



THE UNIVERSITY OF MELBOURNE
RISK MANAGEMENT OFFICE

ERGONOMIC DESIGN STANDARDS

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Recommendations

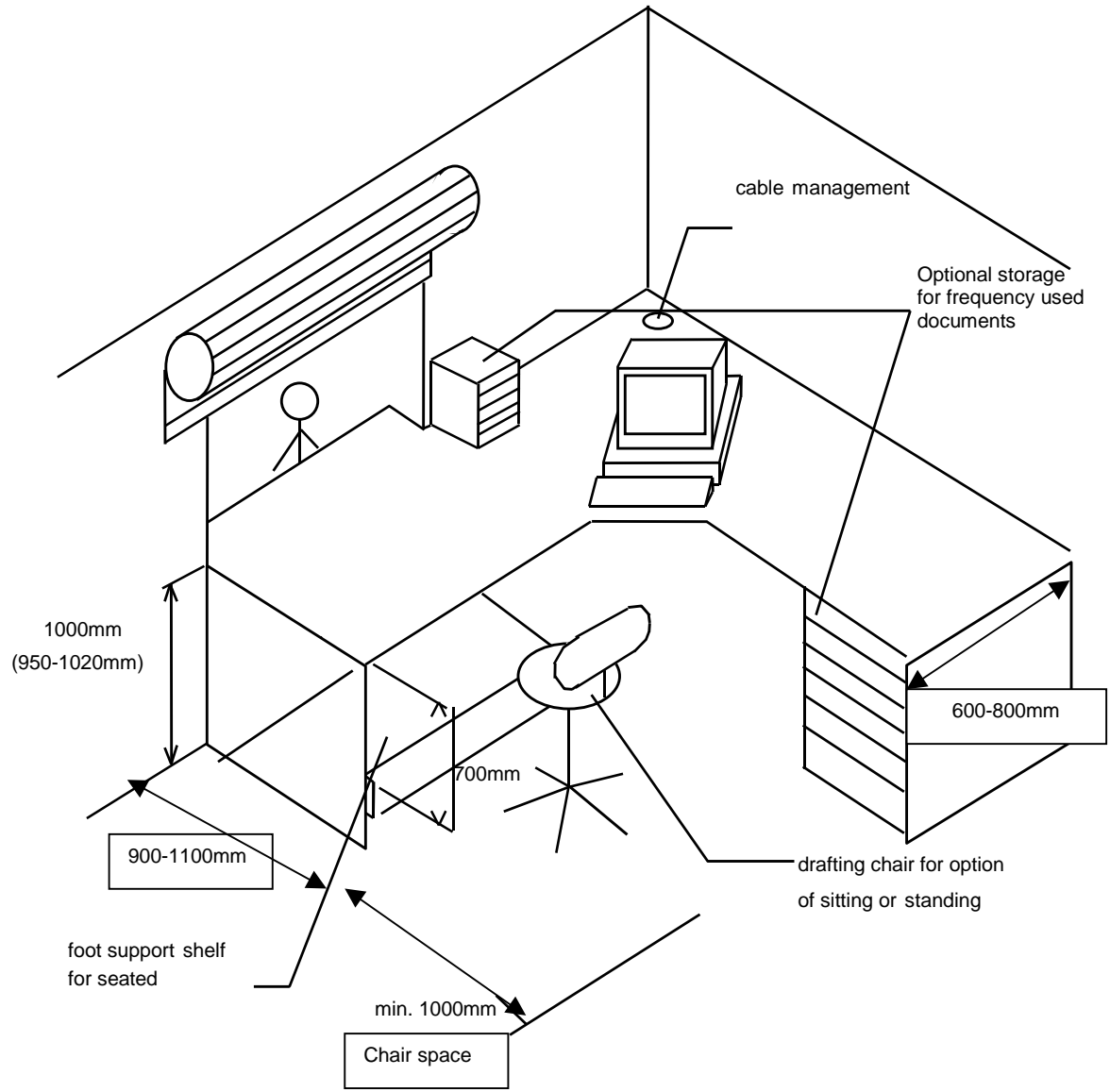
1. Reception/Administration

Figures 1 and 2 illustrate the functional requirements for the Reception/Administration areas.

