

WORKING WITH DSE – A CWU GUIDE

Index

Introduction






Legislation:

- Display Screen Equipment Regulations 1992 (as amended 2002)
- Workplace (Health, Safety and Welfare) Regulations 1992
- Management of Health and Safety at Work Regulations 1999
- Provision and Use of Work Equipment Regulations 1998 as amended
- Health and Safety at Work etc. Act 1974
- Safety Representatives and Safety Committees Regulations 1977
- Noise at Work Regulations 2005

Health Issues And How To Avoid Them:

- Acoustic Shock
- Work Related Stress
- WRULD (Work related Upper Limb Disorders) & MSD (Musculoskeletal Disorders)
- Avoiding Health Problems – Desk top computers
- Avoiding Health Problems – Laptop computers

Model Risk Assessments:

- HSE - Risk Assessment Worksheets  Adobe Acrobat 7.0 Document
- HSE - 5 Steps to Risk Assessment  Adobe Acrobat 7.0 Document
- Example 1 Laptop generic Risk Assessment  Adobe Acrobat 7.0 Document
- Example 2 Laptop generic Risk Assessment  Adobe Acrobat 7.0 Document
- Example Risk Assessment for a call centres  Adobe Acrobat 7.0 Document

References:

Acoustic Safety Programme website: www.acousticshock.org

Acoustic Safety Programme - Acoustic Shock In Telephone And Headset Users

Better Display Screen Equipment (DSE) work-related ill health data
Prepared by the Institute of Occupational Medicine for the Health and Safety Executive 2007

British Standards Institute –BS 7179, BS EN ISO 9241

CCMA – Maquis Quilter – Listening for the Problem. Article re Acoustic Shock

CWU – DSE Advice and Health & Safety pages www.cwu.org

FS Cooper

Robert Gordon University Library

Health & Safety Legislation – various (see Index for list)

HSE - Acoustic Shock Revised Guidelines October 2004

HSE - DSE Regulations guidance Notes as amended 2003

HSE - Ergonomics of using a mouse or other non-keyboard input device

HSE - Health and safety risks of laptop computers – Pages 128 to 136

HSE – Home Working Health & Safety Guide

HSE – OS202/1 Operational Circular on DSE Regulations As Amended 2002

HSE - LAC 16/3 – Eye Sight Tests – circular to all environmental Health officers

HSE - LAC 94/1– Call Centre Working – circular to all environmental Health officers

HSE - LAC 94/2 - Call Centre Working – Updated circular to all environmental Health officers

HSE – Health Statistics 2006/2007

Migraine Action Association – Advice on Flicker and Glare

NW BTU H&S Co-ord – Guidance on DSE and Workstation Set-up

Oasis Health and Safety

Robin Whittle - Ergonomics - Trackballs vs Mice

RSI Association - Upper Limb Disorders: an Overview

Swedish Association For The ElectroSensitive

Systems Concept: <http://www.system-concepts.com>

TUC Hazards – editions 2005 and 2008

ViewSonic Europe Press Release 2007

Appendix

- HSE - Risk Assessment Worksheets
- HSE - 5 Steps to Risk Assessment
- Example 1 Laptop generic Risk Assessment
- Example 2 Laptop generic Risk Assessment
- Example Risk Assessment for a call centres

Introduction

A CWU working group of USRs worked with Chris Ingram who produced this document which is comprehensive and forms the basis of further discussion and is aimed at sections of the CWU membership requiring health and safety advice and guidance when using fixed and portable computer equipment.

This document breaks down into three separate parts dealing with specific elements required to ensure a concise guide to computer users with regard to their health and safety rights.

The three sections are:

Legislation

Health Issues and how to avoid them

Risk Assessment

It also takes into account the needs of both home workers and portable equipment (laptop) users.



Chris Ingram
Tech Iosh

Oasis Health and Safety

14th March 2008

Legislation – Computer Users Health & Safety Rights

Introduction

The Health and Safety at Work Act 1974 forms the basis of all H&S legislation in the UK, with the catch-all clause 2.1 which states:

2 General duties of employers to their employees

(1) It shall be the duty of every employer to ensure, so far as is reasonably practicable, the health, safety and welfare at work of all his employees.

Since the first passing of the Act into UK law, it has been further developed and reinforced with over 400 pieces of regulation, 50 ACOPS and further guidance for employers. Additionally the development of the European Union and the adoption of its health and safety law into UK legislation has further strengthened the legal protection given to all workers in the UK.

Whilst there is specific regulation with regard to Display Screen Equipment (DSE) it can be seen that in the end it all boils down to the one statement in clause 2.1 of the H&S at Work Act 1974.

This covers a whole range of situations and equipment and environments in the work place – irrespective of what is being done, what equipment is provided, what work procedures are in place – in the end, the employer has a duty of care to all those it employs. This is an overriding condition placed upon all of its business activities.

There is also a duty upon the employer to consult with employees and their representatives in section 2.6:

(6) It shall be the duty of every employer to consult any such representatives with a view to the making and maintenance of arrangements which will enable him and his employees to co-operate effectively in promoting and developing measures to ensure the health and safety at work of the employees, and in checking the effectiveness of such measures.

However, what is often forgotten is that the Act also refers to the responsibilities of the employee under Clause 7 and 8:

7 General duties of employees at work

It shall be the duty of every employee while at work--

(a) to take reasonable care for the health and safety of himself and of other persons who may be affected by his acts or omissions at work;

and

8 Duty not to interfere with or misuse things provided pursuant to certain provisions

No person shall intentionally or recklessly interfere with or misuse anything provided in the interests of health, safety or welfare in pursuance of any of the relevant statutory provisions.

When dealing with the health and safety rights of computer users, several different pieces of legislation cover most of the issues that may arise. However, where it remains silent, deferring back to the Health and Safety at Work Act 1974 itself; should ensure such concerns are addressed.

Legislation Covering Computer Users Health & Safety Rights

Specific legislation exists within UK law and whilst listing it, this section intends to deal with and explain the specifics of the legislation and how it impacts upon the computer user.

The legislation:

- Display Screen Equipment Regulations 1992 (as amended 2002)
- Workplace (Health, Safety and Welfare) Regulations 1992
- Management of Health and Safety at Work Regulations 1999
- Provision and Use of Work Equipment Regulations 1998 as amended
- Health and Safety at Work etc. Act 1974
- Safety Representatives and Safety Committees Regulations 1977
- Noise at Work Regulations 2005

Specific guidance and detail on these regulations can be obtained via 'The 6 Pack' issued by the HSE following the inclusion of European legislation in UK law.



The most pertinent items of legislation affecting computer users are discussed in the next section of this guide.

Display Screen Equipment Regulations 1992 (as amended 2002)

This is the specific piece of legislation which details protection and rights for computer users and forms the basis of what is required in law of the employer to protect the employee using computer equipment (DSE). This equally applies to both fixed (desktops) and portable equipment (laptops):

1. Assess Risks and mitigate those risks as far as possible.

This requires an analysis of the workstations, and the working environment taking into account:

- The whole workstation including equipment, furniture, air quality, temperature, humidity, noise, natural/artificial lighting and the working environment in general. It must include the use of other equipment e.g. a telephone or headset.
- The positioning of the workstation and DSE in relation to the accommodation they are used in (office or home environment) and the suitability of the office in relation to and the proximity of it to other activities undertaken by the business e.g. manufacturing processes.
- The task for which the computer equipment and its software are being provided for.
- Any special needs of individual employees using the equipment.
- Any reported existing health problems identified by employees which may impact upon their use of the equipment.
- Adequate training should also be considered a part of the risk assessment. E.G. does the individual require specific training that may reduce the risk of injury and ill health? In the case of computer use, training similar to that given to traditional typists may help in the correct use of the keyboard and to avoid RSI and WRULD.

Portable or laptop computers

A specific risk assessment applicable only to laptop computers should be undertaken when supplying workers with this equipment. Above all the question should be, is it suitable for the work at hand and is it necessary? The risk assessment should consider the following additional points as recommended by the TUC's Hazards 2008 edition:

- Ensure that new laptops are TCO-labelled (the TCO is the Swedish Confederation of Professional Employees). Portable computers are assessed (TCO'05) in the areas of ergonomics, emissions, energy, and ecology.

- The compact design of laptops, which were never designed for prolonged use, means that the screen and keyboard are fixed and cannot be adjusted separately.
- The screen is small and sometimes can be difficult to read, depending upon the software in use.
- The keyboard is cramped.
- They are often, by necessity, used at inappropriate workstations leading to a cramped working position.
- The carrying of laptops and their associated equipment, such as printers, should be assessed under the Manual Handling Regulations.

Desktop computers and the appropriate workstation should be provided unless the individual is required to work outside of the office environment or at several locations where access to the desktop computer would not be sufficient for them to carry out the task at hand. Providing laptop computers instead of the standard desktop as a general practice should not be implemented.

Again the issue here is one of suitability to the task in hand and this is an area where both the PUWER and Workplace regulations come into play.

Where risks are identified through the risk assessment process which must be done on both the individual and the equipment/workstation they are using, in the environment in which they are being used; the employer must take steps to remove or reduce them to the minimum.

Risk assessments should be done annually or whenever work equipment or computer software is changed or new items are introduced into the workplace.

The use of generic risk assessments should be done initially and amended to include local factors and their associated risks where relevant. E.G. Adding to the generic risk assessment the use of headsets in call centre environments or effects of using telephone in an office environment simultaneous with the DSE. Any other localised issues or work procedures not mentioned in the generic assessment.

(Model risk assessments can be found under the relevant chapter of this guidance document.)

2. Workstations must meet minimum requirements

These are detailed in the schedule to the Regulations, covering the equipment, the working environment and the interface (software) and inputting device (mouse, stylus) between the computer and the computer user:

- Adequate and appropriate lighting for the task and equipment. Natural light being preferred as much as possible with an acceptable balance between it and artificial light being met.
- Adequate contrast between the screen, paper documents, desktop, and ambient lighting with no glare or reflections.
- Adequate eye to screen viewing distance. Character height on the screen determines nominal comfortable viewing distance.
- Adequate screen contrast to ensure it is easy to read and that characters are legible without causing eye strain or viewing difficulties. Mixtures of character size, multi-screen images and colour of text and backgrounds all play an important role.
- Screen surrounds where used must be non reflective and of the same character height of that on the screen in order to avoid eye sight fatigue. They must not obscure sections of the screen or cause glare or create a feeling of isolation from fellow workers.
- Suitable and well fitted vertical blinds should be fitted to all windows and used appropriately. Blinds should not remain completely drawn from the windows exposing full light and sunshine to the screen and workstation. Window covering should be supplied as a last resort if needed to minimise glare, but not in order to facilitate non-use of vertical blinds.
- Consideration should be given to providing natural 'daylight' type artificial lighting.
- Light fittings should be applicable to task in hand with fluorescent tubing kept to a minimum as this can cause problems with DSE screens increasing the incident of screen flicker and causing colour shifts, glare, and eye strain experienced by the user.
- Localised and user controlled lighting should be supplied where required in order to ensure a balance between that and ambient lighting and to minimise glare and reflections.
- Consideration to design of software must include whether or not inputting of information is required or just general reading of the screen. Inputting of information requires concentration on small sections of the screen and will affect the eyes more than general reading of the screen over a period of the working day.
- The software must be appropriate to the task, adapted to the user, providing feedback on the system status, no undisclosed monitoring such as key logging devices/software.

