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 Environment Health and Safety Unit on 8344 7702 or The Occupational Health Service on 8344 6904.

Prior to purchasing office or furniture the Ergonomic Design Standards, David Caple and Associates Ltd, August 1999 should be used.

Desk - Workstation

Basic considerations are:

- Height of the desk top surface between 690 mm - 720 mm or is the desk top fully adjustable?
- Bench thickness 25 mm - 33 mm
- Bench/Desk top surface depth minimum 900 mm for VDU use, 600 mm - 800 mm for administrative/clerical work without VDU.
- Leg space minimum of 800 mm width, 500 mm deep.
- Surface a neutral colour and non-reflective.

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

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 (refer to Reference section at the end of this section).

**Screen Based Equipment**

Basic considerations are:

- Placement of screen avoids glare and reflections
- Screen is placed directly in front of operator
- The top menu bar of the screen is not above eye height
- Centre of screen about 15 degrees below the horizontal
- Distance from user to screen is at least 1 arms length

NOTE: These guidelines may vary where prescription glasses are worn for screen based work.

**Other Ergonomic Considerations**

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.

Refer to Reference at the end of this section for guidelines on lighting and the visual environment. Suggested ambient levels of illumination are 200 to 400 Lux, with a range of 300 to 400 Lux being appropriate for reading or writing tasks. 320 Lux or greater is recommended for screen based tasks.

The control of natural lighting to obtain the ambient levels may be a major problem in some locations. Consideration may be given to venetian blinds or block out window film on all external windows, or a combination depending on circumstances.

The use of footstools should be considered, as staff have individual requirements, necessary instruction on the correct use/adjustment must be provided to staff.
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, playing of musical instruments, use of hand tools, playing of racquet sports or static work when the muscles are required to maintain a posture. It is important to realise that the muscle fatigue rate varies between individuals and in any one particular individual from time to time.

If an occupational overuse syndrome condition is allowed to develop unchecked, it may cause the individual pain and loss of function and the department to lose human or financial resources. Early recognition of the symptoms is essential to control or minimise the effects of such injuries.

Individuals who have experienced any type of overuse injury will require careful supervision and may be asked to attend the Occupational Health Service. Individuals who experience symptoms such as pain, weakness or serious disturbance should seek advice from the Director of the Student Health and Occupational Health Services.

Prevention

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 all positions incorporate a variety of tasks which allow variation in movement and posture. A mix of repetitive or static work, and non repetitive work should be included so that 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 program. The EHS Unit can assist Departments with training programs 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.
- 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 EHS Officer/Ergonomist – ext 49254.
References:

Worksafe Australia, Keyboard Workstation Assessment Checklist

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

Ergonomic Design Standards, David Caple and Associates Ltd, August 1999


Property & Buildings Project Management and Design Standards

Code of Practice for Workplaces 1988


Australian Standard AS/NZS 4442 - 1997 Office Desks

Australian Standard AS/NZS 4443 - 1997 Office Panel Systems - Workstations

Australian Standard AS 1680.1 - 1990 Interior Lighting General Principles and Recommendations

Australian Standard AS 1680.2 Interior Lighting Series

Australian Standard AS/NZS 3827 - Lighting System Performance


**Melbourne University's EHS Manual** –

1. Ergonomic Principles for Screen Based Work:

2. Preventing Occupational Overuse Injuries: