# LANCASTER UNIVERSITY

## MANUAL OF SAFETY - Section 13

## IMPLEMENTATION OF THE HEALTH & SAFETY (DISPLAY SCREEN EQUIPMENT) REGULATIONS 1992

### 1 Introduction

The Health & Safety (Display Screen Equipment) Regulations 1992 as amended by the Health and Safety (Miscellaneous Amendments) Regulations 2002, which were made under the Health & Safety at Work etc. Act 1974, came into force on 1 January 1993. They implement European Directive 90/270/EEC dated 29 May 1990. The Regulations specify minimum health and safety requirements for work with display screen equipment.

The requirements of the regulations can be summarised as follows
- all work stations must be analysed to assess and reduce risks to health and safety
- all workstations must conform to a minimum standard
- work routines must be arranged to incorporate breaks or changes of activity.
- eyesight tests must be made available together with the provision of corrective appliances in certain cases
- training must be given in how to use a workstation safely and how to recognise hazards
- written information must be provided and used to reinforce the training.

This section of the Manual of Safety describes the way in which the Regulations are implemented by Lancaster University.

The main part of this document describes the responsibilities for implementing this policy. A number of appendices give more detailed guidance.

### 2 Interpretation and Application of the Regulations

The Regulations apply to various types of display screen equipment not just the monitors attached to computers or word processors. They are aimed at protecting employees whose health may be at risk because they habitually use display screen equipment. These employees are designated as "users". Guidance is given in Appendix 1 on the definition of display screen equipment and of the term "user".

The majority of the regulations do not apply to
- people who are not employees of the University
- students
- people who do not use display screen equipment habitually for prolonged periods

However, there is a requirement that

***"Every employer shall ensure that any workstation which may be used for the purposes of his undertaking meets the requirements laid down in the Schedule to these Regulations".***

Consequently, all University workstations must conform to the minimum standard for workstations listed in Appendix 2.

## 3 Designation of Users

The Head of Department is responsible for determining which members of the department are designated as "users" of display screen equipment in accordance with the guidance given in Appendix 1. A list of the names of the "users" must be sent to the University Safety Office in order to enable the requirements for eye and eyesight tests to be co-ordinated.

## 4 Assessment of Workstations and implementation of remedial action if required.

All workstations must conform to a minimum standard prescribed by the Regulations. The minimum standard is given in Appendix 2.

Each Head of Department must nominate one or more members of the department to act as display screen equipment assessors within that department. The University Safety Office must be notified of the appointment. The duties of the departmental assessors and the method of carrying out assessments are described in Appendix 3.

If, as a result of an assessment, it is identified that remedial action is required in order to meet the minimum standard required by the Regulations, the Head of Department is responsible for ensuring that the remedial action is carried out.

It is the responsibility of the department that purchases or has purchased display screen equipment or software to provide the resources to ensure that the display screen equipment, software and furniture conform to the minimum standard.

## 5 Work Routines

The Regulations require that the daily work of "users" is periodically interrupted by breaks or changes of activity. The purpose of this requirement is to prevent the onset of fatigue not to provide an opportunity for recuperation. Informal breaks, away from the display screen equipment, or other tasks appear to be more effective in relieving visual fatigue than formal rest breaks.

No single session at display screen equipment should exceed 90 minutes without a change in activity. Such a session should be followed by a change of not less than 15 minutes. However, shorter sessions are preferable such as 30 minute sessions followed by 5 minutes of change or 60 minute sessions followed by 10 minutes of change. For some "users" changes of activity will automatically take place frequently for brief periods because of callers, the telephone, etc. These changes will help relieve fatigue. Where a change of activity is not possible, because there is no alternative work, then the breaks must be formal rest breaks. During any break or change of activity, any activity that would

demand broadly similar use of the arms or hands to that experienced when working with display screen equipment should be avoided.

It is the responsibility of the Head of Department to ensure that

- where work activities are closely defined, eg. secretarial work, changes of activity are incorporated. In exceptional circumstances, where changes of activity are not possible, formal breaks must be provided. The Director of Personnel may be consulted about this matter

- where work activities are not closely defined, eg. for academic members of staff, information and training, as described in section 7 below, must be given to enable such staff to understand why changes of activity are necessary and to encourage them to plan their work accordingly.

All display screen equipment that is freely available to staff and students, eg. the computer laboratories, must have a notice attached to the equipment or displayed in the room indicating the need for frequent breaks. Appendix 5 shows the format of a suitable notice.

## 6 Eye and Eyesight tests

The University has a legal obligation to provide eye and eyesight tests for "users". The University Safety Office will offer these tests to "users" that have been notified in accordance with section 3 above. The detailed arrangements are described in Appendix 4.

## 7 Training and Information

All "users" must be provided with health and safety training in the use of any workstation upon which they may be required to work. This training is to be provided by the departmental assessors appointed in accordance with section 4 above. The University Safety Office will arrange that suitable training is made available for the departmental assessors. The aspects to be covered by this training are listed in Appendix 6.

In addition all "users" must be given written information about
- the risks from display screen equipment and workstations
- risk assessment and measures to reduce the risk
- breaks and activity changes
- eye and eyesight tests
- the need for further training if a workstation is modified.

This information is described in Appendix 7.

This section of the Manual of Safety was originally approved by the University Safety Committee on 18 May 1993. It was revised in January 1996, October 1999, May 2004 and October 2004.

Appendix 1

# DEFINITIONS

1 Display Screen Equipment means any alphanumeric or graphic display equipment, regardless of the display process involved. This definition includes

Word processors
Personal computers
Display screen which form part of an instrument, eg.
Security surveillance cameras
Microfiche readers

There are a few types of equipment that are specifically excluded from the regulations. They include

Display screens related to a means of transport
Display screens intended mainly for public operation eg. catalogue terminals in the library
Window typewriters
Calculators
Cash registers
Portable display screens not in prolonged use.

2 Employee

- any individual who has a contract of employment with the University together with duties, terms and conditions.

3 Head of Department

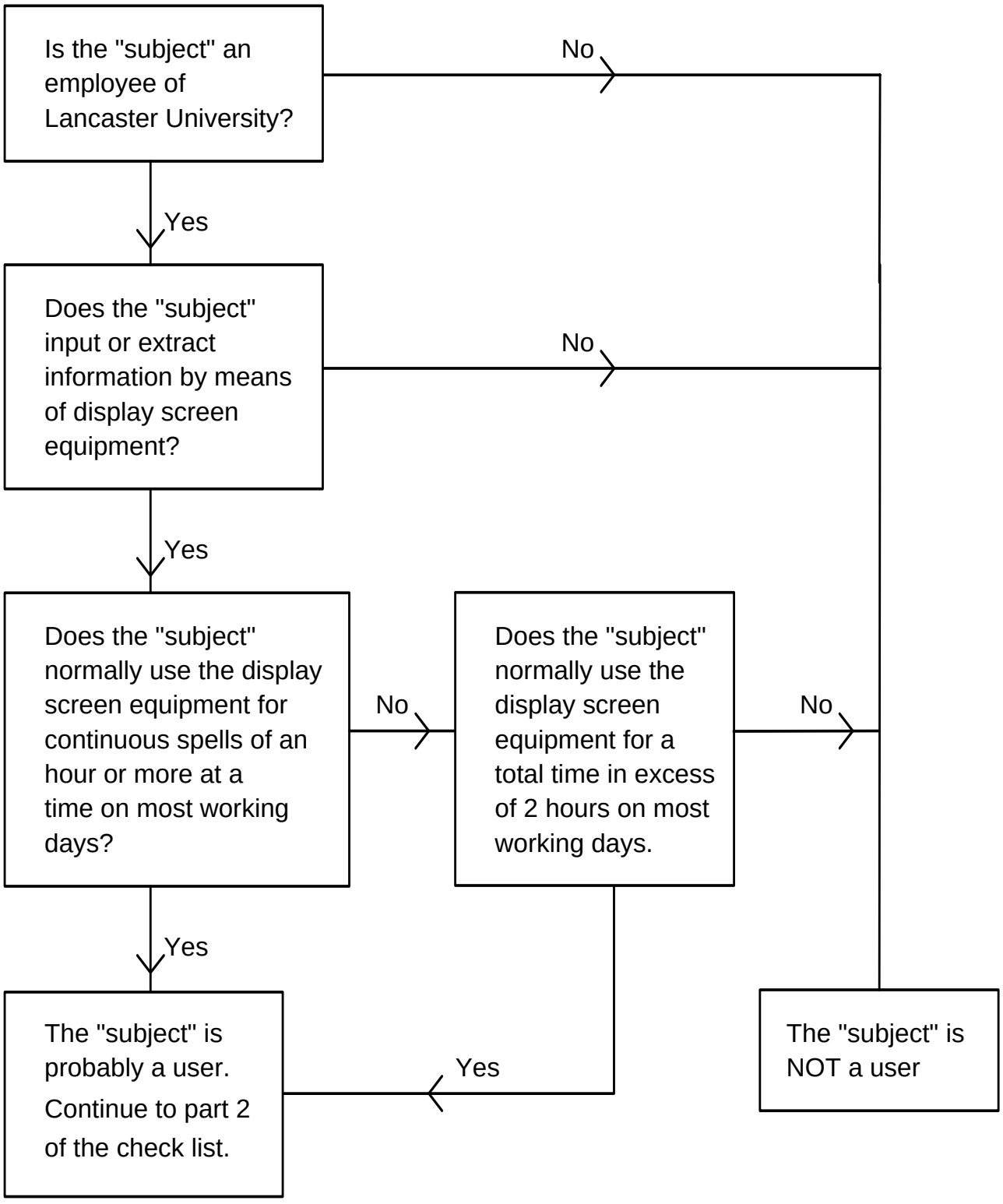
The University has a number of different designations of senior managerial posts which, in the context of the organisation of health and safety, are regarded as synonymous.

For the purposes of this Statement of Safety Policy, "Head" includes the designations "Dean", "Director", "College Principal" and any other similar senior manager. Similarly, "Department" includes the terms "Faculty", "College", "School", "Centre", "Unit", "Institute", etc.

4 User

The checklist below should be used to determine whether the "subject" is a user as defined by The Health & Safety (Display Screen Equipment) Regulations 1992. The checklist is in two parts. It is not necessary to proceed to part 2 if part 1 indicates that the "subject" is not a user.

Checklist - Part 1



## Checklist - Part 2

| | Column 1 | Column 2 |
|---|---|---|
| Does the "subject" depend on the use of display screen equipment to do the job because alternative means are not readily available for achieving the same results? | Yes ☐ | No ☐ |
| Has the subject discretion on whether to use display screen equipment or not? | No ☐ | Yes ☐ |
| Does the use of the display screen equipment need significant training or skills to do the job? | Yes ☐ | No ☐ |
| Is fast transfer of information between the subject and screen an important requirement of the job? | Yes ☐ | No ☐ |
| Is the subject required to exhibit high levels of attention and concentration? | Yes ☐ | No ☐ |

If all 5 boxes in column 1 have been ticked the "subject" is definitely a user.
If 3 or 4 boxes in column 1 have been ticked the "subject" is probably a user.
If less than 3 boxes in column 1 have been ticked the subject is probably not a user.

5 Workstation

"Workstation" means an assembly comprising -

i) display screen equipment (whether provided with software determining the interface between the equipment and its operator or user, a keyboard or any other input device)

ii) any optional accessories to the display screen equipment

iii) any disc drive, telephone, modem, printer, document holder, work chair, work desk, work surface or other item peripheral to the display screen equipment, and

iv) the immediate work environment around the display screen equipment.

Workstations used by users at home are covered by the regulations if the University requires the use of the workstation. This applies even if the University did not provide the equipment.

Portable Display Screen Equipment such as laptops and notebook computers in prolonged use is covered by the regulations. Appendix 8 gives practical guidance on the use of portable equipment.

# MINIMUM STANDARDS FOR WORKSTATIONS

1 This appendix sets out the minimum requirements for workstations specified by The Health & Safety (Display Screen Equipment) Regulations 1992. The requirements only relate to components that are present in the workstation concerned.

2 Equipment

a) General comment

The use as such of the equipment must not be a source of risk for operators or users

b) Display screen

The characters on the screen shall be well-defined and clearly formed, of adequate size and with adequate spacing between the characters and lines.

The image on the screen should be stable, with no flickering or other forms of instability.

The brightness and the contrast between the characters and the background shall be easily adjustable by the operator or user, and also be easily adjustable to ambient conditions.

The screen must swivel and tilt easily and freely to suit the needs of the operator or user.

It shall be possible to use a separate base for the screen or an adjustable table.

The screen shall be free of reflective glare and reflections liable to cause discomfort to the operator or user.

c) Keyboard

The keyboard shall be tiltable and separate from the screen so as to allow the operator or user to find a comfortable working position avoiding fatigue in the arms or hands.

The space in front of the keyboard shall be sufficient to provide support for the hands and arms of the operator or user.

The keyboard shall be a matt surface to avoid reflective glare.

The arrangement of the keyboard and the characteristics of the keys shall be such as to facilitate the use of the keyboard.

The symbols on the keys shall be adequately contrasted and legible from the design working position.

d) Work desk or work surface

The work desk or work surface shall have a sufficiently large, low reflectance surface and allow a flexible arrangement of the screen, keyboard, documents and related equipment.

The document holder shall be stable and adjustable and shall be positioned so as to minimise the need for uncomfortable head and eye movements.

There shall be adequate space for operators or users to find a comfortable position.

e) Work Chair

The work chair shall be stable and allow the operator or user easy freedom of movement and a comfortable position.

The seat shall be adjustable in height.

The seat back shall be adjustable in both height and tilt.

A footrest shall be made available to any operator or user who wishes one.

3 Environment

a) Space requirements

The workstation shall be dimensioned and designed so as to provide sufficient space for the operator or user to change position and vary movements.

b) Lighting

Any room lighting or task lighting provided shall ensure satisfactory lighting conditions and an appropriate contrast between the screen and the background environment, taking into account the type of work and the vision requirements of the operator or user.

Possible disturbing glare and reflections on the screen or other equipment shall be prevented by co-ordinating workplace and workstation layout with the positioning and technical characteristics of the artificial light sources.

c) Reflections and glare

Workstations shall be so designed that sources of light, such as windows and other openings, transparent or translucid walls, and brightly coloured fixtures or walls cause no direct glare and no distracting reflections on the screen.

Windows shall be fitted with a suitable system of adjustable covering to attenuate the daylight that falls on the workstation.

d) Noise

Noise emitted by equipment belonging to any workstation shall be taken into account when a workstation is being equipped, with a view in particular to ensuring that attention is not distracted and speech is not disturbed.

e) Heat

Equipment belonging to any workstation shall not produce excess heat which could cause discomfort to operators or users.

f) Radiation

All radiation with the exception of the visible part of the electromagnetic spectrum shall be reduced to negligible levels from the point of view of the protection of operators' or users' health and safety.

g) Humidity

An adequate level of humidity shall be established and maintained.

4 Interface between computer and operator/user

In designing, selecting, commissioning and modifying software, and in designing tasks using display screen equipment, the employer shall take into account the following principles:

a) software must be suitable for the task;

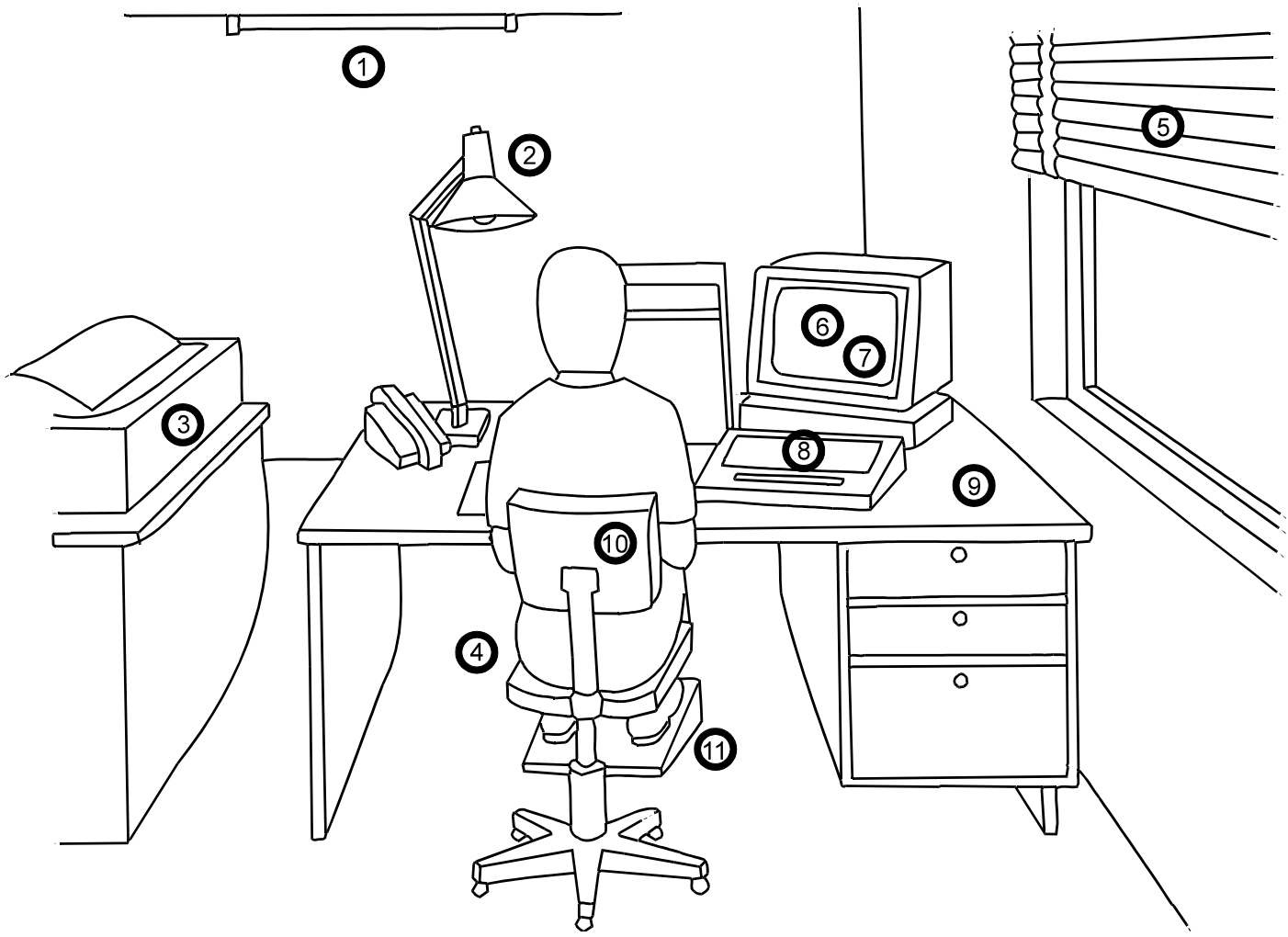
b) software must be easy to use and, where appropriate, adaptable to the level of knowledge or experience of the operator or user; no quantitative or qualitative checking facility may be used without the knowledge of the operators or users;

c) systems must provide feedback to operators or users on the performance of those systems;

d) systems must display information in a format and at a pace which are adapted to operators or users;

e) the principles of software ergonomics must be applied, in particular to human data processing.

SUMMARY OF THE SUBJECTS DEALT WITH IN THE MINIMUM STANDARDS FOR WORKSTATIONS




1 Adequate lighting

2 Adequate contrast, no glare or distracting reflections

3 Distracting noise minimised

4 Leg room and clearances to allow postural changes

5 Window covering

6 Software: appropriate to task, adapted to user, provides feedback on system status, no undisclosed monitoring

7 Screen: stable image, adjustable, readable, glare/reflection free

8 Keyboard: usable, adjustable, detachable, legible

9 Work Surface: allow flexible arrangements, spacious, glare free

10 Work chair: adjustable

11 Footrest

Appendix 3

# DUTIES OF DEPARTMENTAL ASSESSORS AND METHOD OF ASSESSING WORKSTATIONS

## Part 1 Duties of Departmental Assessors

Departmental Assessors are appointed by the Head of Department to carry out assessments of workstations used for departmental purposes. In a small department or one with limited use of display screen equipment one person may be adequate. It may often be appropriate to appoint the Area Safety Officer.

The duties of the Departmental Assessor are

1) to prepare a list of all workstations that may be used for departmental purposes

2) to ensure that all the listed workstations are assessed by use of the checklist produced as part 2 of this appendix

3) to keep a record of the completed assessments. This can be either by keeping the completed assessment forms or by keeping the record electronically

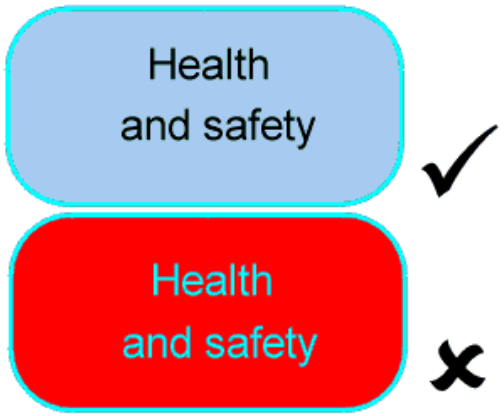
4) to prepare a list of any necessary remedial action for action by the Head of Department

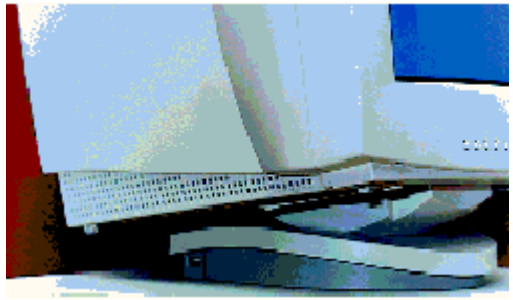
5) to ensure that all users receive adequate training and information (see appendix 6 for more details)

Part 2: Checklist for use in assessing workstations

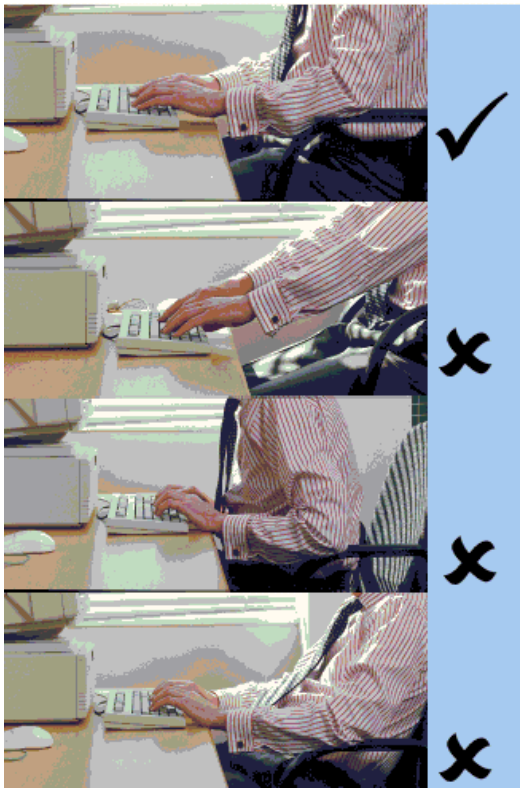
# LANCASTER UNIVERSITY
## Assessment of Display Screen Equipment

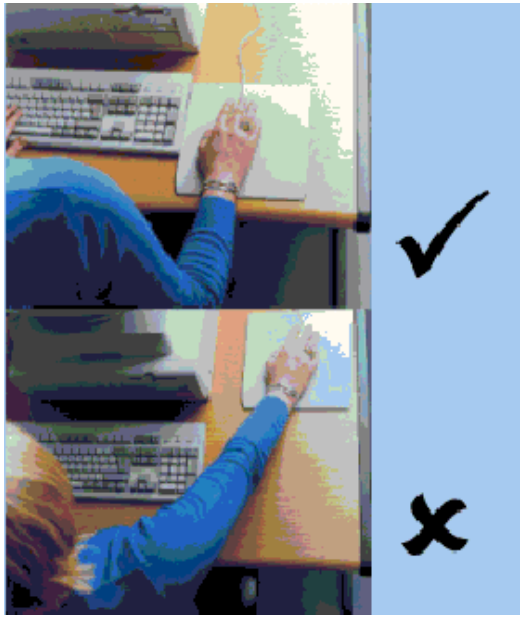
| | | | |
|---|---|---|---|
| Department/Section: | | | |
| Room Number: | | Normal User (if applicable): | |
| Date of Assessment: | | Equipment Identification (eg. serial number): | |
| Checklist completed by: | | Assessment checked by: | |
| Any further action needed?: | Yes/No | Follow up action completed on: | |

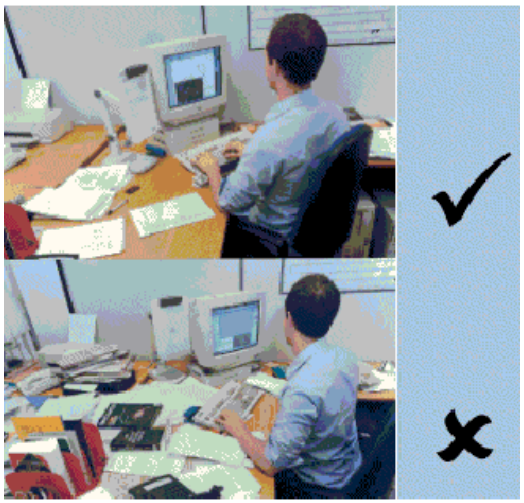
| RISK FACTORS | TICK ANSWER YES | TICK ANSWER NO | THINGS TO CONSIDER | ACTION TO TAKE |
|---|---|---|---|---|
| **1. Display screens** | | | | |
| Are the characters clear and readable?<br>  | | | Make sure the screen is clean and cleaning materials are made available<br>Check that text and background colours work well together | |
| Is the text size comfortable to read? | | | Software settings may need adjusting to change text size | |