- The screen must provide a stable image at all times, be user adjustable, readable and free of glare and reflections. Colour mix of text and background must be adjustable by the user and suitable for long term use over each work period. It must not add to eye strain and some guidance may be required if users wish to adjust from the default set by the software.
- The keyboard should be of sufficient overall size, with comfortable keys, easily usable, and legible. The tilt and angle of the keyboard must be adjustable and detachable where desktop equipment is in use.
- Input / pointing device – This should be suitable to the individual user and offer a type which makes use of the equipment the most comfortable. E.g. a mouse instead of a mouse pad, or centred ‘nipple’ type when using a laptop. Type of mouse varies and the user should be given options in order to eliminate hand, wrist and finger strain associated with constant computer mouse use. Left-handed users should be shown how to adjust the mouse buttons to a left-handed mouse or a specific left-handed mouse provided.
- The work surface must have sufficient space for appropriate arrangement of all equipment and documents based on the individual users needs. It should allow placement of the equipment, e.g. mouse, telephone, note pad in a suitable position avoiding the need to stretch or adopt an inappropriate seating posture. It must be glare and reflection free.
- The Chair must be stable and adjustable in terms of height, seat pan angle, back rest height if using a half-back size, angle of back rest and be of sufficient size and shape to allow for comfortable and supported seating. It should be of the ‘5 Star’ legs on castors design considered as standard for all DSE users.
- There should be adequate leg room and clearances beneath the desk to allow postural changes and comfortable positioning in relation to keyboard and mouse and other equipment in use. There should be no restrictions causing pressure on underside of thighs and backs of knees from the seat pan, and restricted leg movement which can lead to loss of good circulation in legs and feet.
- A footrest should be provided where necessary in order to ensure the user can adopt a comfortable position allowing for feet to be supported and taking the weight of the legs as opposed to ‘dangling’ in mid air.
- Plan work so there are breaks from the desk and changes of activity.
- Distracting noise should be minimised.

Again the above applies to all equipment in use whether it be flat panel screen or Cathode Ray Tube (CRT) technology. However, the difference in

characteristics between the image created on a flat screen and that of a standard CRT must be taken into account as the affect on the user may differ from person to person. Good quality equipment should be provided as limits to the technology may well become obvious to the user with detrimental effects. E.G. sharp and well defined characters are sometimes better produced on CRT as the same can appear on some flat panel screens as softer and less well defined. This may affect the user causing eye strain and bad posture as there may be a tendency to sit closer to the screen.

Portable or laptop computers

The same standards and requirements apply to the use of laptop and portable computers. By design they are intended for use only for a short time, but more and more are appearing in the office and other working environments.

Whether being used in a stationary vehicle, adjacent to a street telecoms cabinet, in the hotel room or at customer's premises, the idea is to maintain a good healthy and safe working posture when using the equipment.

The use of additional equipment such as a docking station, separate keyboard, screen and mouse is highly recommended in order to avoid the health issues around intensive and prolonged use of laptops and other portable computer equipment. This option should be freely available from the employer and should be the standard provision for all office based laptop users where a laptop is provided instead of a desktop computer.

3. Work Breaks

There remains a common fallacy over what constitutes a DSE break. The phrase 'tea break' still hangs over the office environment from many years ago and even now some employers refer to this as a way of minimising the importance of regular rest breaks from DSE work.

Work breaks are required to refresh the body, relax the eyes, and generally remove the employer from what is often a stressful work activity. The need for breaks depends upon the individual user and their response to the nature and intensity of the work undertaken by them.

A 'DSE break' does not necessarily mean a 'Work break'. Any activity which removes the user from the workstation and results in less intensive concentration and use of the eyes can be considered a break from DSE work. It is important to understand that breaks should allow for the relaxation of the body and eyes and hence the recommendation of not reading a newspaper, or using the office internet café for example during a rest break such as DSE break or lunch break. The idea is to refresh the mind and body.

Whilst the Regulations stipulate the need for breaks or changes of activity, they do not specify their timing or length. However, the guidance on the Regulations explains general principles – for example, short, frequent breaks are better than longer, less frequent ones. Ideally the individual should have

discretion over when to take breaks and not be in a break scheduling environment. This removes choice and control of work flow from the employer and is known as one of the main causes of work related stress.

The HSE states in its LAC94/2 document issued to all environmental health officers throughout the UK:

“The Health and Safety (Display Screen Equipment) Regulations 1992 do not specify the duration or frequency of breaks or changes of activity, as they apply to a wide variety of jobs, which use display screen equipment. However, they do state that breaks should be taken before the onset of fatigue rather than to recuperate and short, frequent breaks are more satisfactory than occasional, longer breaks. DSE also places a duty on employers to plan the work routine of users so that these regular rest breaks or changes in activity occur such as filing, stuffing envelopes with information.”

4. Eyesight Tests

This is an area often ignored by both employer and employee and again is surrounded by myth in terms of what is provided by the employer. It is for example an incorrect belief that the employer has to offer an eye sight test annually. The Regulations are specific that the employee must request the test and that they are entitled to it as a result of that request:

5. - (1) *Where a person -*

(a) is a user in the undertaking in which he is employed; or

(b) is to become a user in the undertaking in which he is, or is to become, employed,

the employer who carries on the undertaking shall, if requested by that person, ensure that an appropriate eye and eyesight test is carried out on him by a competent person within the time specified in paragraph (2).

(2) The time referred to in paragraph (1) is -

(a) in the case of a person mentioned in paragraph (1)(a), as soon as practicable after the request; and

(b) in the case of a person mentioned in paragraph (1)(b), before he becomes a user.”;

The HSE, in its circular to environmental health officers LAC16/3, clarifies the whole issue around eye sight testing and what constitutes an eye sight test. There are some employers, who provide only a vision screening test run by a trained staff member, and this does not constitute compliance with the regulations, nor does it provide proper health screening of the individual.

As such it is not the appropriate response by the employer to the employees request for an eye sight test. In order to ensure no dubiety with regard to eye sight tests, the HSE have issued this guidance in relation to the intention of the DSE Regulations where eye sight tests are concerned:

LAC16/3:

2 There is no interpretation of the term appropriate eye and eyesight test within the regulations. However, HSE guidance on the regulations states that the appropriate eye and eyesight test in Regulation 5 means a sight test as defined in the Opticians Act 1989. This broadly defines the objectives of sight testing as determining whether there is any defect, what the defect is, and correcting it by an optical appliance. The Sight Testing (Examination and Prescription) (No 2) Regulations 1989 define the basic eye examination as an external and intra-ocular examination, with whatever additional examinations as appear clinically necessary. Thus the tests to be performed are not specified in detail, and the practitioner is expected to use clinical judgement. Issuing a prescription, if one is needed, is an integral part of the sight test.

3 The Department of Health have not issued guidelines for sight tests (beyond what is in the regulation itself) but according to the British College of Optometrists a sight test for a normal patient could include: history and symptoms; external examination of the eye and adnexa; monocular anterior to posterior internal examination of the eyes; objective refraction; subjective monocular refraction: subjective binocular refraction; and such other tests as are decided necessary.

4 The Department of Health take the view that it is not possible to identify any part of the normal sight test as being unnecessary for tests under the DSE regulations; the content of tests in any particular case is a matter for clinical judgement. It should be noted that a sight test must always include an eye examination to satisfy the Opticians Act; the eye examination must always be carried out if a user requests the full test to which they are entitled.

Basically the situation is as follows:

Upon request, the employer must arrange and pay for an eye test with a suitably qualified Optometrist or doctor. If the diagnosis following the test shows that spectacles/contact lenses or a change of existing ones are required by the computer user, this must be provided at the cost of the employer. However, this relates only to the use of corrective lenses / appliances for use with a computer / DSE equipment. It makes no difference if it is for a desktop computer or laptop. There is also an entitlement to further tests at regular intervals.

5. Provide health and safety training and Information

As a result of the DSE Regulations, Employers are required to provide training to ensure all employees can use their DSE and workstation safely, and know how to make best use of it to avoid health problems, for example by adjusting the chair. It should not be assumed that this is straight forward and obvious. Surprisingly, many user do not know how to adjust their chair having not been provided with the information or training to do so.

Information should also be provided about DSE health and safety, workstation set-up, correct use and positioning of mouse and keyboard, appropriate eye to screen distance and angle of vision. Training on risk assessment and DSE Self Assessment should also be provided. This should include general background information and more specific details of the steps taken by the employer to comply with the Regulations, such as the action taken to reduce risks and the arrangements for breaks. Keyboard skills training similar to that of traditional typists may also help in order to avoid keyboard related health conditions.

HSE guidance in Lac94/2 states:

4.3 Good Practice

** Each time a user logs on, display a short checklist on screen to prompt them to make appropriate adjustments to any of their workstation equipment as required. Allow them sufficient time to make these adjustments before they start work.*

** Train employees on working with DSE and equipment*

** Clearly explain break allocation and the need to have a break away from the DSE environment*

** Plan changes of activity or breaks for users*

** Consult call handlers about when they would like to take their breaks*

** Consult call handlers on any new techniques and software*

Rights for computer users conveyed under this legislation:

1. The employer must conduct a risk assessment on all employers, their equipment and workstation design. This includes the desk, chair, computer, keyboard and mouse. It also includes any other equipment provided for the task in hand, including software. Identified risks should be minimised as far as possible.
2. Workstations must meet minimum requirements as set out by the regulations:
 - a) Adequate and appropriate lighting for the task and equipment.
 - b) Adequate contrast between the screen, paper documents, desktop, and ambient lighting with no glare or reflections.
 - c) Adequate eye to screen viewing distance. Character height on the screen determines nominal comfortable viewing distance.
 - d) Images and text should be sharp, clear and stable at all times - free of flicker and movement.
 - e) Glare and reflection free screens and work area.
 - f) Suitable and well fitted vertical blinds should be fitted to all windows and used appropriately. Window covering should be supplied as a last resort if needed to minimise glare.
 - g) The software must be appropriate to the task and user adjustable.
 - h) The keyboard should be of sufficient overall size, with comfortable keys, easily usable, and legible.
 - i) Input / pointing device – This should be suitable to the individual user

and offer a type which makes use of the equipment the most comfortable.

j) The work surface must have sufficient space for appropriate arrangement of all equipment and documents based on the individual users needs.

k) The Chair must be stable and fully adjustable.

l) Plan work so there are breaks from the desk and changes of activity.

m) Distracting noise should be minimised.

3. The employers must plan the work routine of users to provide regular rest breaks or changes in activity. Breaks should be taken before the onset of fatigue.
4. An eyesight test and suitable glasses or contact lenses, if required for DSE use must be provided at the cost of the employer.
5. Suitable and appropriate health and safety training on all aspects of DSE (fixed and portable) use must be provided by the employer to all computer users.

All of the above also applies equally to home workers as well as those working from employees premises. The issue is simply one of whether the person is a DSE user or not, irrespective of where such work takes place.

Workplace (Health, Safety and Welfare) Regulations 1992

These regulations do have an impact on computer users. They aim to ensure that workplaces meet the health, safety and welfare needs of all employees, including people with disabilities.

Whilst it is recommended that the document supplied as part of 'The 6 Pack' is read in detail, the following is a brief outline of the relevant parts affecting computer users.

The main area of impact of the regulations upon computer users is on environmental factors such as air quality (ventilation), temperature, humidity, and noise.

The regulations define the workplace as:

Any premises, or part of premises which are not domestic premises and are made available to any person as a place of work. It includes any place within the premises to which a person has access while at work, and any room, lobby, corridor, staircase, road or other place used as a means of access to or egress from that place of work or where facilities are provided for use in connection with the place of work other than a public road.

The Regulations do not apply to homeworkers domestic premises.

Workers with Disabilities (Regulation 2)

Workplaces must meet the needs of all those who work in them, including workers with a disability. Several of the Regulations require things to be "suitable", which makes it clear that such things as traffic routes, facilities, and workstations used by people with disabilities should be suitable for them to use.

Maintenance (Regulation 5)

The workplace and the equipment, devices and systems must be maintained in an efficient state, in efficient working order and in good repair. Where appropriate, they must be subject to a suitable system of maintenance.

This means that all computer equipment including the mouse and keyboard, call routing equipment, headsets and attached equipment such as printers and scanners, must be fully maintained and in working order.

