



Health and Safety Manual

Revision 8 January 2019

**AFS Haulage Ltd
Deer Park Farm Ind Est,
Knowle Lane,
Fair Oak, Eastleigh,
Hampshire,
SO50 7DZ**

Health & Safety Manual

This document is designed for use on a computerised system and is a working document. Each section comprises legal position, responsibilities of the company and a system of work to ensure safe working for the employees of the company. It should be made easily available to all employees.

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STATEMENT OF INTENT

Management Responsibility

This organisation is committed to ensuring the health, safety and welfare of its employees; so far as is reasonably practicable. We also fully accept our responsibility for other persons who may be affected by our activities. We will take steps to ensure that our statutory duties are met at all times.

The undersigned will ensure that sufficient funds and facilities are made available to meet requirements of the Company Safety Policy.

Each employee will be given such information, instruction and training as is necessary to enable the safe performance of work activities.

It is the duty of the management to ensure that all processes and systems of work are designed to take account of health and safety and are properly supervised at all times.

The company recognises and accepts its responsibilities to consult and involve employees in matters involving health and safety. Adequate facilities and arrangements will be maintained to enable employees and their representatives to raise issues of health and safety.

Competent people must co-operate with us to enable all statutory duties to be complied with. The successful implementation of this policy requires total commitment from all levels of employee, from the boardroom and throughout the company.

Each individual has a legal obligation to take reasonable care for his or her acts or omissions. Full details of the organisation and arrangements for health and safety will be set out in separate documents.

This policy will be regularly monitored to ensure that the objectives are achieved. It will be reviewed and, if necessary, revised in the light of legislative or organisational changes.

Reviewed January 2019

Next Review due: January 2020

Signed: (Electronically) Andy Seagrave

Managing Director

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HEALTH AND SAFETY SYSTEM

1. Introduction

- 1.1 The Health and Safety Management System is defined as the organisational, structure, responsibilities, procedures, processes and resources for implementing Health and Safety Management. Within the Company the Health and Safety Management System is designed to meet or exceed the requirements of The Health and Safety at Work etc. Act (HSAW) and all applicable Health and Safety Executive (HSE) Regulations and Approved Codes of Practice as detailed in this Health and Safety File. Meeting these requirements will support the Company Health and Safety Policy which states that the Company is committed to meeting statutory Health and Safety requirements and will seek to provide a working environment that is as healthy and as safe as practicable.
- 1.2 The Management of Health and Safety at Work Regulations (MHSWR) state some duties as being 'absolute' whereas under the Health and Safety at Work Act (HSAW) duties only needed to be of a 'reasonably practical nature'
- 1.3 Health and Safety must be managed through the 'effective planning, organizing, controlling, monitoring and review of the preventive measures'

2. Health and Safety Manual

- 2.1 This Health and Safety Manual details the methods and procedures that comprise the Health and Safety Management System. Procedures for dealing with most of the Regulations are contained within this Health and Safety File in accordance with the Statement of Intent

3. Company Procedures

- 3.1 Company procedures provide detailed descriptions of activities and it is mandatory for all personnel to adhere to these procedures. It is the responsibility of departmental managers and supervisors to ensure that all personnel are conversant with the contents and are implementing the instructions.

4 Regulatory Notification

- 4.1 It is a requirement under the Health and Safety Information for Employees Regulations to display in a prominent position and readable condition the HSE approved poster 'Health and Safety Law - What You Should Know'
- 4.2 It is a requirement for this poster to be annotated with the name and address of the appropriate enforcing authority.

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Responsibilities - Company Management

The Managing Director has overall responsibility and works in partnership with MSRM (The Safety Advisors)

Main Responsibilities

1.	To initiate the Company Safety Policy for the prevention of injury and damage, to set targets for reduction of accident and incident rates.
2.	To administer the Policy
3.	To know the requirements of the relevant legislation and ensure they are observed whilst carrying out Company activities.
4.	To ensure that all employees receive adequate and appropriate training to enable them to carry out their work safely
5.	To initiate proper reporting procedures in the event of injury, damage and loss. Promote action to preclude re-occurrences.
6.	Where, reasonably practicable, to analyse accident/incident trends
7.	To discipline any employee (including sub-contractors) failing to discharge satisfactorily their responsibilities regarding health and safety.
8.	To encourage the distribution of relevant safety information to all persons concerned and promote communication of issues throughout the company.
9.	To ensure that sufficient funds and facilities are made available to meet requirements of the Company Safety Policy.
10.	To promote and maintain the Company's on-going determination to improve its performance in Health, Safety and Welfare
11.	To ensure there are sufficient First Aid personnel and first aid boxes.
12.	To chair the Company's Health and Safety Management Meetings