Relevant Standards include:-

- 1.1 AS3590.2-1990 "Screen based workstations Part 2:
Workstation furniture"
- 1.2 AS4443-1997 "Office Panel Systems - workstations"

FIGURE 1: Reception/Administration Counter

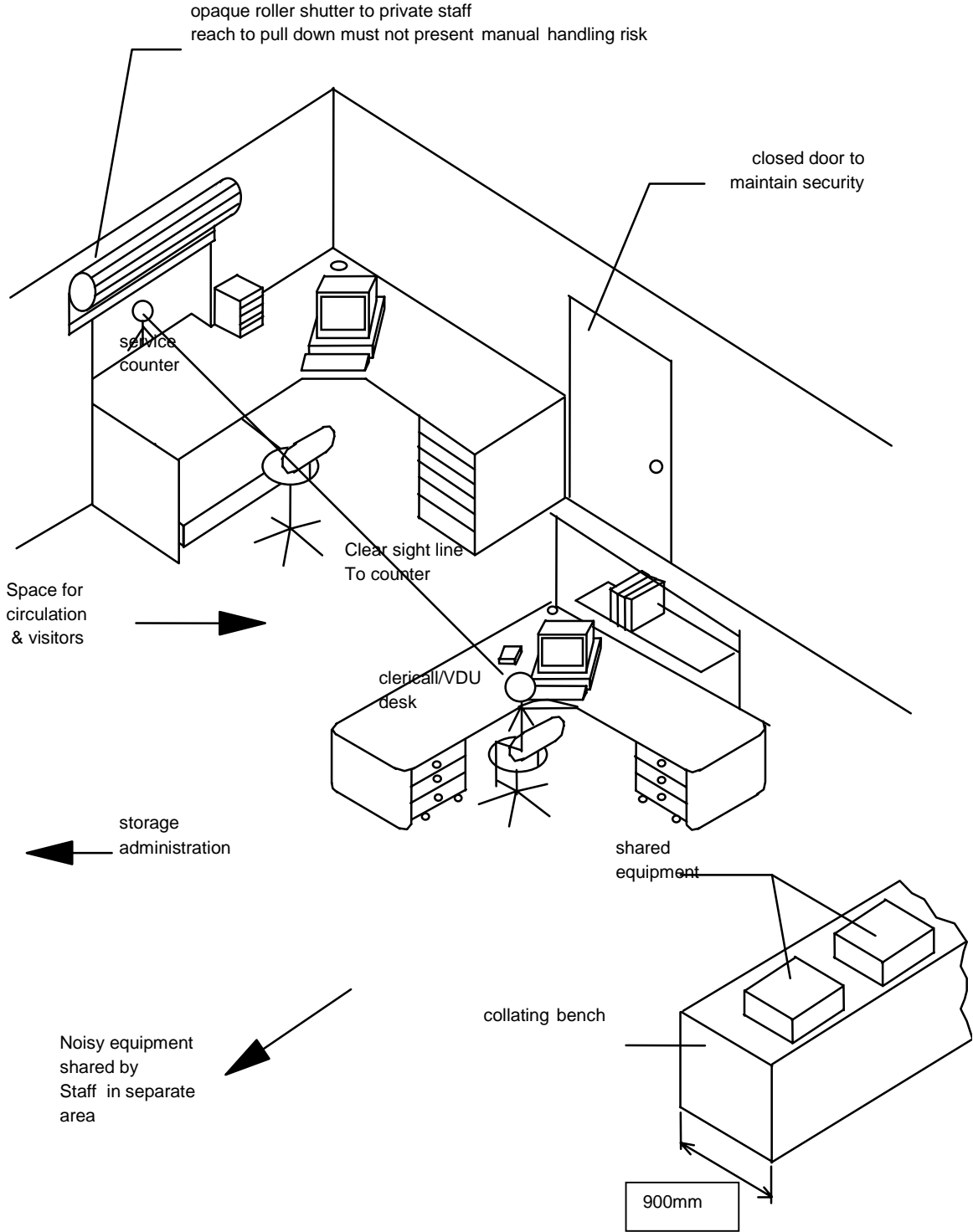


Note

- storage of handouts frequently used on counter or underneath.
- cable access contained under counter away from leg space.
- circulation space behind counter min. of 1000mm.