The user does not have to put up with a mouse that no longer traverses the screen in one easy move, headsets that are ill fitting and damaged (missing ear protectors or one that causes skin irritation), laptops that are fiddly and slow to use and inappropriate for the software loaded onto them. Similarly any equipment that is not functioning correctly.

Ventilation (Regulation 6)

Effective and suitable provision should be made for enclosed workplaces to be ventilated by a sufficient quantity of fresh or purified air.

One of the most important issues for office based workers and call centre staff using computers and one which can be at the centre of a lot of problems relating to ill health and the spreading of germs, work related asthma, voice loss and other respiratory problems. A lack of fresh air can also cause general lethargy, tiredness, headaches, dry or itchy skin and eye irritation.

According to the HSE LAC94/2:

The workplace (Health, Safety and Welfare) Regulations 1992 requires that the employer does what is needed to make sure that every enclosed workplace is ventilated by a sufficient quantity of fresh or purified air. The guidance states that the fresh air supply rate to the workplace should not normally fall below 5-8 litres per second, per occupant. Air movement caused by general ventilation can affect comfortable working conditions. Workers will be happier if they can alter their environment, for example by opening or shutting a window when required. At normal temperatures an airflow velocity of between 0.1 to 0.15 metres per second and up to 0.25 metres per second during the summer is recommended.

Temperature (Regulation 7)

During working hours, a reasonable temperature must be maintained inside buildings. Methods of heating and cooling should not result in the release of injurious or offensive fumes, gas or vapour. A sufficient number of thermometers must be provided to enable workers to determine the temperature in any workplace inside a building. A workplace has to be adequately thermally insulated and excessive effects of sunlight on temperature should be avoided.

Inappropriate temperature for the task in hand can mean loss of concentration, irritability, tiredness, discomfort and increased accident risks.

Excessive hot and cold affects people differently with too much heat causing fatigue, dehydration, dizziness and fainting, heat stress and ultimately heat stroke. It also has an adverse effect on pregnant women and can become a high risk to their and the unborn child's welfare in a relatively short period of time. Cold temperatures affect dexterity and mobility and may increase physical and visual strain, fatigue, and other problems for people with existing ill health such as muscular pain, arthritis and heart conditions.

Other affects detrimental to health can be caused by relative humidity which simply put is the level of water vapour in the air we breathe. Too dry and it can cause sore eyes, voice fatigue, skin rashes, headaches and an increase in static electricity in the workplace.

Consider both temperature and humidity to ensure the environment does not contribute to visual and voice fatigue.

Lighting (Regulation 8)

Every workplace should have suitable and sufficient lighting, and it should be natural, so far as is reasonably practicable. Emergency lighting must be provided where lighting failure would expose persons at work to danger.

This is of particular importance in relation to good eye health for those working on computers. Bad lighting can cause eye strain as can glare and reflections. Other symptoms of bad and inappropriate lighting can include headache, lethargy, irritability and poor concentration. Poor lighting can lead to increased absenteeism, reduced staff efficiency and productivity, not to mention a greater risk of accidents from slips trips and falls.

Cleanliness (Regulation 9)

Workplaces and the furnishings, furniture and fittings must be kept sufficiently clean. The surfaces of the floors, walls and ceilings of all workplaces inside buildings should be capable of being kept sufficiently clean. So far as is reasonably practicable, waste materials should not be allowed to accumulate, except in suitable receptacles.

Again this can impact upon both eye health, voice health and respiratory health. Dust contamination can become airborne and irritate those suffering from Asthma and skin allergies. Add that to low humidity and the voice can be affected as well as skin and eyes.

Workstations and seating (Regulation 11)

Every workstation should be suitable for any person at work likely to use it, and suitable for the work likely to be done there. A workstation should be arranged so that:

- as far as is reasonably practicable, it provides protection from adverse weather
- it enables people to leave it quickly
- it ensures that any person is not likely to slip or fall

A suitable seat must be provided for each person whose work allows that kind of work (or a substantial part of it) to be done sitting. The seat must be suitable for the person for whom it is provided and must have a footrest where necessary.

Intrinsic to the health and safety of all computer users in order to ensure good posture, reduced risk of work related upper limb disorders (WRULD), musculoskeletal problems, general fatigue, head aches and non specific pain syndrome.

Drinking water (Regulation 22)

An adequate supply of wholesome drinking water must be provided and:

- be readily accessible at suitable places
- conspicuously marked
- have an adequate supply of suitable cups or drinking vessels, unless there is a drinking jet

This is specifically important in office and call centre environments as well as external environments during warm weather. For those using their voices all day such as in call centres, lubrication of the throat is essential in order to ensure the risk of voice strain is minimised. In its worst form it can cause Dysphonia which is a loss of voice both in terms of volume and strength and can become a permanent disability.

The HSE LAC 94/2 recognises these problems and states:

Call centre employees should be made aware of the risk of dysphonia, be able to recognise the symptoms and be trained to take preventive action such as drinking water rather than tea or coffee and stretching the neck and shoulders to relieve tension. The idea of employers offering voice training - how to use the voice effectively, to avoid strain and possible damage - for call centre workers is worth exploring. Anyone who uses their voice continuously and as an integral part of the job should have training. However, the risk of them experiencing problems with their voices can be reduced if good practices are followed.

Facilities for rest and to eat meals (Regulation 25)

Suitable and sufficient rest facilities must be provided at readily accessible places. Rest facilities must include suitable facilities to eat meals where food eaten in the workplace would otherwise be likely to become contaminated. In addition:

- rest rooms and rest areas shall be equipped with an adequate number of tables and adequate seating with backs
- rest rooms and rest areas shall be equipped with seating which is adequate for the number of disabled persons at work and suitable for them
- suitable facilities should be provided for any person at work who is a pregnant woman or nursing mother to rest
- suitable and sufficient facilities must be provided for persons at work to eat meals where meals are regularly eaten in the workplace

Rights for computer users conveyed under this legislation:

1. Workplaces must meet the needs of all those who work in them, including workers with a disability.
2. The workplace and the equipment, devices and systems must be maintained in an efficient state, in efficient working order and in good repair.

3. Effective and suitable provision should be made for enclosed workplaces to be ventilated by a sufficient quantity of fresh or purified air.
4. During working hours, a reasonable temperature must be maintained inside buildings.
5. Every workplace should have suitable and sufficient lighting, and it should be natural, so far as is reasonably practicable. Emergency lighting must be provided where lighting failure would expose persons at work to danger.
6. Workplaces and the furnishings, furniture and fittings must be kept sufficiently clean.
7. Every workstation should be suitable for any person at work likely to use it, and suitable for the work likely to be done there. A suitable seat must be provided for each person whose work allows that kind of work (or a substantial part of it) to be done sitting. The seat must be suitable for the person for whom it is provided and must have a footrest where necessary.
8. An adequate supply of wholesome drinking water must be provided and be readily accessible at suitable places.
9. Suitable and sufficient rest facilities must be provided at readily accessible places. Rest facilities must include suitable facilities to eat meals where food eaten in the workplace would otherwise be likely to become contaminated.

Management of Health and Safety at Work Regulations 1999

Employers should conduct a risk assessment for all computer work involved in its business. This by necessity includes the individual as well as the equipment in use or being considered for use.

Provisions in the Regulations that are important and relevant to computer (DSE) users include:

- making a suitable and sufficient assessment of risks involved in the use of the computer equipment (DSE)
- identifying measures needed to comply with all legal requirements
- recording the risk assessment and ensuring all employees working on computer equipment (DSE) are aware of it and have access to it.
- reviewing the risk assessment and amending it when appropriate e.g. when equipment or software changes, when accommodation or furniture changes.
- ensuring the risk assessment is carried out involving all those who use computer (DSE) equipment on a regular basis.
- implementing preventive and protective measures on the basis of: avoiding risks; evaluating the risks which cannot be avoided; combating the risks at source; adapting the work to the individual; adapting to technical progress; replacing the dangerous by the non-dangerous or less dangerous; developing a coherent overall prevention policy which covers technology, organisation of work, working conditions, social relationships and the influence of factors relating to the working environment; giving collective protective measures priority over individual protective measures; giving appropriate instructions to employees

Provision and Use of Work Equipment Regulations 1998 as amended

The definition of work equipment is wide and includes machinery, apparatus, equipment, installations and tools. Therefore items as diverse as tractors, photocopiers, laboratory equipment and apparatus, soldering irons and scalpels are covered.

Suitability of work equipment (Regulation 4)

The employer must ensure that the equipment is suitable for use, and for the purpose and conditions in which it is used. In selecting the work equipment, employers have to take into account the working conditions and the risks in the premises/undertakings where the equipment will be used.

Maintenance (Regulation 5)

The employer must ensure that work equipment is maintained in an efficient state, in efficient working order and in good repair, with an up-to date maintenance log where one is kept.

In the case of a computer user, these regulations mean that all computer equipment and its software must be suitable for the task in hand and regularly maintained and kept in working order. This equally applies to all ancillary equipment such as headsets, telephones, call routing equipment, scanners, photocopiers etc.

Inspection (Regulation 6)

Work equipment should be inspected after installation and before being put into service for the first time. The inspection should include visual checks, functional checks and testing. The person identifying that an inspection should be made and the person carrying out the inspection should be competent.

Information and instructions (Regulation 8)

The employer must ensure that users and supervisors have adequate comprehensible information and, where appropriate, written instructions about the use of the equipment.

Training (Regulation 9)

Users and supervisors should receive adequate training, including training in the methods of using the equipment, the risks and precautions.

For computer users this requires that full training on the use of the equipment, including computer, chair, headsets etc must be given to all those expected to use the equipment. This includes health and safety training and any information relating to possible injury through use of the equipment and how to avoid it.

Conformity with European Union requirements (Regulation 10)

Employers have to ensure that items of work equipment have been designed and constructed in compliance with essential requirements of European Union directives.

Protection against specified hazards (Regulation 12)

The employer must prevent or, where this is not reasonably practicable, adequately control the exposure of a person to the following specified hazards:

In the case of computer users, the only hazard listed in the regulation that applies is fire or overheating of the work equipment.

Isolation for sources of energy (Regulation 19)

All work equipment should have suitable means to isolate it from all its sources of energy. The means should be clearly identifiable and readily accessible, and reconnection of equipment to any energy source must not expose people to any risk.

Lighting (Regulation 21)

Places where work equipment is used should be suitably and sufficiently lit, taking into account the kind of work being done.

Noise at Work Regulations 2005

The HSE estimates that 170,000 people in the UK suffer hearing damage, tinnitus or other ear conditions as a result of exposure to excessive noise at work. Both the TUC and the hearing charity RNID have repeatedly called for hearing checks for employees to be introduced in the same way as eye sight checks have been required for those working on DSE since 1992.

New noise legislation came into force in April 2006 with the introduction of the Noise at Work legislation.

The main regulations which effect computer users working in contact centres taken directly from the legislation are:

Application

3. —(1) These Regulations shall have effect with a view to protecting persons against risk to their health and safety arising from exposure to noise at work.

Assessment of the risk to health and safety created by exposure to noise at the workplace

5. —(1) An employer who carries out work which is liable to expose any employees to noise at or above a lower exposure action value shall make a suitable and sufficient assessment of the risk from that noise to the health and safety of those employees, and the risk assessment shall identify the measures which need to be taken to meet the requirements of these Regulations.

Elimination or control of exposure to noise at the workplace

6. —(1) The employer shall ensure that risk from the exposure of his employees to noise is either eliminated at source or, where this is not reasonably practicable, reduced to as low a level as is reasonably practicable.

Health Surveillance

9. —(1) If the risk assessment indicates that there is a risk to the health of his employees who are, or are liable to be, exposed to noise, the employer shall ensure that such employees are placed under suitable health surveillance, which shall include testing of their hearing.

