkCover 1999).

501793 730 .8.00 Grab rails, hand rails, vertical adjustable shower supports, towel rails, soap holders, footrests and any other fixture that may be used for support, shall have sufficient anchorage and strength to resist the sustained concentrated load of a falling heavy human.

501794 730 .9.00 Consideration needs to be given to the design of grab rails in areas where patient self-harm may be an issue eg Emergency Departments and Mental Health Units. The use of grab rails as a hanging point should be prevented by appropriate in-fill design.

Ramps

501795 730 .10.00 Where ramps are required for patient access, gradients are to comply with the requirements of the Building Code of Australia.

Ramps in other areas such as service roadways shall comply with good design practice and be suitable for the task. Australian Standards, wherever applicable, shall be used.

Ramps are necessary for general facility purposes such as moving beds, ambulance trolleys and other equipment between different levels.

Ramps therefore need to have slope, width and turning circles based on the size and weight of an occupied bed plus space for passing as a minimum. This means that ramps will be wider, have bigger turning circles and lower grades than needed for wheelchairs. Ramps that are suitable for bed movement will also be suitable for wheelchair access.

Staircases

501796 730 .11.00 All open staircases pose a risk to patients, children and others who may fall

through the centre of the stairwell. They may also be used by patients intending self harm.

The design of staircases and suspended walkways should recognise this issue and also the need to prevent the throwing of objects from them which may injure people at lower levels.

Hand rails should be designed to assist people with mobility problems and those who may be visually impaired.

ERGONOMICS

Overview

501797 730 .12.00 All facilities shall be designed and built in such a way that patients, staff, visitors and maintenance personnel are not exposed to avoidable risks of injury.

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 as well as the welfare of patients.

Designers should be vigilant to ensure that designing out one risk doesn't result in the introduction of another eg designing out a security risk doesn't result in a manual handling risk.

The field of Ergonomics covers some aspects of the design of objects for common use. However, research indicates that experts disagree on some aspects of ergonomic standards such as the best sitting posture or angle of view for monitors. On most ergonomics issues, however, there is broad agreement amongst the experts.

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 where required to accommodate the special needs of staff.

The ergonomics standards included in these Guidelines are those commonly required in Health Care Facilities.

For items not covered in these Guidelines, it is highly recommended that the Australian Standard for Ergonomics is followed. Refer to the following:

+ SAA HB59 Handbook - Ergonomics - The Human Factor, A Practical Approach to Work Systems Design;

+ AS 3590.2 Screen Based Workstations, Part 2: Workstation Furniture.

Where a facility is designed for staff or patients with special needs, some deviation from these standards may be appropriate. In such circumstances, it is highly recommended that designers seek the opinion of specialist ergonomics experts or OHS professionals and obtain written advice.

Standards Table

501798 730 .13.00 For simplicity, the Ergonomics standards are presented in a table form under several categories. All items should be regarded as high recommendations. Items which are required are clearly noted.

ITEM	COND'N	DEPTH MM	HEIGHT* MM	THICKNESS MM	REQ'D		REMARKS
WORK BENCH	Utility	600	900	32	No		No computer.
WRITING BENCH 1	Typing	900	720	max 50	No		CRT monitor.
WRITING BENCH 2	Typing	750	720	max 50	No		Flat monitor.
TOP COUNTER	Over bench	250	1150	20-32	No		750 reach.
SHELVING	Over 900h bench	350	1520-1820	20	No		2 shelves.
SHELVING	Over 720h bench	350	1370	20	No		2 shelves.
SHELVING UNIT	Full height	350-400	150-1820	20	No		7 shelves.
							* Bench heights should be raised to suit equipment to be accessed by staff.

Staff Station

501799 730 .14.00 A Staff Station may be used for a variety of purposes including:

+ A clerical workstation;

+ Reception;

+ Staff Base;

+ Reporting Station or Sub-Station.

Part of a typical Staff Station is used as a workbench or workstation. For the ergonomic standards of these functions, refer to the appropriate sections of these Ergonomics Guidelines. The balance of the Staff Station standards are covered below.

High Counter

501801 730 .15.00 This is used to shield objects, equipment and records from outside view. It may also provide a convenient writing surface for visitors and staff alike. A high counter is also referred to as Parcel Shelf or Service Counter. A high counter used for direct interaction between staff and visitors or patients shall be designed to avoid the need for excessive 'reach' across the work surface.