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Responsibilities - Safety Advisors

Main Responsibilities

1.	To discuss with the Company Management methods of preventing injury to any persons connected with the company and possible improvements in existing working methods that may affect health, safety and welfare.
2	To comply with the terms of the Service Level Agreement in the provision of Health & Safety Services
3	To recommend and supply, as required, appropriate training
4	To act as competent person in accordance with The Management of Health and Safety at Work Regulations 1999
5	To investigate, as required, accidents, incidents and Near Misses
6	To advise on health & safety matters regarding: <ul style="list-style-type: none">• Employment• Machinery• PPE• Procedures As required
7	To accompany HSE Inspectors, as required, on any visits and arrange compliance with all recommendations made by them.

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Responsibilities – Supervisory Management

Main Responsibilities

1.	To organise work areas so that work is carried out to the required standard with minimum risk.
2	To know the broad requirements of relevant Safety Regulations and Codes of Practice.
3	To arrange the storage of materials to avoid any possible hazards.
4	To check all equipment is in good condition.
5	To make sure protective clothing is available and is worn properly.
6	To ensure First Aid and Emergency Equipment is available.
7	To liaise with company management and employees in order to maintain safe working methods
8	To ensure that the workplace is well organised and tidy.
9	To report and investigate all accidents and incidents in line with the company procedures and legal requirements
10	To ensure all sub-contractors adhere to their health and safety obligations.
11	To advise on and make available safe systems of work with regard to their own areas of responsibilities.
12	To inform their immediate superior if for any reason they are unable to fulfil the above responsibilities.
13	To ensure each new starter is thoroughly inducted and issued with and understands the company's staff handbook

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Responsibilities - Operatives & Staff

Main Responsibilities

1.	To comply with all relevant legislation and to read and adhere to the company Health and Safety Policy. They are to seek guidance from managers on their duties when they have problems understanding their duties or have reading or sight impairment.
2	To ensure that company's safety procedures are carried out.
3	To ensure that all Personal Protective Equipment is properly worn and used in accordance with manufacturers' guidance and recommendations.
4	To report any faulty or defective equipment, plant, tools, machinery, building, unsafe behaviour to management immediately. Do not attempt to repair any faulty electrical equipment.
5	To report immediately any serious health issue or impending prosecution (including driving prosecutions) to their manager
6	To ensure they are fully conversant and comply with all Risk and COSHH Assessments, Method statements, Permit to Work procedures, and other safe working practices.
7	To keep emergency stairs, corridors and exits free from obstruction
8	To switch off all electrical equipment before leaving the premises.
9	To not to smoke anywhere in the premises.
10	To make themselves available for Health and Safety training, as the company deems necessary.

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ACCIDENT REPORTING & PREVENTION

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1. Summary

There is a legal obligation under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 to report, investigate and keep a record of accidents causing injury, dangerous occurrences and occurrences of disease or ill health. These processes are also of value to individual organisations, since accurate information about, and analysis of, previous accidents helps to prevent them recurring.

The term "health and safety management" incorporates prevention of unplanned losses to the organisation resulting from damage to people and property. Prevention of this damage can bring substantial savings to the organisation, and can lead to increased profits from improvements in efficiency brought about by better morale and motivation of the workforce.

An accident is defined as "any unplanned event which causes injury or damage, or which had the potential to do so". Therefore the use of the word "accident" in this module covers those situations which RIDDOR term a "dangerous occurrence", as well as the more conventional interpretation where injury is caused to an individual.

The organisation of health and safety must start with the company's chief executive and the board of directors through the issuing and implementation of their policy aimed at controlling unplanned losses. It is important to identify the sources of the losses and hence their underlying causes. There should be a clearly defined objective that all accidents, dangerous occurrences and near misses must be reported even if the resulting injury or damage was minor or non-existent; the important factor is the circumstances of the accident. All accidents should be investigated, without exception. It is necessary to define the term accident to avoid misunderstanding and ensure commonality of purpose.

The company definition is: "An accident is any unplanned event that results in, or may result in, personal injury or damage to property, plant or equipment".

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2 Effective Accident and Dangerous Occurrence Reporting

Reporting procedures must be aimed at achieving an early response in the event of an accident or incident. They need to ensure:

- (a) the immediate treatment and welfare of the injured person(s), where appropriate
- (b) that the statutory requirements of RIDDOR are complied with, i.e. the immediate reporting to the enforcing authority of specified serious injuries and dangerous occurrences
- (c) that the investigation is initiated as soon after the accident or incident as possible.