New Exposure limits were set by the regulations and appear as item 4 in the legislation:

Exposure limit values and action values

4. —(1) The lower exposure action values are—

- (a) a daily or weekly personal noise exposure of 80 dB (A-weighted); and
- (b) a peak sound pressure of 135 dB (C-weighted).

(2) The upper exposure action values are—

- (a) a daily or weekly personal noise exposure of 85 dB (A-weighted); and
- (b) a peak sound pressure of 137 dB (C-weighted).

(3) The exposure limit values are—

- (a) a daily or weekly personal noise exposure of 87 dB (A-weighted); and
- (b) a peak sound pressure of 140 dB (C-weighted).

(4) Where the exposure of an employee to noise varies markedly from day to day, an employer may use weekly personal noise exposure in place of daily personal noise exposure for the purpose of compliance with these Regulations.

This must be seen in the context of the HSE view of the regulations as expressed on its website in relation to call handlers working with computers:

“HSE considers that, in general, call handlers’ daily personal noise exposure is unlikely to exceed the 80 dB lower exposure action value defined in the Control of Noise at Work Regulations 2005, provided good practice in the

management of noise risks is followed. Call handlers should be encouraged to report to management exposure to acoustic shock incidents and management should keep a record of these reported events.”

Acoustic Shock

This is an issue which may affect computer users working in contact centres and is defined by the Acoustic Safety Programme as:

“An acoustic incident is a sudden, unexpected, noise event which is perceived as loud, transmitted through a telephone or headset.

Acoustic shock is an adverse response to an acoustic incident resulting in alteration of auditory function.”

Further information regarding this issue can be seen in the relevant section of this guide.

The TUC and CWU research has shown that the risk of such an incident taking place can be more common than the statistics show, mainly as a result of under reporting. The legislation should address this and place responsibility upon the employer to minimise this risk.

Rights for computer users conveyed under this legislation:

1. Employers must assess the risk either in terms of exposure or the risk from acoustic shock
2. Employers must reduce the risk in terms of exposure or the risk from acoustic shock
3. Provide hearing checks (audiometry) where appropriate.
4. Provide information and training on noise levels and actions taken to reduce exposure or the risk from acoustic shock
5. Provide a programme of control measures
6. Provide workers representatives with information regarding the above.

General Notes:

TCO Labelling

TCO labelling (TCO'95, TCO'99, TCO'03, TCO'05, and TCO'06) is a useful aid that enables unions to make the relevant demands when IT equipment is being purchased. TCO labelling covers: display screens, notebooks, desktops, printers, office furniture and keyboards. Further information can be obtained here: www.tcodevelopment.com

VDU / VDT / DSE

These are all terms used since the 1980's to represent computer equipment:

VDU - Visual Display Units terminals
VDT - Visual Display Terminals
DSE – Display Screen Equipment

Portable Computers

These are devices such as a laptop, notebook or hand held computer having their own independent power supply, usually via batteries although some solar energy powered devices are now coming to the market.

Health Issues And How To Avoid Them

Acoustic Shock

Whilst this health issue does not affect all computer users, it is certainly an issue for those 2% of the working population who work in the call centre industry.

The CWU has long been involved in dealing with this issue and fighting for recognition amongst employers in the industry, to take the issue seriously. Working along side the Acoustic Safety Programme, the Call Centre Managers Association, The HSE and British Telecom, the CWU developed its own definition of exactly what acoustic shock is:

“An Acoustic Shock is a random frequency surge delivered via a headset, caused by a sudden spike of noise that will damage the human ear. Symptoms can range from a ringing in the ear or Tinnitus to permanent damage of the inner ear affecting hearing or even the organic mechanisms of balance.”

However, the definition as developed by Acoustic Safety Programme has become the industry standard definition:

“An acoustic incident is a sudden, unexpected, noise event which is perceived as loud, transmitted through a telephone or headset.

Acoustic shock is an adverse response to an acoustic incident resulting in alteration of auditory function.”

This definition is based upon currently available evidence and has been studied, authored and approved by a leading body of medical, scientific and engineering experts in the field of acoustics working together as the ASP-NPL Research Advisory Board. It is supported by the CWU.

The ASP further detail incidents in its document Acoustic Shock In Telephone And Headset Users:

Acoustic shock is characterised by auditory symptoms occurring immediately after the acoustic incident. In some individuals further symptoms develop over time.

Commonly reported symptoms include:

Early onset (within minutes of event)

Discomfort or pain around the ear
Muffled hearing
Feeling light-headed
Fatigue

Lethargy
Nausea
Dizziness

Medium onset (from hours to days after event)

Tinnitus
Hyperacusis
Dysacusis
Late onset
Anxiety
Phobic anxiety
Depression

Both medium and late-onset symptoms may continue in the long term (i.e. months to years after the event).

Symptoms vary greatly between individuals.

General Noise At Work Health Affects

Prolonged exposure to loud noise can cause permanent hearing loss, and other long-term hearing problems:

Noise-induced hearing loss happens when you have been regularly exposed to damaging levels of noise over a long period. The hearing loss will be similar in each ear and will get worse if you continue to be exposed to the noise.

Acoustic trauma can occur when you are exposed to a loud noise for a short period of time, e.g. if you are close to an explosion. The sudden hearing loss is often more severe in the ear that was closest to the sound.

Tinnitus is the word for noises that some people hear 'in the ears' or 'in the head' - buzzing, ringing, whistling, hissing and other sounds. These sounds do not come from outside the head although they may sound as if they do.

Hyperacusis can develop after sudden exposure to high sound levels. If you have hyperacusis you may find certain sounds uncomfortable or painfully loud even when they don't bother other people. You may also find that the area around your ear is painful.

Dysacusis can cause a sensitivity to sound resulting in pain in the ear or the inability to focus on a specific sound coming from within a sound rich background. e.g. listening to a specific conversation in a noisy background environment.

Work Related Stress

Work related stress is one of the key issues for computer users, especially within the contact centre, home and office based environments.

Work related stress can kill and the figures from the HSE show:

The 2005/06 survey of self-reported work-related illness indicated that around 420,000 individuals in Britain believed in 2004/05 that they were experiencing work-related stress at a level that was making them ill.

The Psychosocial Working Conditions (PWC) surveys indicated that around one in six of all working individuals thought their job was very or extremely stressful.

The 2005/06 survey of self-reported work-related illness (SWI05/06) indicates that an estimated 195,000 people first became aware of work-related stress, depression or anxiety in the previous 12 months.

Estimates from indicate that self-reported work-related stress, depression or anxiety account for an estimated 10.5 million reported lost working days per year in Britain.

Whilst there is no doubting the fact that stress can effect the body and hence bring on MSD and WRULD symptoms, the general view of work related stress as it effects computer users is more to do with the working environment and workflow and personal decision / control issues.

The HSE's definition of stress is:

“The adverse reaction people have to excessive pressure or other types of demand placed on them”.

The HSE website explains:

“Pressure is part and parcel of all work and helps to keep us motivated. But excessive pressure can lead to stress which undermines performance, is costly to employers and can make people ill”.

The TUC Hazards 2008 edition contains this concise and detailed evaluation of work related stress:

“Effects of stress

Stress is a natural reaction to excessive demand or pressure. When we feel pressured, hormonal and chemical defence mechanisms are triggered in the body. This is often called the ‘fight or flight’ reaction. It evolved so that we are better prepared to deal with dangerous or life-threatening situations. Mobilised for action we begin to perspire, blood vessels to the skin constrict, muscle blood vessels swell, the stress hormones adrenalin and cortisol are released.

If we cannot 'release' that tension, the hormonal/chemical mechanisms can have serious long term effects.

Physiological changes appear such as: dry mouth and throat; butterflies in the stomach; moist palms; flushed face; pounding heart and muscle cramps

If pressure is prolonged, too frequent or out of control, physical ill health problems may develop, such as: appetite loss; comfort eating; weight gain or loss; indigestion or heartburn; constipation or diarrhoea; sleeplessness; sweat bouts; headaches; backpain; nausea; breathlessness; fainting spells; impotence/frigidity and eczema.

Stress can also cause emotional and mental health problems. Society's attitudes to mental ill health are very different from those to physical ill health and add to the pressures on stressed individuals. When this is the case, people may try to hide their emotional and mental symptoms, not asking for help until their problems are seriously out of control.

Psychological conditions triggered by prolonged stress include: fatigue; anxiety; depression; hostility and aggression; psychosomatic complaints and neuroses.

The symptoms can be: irritability; indecision; suppressed anger; loss of concentration; inability to complete one task before starting another; feelings of paranoia; feelings of inadequacy; tearfulness at minor problems; lack of interest in people and things outside work and constant tiredness and a feeling that sleep does no good.

Short-term symptoms can develop into much more serious long-term ill-health conditions. Stress can play a role in:

- heart and circulation – hypertension (high blood pressure); coronary thrombosis (heart attack); heart disease; strokes
- digestion – peptic ulcers; colitis (inflammation of the bowels); vomiting; diarrhoea
- immune system – lowered resistance to infections; chronic asthma; chronic dermatitis; possible increased risk of cancer
- mental health – depression; chronic anxiety; mental breakdown; suicide; social isolation

Stress is also linked with health-damaging habits, such as smoking, over-consumption of alcohol and escapist eating, all of which are associated with other diseases.”

For computer users, the legislation and the HSE LAC 94/2 point to the following protection and rights to help avoid work related stress:

- *Risk assessments - including the individual and their equipment and software
- *Rest Breaks, both scheduled and determined by the computer user
- *Meal breaks
- *Appropriate and correct workstation set up
- *Appropriate and correct work station furniture and design for the job
- *Appropriate computer equipment and software for the job in hand
- *Adequate lighting
- *Adequate air quality, temperature, humidity and ventilation
- *Adequate supply of fresh drinking water
- *Control of the workflow, work patterns and the work environment
- *Changes of work activity to remove the user from the computer
- *Employers provide employees with adequate and achievable demands in relation to the agreed hours of work
- *Employee's skills and abilities are matched to the job demands
- *Jobs and tasks are designed to be within the capability of the individual employee
- *Employees' concerns about their work environment are addressed.
- *Systems are in place locally to respond to any individual concerns.

Employers should have a work-related stress prevention policy as part of their overall health and safety policy. The policy on work-related stress should at the very least:

- *Recognise that stress is a health and safety issue
- *Recognise that stress is about the organisation of work
- *Be jointly developed and agreed with unions and/or employees representatives

*Have commitment from the employers board

*Guarantee a blame-free approach

*Apply to all employees

See the HSE's Management Standards on Work Related Stress for further information and control measures.

Work Related Upper Limb Disorders and Musculoskeletal Disorders.

MSDs affect the muscles, joints, tendons and other parts of the musculoskeletal system and include problems such as low back pain, joint injuries and repetitive strain injuries of various sorts.

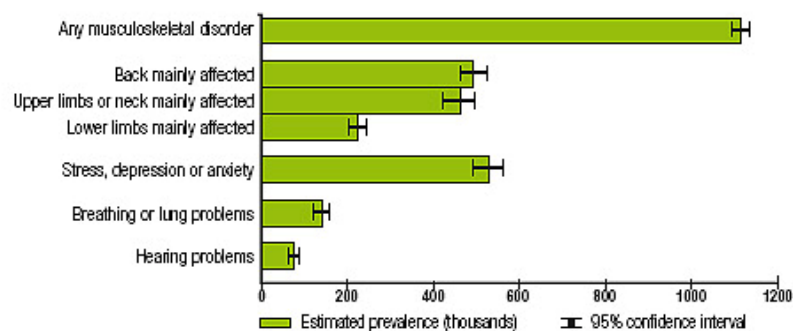
The term also covers other ill-health conditions otherwise known as Repetative Strain Injury (RSI). Symptoms typically include tingling, pain, swelling and difficulty of movement in fingers, wrists, arms and shoulders. All of these can be extremely painful and permanently debilitating if corrective action is not taken immediately.