FIGURE 2: Layout



Note

- L shaped clerical/VDU workstation with clear leg
- allowance for VDU at apex of every workstation



2. Laboratories - Experimental

The following guidelines relate to laboratories where experiments are performed by students. These include Biology; Botany and Chemistry.

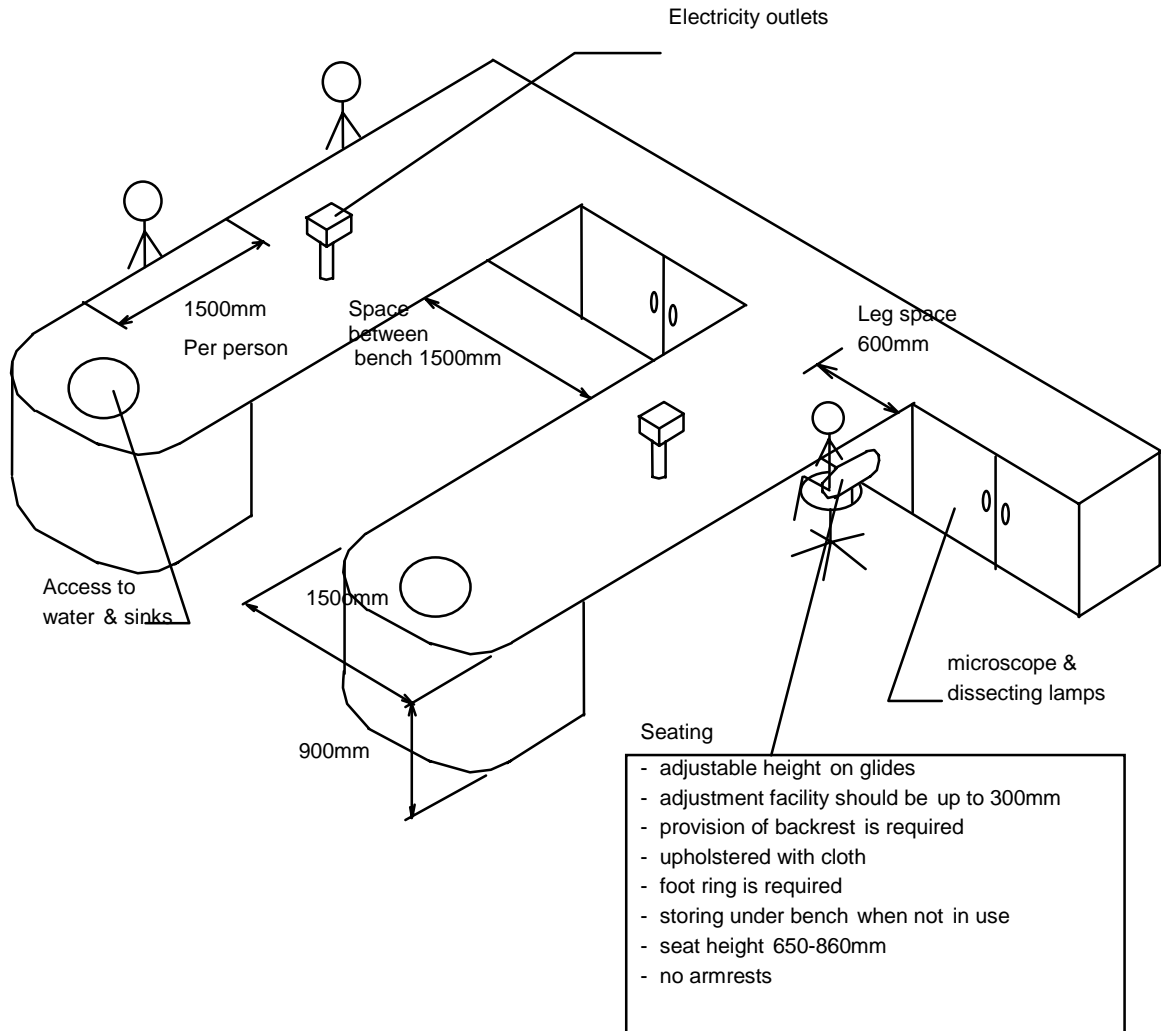
As well as these guidelines, reference is also required to:-

- 2.1 AS2982-1997 - Laboratory design construction standards.
- 2.2 AS2243.1 - 1997 - Safety in laboratories.
- 2.3 NH & MRC (1988) - Waste management guidelines.

