7. **GENERAL ERGONOMIC PRINCIPLES & GUIDELINES FOR USE OF SCREEN BASED EQUIPMENT**

**General Ergonomic Principles & Guidelines - Introduction**

Departments shall follow these guidelines when purchasing new furniture and in the planning stage for new accommodation. These guidelines will also be of use in an initial assessment of workstations when staff report problems. Further details can be obtained by pursuing Standards listed in the References. Advice and assistance relating to specific problems may be obtained by contacting the Risk Management Office ext 44006. See: [http://www.unimelb.edu.au/ehsm/8.html#8.3.2](http://www.unimelb.edu.au/ehsm/8.html#8.3.2)

**Desk - Workstation**

Basic considerations are:

- Is the height of the desk top surface between 680 mm - 700 mm or is the desk top fully adjustable?

  Maximum bench thickness; 25 mm.

- Bench/Desk top surface depth minimum 900 mm for VDU use, 750 mm for administrative/clerical work without VDU.

- Leg space minimum of 800 mm width, 450 mm deep.

- Is the surface a neutral colour and non-reflective?

  There are numerous other details to be taken into account. Worksafe Australia provides an excellent checklist in Reference "A" at the end of this section.

**Chair**

Basic considerations are:

- Effective seat depth adjustable from 380 mm to 480mm?

- Seat height adjustment made easily while in use?

- Seat height adjustable 370 mm to 520 mm?

- Vertical convexity of lumbar support area approximately 250 mm radius?

- Lumbar support area between 200 mm and 250 mm top to bottom?
Backrest width between 360 mm and 400 mm?

Is height of lumbar support adjustable from 170 mm to 250 mm above the seat?

Further information for consideration may be found in a separate checklist from Worksafe Australia in Reference "A" at the end of this section.

**Screen Based Equipment**

Major considerations for placement of screens are avoidance of glare and reflections. Basic considerations are:

Do not place screen and operator in a position facing the window.

Do not face screen towards window or have window behind operator.

Site screen so that overhead luminaries are directly to the side of the screen.

Place screen in front of operator and centre of screen about 15 degrees below the horizontal. The top of the screen should not be above eye height.

If possible the best position for a VDU is away from and at right angle to window, with overhead lights to the side and in line with the screen.

**General Comments**

Minimum access space behind each operators chair; 900 mm. Main aisles through a room (where aisle is required) should be a minimum of 1000 mm. In the case where computer stations are placed back to back minimum access space between workstations should be 1500mm.

Guidelines for lighting and the visual environment are given in Australian Standard 1680 and Australian Standard 2713. Suggested ambient levels of illumination is 200 to 400 Lux, with a range of 300 to 400 Lux being appropriate for reading or writing tasks. Consideration may be given to scrim curtains, venetian blinds or blockout window film on all external windows.

Placement of a VDU monitor is important, as is the height and distance. The VDU should be placed in front of a person, not to one side. Distance of screen to person can be 450 to 700mm, usually it is 500 to 600mm. A central processing unit (disk drive), may be suitable if it is not too large/high (100 to 120mm high), otherwise a properly constructed stand from chipboard is just as effective and often less costly. Anti-glare screens should be considered only as the final option, after other considerations have proven to be not practicable.

**Summary**
A standard height desk/workstation and a good chair is often all that is required. The use of footstools should be considered, as people do not always come in standard sizes.

**Screen Based Equipment - Introduction**

The introduction of this equipment has at times raised concerns over health and safety matters associated with its use - in particular ergonomic layout and effects upon eyesight.

**Procedures and Guidelines**

*Eye Examinations*

Departments are required to specify when completing the pre-employment health questionnaire whether the new employee will spend more than 25% of their work time on screen based equipment (S.B.E.).

Eye examinations will be organised by the Occupational Health Unit for new employees who are required to spend more than 25% of their work time on S.B.E.

The Occupational Health Unit will arrange for those persons over 40 years of age using S.B.E. for more than 25% of their work time to undergo eye tests at 2 yearly intervals.

**Health and Ergonomics**

**Occupational Overuse Syndrome (OOS)**

A major area of concern is the development of a condition known as Occupational Overuse Syndrome (previously known as RSI - Repetitive Strain Injury). OSS is a collective term for a range of conditions characterised by discomfort or persistent pain in the muscles, tendons and other soft tissues, with or without physical manifestations. These injuries may be caused or aggravated by work, and are associated with repetitive movement, sustained or constrained posture and/or forced movements. Psycho-social factors, including stress in the working environment may also be important in the development of these injuries.

The muscles and tendons involved in these conditions may be in the wrists, forearm or upper arm, shoulder, upper spine or neck of the person affected. Pain or discomfort may exist in any one or group of these muscles or tendons at one time. The work done by muscles may be active as in typing, handwriting, or static work when the muscles are required to maintain a posture.

**Prevention**

If an OOS condition is allowed to develop unchecked, it will cause the individual concerned pain and the Department to lose human or financial resources. Early recognition of the symptoms is essential to control or minimise the affects of such injuries.
Prevention strategies will need to include elements of:

• Job Design

• Work Organisation

• Supervision & Training

• The role of the Individual, and

• The Ergonomic Design of the Workstation

**Job Design**

Departments should ensure that as positions are reviewed or develop, that a variety of specific tasks are identified that incorporate substantial variation of movement and posture. A mix of repetitive or static work and non-repetitive work should be included in which recovery from any muscle fatigue is made possible.

The job design shall ensure that no employee is required to continuously type or enter data for more than five hours per day. Where the job involves a major component of keyboard work, or other tasks using the same muscle group, frequent breaks should be taken. This structuring of the task should be a matter of discussion and agreement between individuals and their Supervisors.

**Work Organisation**

Many jobs have predictable peak periods where large variations in task demands will occur. Much of the tension generated during these periods may be prevented by sensible long-term planning of resources and organisation of the tasks within the Department.

**Supervision & Training**

Training of all staff, particularly Supervisors who control the activities of keyboard staff, is a priority in the prevention programme. Departments will need to establish ongoing systems to monitor for signs of muscle fatigue and the well-being of all staff using S.B.E. The Risk Management Office can assist Departments with training programmes and advice on all aspects of Occupational Overuse Syndrome.

Departments should also note the following:

• Allow an adjustment period to the work rates after work absences or during a learning period involving new software.
• Ensure that new staff are given adequate training in the use of the computer system, adjustment and layout of the workstation.

With new or existing staff who are being introduced to screen based equipment for the first time, make sure that a recent eye examination has been conducted.

The Role of the Individual

Staff are encouraged to report to their Supervisor any physical discomfort they believe is associated with their S.B.E. Individuals can obtain advice on the preferred layout of their workstation and work flow from the Risk Management Office – ext 44006. The Counselling Service provides training on stress management and assertiveness - ext 46927. Many individuals have benefited from workplace exercise programmes organised by the Sport and Physical Recreation Centre, contact the Physical Recreation Officer - extension 47809, 45401/2.

References:

Ergonomics Unit, Worksafe Australia:
   Ergonomic Principles and Checklists for the Selection of Office Furniture and Equipment.

   Workstation Furniture

Australian Standard 2466 - 1981
   Guide to Design of Microform Workstations

Australian Standard 1680 - 1990
   Interior Lighting

Australian Standard 2713 - 1987
   Lighting and the Visual environment for Screen Based Tasks

Melbourne University’s EHS Manual –

Risk Management Office – Ergonomist contact details:
   http://www.unimelb.edu.au/rmo/general/contact.html