The HSE maintain that musculoskeletal disorders (MSDs) are the most common cause of occupational ill health in Great Britain, currently affecting 1 million people a year and costing society £5.7 billion. Taken From HSE Stats 2006/2007:

Self-reported ill health

- In 2006/07 an estimated 2.2 million people suffered from ill health which they thought was work-related, according to the LFS.
- Around three quarters of the cases were musculoskeletal disorders (eg upper limb or back problems) or stress, depression or anxiety.

Figure 1: Estimated prevalence of self-reported work-related illness, by type of complaint, 2006/07



Type of complaint	2006/07 prevalence (thousands)		
	Central estimate	95% confidence interval	
		lower	upper
Musculoskeletal disorders	1 144	1 094	1 193
<i>mainly affecting the back</i>	493	461	526
<i>mainly affecting the upper limbs or neck</i>	426	396	456
<i>mainly affecting the lower limbs</i>	224	203	245
Stress, depression or anxiety	530	496	565
Breathing or lung problems	142	125	159
Hearing problems	75	63	87
Total	2 200	2 131	2 269

Note: Some types of complaint are not listed (eg heart disease, skin problems) and so the estimates do not sum to the total.

www.hse.gov.uk/statistics/swi

ViewSonic Europe, a worldwide leader in visual display products issued a press release, April 2007 stating that its online survey of 1,500 UK office workers, conducted in February 2007, shows a clear link between poor ergonomics knowledge and an increase in MSD symptoms such as headaches, and backache.

The Research Study conclusions revealed:

- *71% suffer backaches, 67% suffer headaches*
- *80% have backaches*
- *31% of workers said high workloads prevent them taking 'ergo-rest breaks'*
- *47% of employees haven't been 'ergo-advised'*

The cause for this in computer users ranges from bad posture as a result of incorrectly set up workstations, incorrect use of keyboard, mouse and other inputting device, inappropriate positioning of lap top and other portable device to long working hours using a computer without sufficient rest breaks or changes of work activity taking the user away from the computer.

Work related stress can also place strain on the body and cause incorrect posture as a result of lack of control in work flow, and long and repetitive activity such as keyboard and mouse work.

Inappropriate and badly maintained computer equipment can also be a cause. For example a mouse that does not allow complete traverse of screen from left to right and top to bottom as a result of being faulty or dirty or too small and/or irregularly shaped mouse pad.

Tight gripping of the mouse together with heavy depression of keys when inputting information to the computer can also result in MSD and RSI symptoms.

Some of the major things to avoid are:

- *Badly fitting or incorrectly set up chair
- *Lack of foot rest when required
- *Mouse and keyboard not adjacent to one another, unsuitable mouse pad
- *Sitting too high or too low in the chair in relation to keyboard and mouse
- *Screen being too near the user
- *Screen situated to left or right of user
- *Screen being too low or too high

- *Telephone handset being used when keying instead of a headset.
- *Badly fitted headset which can result in holding head in a specific position rather than it being held naturally in normal position
- *Twisting of lower limber region and held in static position as a result of screen being situated to extreme left or right of user
- *Stretching and reaching for work equipment or documents repeatedly
- *Bad lighting causing squinting or other awkward position of the head being adopted to avoid glare and reflections on screen

In addition for lap top users:

- *Incorrect positioning of lap top. on knee, on floor or on top of filing cabinet which is too low or too high
- *Using lap top in car or van and positioned on adjacent seat to user
- *Carrying heavy lap top, equipment and documents incorrectly and for long periods. e.g. in one hand or on one shoulder instead of distributing the weight equally.
- *Using lap top in an inappropriate environment e.g. at heights and balanced awkwardly.
- *Using lap top balanced on one hand whilst inputting with the other.

Avoiding Health Problems - DSE Workstations

Our working environment is now almost totally dominated by the use of PCs and Laptops.

Whilst they are a necessary tool which we take for granted, they can if used incorrectly, cause health problems. These can range from minor skin rashes and inflammations, headaches and migraine, to major upper limb disorders such as Tennis Elbow, Carpal Tunnel Syndrome and Tenosynovitis. Eyesight problems can also occur and in very rare cases, in susceptible people suffering from a rare condition of photo-epilepsy, even epileptic fits.

This Guide to DSE Health Problems intends to put the record straight about the health issues involved and help you resolve any concerns you may have. Following the advice here will help you avoid any future health problems.

1. Arrange the Work Area:

Problems relating to DSE use is on the increase and can mostly be avoided by the user arranging his or her work area in such a way as to remove possible muscular and posture problems and risks of work related upper limb disorders, previously known as repetitive strain injury.

It is imperative that the screen is placed directly in front of the user and not to one side as the majority tend to do. This will help to reduce such problems as aching necks, headaches and lower back pain which is a common complaint from users. It will also ensure correct posture thereby reducing the possibility of problems in the future.

The reason neck and shoulder pain and stiffness can be caused by the incorrect positioning of the screen is because the head is naturally held by the neck muscles in a straight position so your line of vision is neither up nor down, nor left or right. Holding the head to one side or in a downward or upward position engages the muscles in the neck. Holding this position as necessary in the case of the terminal being to the left or right of the user can cause stiffening and pain. Equally, holding the up or down in the case of using bifocal glasses or if the screen is too low or too high, can cause stiffening of the neck and shoulders and lead to pain. It is not unlike muscle cramps in the worst case.

The user should ensure the terminal is positioned at a comfortable viewing distance, and should be at the maximum distance from the eyes as is possible. See separate section on viewing distance below. Ensure that reflections are eliminated by the use of blinds, repositioning of the terminal or the use of an anti-glare screen as a last resort.

If you move from one desk to another, as those who 'hot-desk' need to, please take time out to adjust the work area to suit your personal needs. Do not put up with an arrangement which causes discomfort, simply because the person sitting at the desk normally has it a certain way.

They will have arranged the work area to suit their needs, and you should do the same. It will only take a few moments and will ensure your maximum personal comfort.

Ensure a tidy and uncluttered work area, and that the keyboard is directly in front of you. Ideally it should be a short distance from the edge of the desk and your arms should not be 'stretched out' in order to use it. A rough guide would be that with your fingers placed on the keyboard, your upper arm and lower arm should be in such a position that they form a right angle at the elbow joint.

The Screen (monitor):

The following can cause problems with eyesight:

- (a) Bad posture and static position for a long time
- (b) Bad positioning of the display screen equipment
- (c) Bad direct and ambient lighting causing poor legibility of the screen or source documents
- (d) Glare and reflections on screen, work area and source documents
- (e) Drifting, flickering, or out of focus image on the screen
- (f) Bright clashing colours making definition of characters difficult

The screen image must not flicker as this can cause a 'strobing' effect and could on rare occasions, induce an epileptic seizure in someone suffering from photosensitive epilepsy. In addition you must not underestimate the effect on your peripheral vision (objects to the extreme left and right of your field of vision). This can just as easily cause eyestrain and headaches.

Colours must be restful for the eyes and not cause flashing or strobing. Some 'desk-top' themes on windows such as 'hamburger stall' can cause severe problems causing headaches and eyestrain. By and large the default windows colour scheme is best, as the colours are the most restful to the eyes and allow longer continuous viewing of the screen. Any programmes you use should also be checked to ensure the colour scheme is not problematic. Change the settings within the programme if necessary where possible to do so.

The monitor should always be placed directly in front of the user at a suitable distance for the character height on the screen. British Standards state that a distance of 700mm minimum should exist for a character height of 3.5mm (the standard character height). In any event, the viewing distance should be determined by, and be comfortable, for the individual concerned.

The height of the monitor should be such that it eliminates the need for upward and lower head movements in order for the user to read the information displayed upon the screen. The monitor height should be such that when viewed in the normal relaxed position the user's eye fall between the top of the screen itself and the top of the monitor casing.

It should be capable of easy adjustment (lateral and vertical) and rested upon a plinth were necessary to allow for installation at the correct height position for the individual user. The screen should be fully adjustable for luminosity, and should be free from any perceived flicker by the user. The point here is that the individual themselves is the sole arbiter of whether or not the screen flickers not everyone will perceive flicker on the same screen. In terms of type of screen, CRT (cathode ray tube) or flat panel; there are pros and cons to both.

The CRT is bulkier, creating eye to screen distance problems, and is harsher on the eyes in terms of glare, but gives truer colours and sharper images generally.

The Flat panel screen has major advantage over workstation design in terms of space requirements and lends itself automatically to providing the correct eye to screen distance is gentler on the eyes but provides less accurate colour definition and sharpness of character and image.

However, when all things are equal and the higher quality flat panel is supplied, this has to be the preferred choice for intensive DSE work.

Viewing Distance:

Once the correct seating arrangement is arrived at, the eye to screen distance and height of the screen to the line of vision should be adjusted. The correct viewing position is such that with your screen directly in front of you, your gaze should naturally fall between the top of the screen and the top of the display terminal itself. You should not have to look up or down and should have a clear line of site above the terminal. If this is not so, you should not re-adjust your seat to compensate. The required change should be with regard to the height of the screen, either through the use of plinth or removal an existing plinth or CPU from under the terminal.

Please ensure a comfortable eye-to-screen distance so as to avoid eye fatigue. The correct viewing position is such that with your screen directly in front of you, your gaze should naturally fall between the top of the screen and the top of the display terminal itself. You should not have to look up or down, although a slight downward viewing angle is ok. You should have a clear line of site above the terminal.

The British Standards (BS 7179: 1990; Ergonomics of design and use of visual display terminals in offices) for eye to screen distance are based upon character size as they appear on the screen. Clearly, 3.5mm character height on a 15" screen will appear differently on a 19" screen. The measurement is

screen based of course and the larger the screen, the greater the comfortable viewing distance will be required to be.

For a character height of 3.5mm (measured from top to bottom of total character) a viewing distance of 725mm is required.

For most office-based tasks, the minimum viewing distance should not go below 400mm.

Lighting:

Ensure the light around your workstation is not too bright and adjust it were possible.

Most importantly, reduce the brightness of the screen throughout the day to allow for the change of ambient light levels. Do not simply leave it at the level you found it when first switching it on.

You should not adjust the screen brightness, because you are having difficulty in seeing the characters. This is a sign that you need an eye test or there is a screen fault.

Glare from overhead lights should be eliminated as much as possible. In fact it should not exist. If it does, relocate work area, or ensure a stronger diffuser is fitted to the lighting. Ideally light should fall straight down over the work area and not cause peripheral glare. In other words, you should not be suffering glare coming from the left or right of your field of vision, caused by the light fitting above and adjacent to you.

The aim is to obtain a light level on the work area of no less than 300 lux.

Reflections and Glare:

A common belief is that anti- glare screens should be provided automatically. These are often called things such as: visors, dse shields, screen filters or even eye protectors. Some also claim to provide protection from harmful radiation emissions and point to common things such as facial rashes which DSE users often suffer from.

Major problems for screen work are:

1 Reflections

- from windows
- from lighting above/adjacent/behind

2 Glare

- from the above sources
- from the screen itself

Repositioning of the screen on the desk providing it remains parallel with the user can help. Changing the angle of the screen itself will also help, but this must not result in the user having to look upwards or downwards, as this places a requirement upon the neck muscles to hold the head in one position for some time. This can cause stiffness of neck and shoulders.

In the event that all adjustments does not eliminate glare and reflections, anti-glare/anti-static screen can be provided. This will require adjustments to the brightness and contrast controls of the screen, in order to ensure there is no reduction in the legibility of the screen characters and image. As most screens have anti-static coatings, any anti-glare screen fitted must also have a similar coating to avoid the build up of dust onto its surface. Without this, the whole point of having anti-static coatings on the screen will be compromised.