It is noted that laboratories used by post graduate students require easy access to their individual desk/VDU for recording results. As such, Section 4 should be used as a guide for the desk/VDU requirements in conjunction with the laboratory design.

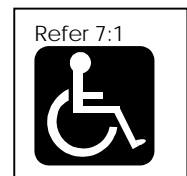
Figure 3 summarises the recommendations for the experimental laboratory design.

FIGURE 3: Laboratory Design



Note

- bench top surface finishes should be with acrylic (Aztec/Corion) or with laminates and post formed edges
- acid collection tanks can be removed from laboratory
- use remote T.V.'s so that each student is able to see Demonstrator
- min. bench top obstruction so that students are able to see each other..
- provide parking area for trolleys in laboratory
- preparation room should be adjacent to laboratory
- use blinds to control window light
- microscopes should be locked in cupboards at end of benches
- provide breakout rest areas outside laboratory
- individual's VDU/desks should be adjacent to lab benches in research laboratories



3. Laboratories - Computer

3.1 Computer laboratories are summarised in Figure 4 of these guidelines. This is based on the use of PC technology where the student requires access to the disc drive unit. If a disc drive is not provided, the monitor should still be raised to 150mm above the desk to facilitate visual and postural control.

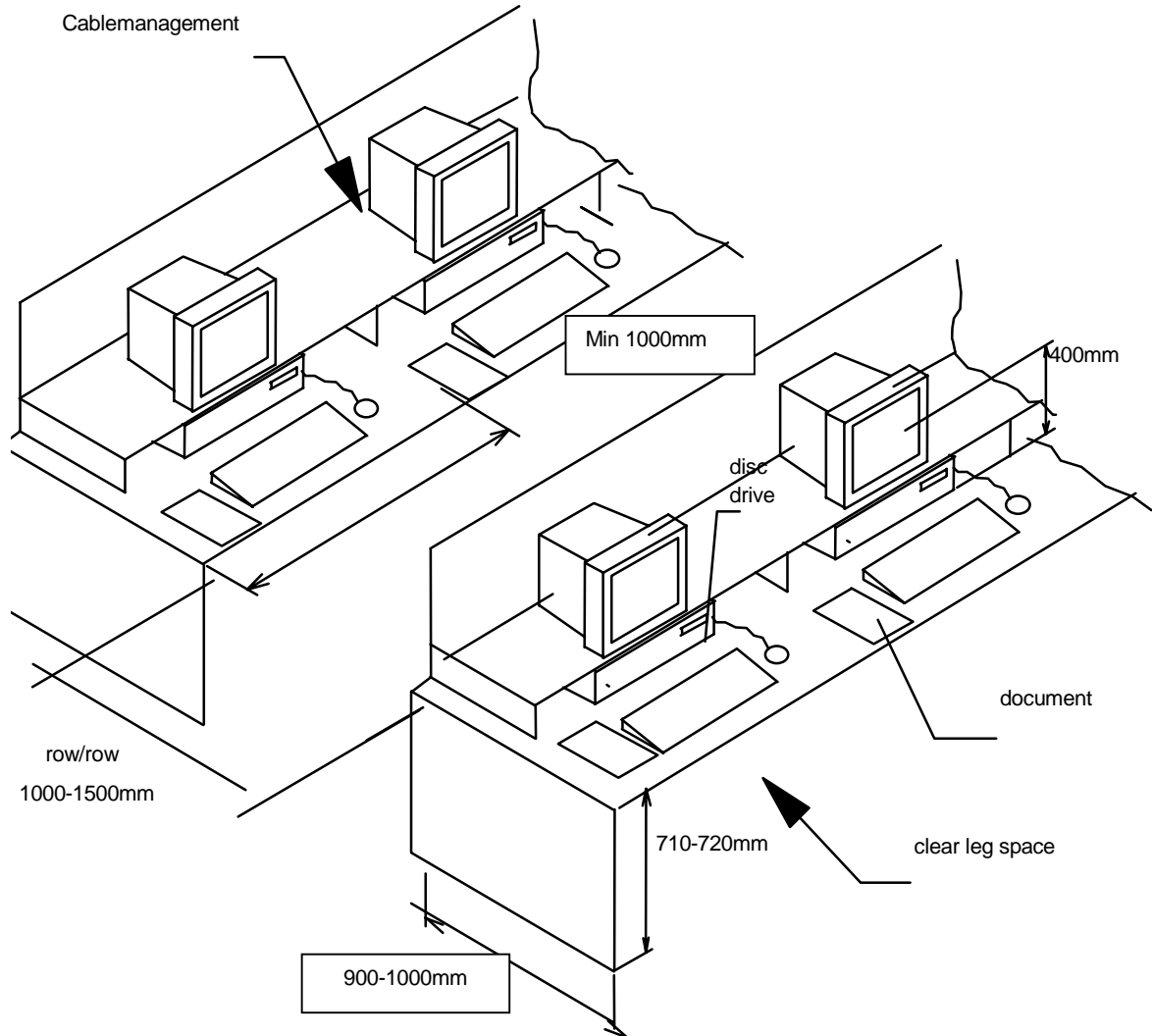
3.2 If larger monitors are used (i.e. greater than 15 inch diagonal), the depth of the desk may need to increase to accommodate the monitor size. Alternately, refer to Section 4 and use apex locations on desks to provide necessary visual depth.