It must be remembered that the enforcing authority and the police may wish to investigate. They may require that the scene of the accident or incident remains undisturbed, providing it is safe to do so, until their investigations are completed.

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2.1 Responsibility

It is a mandatory requirement of all employees to ensure that accidents (and injuries where applicable including those arising from violence) occurring on Company premises are recorded as detailed below. This requirement applies to all accidents or injuries, including those of a 'minor' nature.

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2.2. Injuries - Definition

Injuries that require medical treatment

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2.3. Accident Book

2.3.1 An Accident Book will be held on each site and must be easily accessible to all staff. It must be of a type that conforms to the Data Protection Act and on completion of the report the page must be removed and returned for secure storage

2.3.2 The cover will contain the following information

- Name of workplace
- Address of workplace
- Name of employer

2.3.3 Entries may be made in the Accident Book by the following personnel:

- Directors
- Managers
- Company appointed first-aiders
- Health and Safety Officer
- Competent person

2.3.4 The following details shall be entered:

- Name, home address and occupation of person who had the accident
- Signature, date, home address and occupation of person making entry
- Date, time and place of accident
- Brief details of accident including cause and details of personal injury where applicable and whether medical treatment beyond in-house first-aid was required
- If the accident is reportable to HSE under RIDDOR (see below) the appropriate box shall be initialled

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2.4. Requirement for Reporting To H.S.E.

- 2.4.1 The reporting of injuries, diseases and dangerous occurrences in accordance with RIDDOR can be carried out by telephone or on-line depending on the nature of the injury / incident.

By Telephone – For fatal and major injuries, call the Incident Contact Centre immediately on 0845 300 9923. The details that will be required are the same as that written on the F2508.

On-line - Go to www.hse.gov.uk and click on 'Report and Incident' then follow the on-line instructions using the correct form depending on what has happened.

- 2.4.2 From 6 April 2012, the over-three-day reporting requirement for people injured at work changed to more than seven days. This change has been introduced by amendments incorporated in The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 following implementation of recommendations in the Lord Young Report in 2010

You now only have to report injuries that lead to a worker being incapacitated for more than seven consecutive days as the result of an occupational accident or injury (not counting the day of the accident but including weekends and rest days). The report must now be made within 15 days of the accident.

Incapacitation means that the worker is absent, or is unable to do work that they would reasonably be expected to do as part of their normal work.

You must still keep a record of the accident if the worker has been incapacitated for more than three consecutive days. If you are an employer, who must keep an accident book under the Social Security (Claims and Payments) Regulations 1979, that record can be treated as a record for the purposes of R.I.D.D.O.R.

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2.5. Reportable Major Injuries

2.5.1 Specified Injuries

Where an employee or contractor suffers a specified injury, or is taken to hospital with a suspected specified injury, the Managing Director is to be informed immediately. He will then in turn inform the Company Health and Safety Consultants who will carry out an investigation as directed.

Nothing is to be moved in the accident area unless instructed by the Managing Director or where it would otherwise put people at risk to leave it. If the accident area has to be disturbed, where it is feasible, take photographs or make a sketch first as this may help with the investigation.

Specified injuries are injuries such as:

- . Fractures (not to fingers or toes)
- . Dislocations
- . Amputations
- . Temporary or permanent blindness
- . Chemical burns to the eyes.
- . Someone being knocked unconscious
- . Someone being admitted to hospital for 24 hours or more, etc.

The full list is on the HSE website

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2.6. Reportable Diseases

2.6.1 The following list is not comprehensive but states examples of the types of diseases that are reportable. The decision as to whether reporting is required will be made by the Managing Director

- Poisoning
- Skin diseases
- Lung diseases
- Infections

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2.7 Reportable Dangerous Occurrences

2.7.1 Dangerous occurrences are specific incidents listed within RIDDOR and must be reported to the Site Supervisor immediately who will then notify the Company Safety Consultants. The area must not be disturbed unless the Managing Director specifies so, or to prevent further danger.

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2.8 Records

Accident Books, HSE notification forms and associated correspondence shall be retained for a minimum of five years.

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3 Effective Accident and Dangerous Occurrence Investigation

It is essential that all accidents, dangerous occurrences and near misses are investigated. The time and effort put into the investigation may vary considerably, however, according to the potential severity of injury and/or damage. It is also essential that the objectives of the investigation are clearly understood by everyone. The prime objectives should be to:

- determine the sequence of events leading to the accident or incident
- establish the unsafe acts and/or unsafe conditions within this sequence that were the immediate causes of the accident or incident

- determine the human, organisational and/or job factors that gave rise to the unsafe acts and/or conditions
- initiate short-term action to eliminate the immediate causes and establish a longer-term programme to correct and control the underlying human, organisational and job factors, and hence prevent a recurrence of the same or similar accidents/incidents.