However, in some instances additional width of the high counter top provides a safety barrier without the intimidating effects of security glass, polycarbonate or a security grille.

A high counter shall be designed in such a way to permit the location of CRT type computer monitors whilst achieving an effective work surface width of 900 mm. A high counter shall allow for the location of a flat panel display whilst achieving an effective work surface width of 750 mm.

The use of CRT monitors is not recommended for this location.

The recommended height of the top counter used against a work surface designed at 720 mm above the floor is 1150 mm above the floor. This height will allow a typical person to gain sufficient privacy for work whilst being able to look over the top at visitors who are standing or sitting. The recommended height to the top counter used against a work surface designed at 900 mm to 1000 mm above floor level is between 1200 mm and 1250 mm above the floor level.

Care needs to be taken when determining 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 ergonomic risks for staff, particularly short staff.

High-Low Design

501802 730 .16.00 Where children or visitors using wheelchairs are expected at the Staff Station or Reception counters, a design incorporating a high section (for staff privacy) as well as a low section is highly recommended. The low section is typically at 720 mm above the floor or a height that matches the staff work surface.

Low Counter

501803 730 .17.00 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, and 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.

Security Barriers

501804 730 .18.00 PERFORMANCE REQUIREMENTS

All counters provided for Public/Staff interaction should comply with the recommendations of AS/NZS 4360 Risk Management.

600370 730 .18.05 In some situations it may be necessary to provide a security barrier at the counter. This may be in security. In such situations, the barrier will include a vertical or horizontal slot that is sufficient to allow the passage of sound and small objects. A slot of 125 mm is recommended. If a security barrier such as glazing is provided at a counter used for public interaction, then an intercom system shall be provided to amplify the sound for the hearing impaired.

At Pharmacy Dispensing counters, it may be necessary to pass larger objects from one side to the other. In such situations a two-way drawer or cupboard may be used. These shall be lockable.

If the Staff Station or counter is the only barrier between a department and outside areas, it may be necessary to provide after-hours security. If a full height barrier such as security glazing has been provided as described, this may be sufficient. Alternatively, a lockable security grill or similar device shall be provided. The grill or similar device shall be operable by the staff from the normal standing height.

Refer to Safety – Screens and Grilles.

Workbench

501805 730 .19.00 GENERAL

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

standards for the two will vary.

501806 730 .20.00 SITTING POSITION

A workbench used in the sitting position should be at 720 mm above the floor. The typical minimum depth is 600 mm. This should be increased to 900 mm for the use of conventional CRT computer monitors or 750 mm for the use of flat panel computer displays.

501807 730 .21.00 STANDING POSITION

This position suggests that the primary use of the work bench 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, then the bench height of 1000 mm above the floor is recommended. If the bench is mostly used in the standing position with the occasional typing in the sitting position, then a bench height of 900 mm is recommended.

The first option (1000 mm) is most often requested for Staff Stations, Reporting Stations and smaller Reception counters. The second option (900 mm) is most often used in Utility Rooms, Laboratories, Beverage Bays, Kitchens and similar areas.

501808 730 .22.00 FOOT SUPPORT

Shorter staff may use foot rests in the sitting position to lift the feet to the optimum ergonomic position. Chairs used at workbenches used in the standing position should have foot support rings and be height adjustable.

501809 730 .23.00 BENCH SUPPORT

A workbench should be able to support the weight of people sitting on it in addition to any equipment located there. Although the practice of sitting on workbenches should be discouraged, the reality is that it may occur.

Computers

501810 730 .24.00 GENERAL

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

501811 730 .25.00 COMPUTER MONITOR

The type of monitor will dictate the depth of the work surface. Typically, conventional CRT (Cathode Ray Tube) monitors require greater depth to permit a comfortable distance from the users eyes. Most IT specialists believe that in the near future almost all CRTs will be replaced by economical flat panel displays

using liquid crystal, gas plasma or similar technology. These will require less depth of work surface. They are also easier on the eye as they almost eliminate the flicker that is present in CRT monitors. If a choice is available, flat panel displays should be preferred to CRT monitors.

501812 730 .26.00 MONITOR POSITION

Within the work surface depth defined in these Guidelines, the exact horizontal location of the monitor should be adjustable to suit different users. The vertical position of the monitor will depend on the height of the user. The best option is for an adjustable monitor arm. A cost-benefit analysis may be required to justify their use. A fixed monitor is acceptable. The angle of view to the centre of the monitor should be within a range defined by a horizontal line taken from the users eye down to 15 degrees depending on the user's preference.