3.3 Portable computers e.g. laptops, notebooks, are not recommended for prolonged use from an OHS perspective. If they are used for prolonged periods, a docking station is required. This utilises a standard monitor, keyboard and mouse similar to the layout shown in Figure 4.

3.4 Appropriate standards used in computer laboratories include;-

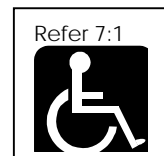
- AS3590.2 - 1990 "Screen-based workstations Part 2:
Workstation furniture"
- AS4443 - 1997 "Office panel systems - workstations"

FIGURE 4: Computer Laboratory



Note

- each workstation is able to see lecturer
- each workstation is able to see audio visual displays
- use blinds to control window light
- overhead lights should be with uplighting & paraflex diffusers
- no adjustable components in desks. Adjustments provided in gas lift chairs
- footstools available for shorter users



4. Workstations

The following guidelines apply to all clerical/VDU workstations. Within the University, it is assumed each desk has, or will have, a VDU at some time.

Figure 5 summarises the main guidelines appropriate to this application, Relevant Standards include:-

- AS3590.2-1990 "Screen based workstations Part 2:
Workstation furniture"
- AS4443-1997 "office panel systems - workstations"

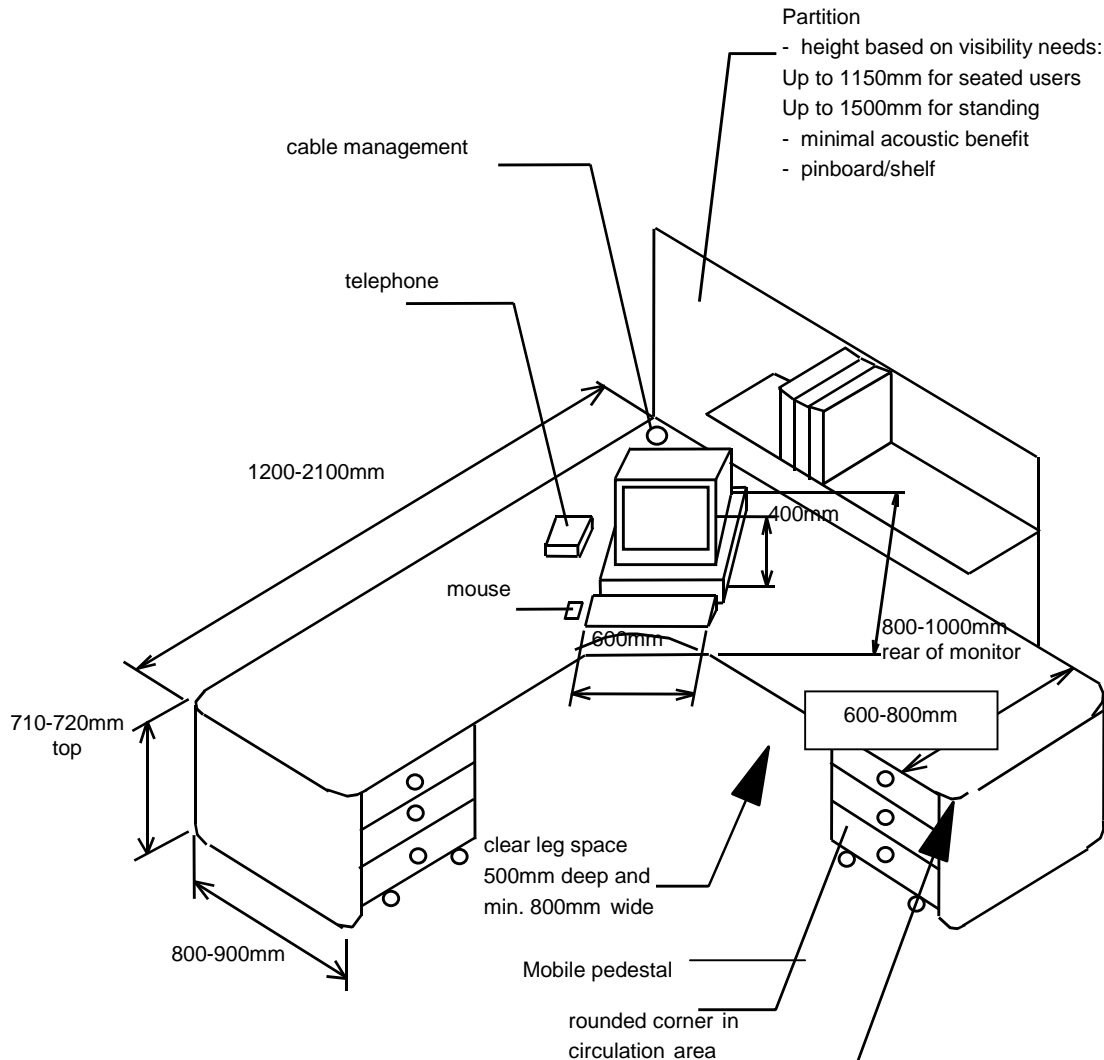
5. Chair

Within the University, an adjustable chair is provided to cater for individual differences in body shape and size.

Figure 6 provides the guidelines that should be followed when selecting chairs. Relevant Standards include:-

- AS3590.2-1990 "Screen based workstations Part 2:
Workstation furniture"
- AS4438-1997 "Height adjustable swivel chairs"

FIGURE 5: Clerical / VDU Workstation

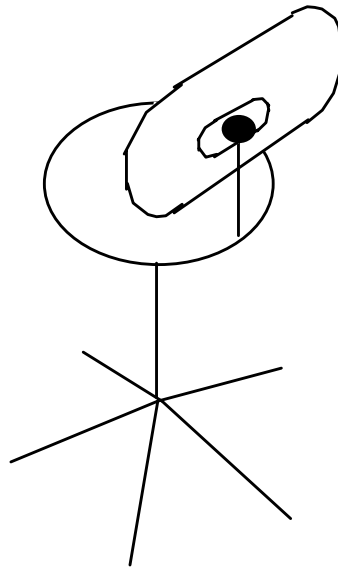


Note

- cabling to VDU and telephone should be long enough to provide optimal layout.
- provision of adjustable keyboard shelf is generally not required.
- monitor should be within arms length from user.
- access to disc drive is under monitor or on floor.
- cable management should be clear of floor.
- round edges of worktops in pathways
- workstation surface 25 or 33mm thick.
- modesty panel provided under main legs to workstation
- provide levellator feet under main legs to workstation.