| RISK FACTORS | TICK ANSWER | | THINGS TO CONSIDER | ACTION TO TAKE |
|---|---|---|---|---|
| | YES | NO | | |
| Is the image stable, ie free of flicker and jitter? | | | Try using different screen colours to reduce flicker, eg darker background and lighter text<br><br>If problems still exist, get the set-up checked, eg by the equipment supplier | |
| Is the screen's specification suitable for its intended use? | | | For example, intensive graphic work or work requiring fine attention to small details may require large display screens | |
| Are the brightness and/or contrast adjustable? | | | Separate adjustment controls are not essential, provided the user can read the screen easily at all times | |
| Does the screen swivel and tilt?<br>  | | | Swivel and tilt need not be built in; you can add a swivel and tilt mechanism<br><br>However, you may need to replace the screen if:<br>• swivel/tilt is absent or unsatisfactory<br>• work is intensive; and/or<br>• the user has problems getting the screen to a comfortable position | |

| RISK FACTORS | TICK ANSWER | | THINGS TO CONSIDER | ACTION TO TAKE |
|---|---|---|---|---|
| | YES | NO | | |
| Is the screen free from glare and reflections?<br>  | | | Use mirror placed in front of screen to check where reflections are coming from<br>Try to move the screen, desk or source of reflections<br>Adjust lighting or window coverings. Check that blinds work (vertical blinds are more effective than horizontal blinds).<br>If you have tried these suggestions, consider an anti-glare screen filter or seek specialist help | |
| Are adjustable window coverings provided and in adequate condition? | | | Check that blinds work. Blinds with vertical slats can be more suitable than horizontal ones.<br>If these measures do not work, consider anti-glare screen filters as a last resort and seek specialist help. | |
| **2. Keyboards** | | | | |
| Is the keyboard separate from the screen? | | | This is a requirement, unless the task makes it impracticable (eg where there is a need to use a portable) | |
| Does the keyboard tilt? | | | Tilt need not be built in | |

| RISK FACTORS | TICK ANSWER | | THINGS TO CONSIDER | ACTION TO TAKE |
|---|---|---|---|---|
| | YES | NO | | |
| Is it possible to find a comfortable keying position?<br>  | | | Try pushing the display screen further back to create more room for the keyboard, hands and wrists.<br>Users of thick, raised keyboards may need a wrist rest | |
| Does the user have good keyboard technique? | | | Training can be used to prevent:<br>• hands bent up at wrist;<br>• hitting the keys too hard;<br>• overstretching the fingers | |
| Are the characters on the keys easily readable? | | | Keyboards should be kept clean. If characters still can't be read, the keyboard may need modifying or replacing.<br>Use a keyboard with a matt finish to reduce glare and/or reflection. | |

| RISK FACTORS | TICK ANSWER | | THINGS TO CONSIDER | ACTION TO TAKE |
|---|---|---|---|---|
| | YES | NO | | |
| **3. Mouse, trackball etc** | | | | |
| Is the device suitable for the tasks it is used for? | | | If the user is having problems, try a different device. The mouse and trackball are general-purpose devices suitable for many tasks, and available in a variety of shapes and sizes. Alternative devices such as touchscreens may be better for some tasks (but can be worse for others). | |
| Is the device positioned close to the user?<br>  | | | Most devices are best placed as close as possible, eg right beside the keyboard.<br>Training may be needed to:<br>• prevent arm overreaching;<br>• tell users not to leave their hand on the device when it is not being used;<br>• encourage a relaxed arm and straight wrist | |
| Is there support for the device user's wrist and forearm? | | | Support can be gained from, for example, the desk surface or arm of a chair. If not, a separate supporting device may help.<br>The user should be able to find a comfortable working position with the device. | |
| Does the device work smoothly at a speed that suits the user? | | | See if cleaning is required (eg of mouse ball and rollers).<br>Check the work surface is suitable. A mouse mat may be needed. | |
| Can the user easily adjust software settings for speed and accuracy of pointer? | | | Users may need training in how to adjust device settings. | |

| RISK FACTORS | TICK ANSWER | | THINGS TO CONSIDER | ACTION TO TAKE |
|---|---|---|---|---|
| | YES | NO | | |
| **4. Software** | | | | |
| Is the software suitable for the task? | | | Software should help the user carry out the task, minimise stress and be user-friendly.<br>Check users have had appropriate training in using the software.<br>Software should respond quickly and clearly to user input, with adequate feedback, such as clear help messages. | |
| **5. Furniture** | | | | |
| Is the work surface large enough for all the necessary equipment, papers etc?<br>  | | | Create more room by moving printers, reference materials etc elsewhere.<br>If necessary, consider providing new power and telecoms sockets, so equipment can be moved.<br>There should be some scope for flexible rearrangement. | |
| Can the user comfortably reach all the equipment and papers they need to use? | | | Rearrange equipment, papers etc to bring frequently used things within easy reach.<br>A document holder may be needed, positioned to minimise uncomfortable head and eye movements. | |
| Are surfaces free from glare and reflection? | | | Consider mats or blotters to reduce reflections and glare. | |

| RISK FACTORS | TICK ANSWER | | THINGS TO CONSIDER | ACTION TO TAKE |
|---|---|---|---|---|
| | YES | NO | | |
| Is the chair suitable?<br>Is the chair stable?<br>Does the chair have a working:<br>• seat back height and tilt adjustment?<br>• seat height adjustment?<br>• swivel mechanism?<br>• castors or glides? | | | The chair may need repairing or replacing if the user is uncomfortable, or cannot use the adjustment mechanisms. | |

| RISK FACTORS | TICK ANSWER | | THINGS TO CONSIDER | ACTION TO TAKE |
|---|---|---|---|---|
| | YES | NO | | |
| Is the chair adjusted correctly?<br>  | | | The user should be able to carry out their work sitting comfortably.<br>Consider training the user in how to adopt suitable postures while working.<br>The arms of chairs can stop the user getting close enough to use the equipment comfortably.<br>Move any obstructions from under the desk. | |
| Is the small of the back supported by the chair's backrest? | | | The user should have a straight back, supported by the chair, with relaxed shoulders. | |
| Are forearms horizontal and eyes at roughly the same height as the top of the VDU? | | | Adjust the chair height to get the user's arms in the right position, then adjust the VDU height, if necessary. | |

| RISK FACTORS | TICK ANSWER | | THINGS TO CONSIDER | ACTION TO TAKE |
|---|---|---|---|---|
| | YES | NO | | |
| Are feet flat on the floor, without too much pressure from the seat on the backs of the legs? | | | If not, a foot rest may be needed. | |
| **6. Environment** | | | | |
| Is there enough room to change position and vary movement? | | | Space is needed to move, stretch and fidget.<br>Consider reorganising the office layout and check for obstructions.<br>Cables should be tidy and not a trip or snag hazard. | |
| Is the lighting suitable, eg not too bright or too dim to work comfortably?<br>  | | | Users should be able to control light levels, eg by adjusting window blinds or light switches.<br>Consider shading or repositioning light sources or providing local lighting, eg desk lamps (but make sure lights don't cause glare by reflecting off walls or other surfaces). | |
| Does the air feel comfortable? | | | VDUs and other equipment may dry the air.<br>Circulate fresh air if possible. Plants may help.<br>Consider a humidifier if discomfort is severe. | |
| Are levels of heat comfortable? | | | Can heating be better controlled? More ventilation or air-conditioning may be required if there is a lot of electronic equipment in the room. Or, can users be moved away from the heat source? | |
| Are levels of noise comfortable? | | | Consider moving sources of noise, eg printers, away from the user. If not, consider soundproofing. | |