The company's safety policy identifies who is responsible for carrying out accident and incident investigations. It is considered that the initial investigation should be carried out by the line supervisor with immediate responsibility for the area, process or people concerned. Depending on the circumstances and potential severity it may be necessary to involve others such as senior managers, engineers, safety officers/managers and safety representatives. In very severe (or potentially very severe) cases it may be necessary to set up an accident investigation team consisting of the people mentioned above.

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3.1 Determine what happened

Collect all of the information relevant to the incident. Examine the location of the incident and any equipment involved. Photographs, sketches and plans are a useful method of recording conditions at the location. Interview the injured person, any witnesses or any other person who may have relevant knowledge and/or information. These interviews need to be carried out as soon as possible after the incident to ensure accuracy. The interviews should be separate and as private as possible, although if it is conducted at the scene of the accident it can assist the witnesses' memory. The witnesses should be encouraged to talk and explain rather than be asked questions likely to elicit a yes/no response. During the interview the witnesses should be put at ease, using prompting, rather than leading questions.

Investigators should confirm their understanding by summarising key points at appropriate times. This is valuable to ensure accuracy, shows interest and concern, and will encourage witnesses to give further information. The interview should end on a positive note by, for example, thanking any witness and giving praise and encouragement. The interview should also be left open so that a witness can come back to the investigator if he or she thinks of further information; or if the investigator needs to go back to cross check information with the witness from other sources.

Process records, job/production records or any other relevant documentation should be examined. The investigator should keep an open mind and not be unduly influenced by what should have happened; it is important to determine what actually happened. During this process, it is important to remember that apportioning blame is not an objective of the investigation. This may arise as part of the investigation finding, but should not be emphasised at this stage. The organisation's policy should state how and when and by whom, any disciplinary action is to be dealt with.

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3.2 Determine causes

By careful analysis of the information collected following the procedure outlined above, the investigator or team will be able to identify the unsafe acts and/or unsafe

conditions which caused the accident or incident. Further analysis will reveal the secondary job or personal factors which caused the unsafe acts/conditions. This process can be assisted by an evaluation of the company's policies, procedures and organisation and/or Government and industry standards and codes of practice. During this analysis the investigator(s) should continually ask the questions "what if?" and "why?".

Initiate preventative action

Actions should be taken to remedy all of the deficiencies determined in the above stages.

These can be divided into two types.

1. Immediate. For example, the actions that can be taken by local supervision such as replacing a guard on a machine if it is immediately available and safe to do so; arranging for spillages to be cleaned up; erecting temporary barriers, etc.
2. Long term. There may be a need to raise job orders or purchase requisitions or to submit recommendations for design and/or process changes which need to be actioned and approved by other departments. The investigation may identify a training need which is a long-term action. All of these action points need to be considered relative to other areas of the organisation where similar processes or equipment are involved.

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3.3 Ensure actions are complete

It is essential that progress on the identified remedies is closely monitored to ensure that they do not get unnecessarily delayed or even forgotten. There should be a follow-up review to ensure that the actions taken are effective and do not create other unforeseen hazards.

These objectives may appear to be an overkill when the accident only resulted in a minor injury, minor damage or a near miss. However, every apparent minor accident may be a potentially fatal accident. This first part of the investigation should be to establish the potential severity of injury or damage that could have resulted. The effort and resource devoted to the remainder of the investigation must be in direct proportion to this potential.

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3.4 Investigation Report Forms

The results of the accident, dangerous occurrence or near miss investigation need to be recorded in a logical format. Often a report designed for this purpose can assist in this. A properly designed investigation report form can also guide the investigator through the process.

All accident forms need to include basic information such as:

- (a) who was involved in the accident
- (b) details of any witnesses to the accident
- (c) the nature of the injuries and/or damage which occurred
- (d) the time and date of the accident
- (e) the precise location of the accident

- (f) the normal occupation of the person involved
- (g) exactly what this person was doing at the time of the accident
- (h) the conditions at the time of the accident (eg lighting, weather, congestion, housekeeping)
- (i) what inflicted the injury or damage (eg moving part of machine, falling box, etc)
- (j) which company or other standards were not met or deviated from
- (k) who had control of (h), (i) and (j)
- (l) exactly what happened
- (m) the causes of the accident
- (n) the potential severity of the accident
- (o) the probability of a recurrence
- (p) measures which could prevent a recurrence — immediate and/or future.