FIGURE 6: Chair



Notes:

- min. vertical adjustable range should be 420-515mm.
- the design specification of seat & backrest is based on AS4438:1997.
- the durability testing should be based on AS4438:1997.
- It should be upholstered with cloth.

Adapt table from AS 3590.2:1990

Parameter	Requirement
1. SEAT Compressed height above floor for keying tasks for combined keying/writing tasks for high counter work stations Usable depth Max. pan depth Min. seat width Tilt Cushioning — type thickness Covering fabric Swivel action	380 mm to 480 mm (adjustable) 380 mm to 510 mm (adjustable) 540 mm to 730 mm 330 mm to 480 mm (adjustable) 430 mm 450 mm Fixed horizontal or adjustable between 10° forward 5° backward Flexible, cellular polyurethane, AS 2281, Type BH5 50 mm approx. should be woollen Central vertical axis
2. BACK SUPPORT Width (max.) Height (max.) Height of centre of convex area above compressed seat Forward position (max.) Rearward position (max.) Cushioning Covering fabric	360 mm 430 mm 220 mm to 250 mm (adjustable) 330 mm from seat reference point 480 mm from seat reference point Flexible, cellular polyurethane, AS 2281, Type AH2 Should be woollen
3. BASE Style Diameter (min.)	5-star 580 mm
4. ARM RESTS (where supplied) Height above compressed seat (max.) Length (max.) Distance from front edge of seat (min.) Distance between inside edges (min.)	210 mm 200 mm 110 mm 480 mm