| RISK FACTORS | TICK ANSWER | | THINGS TO CONSIDER | ACTION TO TAKE |
|---|---|---|---|---|
| | YES | NO | | |
| **7. final questions to users …** | | | | |
| • Ask if the checklist has covered all the problems they may have working with their VDU.<br>• Ask if they have experienced any discomfort or other symptoms which they attribute to working with their VDU.<br>• Ask if the user has been advised of their entitlement to eye and eyesight testing.<br>• Ask if the user takes regular breaks working away from VDUs. | | | | |

# PROCEDURES FOR EYE & EYESIGHT TESTS AND PROVISION OF CORRECTIVE APPLIANCES

## The procedure for eye and eyesight test

1 The University Safety Office must be notified of all departmental users of display screen equipment by the Head of Department. A list of all users in the University will be kept by the University Safety Office. The Safety Office must also be notified as new appointments of users are made.

2 The University Safety Office will notify all users of their right to a free eye and eyesight test as well as the mechanism for carrying out the tests.

3 The University Finance Office will reimburse users (notified in accordance with paragraph 1 above) for the cost of their eye or eyesight test on production of the receipt. If an on-campus procedure is adopted the cost will be met directly by the University.

4 The optometrist will be asked to certify the frequency at which the user should be re-examined.

## Procedure for provision of corrective appliances

5 The British College of Optometrists have produced a statement of good practice on work with display screen equipment, published in the guidance for professional conduct on their website at www.college-optometrists.org . Currently (September 2006) the guidance is located at http://www.college-optometrists.org/coo/download.cfm?uuid=FEB41A7F-843D-5AC5-0810A7E00C6D367B&type=ethics_guidelines

6 If the Optometrist performing the eyesight test discovers a defect of sight that requires correction solely for work with display screen equipment, the University will pay for the provision of corrective appliances for users. the Optometrist will be requested to certify that the user requires the corrective appliance specifically for work with display screen equipment. The University will pay for the cost of a basic appliance or make an equivalent contribution to the cost of a more expensive appliance. The balance must be paid by the user.

7 The University Safety Office will notify users of the arrangements currently in force for the provision of corrective appliances at the same time as notifying the arrangements for eyesight tests (paragraph 2 above).

NOTICES FOR PUBLIC ACCESS WORKSTATIONS

# DISPLAY SCREEN EQUIPMENT

# HEALTH NOTICE

Extensive and intensive use of display screen equipment can lead to adverse health effects including:-

- Upper limb pains and discomfort, which in some cases can lead to chronic debilitating disorders
- Eye and eyesight effects (usually temporary)
- Fatigue and stress

It is recommended that

- the maximum continuous use of the equipment should not exceed 90 minutes
- you take minimum breaks of
  5 minutes in every 30 minutes (the preferable option)
  or
  10 minutes in every 60 minutes
  or
  15 minutes in every 90 minutes

further information or advice can be obtained from the University Safety Office.

Appendix 6

# TRAINING FOR DEPARTMENTAL DISPLAY SCREEN ASSESSORS AND USERS

The Safety Office will arrange that Departmental Display Screen Assessors receive training to enable them to carry out assessments of workstations and provide training for "users" within their department. The training will include

(a) The user's role in correct and timely detection and recognition of hazards and risks. This will cover both the absence of desirable features (chair comfort) and the presence of undesirable ones (screen reflections and glare) together with information on health risks and how problems may be manifested.

(b) A simple explanation of the causes of risk and the mechanisms by which harm may be brought about, for example poor posture leading to static loading on the musculoskeletal system and eventual fatigue and pain.

(c) User initiated actions and procedures which will bring risks under control and to acceptable levels. Training will cover the following:-

- the desirability of comfortable posture and the importance of postural change;

- the use of adjustment mechanisms on equipment, particularly furniture, so that stress and fatigue can be minimised;

- the use and arrangement of workstation components to facilitate good posture, prevent over-reaching and avoid glare and reflections on the screen;

- the need for regular cleaning (or inspection) of screens and other equipment for maintenance;

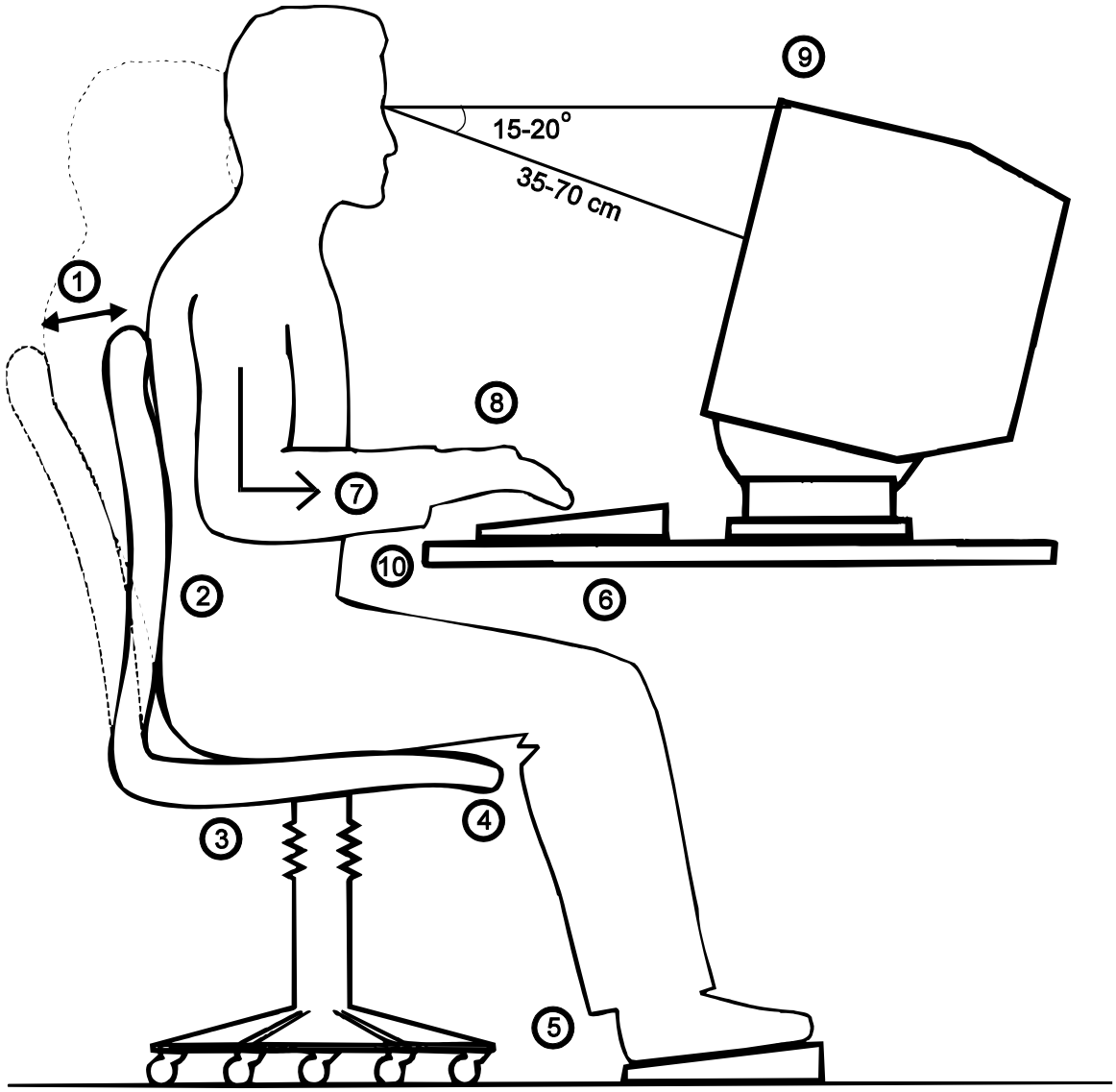
- the need to take advantage of breaks and changes of activity.