501813 730 .27.00 LAPTOPS

Laptop computers may be used as replacements for desktop computers. This type of computer is acceptable for occasional typing and is highly recommended for maximum space saving.

Note that laptops used for frequent or prolonged typing should be used with a docking station, and normal keyboard and mouse. Depending on the size and height of the laptop screen, a docking station with normal size monitor may also be required. Connection to data cabling for mainframe, intranet and internet access will still be required.

Security issues should be considered in the selection of laptops - their use in areas accessible to the public should be carefully considered.

Workstation - Typical

501814 730 .28.00 These Guidelines apply to the typical 'L' shaped workstation as well as desks with or without a return.

A workstation intended for working, writing or typing while in a seated position should be 720 mm high.

If a computer with a conventional CRT type monitor is used, the depth of the main work surface containing the CRT should be 900 mm. If the CRT is positioned in the corner, the 900 mm depth is measured diagonally, and must allow for accommodation of the monitor to be used.

If a computer with a flat panel display is used, the depth of the main work surface containing the display should be 750 mm. This option is preferred due to the reduced need for the staff to 'reach' across the work surface.

The depth of the return to the main work surface may be between 450 mm and 750 mm with 600 mm being the optimum recommendation. This will allow for underbench storage and file or drawer units.

The optimum recommended configuration for a workstation includes one work surface of 750 mm wide, one work surface of 600 mm wide with the computer position in the corner.

If a computer is positioned in the corner, then the corner should be angled with a minimum dimension of 400 mm wide.

The workstation should be designed to allow for adequate knee space. The space must be large enough so that the action of turning to use underbench units does not result in hitting the knees against these units.

One end of the workstation may be shaped to form a meeting table. For this purpose rounded edges are recommended.

If visitors are expected to sit across the workstation, then a modesty panel may be considered appropriate.

Workstations should have provision for safe cable management. The simplest system will involve an open tray under the work surface.

In proprietary workstations, GPOs and data points may be internally run with outlets above the work surface. Alternatively these outlets may be on the adjoining wall at a height of 550 mm above the floor level with access to the work surface via the cable tray and a plastic cable access cap.

Shelves

501815 730 .29.00 GENERAL

The design of shelves should consider issues of depth, reach, spacing and strength. Shelves described in this section may be in the form of joinery shelf units, strip shelving, upright book cases, metal racks or similar devices. These standards also apply to shelves within a cupboard.

501816 730 .30.00 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 350 mm. This will suit wall cupboards in Utility Rooms or over workstations. If a door is provided over the shelf unit, then 350 mm will be the total depth.

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

REACH and SPACING:

A shelf may be installed as low as 150 mm above the floor or as high as 1810 mm above the floor. Any surface above 1810 mm should be regarded as inaccessible without the use of a safe step ladder.

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

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

Clearance of shelves above a workbench should be a minimum of 600 mm clear to accommodate, where required, computer monitors that should be set at an appropriately ergonomic height for users.

A typical Medical Records storage unit will be a joinery or metal unit 2100 mm high with seven shelves starting from 150 mm above the floor and finishing with a top shelf at 1800 mm.

The recommended depth for wall shelves used for the storage of linen is 450 mm spaced 400 mm 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: In heavy use areas of hospitals, the conventional metal pins inserted into joinery walls often fail. In such situations, proprietary metal strips are recessed into the joinery walls to hold shelf support pins.

STRENGTH:

Shelves must 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 stronger material or by providing an edge downturn.

DISABLED ACCESS:

Shelves designed for use by disabled patients or staff should comply with the requirements of AS 1428 Parts 2 or 3 as appropriate. It should be noted that this is not a mandatory requirement of these Guidelines to comply with the ergonomics standards of AS 1428 Parts 2 or 3 for all areas and all users.

References and Further Reading

600371 730 .31.00 SA Dept for Administrative and Information Services, Building Management Division, Disability Access Guide, 2004. http://www.buildingmanagement.sa.gov.au/pdf/disability_access_guide.pdf

Government of South Australia, Compliance Obligations of Building Asset Owners - A Guide for SA Government Agencies, 2004 http://www.buildingmanagement.sa.gov.au/pdf/obligations_of_government_agencies.pdf