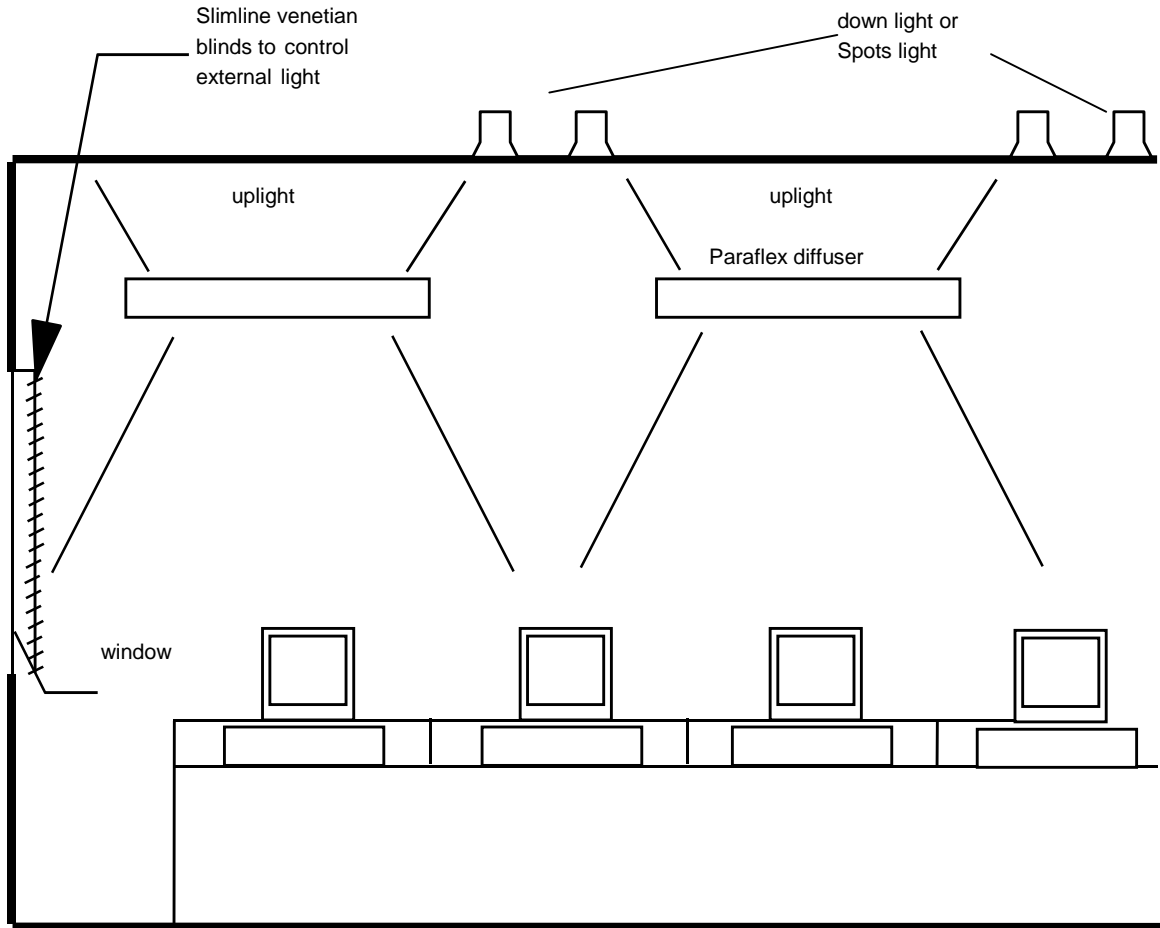
6. Lighting Design

Control of the internal lighting of workplaces should be included in the OHS guidelines. Figure 7 summarises the main guidelines when designing lighting systems.

A range of Standards apply to lighting environments. These include:-

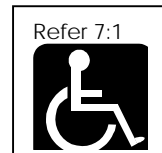
- AS1690.1-1990 "General principles and recommendations"
- AS1680.2.0 - 1990 "Circulation spaces"
- AS1680.2.2 - 1990 "Office and screen based equipment"
- AS1680.2.3 - 1990 "Education and training"
- AS1680.3 - 1990 "Measurement and calculation of data"
- AS1680.4 - 1990 "Industrial tasks and processes"

FIGURE 7: Lighting Design



Note

- ceiling reflectance close to 0.8.
- wall reflectance 0.3 to 0.7.
- floor reflectance 0.2 to 0.3.
- highly saturated colours should not be used on large surface areas.
- task lighting may be required for special visual need areas.
- feature lighting should avoid glare to users eg. reception counters.
- single switch to master control lighting systems.



7. Other Issues

7.1 Facilities For People With Disabilities.

A range of design factors are required to address the needs of disabled users. These are summarised in:-

- AS1428.2-1992 "Enhanced and additional requirements - Buildings and facilities".
- AS2243.1-1997 "Safety in laboratories".
- Commonwealth Disability Discrimination Act.
- Melbourne University Disability Action Plan.

7.2 Tutorial Rooms/Lecture Theatres

7.2.1 Moveable furniture.

Manual handling issues relating to the storage, assembly and stacking of loose furniture must be considered at a design stage.

7.2.2 Tutorial Chairs.

The writing tablet of these chairs must be removable or provide clear access for occupants using the seat. The design of the tablet should facilitate left and right handed users.