(d) The mechanism within the University by which symptoms or problems with the workstation can be communicated to those responsible for carrying out remedial action.

(e) Information on the Regulations, particularly as regards eyesight, rest pauses and the minimum requirements for workstations.

(f) The user's contribution to assessments.

INFORMATION FOR USERS OF DISPLAY SCREEN EQUIPMENT




SEATING AND POSTURE

1 Seat back adjustability
2 Good lumbar support
3 Seat height adjustability
4 No excess pressure on underside of thighs and backs of knees
5 Foot support if needed
6 Space for postural change, no obstacles under desk
7 Forearms approximately horizontal
8 Minimal extension, flexion or deviation of wrists
9 Screen height and angle to allow comfortable head position
10 Space in front of keyboard to support hands/wrists during pauses in keying

WORK ROUTINE

1 All sessions less than 90 minutes

2 Activity changes 5 minutes in every 30 minutes (the preferable option)
or
10 minutes in every 60 minutes
or
15 minutes in every 90 minutes

ACTIONS TO BE TAKEN BY USERS OF DISPLAY SCREEN EQUIPMENT

1 All workstations used by "users" must be assessed. If the workstation does not meet the standard the "user" should inform the Head of Department if this has not been done by the Departmental Display Screen Equipment Assessor. This action should also be taken if a workstation has been significantly modified.

2 Users are entitled to free eye and eyesight tests and in certain circumstances corrective appliances. Details of the procedure to be followed can be obtained from the University Safety Office.

3 Working with display screen equipment can lead to symptoms that often reflect bodily fatigue. These symptoms can be prevented by applying good ergonomic principles to the design, selection and installation of the display screen equipment, the design of the workplace, and the organisation of the task. The symptoms may include

- upper limb pains and discomfort, which in some cases can lead to chronic debilitating disorders
- eye and eyesight effects (usually temporary)
- fatigue and stress

4 Training in the preventive measures to be taken to prevent the risks associated with display screen equipment will be given by the Departmental Screen Equipment Assessor. Users must attend this training.

**Appendix 8**

## WORK WITH PORTABLE DISPLAY SCREEN EQUIPMENT

(reproduced from The Health and Safety Executive booklet L26 Work with Display Screen Equipment – Guidance on Regulations)

**1** Portable DSE, such as laptop and notebook computers, is subject to the DSE Regulations if it is in prolonged use. This appendix gives practical guidance.

**2** Increasing numbers of people are using portable DSE as part of their work. While research suggests that some aspects of using portable DSE are no worse than using full-sized equipment, that is not true of every aspect. The design of portable DSE can include features (such as smaller keyboards or a lack of keyboard/screen separation) which may make it more difficult to achieve a comfortable working posture. Portable DSE is also used in a wider range of environments, some of which may be poorly suited to DSE work.

**3** To reduce risks to portable DSE users, the following recommendations should be followed (in addition to following the general advice for all DSE work in the main part of this book).

### Risk assessment (regulation 2)

**4** Risk assessment for users of portables can be a challenge, as it is clearly not practicable to use an independent assessor to analyse each location where work may take place as a user travels around with their portable.

**5** One solution is to give portable DSE users sufficient training and information to make their own risk assessments and ensure that measures are taken to control risks (for example poor posture) whenever they set up their portable. This is discussed under advice to homeworkers; see paragraphs 27-29 of the main guidance. Portable users' risk assessments for, say, half an hour's work in a borrowed office can be quite informal and need not be written down. Where, however, a portable is in lengthy or repeated use in the same location, it would be appropriate for the user's risk assessment to be recorded, for example on a checklist. In all cases, portable users need to be alert to potential risks and report any problems to their employer.

**6** As well as the risks common to both portables and desktop DSE work, the following additional risks may be associated specifically with portable DSE work and need to be taken into account by employers and users:

(a) manual handling risks when moving between locations (bearing in mind that other equipment such as spare batteries, printers, or papers may add to the burden of the portable itself).

(b) Risk of theft possibly involving an assault.

Points to look for in choosing equipment and designing tasks to minimise risks are discussed in paragraphs 7-15 of this appendix.

**Equipment, workstation and task requirements (regulation 3 and Schedule)**

**7** As with full-sized DSE, portables in prolonged use (and the workstations and working environments where they are used) are required to comply with the Schedule. The main difference is that the inherent requirements of portability may mean that some of the detailed requirements of paragraphs 2, 3 and 4 of the Schedule cannot be complied with in all respects. (This kind of non-compliance is allowed for in the circumstances described in the Schedule's paragraph 1.)

**8** Users and employers should be aware that some design compromises inherent in portables can lead to postural or other problems (for example a bent neck, or headaches arising from the low, fixed position of the screen). One way of tackling such risks is to avoid prolonged use and take more frequent breaks. Another way, if working in an office, is to use the portable with a docking station; more advice on this is given in paragraph 11 of this appendix.

**9** Some practical points to consider when selecting portable computers are as follows:

(a) Look for as low a weight as possible (for example 3 kg or less) for the portable computer, and keep accessories as few and as light as possible.

(b) Choose as large and clear a screen as possible, that can be used comfortably for the task to be done.

(c) Where available, opt for a detachable or height-adjustable screen.

(d) Specify as long a battery life as possible. Where practicable, provide extra transformer/cable sets so the user has a set in each main location where the portable is used, and only carries the computer, not the transformer/cables etc.

(e) Give users a lightweight carrying case with handle and shoulder straps. To reduce risk of theft or assault, avoid manufacturer-branded laptop cases.

(f) Look for tilt-adjustable keyboards on laptops.

(g) Choose portables capable of being used with a docking station and/or with a facility for attaching an external mouse, keyboard and/or numeric keypad, where these are likely to help the user to work comfortably.

(h) Check the portable has friction pads underneath to prevent it sliding across work surfaces when in use.

(i) To cut working time and user stress, ensure the portable has sufficient memory and speed for the applications to be used.

(j) For some tasks it may also be desirable to provide add-ons that improve usability and reduce maintenance time, such as (removable) CD-ROM drives and additional memory - but consider the weight penalty when deciding if this is appropriate.

(k) For applications requiring use of a non-keyboard input device, opt for a portable with a touch pad, rollerball or external mouse rather than a 'nipple' trackpoint or isometric joystick device.

(l) Many users find it more comfortable to use portables whose casing incorporates a space (wrist pad) between the keyboard and front edge.

**10** Other points to consider when planning tasks involving portable computers are:

(a) Think about weights to be carried. Where necessary (for example if workers are carrying substantial amounts of equipment and/or papers), carry out manual handling risk assessments with portable computer users.

(b) Advise workers to set up their portable on a suitable worksurface wherever possible, and avoid use for extended periods in other situations. For example resting a portable on the user's lap is not only likely to induce a poor working posture but could result in discomfort due to the heat generated by the computer.

(c) Provide docking stations or similar equipment (see paragraph 11 of this appendix) at workstations where portable computers will be in lengthy or repeated use.

(d) Ensure that staff use portable computers only when away from their main place of work, or when docking station equipment is unavailable.

(e) Minimise the use of portable computers in non-ideal locations such as motor vehicles.

(f) Ensure that handheld computers for prolonged use are carefully selected for ergonomic features which match the requirements of the tasks undertaken. For example equipment to be used outdoors should be adequately waterproof, legible in bright sunlight, and keyboards and screens should be large enough to be used comfortably.

**11** Docking stations are a way to avoid many of the ergonomic disadvantages of portables by allowing the use of a full-sized screen and/or keyboard (and mouse or other peripherals). Designs vary: some resemble a full-sized PC with a slot for the portable to be inserted; others comprise a screen, keyboard, mouse and/or other peripherals connected to the portable by cables or wireless links. There are also systems that provide a full-sized keyboard plus raiser blocks to enable the portable's own screen to be viewed at a more convenient height (see Figure 3). Height-adjustable stands for notebook computers are also available. In setting up any kind of docking station, the aim is for the user to achieve a comfortable working position allowing some variation in posture and having sufficient space for documents and anything else needed for their work tasks. The advice on workstations and working environments in Appendix 1 should be followed, treating the docking station in the same way as full-sized DSE.

Figure 3: Portable PC with raiser blocks

**12** Risks of theft and mugging exist in some circumstances. They can be tackled by a combination of user training and task design; for example:

(a) Do not design tasks in such a way that lone users are expected to carry or use portables in circumstances where theft is likely.

(b) Tell all users to take sensible precautions such as not carrying portables in luggage with a computer manufacturer's branding; not leaving or using a portable in a parked car; and taking extra care in public places, or in other situations (or at times) where the risk of theft may be greater.

**13** If the task involves risk from manual handling, employers and users can take commonsense steps to cut down the risk; for example:

(a) Do not carry equipment or papers unless they are really likely to be needed.

(b) Consider using a backpack to cut down strain on arms and distribute loads evenly across the body (or wheeled luggage might be worth considering).

(c) Remember you may be able to avoid carrying heavy papers by sending them in advance, by post or e-mail, to your destination, or storing them electronically on the portable or on a disk.

The HSE guidance entitled 'Getting to grips with manual handling' gives more detailed advice on weights, precautions, etc.

**Breaks or changes of activity (regulation 4)**

**14** Breaks or changes of activity are particularly important for portable users not working at a docking station. Such users need longer and more frequent breaks or changes of activity to compensate for poorer working environments, which can impact particularly on posture.

**15** Employers whose staff use portables, particularly those who travel and work unsupervised, should remind them frequently of the need to take breaks. Break-monitoring software may be a useful aid (see paragraphs 65-67 of the main guidance for more detailed information on break-monitoring software).

**Eyes and eyesight (regulation 5)**

**16** With regard to eyes and eyesight, there are few special considerations for portable users, although it may be helpful for the user to tell the optician doing any eye and eyesight test that a portable is used, as typical viewing distances may be somewhat shorter than for desktop DSE.

**Training (regulation 6) and information (regulation 7)**

**17** Good health and safety training is particularly important for people who make any prolonged use of portables (including docking stations or handhelds.) Employers should ensure all such employees receive adequate training, including the following things specific to using a portable:

(a) Advice on how to set up and use the equipment in the locations where it is to be used (bearing in mind the user needs sufficient knowledge of risks and precautions to, in effect, re-do the risk assessment whenever starting work in each location; as discussed in paragraphs 4-6 of this appendix).

(b) Guidance on setting up and using a docking station, and additional precautions if using a portable computer when a docking station is not available (see Figure 4, which shows a setup that would not be acceptable for extended use).

(c) Encouragement and advice on how to report promptly any symptoms of discomfort that may be associated with their use of portable DSE, and where to get further advice and help.

(d) A reminder to take regular breaks, bearing in mind that increased DSE use is linked to an increasing risk of discomfort.

(e) How to avoid unnecessary manual handling when carrying around portable DSE (and associated equipment and/or paperwork), and how to reduce risk from such manual handling as is unavoidable.

(f) Advice on how to minimise risks from theft or mugging.

Figure 4: Set up unacceptable for extended use

**18** Managers of staff who use portable DSE should themselves receive health and safety training, so that they are aware of the issues and able and willing to take action to prevent health risks and respond to any problems reported. Key issues managers should be aware of are:

(a) The need for regular breaks to avoid unnecessary use of DSE for extended periods.

(b) Benefits of ensuring adequate variety in users' tasks.

(c) Importance of health and safety training for users

(d) Reasons for providing docking station equipment wherever possible, and encouraging its use.