The Keyboard

Your keyboard should be level and directly in front of you and parallel with the monitor - not to one side. There should be sufficient space on the desk for the keyboard to be approximately 100mm from the desk edge.

It should be adjusted by the individual user, with or without its elevating feet, in order to adopt the best position for use. The palms, fingers and wrists should all rest naturally parallel with the surface of the keys, and not be bent upward or downwards when using the keyboard.

The keyboard should be regularly cleaned as this is one source of health risk which can result in contaminates in both the air and also into the user's skin and eyes.

Consideration should be given to providing a choice of keyboard or separate number keypad to all users where the risk assessment has shown an alternative design to be of benefit, or existing problems make normal keyboard work a problem.

Alternative Keyboard Equipment Examples



The Mouse

The mouse should be supplied to each individual based on a risk assessment and individual need. The standard designed mouse is not suitable to everyone, although a good ergonomically designed mouse of the standard variety is considered to be a generally suitable mouse to repeated and regular usage.

The position of use should be that it is always used left or right of, and adjacent to, the keyboard. Reaching outward or upward, causing stretching of the arm should be avoided at all costs, with the aim to ensure a right angle at the elbow joint.

The mouse mat should be of sufficient size and shape as to allow full traverse of the screen in all directions in one movement. The Standard sized mouse mat is sufficient for 15" screens and any larger screen will require a larger mouse mat. Novelty designs and shapes should be avoided as they can cause problems for the user, being of insufficient size, shape and thickness.

The mats themselves should be no more or less than 3mm deep and should not have any 'edges' to them i.e. supplied in a plastic tray style. There should be no 'trapping' of the mouse cord causing the user to not be able to freely use the mouse in one single movement.

Consideration should be given to providing a choice of mouse to all users, e.g. trackball, optical. A mouse which eliminates the need for movement of the arm is desirable and will resolve any problems with mouse mats and desk space and the compromising of the correct positioning of the mouse when in use.

Left handed users **MUST** adjust the mouse buttons accordingly.

Alternative Mouse Equipment Examples



Peripheral 'Correcting Equipment'

Equipment such as wrist rests, mouse pads and anti-glare screens should all be provided only as a last resort and based on individual need following a thorough risk assessment and self assessment only.

They should NOT be provided as standard

The request for such items indicates a problem which should be able to be resolved with simple adjustments to the workstation, and indicate incorrect set-ups and usage rather than inherent faults which cannot be addressed otherwise.

Headset Usage

Where headset usage is required for those working simultaneously at the DSE and using telephony, individuals should all be provided with their own individual headsets. Headset sharing must not take place as it can result in ear and skin infections and any existing ear infections or problems being passed on from one person to another. There should not be any possibility of mixing headsets up between users and hygienic wipes and replacement ear pads should be provided by the employer.

Handset Usage

Handsets must not be used whilst working on the keyboard as this causes incorrect posture which can lead to serious health problems, and result in increased fatigue. The equipment provided must be fit for the purpose of the job, and should be used for its intended purpose only.

Look After Your Eyes:

During the day it is important for the eyes to be rested as much as possible. Get into the practice of looking away from the screen at a distant object, e.g. when talking to a customer. It is not always necessary to be referring to the screen.

Do not wear bi-focal glasses when at the screen and ensure regular free eye tests, which are required to be paid for by the employer. This should be the full eye test, which will give an indication of some existing health problems you may not be aware of such as diabetes or glaucoma. Your employer will pay for annual eye tests.

One of the main problems for DSE users is the fact that due to constantly having to look at the screen, the rate at which the eyes blink is vastly reduced. This causes dry and tired eyes and can even cause headaches. When looking away from the screen, users should make a conscious effort to blink several times, it may sound silly, but it certainly will help to reduce tiredness and dryness of your eyes. Blinking causes natural secretion around the eyes and keeps them lubricated.

Remember, you are entitled to a free eye sight test from your employer and if as a result you need glasses or a change of an existing eye prescription due to DSE work; your employer will be required to pay toward the cost of new glasses or lenses.

Reflections and glare should be eliminated by the use of vertical (not horizontal) blinds, repositioning of the terminal or the use of an anti-static/anti-glare screen as a last resort.

Look After Your Skin:

All users should ensure they clean the keyboard, mouse, screen and other workstation equipment at least once a week to remove the build up of dust which can help to cause dry eyes and skin on the face. Static build up attracts dust in the air and can cause dryness and even skin rashes. This is a common mild form of dermatitis amongst call centre and office based workers. It also can cause 'static spikes' with the result of little shocks and the appearance of marks similar to small bites on arms and calves. Cleaning the screen and keyboard weekly will help to reduce the amount of static around the terminal and work area.

2. Avoiding WRULDs and Lumber Problems:

What used to be called RSI (Repetitive Strain Injury) is a common problem which can be suffered by anyone using a keyboard regularly at work. It has been renamed Work Related Upper Limb Disorders which takes in a number of DSE related complaints such as Tennis Elbow, Carpel Tunnel Syndrome and Tenosynovitis.

All of these can be extremely painful and permanently debilitating if corrective action is not taken immediately. It is important to realise that you can help to avoid these painful conditions by following the advice in this document.

The Chair

All chair adjustments should be done without reference to your desk and PC. The best way to ensure the correct adjustments for you as an individual, is to make the adjustments whilst you are turned with your back to the workstation. All users should of course be trained fully in the adjustment capabilities of the chair they are provided with. The minimum adjustments should be, chair height, seat pan, back (up and down and laterally), with additional desired adjustments to the arms (height and position) and a static adjustment to the castors disabling movement of the chair.

The height of the chair should be such that the user has room enough between the desk and legs and that the feet are flat on the floor. The height should be adjusted sufficiently to ensure the feet support the legs totally and the thighs are not under pressure or 'pinched' by the edge of the seat pan. A footrest may be required if this position cannot be attained and the feet are left 'dangling'. High heels should not be worn or taken into account. If the only way the feet touch the floor is whilst wearing heeled shoes, then a foot rest is required.

Chair Posture

Slouching in the seat is not appropriate, with the idea being to attain the correct supported posture. The back should remain supported at all times and you should not be seated at the edge of the chair or leaning forward. Let the chair do the work of supporting the skeleton. This will avoid aches and pains in the lower back, arms and neck area, avoid muscular tension and pressures on nerves. Bad posture can cause trapped nerves etc which can lead to loss of feeling or tingling in hands and wrists, ankles and feet, headaches nausea and permanent damage.

Any signs of tingling, numbness and loss of feeling in any part of the extremities should immediately be investigated via self assessment and a further risk assessment. The dangers of failing to do so can mean permanent injury or even DVT in extreme cases.

The keyboard should be level and directly in front of the user and not to one side.

Posture should be such that the neck, lower back and spine area are not twisted to the left or right, and in fact are held naturally with no effort at all. Adjust the chair so that the feet are on the ground, and ensure the lower back is fully supported. Avoid having the back rest positioned so it supports the upper half of the back only. This is incorrect and will not support the spine where required. In fact a full backed chair is the most appropriate for long periods of DSE use.

The Screen - The previous advice regarding viewing distance and screen position will help to reduce the risk of WRULDS. It is particularly important that the screen is placed directly in front of you and parallel with the body.

Footrests - Footrests should be readily available and able to be placed on the floor where required and not move unintentionally whilst in use. The weight of the footrest is therefore a paramount factor in its design. Its surface should be inclined, non-slip and provide adequate space for changes in position of the feet. British Standards (BS7179) suggest at least 450mm wide and 350mm deep as appropriate minimum dimensions to allow freedom of movement and of a height, which allows a level of adjustment for the individual user.

Document Holders - When working from hard copy, users must be provided with a document holder, which should be placed on the same visual plane as the Screen. In other words placed alongside the screen to ensure minimum need for continuous re-focusing, which can lead to eye fatigue. The use of a document holder reduces awkward neck movement and therefore muscular fatigue in the neck and upper back.

Rest Pauses:

Whilst a contentious issue with some employers in relation to the scheduling of specific rest breaks throughout the day, both the guidance notes to the DSE Regulations 1992 (as amended 2002) and the HSE's LAC94/2 issued to all Local Environmental Health Officers, state that rest pauses should be taken before fatigue sets in. Any activity such as going to the loo, standing up at your desk, making the tea, can help to avoid tiredness, stress, headache and sore eyes. Try standing up whilst talking to customers several times during the day. Even this small amount of activity will help to ward off fatigue and stiff joints. Please remember that existing Rest Break Agreements with employers should allow for regular DSE breaks to be taken during the day when required, in order to off-set fatigue. Any activity which does not involve being seated at your workstation using your PC can be considered a rest break from DSE work.

Worldwide studies show that the rate of fatigue is such that in any one-hour work period, DSE user's peak rate reduces by 60%. However, a short break of 5 minutes, allows a recovery rate of which results in the individuals performance being back to 100% output. Short frequent breaks are shown to avoid this severe reduction in output levels, reduces the resultant error rate in the work being performed, and has a significant effect on the levels of strain experienced by workers.

3. Hot Desking – Hygiene Concerns

The sharing of a keyboard and mouse can result in the spread of any germs from one user to another and any existing skin or respiratory conditions can be passed on this way as well as those which remain airborne. Bad housekeeping such as not cleaning the terminal, keyboards and the mouse, can result in air borne pollution i.e. dust etc and the spreading of germs and skin infections from one person to another.

Studies have shown that such equipment is heavily contaminated as a result of lack of good housekeeping, personal cleanliness, and maintenance. Bad hygiene can cause minor stomach upsets, colds, and respiratory illness. In severe cases it can cause serious illness effecting the skin, ears and eyes.

The use of hand cream and perfume e.g. when not absorbed properly into the skin prior to using the mouse and keyboard, can leave deposits, which can cause skin and eye irritation to others.

Remember, where community work stations are involved, the user owes it to their colleagues to ensure good personal hygiene and that the work area is clean and tidy at all times. Further, personal hygiene is of the utmost importance when it comes to preventing spread of germs which can lead to illness such as colds and flu, stomach upsets, and other conditions, some of which can be serious.

4. Electro Magnetic Radiation Emissions:

Whilst in the 70s and 80s the lack of internal shielding resulted in a wide variation of emissions of ELF (Extremely Low Frequency) radiation depending upon the model in use; display terminals designed now ensure minimum emissions. The European wide TCO '03 and TCO '05 regulations which all terminals must now comply with, ensures levels are within that which is internationally accepted as being below the level accepted as being a risk to human health.

5. Effects on Pregnancy

Serious concern has existed for many years over the effects of working with DSE upon pregnant women. In particular reported 'clusters' of birth defects and miscarriages in many countries, caused major concern within the scientific community throughout the '80s. Reported miscarriages involving the Inland Revenue, a BT Computer Centre, and other British companies all resulted in statistical evidence that whilst a problem may well exist, radiation emissions themselves could not be singled out as being the cause. Indeed, ergonomic factors, such as posture, lack of movement, and stress are considered to be the main cause of any problems experienced by pregnant DSE users. Job design in itself will play an important factor, in that work pressures will compromise the ability of the user to take regular breaks away from the workstation.

Women who are pregnant must therefore ensure they take regular breaks away from the terminal and ensure changes of activity throughout the day, in order to allow physical movement. Remaining seated for long lengths of time does not help posture, places pressure upon the pelvic area and can create problems.

Whilst radiation issues around pregnancy and DSE work have not been eradicated from the equation, current scientific thinking determines that there is no health risk to pregnant women or the unborn child, through radiation from Display Screen Equipment.

However, anxiety and concern can cause stress and this in itself is not good for pregnant women. Any concerns should be discussed with the medical profession and the employers Occupational Health Services.

6. A Simple Guide To Avoiding Health Problems

CHECK YOUR MACHINE

- “ Is the SCREEN fully adjustable?
- “ Are the DISPLAYED CHARACTERS sharp?
- “ Can you see REFLECTIONS on your screen?
- “ Need an ANTI-GLARE SCREEN? Your workstation may be at fault.
- “ Does the BRIGHTNESS control work?
- “ Do the CHARACTERS flicker?
- “ Has your SCREEN been checked recently?

CHECK YOUR WORK AREA

Is your DISPLAY SCREEN properly sited?

- “ At 90 degrees to the window?
- “ Not immediately in front of a window or dividing wall or filing cabinets?
- “ Are your EYES level with the TOP of the SCREEN?
- “ Is the LIGHTING adequate?
- “ Is your CHAIR adjustable?
- “ Do you have a FOOTREST if required?
- “ Do you have a DOCUMENT HOLDER if inputting from a paper source?
- “ Is your office well ventilated?

CHECK YOURSELF

Are you able to take rest pauses and change job activities?

Do you suffer from any of the following:

- headaches
- aches and pains in your legs, arms, wrists, shoulders, neck or hands and fingers?

- eye problems: blurred vision. Dry, tired or sore eyes. Difficulty in focusing.
- are you pregnant or thinking of becoming pregnant?
- dry skin or skin rashes on face or limbs?
- tiredness or general fatigue or feelings of stress?
- disturbed sleeping patterns?
- have you had an eyesight test within the last twelve months, arranged free by your employer?

(Taken from the NW BTU H&S Co-ord leaflet: Are You Sitting Comfortably)

7. Home Working

Exactly the same health and safety advice and information as above equally applies to the home working environment.

8. Laptops

The same situation exists for working with laptops as with desktop computers, and the above advice and information applies to both.

Further detail can be found in the next section: Avoiding Health Problems – Laptops

Avoiding Health Problems Laptops, Notebooks and Desktop Computers

Laptops and notebook computers were never designed for other than quick and short-term use, where quick compilation and dissemination of information is necessary by default. Originally designed for the journalistic environment, long periods of use on a continuous basis, was never the idea behind the use and design of the portable computer.

Nowadays, laptops and notebook PCs are often used to replace a desktop computer (PC) in order to allow for both static and mobile work. However, there are serious implications for health and safety surrounding the use of the mobile computer (laptop) in a situation where a desktop is appropriate.

Studies conducted on behalf of the HSE have shown:

- A strong correlation between reported discomfort and hours per week spent using a desktop or laptop computer.
- Time spent using a computer showed a strong correlation with reported discomfort and appeared to be a predictor of discomfort for all types of computer use (desktop, portable and mixed use).
- Frequent breaks (or changes in task activity) and undergoing training relevant to working with computers appeared to provide benefits for portable and desktop users.
- Some specific aspects of portable computer use (which are *not* undertaken by desktop users) did appear to be associated with a risk of musculoskeletal discomfort.
- The two main aspects consisted of manual handling issues, such as carrying large amounts of paperwork or carrying several additional items with the portable; and use in non-ideal locations (which encourage poor posture) such as motor vehicles and hotels. Both of these aspects were associated with various types of musculoskeletal discomfort.

Guidance on Using a Laptop

In a Car or Van

Research has shown that people nearly always stay in the driver's seat when using a laptop in the car. This is unfortunate as the steering wheel reduces the amount of available space. The laptop can only be placed very close to the user and results in uncomfortable head/neck and wrist postures.

Placing the laptop on the adjacent passenger seat is also a favourite especially if the user is consulting documents or using a mobile phone. This

inevitably leads to a significant twist of the lower lumbar region, causing spinal pressures, twisting of the neck and shoulders, and bent wrist postures. The best advice is to sit in the passenger seat. Move it fully backwards to provide as much space as possible. Place something rigid under the laptop (e.g. a briefcase).

Ensure you get the correct height for the laptop keyboard. This is determined by attaining the correct right angles at the elbows and such that the keyboard rests immediately below the wrist when it is held horizontal.

This MUST by necessity be done and the laptop used in this position for as short a while as possible in order to minimise health and posture risks.

Angle the screen so as to avoid glare and reflections as much as possible.

Minimise the time required to complete the laptop work in the vehicle and complete as much as possible in the office.

In a Customer's Premises

Various situations determine the need for a laptop to be used in customer's premises. However, this does not override the need to set up the laptop in the correct manner for use. When used as a testing piece of equipment requiring several key strokes only, the need is not so urgent to ensure all good working ergonomics are applied. However, placement of the laptop must be done with safety in mind and ensuring it's positioning does not cause a danger to the user or other occupants of the premises.

When being used to input information and to disseminate in anyway that information, it should be used at a suitable table, and not balanced on the knee or crouching over it on the floor or on a stairway whilst spending the time inputting information, uploading it and accessing emails.

Spend a few moments adjusting the position of the laptop and your own posture to minimise physical discomfort and the risk of MSD / WRULD symptoms. Use separate mouse and keyboard if possible.

Ensure as far as possible suitable lighting and angle the screen so as to avoid glare and reflections as much as possible.

In an Office

A laptop should be avoided at all costs for office use, as it is not designed for long periods of continuous use. Anything more than a continuous maximum period of half hour use, and the alarm bells should be ringing!

By it's very design, the keyboard and screen are attached, the keyboard is small and badly laid out in terms of having no numeric keypad, the screen is attached and in a position far too low for the user to attain the appropriate posture.

The eye to screen distance is somewhat compromised, with the screen itself not always being clear and sharp as required for long periods of use.

The answer to these problems is quite simple: peripheral equipment (separate monitor, keyboard, and mouse) should be attached or a 'docking station' - a piece of equipment which has the above separate items attached to, that the laptop is placed on top of - used at all times the laptop is to be used in an office environment.

These should all be set up exactly the same as with a desktop PC and the workstation risk assessed and a self assessment done by the user to ensure a Safe method of working.

Where the employer determines the laptop is needed for both office and portable use, there is a legal obligation to risk assess, remove the risks or implement additional controls and employ a safe method of working. If this involves the provision of additional peripheral equipment and /or a docking station; the employer has a legal duty to provide this equipment.

Example risk assessment for a call centre

Setting the scene

The office manager carried out the risk assessment at this call centre, which occupies a single storey of a ten-storey office block. Forty staff work at the call centre, 20 work part time and two members of staff are wheelchair users. Staff turnover is 30% per year.

The centre is staffed from 8:00am to 8:00pm. The offices contain typical office furniture and equipment. There is a staff kitchen, where drinks can be prepared and food heated, and toilet and washing facilities.

Important reminder

This example risk assessment shows the kind of approach a small business might take. It can be used as a guide to think through some of the hazards in your business and the steps you need to take to control the risks. Please note that it is not a generic risk assessment that you can just put your company name on and adopt wholesale without any thought. This would not satisfy the law - and would not be effective in protecting people.

Every business is different - you need to think through the hazards and controls required in your business for yourself.

How was the risk assessment done?

The manager followed the guidance in *Five Steps to Risk Assessment*.

- 1 To identify the hazards, the manager:
 - Looked at HSE's web pages on health and safety in offices, and at guidance on preventing slips and trips in call centres (published by the North West Contact Centre Project). Also at the HSE guidance 'Advice regarding call centre working practices', and at HSE's disability and risk assessment guidance web pages;
 - Walked around the office noting what might pose a risk, taking into consideration HSE's guidance;
 - Talked to the safety representative, supervisors and staff, including those who are wheelchair users, to learn from their experiences and to listen to their concerns and opinions about health and safety issues; and
 - Looked at the accident book, to learn about previous problems.
- 2 The manager then wrote down who could be harmed by the hazards and how.
- 3 For each hazard, the manager wrote down what controls, if any, were in place to manage these hazards. These controls were then compared to the good practice guidance on HSE's website. Where existing controls were not considered good enough, the manager wrote down what else needed to be done to control the risk.
- 4 The manager then implemented the findings of the risk assessment. This involved setting out when the actions that were needed would be done and who would do them. These actions were then ticked off as they were completed. The risk assessment was discussed with staff, to check they understood it. The risk assessment was displayed in the staffroom and made part of the induction process for new staff.
- 5 The manager decided to review and update the risk assessment every year or straightaway if any major changes in the workplace happened.

Company name: Smith's Call Centre Date of risk assessment: 1/10/07

What are the hazards?	Who might be harmed and how?	What are you already doing?	What further action is necessary?	Action by whom?	Action by when?	Done
Display screen equipment	Staff may suffer pain, discomfort or injuries (eg to the hands and arms) from overuse or improper use, or from poorly designed workstations or work environments. Headaches or sore eyes can occur, eg if the lighting is poor.	<ul style="list-style-type: none"> ■ Work station designed taking account of ergonomic factors. ■ Call handlers take short, frequent breaks away from workstation (either to rest or to do other tasks, eg paperwork). ■ Work arranged so that staff do not use computers for long continuous periods without breaks. ■ Venetian blinds at windows to control natural light on screen. ■ Assessments of workstations from CD ROM are done as soon as possible (within six weeks) after handler starts work and actions from this are done within six weeks. 	■ Supervisors to make sure staff continue to get breaks away from the screen.	S/visors	4/10/07	4/10/07
			■ Check that identified actions from self-assessments are being done within six weeks.	Manager	21/10/07	21/10/07
			■ Remind staff to tell their manager of any pain they have that may be linked to computer use.	Manager	21/10/07	21/10/07
Stress	All staff could be adversely affected by factors such as lack of job control (no control over timing/frequency of incoming calls, for example) or verbal abuse from customers.	<ul style="list-style-type: none"> ■ Call targets set in consultation with supervisors to ensure they are realistic. ■ Staff get training in the job. ■ Staff can talk to supervisors or manager if they are feeling unwell or ill at ease about things at work. ■ Policy for dealing with verbal abuse from customers. 	■ Remind staff that they can speak confidentially to manager or supervisors (on a no-blame basis!) if they are feeling unwell or ill at ease about things at work.	Manager	4/10/07	3/10/07
Hearing	Staff could suffer hearing damage if exposed to high noise levels for long periods, or from hearing infections due to poor headset hygiene. Staff may be shocked and startled by exposure to sudden loud sounds while using telephone equipment.	<ul style="list-style-type: none"> ■ Staff have a choice of either one or two earpiece headsets. ■ Staff control the volume on their headsets (although volume levels revert to default setting after each call, to prevent volume creep). ■ Staff trained in headset hygiene and ensuring a comfortable fit. ■ Call handlers provided with personal ear pads. ■ Staff trained to report incidents of 'acoustic shock' from loud sounds over telephone equipment. 	■ Provide regular training on volume control.	Manager	21/10/07	21/10/07
			■ Consider whether design of workplace and working practices (eg, staff breaks) can be improved or modified to help keep background noise down.	Manager	21/10/07	21/10/07
			■ Check stockroom to ensure there are sufficient spare ear pads.	Manager	21/10/07	21/10/07
			■ Monitor, and investigate any reports of acoustic shock.	Manager	Ongoing	

What are the hazards?	Who might be harmed and how?	What are you already doing?	What further action is necessary?	Action by whom?	Action by when?	Done
Voice strain	Call handlers may suffer voice problems, including voice loss.	<ul style="list-style-type: none"> ■ Call handlers trained to position their microphone correctly. ■ Staff trained to clean voice tube. ■ Call handlers encouraged to drink at workstations. ■ Regular breaks away from the workstation to do other jobs, eg paperwork. 	<ul style="list-style-type: none"> ■ Remind staff to clean voice tubes regularly. 	Manager	4/10/07	3/10/07
Slips and trips	Staff and visitors may be injured if they trip over objects or slip on spillages.	<ul style="list-style-type: none"> ■ Generally good housekeeping. ■ All areas well lit, including stairs. ■ No trailing leads or cables. ■ Offices cleaned every evening. 	<ul style="list-style-type: none"> ■ Better housekeeping in staff kitchen eg, clear up spills more promptly. 	All staff	From now on	01/10/07
			<ul style="list-style-type: none"> ■ Arrange for loose carpet tile on 2nd floor to be repaired/replaced. 	Manager	21/10/07	21/10/07
Manual handling, eg of paper, office equipment, etc.	Staff risk injuries/back pain from handling heavy/bulky objects.	<ul style="list-style-type: none"> ■ Trolley used to transport boxes of paper, etc. ■ Top shelves for light objects only. 	<ul style="list-style-type: none"> ■ Remind staff that they should not try to lift objects that look or feel too heavy for them. 	Manager	04/10/07	04/10/07
Working at height, eg putting up decorations.	Falls from any height can cause bruising and fractures.	<ul style="list-style-type: none"> ■ None at present – staff stand on a chair. ■ Internal windows cleaned by contractor, who uses a stepladder. 	<ul style="list-style-type: none"> ■ No more standing on chairs. An appropriate, commercial stepladder will be bought and staff shown how to use it safely. 	Manager	04/10/07	03/10/07
Electrical	Staff could get electrical shocks or burns from using faulty electrical equipment. Electrical faults can also lead to fires.	<ul style="list-style-type: none"> ■ Staff trained to spot and report to office administrator any defective plugs, discoloured sockets or damaged cable/equipment. ■ Systems in place for safely taking out of use, and promptly replacing, defective equipment. 	<ul style="list-style-type: none"> ■ Ask the building landlord when the next safety check of the electrical installation will be done. 	Office administrator	20/3/07	20/3/07
			<ul style="list-style-type: none"> ■ Confirm with landlord the system for making safe any damage to building installation electrics, eg broken light switches or sockets. 	Office administrator	20/3/07	20/3/07
Fire	If trapped, staff could suffer from smoke inhalation/burns.	<ul style="list-style-type: none"> ■ Fire risk assessment done, see www.fire.gov.uk/Workplace+safety/, and necessary action taken. 	<ul style="list-style-type: none"> ■ None. 		20/3/07	

Assessment review date: 1/7/08

Generic Risk Assessment – Laptop Computers.

Author: F.S.Cooper Date: August 2005

Risk Assessment Protocol.

This risk assessment is based upon the formula: Action Rating = Likelihood x Severity.

	Likelihood 3 = High	Likelihood 2 = Medium	Likelihood 1 = Low
Severity 3 = High	9	6	3
Severity 2 = Medium	6	4	2
Severity 1 = Low	3	2	1

Action Rating: 6 – 9 = High (H). Avoid or seek alternative work method to control risks urgently.

Action Rating: 3 – 4 = Medium (M). Avoid or manage risk by introducing new control measures as soon as is reasonably practicable.

Action Rating: 1 – 2 = Low (L). Control any residual risk and review and monitor regularly.

Note: SEVERITY: 3 = High – Fatal, major injury or long term disability.

: 2 = Medium – Injury or short-term disability.

: 1 = Low – Minor injury or illness.

LIKELIHOOD: 3 = High – Certain or near certain to occur.

: 2 = Medium – Likely to occur.

: 1 = Low – Seldom occurs.

A	B	C	D	E	F	G	H
No.	Task.	Hazard Identified.	Persons at Risk.	Severity H/M/L	Likelihood H/M/L	Risk Rating (No./H,M,L)	Recommended Action
1.	Normal use of DSE	Eyestrain, upper limb disorders, headaches,	User	M	M	4 = M	Training in DSE use, task review to allow for breaks, eyesight test, gentle exercise of arms, wrists and eyes.
2.	Manual transportation of equipment to car, office, home etc	Manual Handling – weight & size of load, awkward to carry, distance to carry etc	User	M	M	4 = M	Reduce weight where possible, consider use of trolley or other mechanical aid to transport equipment, consider making more than one journey.
3.	Use of Laptop in an office environment.	Unsuitable seating, unsuitable work surface, glare & reflections from screen, trailing leads presenting tripping hazard.	User Other people (trailing leads)	M	M	4 = M	Provision of a suitable chair & desk. Provision of a docking station, separate monitor, keyboard & mouse. Adjustment of laptop and /or use of window blinds so that screen is free from glare. Minimise trailing leads or place out of way.
4.	Use of Laptop in a home/hotel environment, etc.	Unsuitable seating, unsuitable work surface, glare & reflections from screen, trailing leads presenting tripping hazard.	User Other people (trailing leads)	M	M	4 = M	As above Use of cushion to give back support. Conduct a homeworker assessment.

A	B	C	D	E	F	G	H
No.	Task.	Hazard identified.	Persons at risk.	Severity H/M/L	Likelihood H/M/L	Risk rating. No./H,M,L	Recommended Action.
5.	Use of Laptop in a vehicle.	Restricted environment, poor seating position.	User	M	M	4 = M	Use in passenger seat, seat pushed well back, briefcase or other solid surface to place laptop on.
6.	Charging battery, using laptop from mains electrical supply.	Electric shock	User	H	M	6 = H	Ensure all power leads and plug tops are in good condition and correctly fused. Ensure that items are electrical tested and have a current test label fitted.
7.	Personal security.	Theft, mugging, personal attack.	User	H	L	3 = L	Use unmarked carrying cases for equipment, store in boot of vehicle when travelling or parking, avoid use in public areas, consider personal attack alarm.

The Robert Gordon University
Library

**Laptop Workstation Assessment
Checklist**

ACER Laptop Computer	Serial No:
Library User ID No:	
Date of Assessment	

This checklist should be used as an aid to completing Display Screen Equipment (DSE) risk assessments and to help comply with the Health and Safety (Display Screen Equipment) Regulations.

The checklist should be completed by the Laptop user once the equipment has been set up.

Please work through the checklist, ticking either the 'yes' or 'no' column against each risk factor

- 'Yes' answers require no further action
- 'No' answers will require investigation and/or remedial action by the User. If you are unsure about what action to take please check with Library staff.

The assessment is divided into six sections. The sections comprise: laptop positioning, laptop monitor, keyboard and mouse use, working area, environment and you.

Please keep this self assessment form and refer back to it if you experience any problems such as muscle pain in your upper limbs, eye problems or headaches.

Prolonged use of a laptop can cause pain and discomfort. Please use the laptop for short periods only or, if this is not possible, then take frequent breaks.

Risk Factors	Yes	No	Things to consider	Action to take
<p>1. Laptop Positioning</p> <p>Is your laptop monitor directly in front of you?</p> <p>Are your eyes at a comfortable distance from the monitor?</p> <p>Are your eyes level with the top of the monitor?</p> <p>Can you adjust the monitor should you need to?</p>			<p>You should not have to twist your body or neck to look at the monitor.</p> <p>This is usually 1.5 to 2 feet away.</p> <p>You should be looking down on the centre of your monitor at an angle of approximately 15-20 degrees.</p> <p>Set your chair and desk height correctly first, then if you need to, adjust your monitor height by perhaps placing a solid object beneath your laptop.</p>	
<p>2. Laptop Monitor</p> <p>Are the characters clear and readable?</p> <p>Is the text size comfortable to read?</p> <p>Is the image stable, free from flicker and jitter?</p> <p>Is the screen free from glare and reflections?</p>			<p>Make sure screen is clean, and check that text and background colours work well together.</p> <p>Software settings may need adjusting to change text size.</p> <p>Try using different screen colours to reduce flicker eg darker background and lighter text.</p> <p>You might need to move the screen/desk and/or shield the screen from source of reflections. Screens that use dark characters on a light background are less prone to glare and reflections.</p>	

Risk Factors	Yes	No	Things to consider	Action to take
<p>3. Keyboard and mouse use</p> <p>Is it possible to find a comfortable keying position?</p> <p>Does the user have good keyboard technique?</p> <p>Can you use the mouse on the laptop comfortably?</p> <p>If you are using an external mouse, is it near your keyboard and at the same height?</p> <p>Is your laptop resting on a surface the same height as your elbows?</p> <p>While typing and using the mouse are your wrists straight and slightly lifted?</p> <p>Is there support for your wrist and forearm?</p>			<p>Try pushing the display screen further back to create more room for the keyboard, hands and wrists.</p> <p>Make sure you do not</p> <ul style="list-style-type: none"> • Have your hands bent up at wrist; • hit the keys too hard; • overstretch the fingers. <p>If you are having problems, then try the external mouse provided with the laptop.</p> <p>Most devices are best placed as close as possible eg right beside the keyboard. This will prevent you stretching too far. Also do not leave your hand on the mouse when you are not using it.</p> <p>You should be able to rest your elbows on a surface the same height as your keyboard when not typing.</p> <p>Your wrists should be lifted to reduce strain when typing but should not be twisted or bent.</p> <p>Support can be gained from, for example, the desk surface or arm of a chair. If not, a separate supporting device may help.</p>	

Risk factors		No	Things to consider	Action to take
<p>4. Working Area</p> <p>Is the working area of suitable size and design to allow a change of posture and movement?</p> <p>Can you comfortably reach all the equipment and papers you need to use?</p> <p>Are surfaces free from glare and reflection?</p> <p>Is the chair suitable and stable?</p> <p>Does the chair have a working:</p> <ul style="list-style-type: none"> • seat back height and tilt adjustment? • seat height mechanism? • swivel mechanism? • castors or glides? <p>Is the chair adjusted correctly?</p> <p>Is there space under the work surface to allow you to move?</p> <p>Is the small of your back supported by the chair's backrest?</p> <p>Are your forearms horizontal and your eyes at roughly the same height as the top of the monitor?</p>			<p>Create more room by moving printers, reference materials etc elsewhere.</p> <p>A document holder may be needed, positioned to minimise uncomfortable head and eye movements.</p> <p>Consider mats or blotters to reduce reflections and glare.</p> <p>The chair may need repairing or replacing if you are uncomfortable, or cannot use the adjustment mechanisms</p> <p>You should be able to carry out your work sitting comfortably.</p> <p>Arms on a chair can stop you getting close enough to use the laptop comfortably.</p> <p>Move any obstructions from under the desk.</p> <p>You should have a straight back, supported by the chair, with relaxed shoulders.</p> <p>Adjust the chair height, then adjust the monitor height if necessary.</p>	

Risk factor	Yes	No	Things to consider	Action to take
<p>Are your feet flat on the floor, without too much pressure from the seat on the backs of the legs?</p>			<p>If not a foot rest may be needed.</p>	
5. Environment				
<p>Is there enough room to change position and vary movement?</p>			<p>Space is needed to move, stretch and fidget.</p>	
<p>Is the lighting suitable, eg, not too bright or too dim to work comfortably?</p>			<p>You should be able to control the light levels, eg by adjusting window blinds or light switches. Consider shading or repositioning light sources or providing local lighting, eg desk lamps (ensure lights do not cause glare by reflecting off walls or other surfaces.</p>	
<p>Are all cables positioned so as to prevent tripping hazards or other safety risks?</p>			<p>Make sure that any cables are tidy and can not cause a trip or a snag hazard.</p>	
6. You				
<p>If you get muscle fatigue or pain while working do you take a break?</p>			<p>If you start to feel pain you should stop working and take a break. Move around and exercise in a non-repetitive way, eg walk around the room.</p>	
<p>Do you schedule breaks so that you take them at regular intervals before muscle fatigue or pain starts?</p>			<p>If you schedule breaks so that you never experience fatigue or pain you are more likely to reduce the risk of permanent damage.</p>	
<p>Are you free from pain in your arms shoulders, neck and back after using the laptop?</p>			<p>If you feel any pain take action as described above and consult your doctor.</p>	

Risk factors	Yes	No	Things to consider	Action to take
<p>Has information about the health and safety aspects of laptop use been provided?</p> <p>Has the checklist covered all the problems you may have working with a laptop?</p>			<p>Information about the ideal seated position for working with a laptop is provided on the laptop. For information on specific aspects please refer to this form.</p>	
<p>Please write details of any problems here:</p>				