7.2.3 Audio Visual Equipment.

Cabling for moveable equipment must avoid trip hazards and any electrical safety hazards.

7.2.4 Stairs.

Internal stairs within tutorials lecture theatres must provide clear visual cues with each tread and landing.

7.3 Noise

7.3.1 Equipment.

Locations of equipment should contain sources of noise away from workareas requiring concentration. No item should produce noise levels above 5 dB(A) over the ambient background noise level if disturbance is to be avoided.

7.3.2 Architectural.

Design of public spaces such as atriums, foyers, stairwells, must ensure conversation noise is not transmitted into surrounding workareas.

7.3.3 Open Plan Offices.

Density of occupancy should be controlled to provide a background level from conversations and activity between 50-55 dB(A). Low densities result in quieter open plan areas where individual conversations are more detectable and distracting.

7.3.4 Meeting Rooms.

Sufficient small meeting rooms should be provided adjacent to open areas to allow for provide conversations and group meetings.

7.3.5 Architectural Materials.

Architectural materials such as carpets, ceiling and wall treatments should facilitate dampening of noise. Extensive use of glass and hard surfaces should be avoided unless complimented by sound absorbing mediums around them.

8. Signage.

8.1 Signage of buildings and rooms must be clearly visible and integrated at design stage.

8.2 Braille signage should be considered if requested.

8.3 Multilevel buildings should list floor information in the same sequence as they occur in building i.e. ground level at bottom of sign and top level at top of sign.

8.4 Signage relevant to evacuation plans should be included at design stage.