Additional information may be required such as the clock or staff numbers of the people involved, names of department supervisors, etc to facilitate notifications within and outside the company (eg relatives, HSE, insurers, etc).

The information collected needs to be accurate and precise to fulfil the objectives of the investigation. To collect this information the investigator will need to use some or all of the following techniques:

- visual examination of scene of accident or incident
- visual examination of tools and equipment involved
- inspection of documents such as maintenance records, training records, job procedures and standards, instruction manuals, inspection reports and equipment specifications, etc
- interviewing of the injured person, witnesses or others who may have relevant information.

The results of the investigation should be widely circulated to ensure that there is no risk of a recurrence of a similar incident in other areas of operation. The investigation is not complete until all of the longer term actions have been implemented and reviewed to ensure that they are successful.

Therefore copies of the investigation findings may need to be circulated to:

- (a) organisations' insurers
- (b) safety representatives and safety committee members.

The Managing Director is to receive copies of the report and the investigation team will determine who else needs to receive copies or other information relevant to the incident. In the main, the findings will be communicated in writing but in certain cases it can be oral, e.g. briefing groups to other employees, training sessions, etc.

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4 Reporting and Investigating a Case of Disease

Employers and self-employed people are obliged by RIDDOR to report cases of certain diseases which are linked with particular work activities. Employers should carry out a full investigation, in a similar way to an accident investigation (see above), collecting any relevant information in the same way. In the fields of work where

reportable diseases are likely to occur, it is probable that there will be occupational health information (eg medical records, health surveillance test results, environmental monitoring data, etc) that should be taken into consideration. It is likely that other professionals such as the individual's GP and any occupational health staff (whether employees or contractors) will need to be involved in the process. The aim of the process, namely to prevent a recurrence, should be exactly the same as for an accident investigation.

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5 Training

It is important that training/instruction is given to all employees concerning the need, as well as procedures, for reporting accidents, dangerous occurrences, near misses and cases of reportable diseases. This should be done during the induction training of new or transferred employees. They should be told who to report to, and, if applicable, where the accident book is located and how to make an entry in this book, etc. The message should be repeated through company briefs, department meetings, notices, etc to emphasise continually the importance of reporting. It is equally important that all supervisors and managers are given training in accident investigation techniques and the legal requirements of RIDDOR and the role that they have in reporting and notification procedures.

This training should form part of managers'/supervisors' ongoing development. The training for accident reporting and investigation needs to be relevant and reflect policy and procedures.

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6 Accident Prevention

The above information has been concerned with what must be done once an accident has occurred, both to fulfil legal obligations for reporting and to gather as much information as possible about its causes. This section will now consider the wider issue of action to be taken prior to an accident or "accident prevention".

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6.1 Accident types

The HSC Annual Report breaks causes of injury down into 16 main categories. The relevant legislation breaks these statistics down further into "severity groups", ie fatal, major injury and over-three-day injuries.

Kind of Accident (HSE classification)

1. Falls from Heights
2. Struck by a moving vehicle
3. Struck by moving, including flying/falling object
4. Contact with moving machinery
5. Contact with electricity or electrical discharge
6. Slip, trip or fall on the level
7. Injured whilst handling, lifting or carrying
8. Struck by something fixed or stationary

The following examples illustrate the types of accidents that can occur in five of the main categories mentioned above. After each example some guidance is given on preventing or minimising typical accidents within the relevant category.

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6.1.1 Falls from a height

An experienced scaffolder was killed when he fell some 9.5m through an asbestos roof. The man had, with others, been replacing roof panels damaged by recent storms. The men were working in adverse weather conditions to make good the roof. They were working from a lightweight platform although they had been standing directly on the roof. They had decided that the wind had increased, and the general weather conditions had deteriorated to such a level that it was unsafe to continue work. Before the deceased had a chance to leave the roof he was struck by a roofing panel that had been lifted by the wind, and he fell onto and through the fragile roof.

The most common falls from a height are either during roof work, as in the above example, or from ladders. When working with ladders:

- use alternatives wherever possible, eg scaffold towers, lift truck platforms, mast work platforms or permanent stairways with handrails
- ensure ladders, if used, are of a good standard and are regularly maintained
- securely attach ladders to the building if possible, eg by using screw-eyes and ties
- use ladder stays, ladder jacks or non-slip feet to stabilise the ladder
- use clip-on platforms to provide wider support for the feet
- do not over-extend ladders or place them at dangerous angles (1m of ground length for every 4m of height is recommended)
- only use ladders for the purpose for which they were intended.

When working on roofs:

- use safe systems of work, with method statements if necessary
- provide physical safeguards, eg access equipment and edge protection systems, safety harnesses, belts and nets, roof ladders, crawling boards, scaffolding and working platforms
- only allow properly trained and experienced people to carry out the work
- do not allow work in bad weather conditions
- provide adequate supervision.

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6.1.2 Struck by moving vehicle

A youth was crushed and killed under the wheels of a reversing refuse collection vehicle. Although no one saw the accident it was apparent that he slipped off the bin step whilst the vehicle was in motion. At the time of the accident it was dark and conditions were damp. The deceased was wearing a dark coloured anorak, jeans and trainers.

The majority of accidents involving moving vehicles occur during reversing operations, since driver visibility is relatively poor. To minimise the risk of motor vehicle accidents:

- avoid reversing by introducing one-way traffic systems

- keep pedestrians out of traffic areas
- clearly mark areas where vehicles may be present
- improve driver visibility with the use of convex mirrors attached to buildings, and closed circuit television equipment or radar inside the vehicle
- improve vehicle design by incorporating air brakes which operate automatically when the bumper is touched, and flashing lights/audible warning devices which operate automatically when the vehicle is in reverse
- use banksmen, and make sure they know how to use clear, unambiguous signals; rigidly enforce the rule that the driver must stop whenever the banksman moves out of sight
- provide high visibility jackets/waistcoats to all persons working in the vicinity of moving vehicles.

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6.1.3 Contact with moving machinery

A food process worker died as a result of multiple injuries when he was dragged into a 400 litre dough mixing trough. The man, whose job it was to load and unload the mix from the trough, was standing on the steps leading to the trough to check it before processing a new batch. He opened the lid and was seen to run his finger along the mixer blade. He was dragged into the machine by the mixer blades. The lid was clamped in position when in operation and had an interlocking cut-off switch although this had been partially removed.

To minimise the risks of accidents with machinery:

- completely enclose the machinery in a room or partitioned area of its own, and restrict access to this area
- use guards to separate the worker from dangerous parts of the machinery
- ensure trip devices are properly marked, easily accessible and maintained in excellent condition
- enforce correct dress, especially in relation to long hair, jewellery and loose clothing
- use a permit to work system
- subject all equipment to a rigorous maintenance programme
- train employees about the hazards they may encounter in the course of their work, and how to deal with them.

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6.1.4 Contact with electricity

A carpenter working on a farm died as a result of a 240 volt electric shock from a metal cased extension reel. He was undertaking maintenance work and was carrying the extension reel, which was plugged in and switched on, across the yard.

Whilst walking on dry concrete there had not been sufficient earth leakage but when he stepped onto a wet muddy patch he may have touched a water pipe causing the shock. Subsequent examination of the equipment revealed an earth lead in the socket touching a live conductor.

If there is time in a general induction course, or in a preliminary briefing before work starts on a particular site, give a general reminder of the electrical hazards likely to be associated with the work. It may seem common sense to avoid placing metal ladders near live, uninsulated electrical conductors, to be aware of power lines when working at a height, not to use old equipment that possibly has unsafe wiring, or to turn electrical items off before cleaning or transporting them, but unfortunately many preventable accidents are still caused by people forgetting these basics.

Other safeguards are:

- to ensure the electrical system is well designed and installed to avoid trailing wires or cables
- to ensure this system is subjected to periodic examination and maintenance by a competent electrician
- to place an absolute embargo on unauthorised interference
- to put up appropriate signs and notices restricting access to dangerous areas
- if using electricity outdoors, to ensure the equipment is well maintained and appropriate for the use for which it is intended
- to be particularly aware of the dangers of using electricity in wet conditions.

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6.1.5 Struck by falling objects

A worker in a furniture factory was killed when a stack of timber fell onto him. He was attempting to take lengths of timber from the top of the stack, which was approximately 2.5m high.

It would appear that in doing this he dislodged some of the lower lengths which then caused the stack to fall. It is not certain but he may have been climbing on the stack to reach the top layer. To avoid this type of accident:

- ensure proper access is provided to shelving or stacking, eg non-moving steps
- use guardrails and toeboards where appropriate
- ensure proper safety equipment, eg hard hats, safety boots, etc is both provided and used
- restrict access to dangerous areas, eg construction sites
- provide staff with proper information about, and training in, safety procedures.

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6.2 Accident and incident causes

In each of the above cases it is easy to focus on the acts and omissions of the victim that obviously contributed to the direct causation factors of each accident or incident. However, studies undertaken by many organisations, including the Accident

Prevention Advisory Unit of the HSE, have identified that for every direct causation factor there are several secondary causes that are the responsibility of management. Attention to these factors could have prevented each of the above accidents and many more like them. The direct, or immediate, causes are often grouped under the related headings

"Unsafe acts" or "Unsafe conditions". The headings are said to be related because in many cases unsafe conditions are created by unsafe acts and vice versa.

Unsafe acts can include:

- working without authority
- failure to warn others of danger
- leaving equipment in a dangerous condition
- using equipment at the wrong speed
- disconnecting safety devices such as guards
- using defective equipment
- using equipment for the wrong tasks
- failure to use or wear PPE
- incorrect loading of vehicles
- failure to lift loads correctly
- being in an unauthorised place
- horseplay
- smoking in areas where this is not allowed
- drinking alcohol or taking drugs.

Unsafe conditions can include:

- lack of or inadequate guarding to moving machine parts
- defective tools or equipment
- inadequate fire warning systems
- fire hazards
- ineffective housekeeping
- hazardous atmospheric conditions
- excessive noise
- exposure to radiation
- inadequate illumination or ventilation.

It is also important to remember that these unsafe acts and the unsafe conditions are performed or created by people; often not by the person who subsequently sustains the injury.

Although relevant to accident prevention, the above direct causes are symptomatic of underlying indirect causes which allow them to occur and re-occur. These indirect causes can be grouped under:

- (a) human factors
- (b) organisational factors
- (c) job factors.

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6.2.1 Human factors

The following are human factors:

- social pressures
- group attitudes
- trade customs
- tradition
- society attitudes to risk taking
- "acceptable" behaviour in the workplace.

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6.2.2 Organisational factors

The following are organisational factors:

- management system pressures
- financial restrictions
- lack of commitment
- lack of policy
- lack of standards
- lack of knowledge and information
- restricted training and selection of tasks.

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6.2.3 Job factors

The following are job factors in indirect causes of accidents:

- poor layout of task
- environment, eg heat, cold, light, noise
- tools and equipment
- work schedules and patterns
- procedures and instructions.

All of these factors need to be considered to determine the real causes of an accident or incident. These factors can also be considered as part of an accident prevention programme. They should be considered at the concept stage of any new project to ensure a "pro-active" approach to safety. In other words, prevention is better than cure.

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7 Management for Accident Prevention

There is an accepted hierarchy of accident prevention strategies which can be summarised as follows:

- (a) eliminate the risk
- (b) control the hazardous components and/or substances
- (c) safe working practices
- (d) training
- (e) supervision/monitoring.

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7.1 Eliminate the risk

When considering a work process with a high risk of accidents the first consideration should be the use of alternative processes or equipment that are less hazardous.

1. Ladders are associated with many accidents involving falls; the potential alternatives include:

- (a) scaffold towers, lift truck platforms or mast work platforms
- (b) permanent stairways with hand-rails.

2. Many accidents with moving vehicles occur when the vehicle is reversing; potential alternatives include:

- (a) improving road layout, such as introducing a one-way traffic system
- (b) drive-through systems for loading or unloading.

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7.2 Control the hazard

If there is no opportunity to use alternative methods then safe equipment or systems of work can go a long way towards accident prevention.

1. Contact with moving machinery can be avoided by the use of guards and trip devices, which should either separate the moving part from the worker or, in the event of contact, stop the machinery.

2. Slips, trips and falls can be prevented through suitably designed and constructed flooring, taking into account:

- (a) floor loading when heavy objects will be placed on it or moved over it
- (b) surface composition where chemicals, oils or solvents may damage either the surface itself or in the case of tiles, etc, the adhesive used to secure them.

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7.3 Safe working practices

Good design will need to be backed up by good working practice.

1. For manoeuvring vehicles:

- (a) the use of banksmen (ie lookouts or guides) in such positions as they can see where the vehicle should be steered and the driver can see them
- (b) the use of speed limits.

2. The provision of the correct dress. This may be:

- (a) suitable protective clothing in hazardous environments
- (b) the requirement to be suitably dressed, eg no jewellery, or tying back long hair.

3. The use of permits to work and planned entry into confined spaces.

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7.4 Training

Good working practices must be backed up by suitable training, and a requirement that safety measures should be strictly adhered to.

1. Drivers and banksmen must learn and use a common signalling system and a driver must stop immediately if the banksman is no longer in view.
2. Where PPE is provided, staff must be instructed in its use, and its correct use at all times must be part of working practice.
3. Where permits to work are used, staff must be trained in their use and all areas of the premises or machinery that require such systems must be clearly marked.

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7.5 Maintenance and housekeeping

Regular maintenance and good housekeeping will also have potential for accident prevention.

1. Equipment should be regularly inspected, eg:
 - (a) ladders should be inspected for rotten rungs, etc
 - (b) electrical appliances should be checked by a qualified person.
2. Flooring will need maintenance, both through regular cleaning and periodic maintenance, to remedy defects.

Pre-planning and post-accident investigation will provide the information necessary to ensure that accidents in the workplace are kept to a minimum.

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Alcohol and Drugs

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1 Summary

The company is concerned to provide a safe and healthy working environment. It recognises that this can be put at risk by those who misuse alcohol or drugs to such an extent that it may affect their health, performance, conduct and relationships at work. The policy, which applies to all employees, aims to:

- (a) promote the health and well-being of employees and to minimise problems at work arising from the effects of alcohol or drugs
- (b) identify employees with possible problems relating to the effects of alcohol or drugs at an early stage
- (c) offer employees known to have alcohol or drug-related problems affecting their work referral to an appropriate source for diagnosis and treatment if necessary.

The policy does not apply to an employee who commits a clear breach of company rules due to overindulgence of alcohol on one or more occasions. In these cases, action will be taken under the disciplinary procedure as appropriate.

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2 Arrangements for Securing the Health and Safety of Workers

2.1 The Company will, in consultation with workers and their representatives:

- (a) advise all existing employees and all persons starting work of the risks to health arising from the effects of alcohol or drugs (including some legitimately prescribed medications)
- (b) encourage employees, who may have alcohol or drug-related problems which affect their work, to take advantage of the company referral procedure for diagnosis and treatment
- (c) enable supervisors and managers to identify job performance problems that may be attributable to the effects of alcohol or drugs and to consult with the appropriate company specialist to determine whether there is sufficient

concern to warrant a medical evaluation

(d) in cases where the effects on work of misuse of alcohol or drugs is confirmed or admitted, agree upon a programme of treatment in consultation with the company medical advisor and the employee

(e) instruct the company medical advisor to co-ordinate, monitor and if necessary participate in the treatment, which may involve recourse to, or liaison with, the general practitioner (GP), counsellor, hospital outpatient department or in-patient care.

2.2 The company will establish policy rules on a case-by-case basis relating to an employee who is found to have misused alcohol or drugs or admits to the same. The policy rules may cover:

- (a) disciplinary action for refusal to accept help
- (b) conditions for accepting treatment
- (c) future employment if treatment proves to be successful
- (d) observation of medical confidentiality
- (e) effects upon pensions, benefits and employment rights.

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3 Drug Testing

3.1 The company has the facility to test employees for a range of drug abuse and may employ these tests when it perceives that such test will be beneficial to the safety of employees.

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4 Information and Training

4.1 The company will provide sufficient information, instruction and training as is necessary to ensure that all employees have the knowledge required:

- (a) to understand the dangers associated with the effects of alcohol or drugs at work and the company policy regarding this
- (b) to understand the company procedures that will be adopted where there is bound to be a deterioration in work performance from these effects
- (c) to understand the legal consequences of their actions.

4.2 Managers and supervisors will be given additional training, as necessary, to enable them to deal with any physiological problems that may arise as a result of the effects of alcohol or drugs upon work performance.

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5 Safe System of Work

5.1 The effects of alcohol or drugs at work can create serious health and safety risks. Therefore, the following rules should be adhered to.

1. Do not come to work under the influence of alcohol or drugs.
2. Do not bring alcohol or non-prescribed drugs on to company premises.
3. Check with your doctor or pharmacist about the side-effects of prescribed medications.
4. Never drive or operate machinery if you are affected by alcohol or drugs.
5. Ask your general practitioner or The Company for guidance and advice on sensible limits of alcohol consumption.
6. Offer support and advice to colleagues who you suspect of suffering from alcohol or drug abuse: do not "protect" them by keeping silent.
7. Ask for assistance if you feel that matters are beyond your own control.

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ASBESTOS

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1 **Summary**

It is not company policy that any worker shall be directly involved in any work to do with asbestos. Where required specialist companies, duly licensed, will be employed to remove asbestos where an assessment indicates this to be necessary. The company has complied with the Control of Asbestos at Work Regulations (2002) and carried out a survey of asbestos in buildings under its control. However, the presence or otherwise cannot be guaranteed and the purpose of this section is to provide information and procedures to employees if they suspect the presence of asbestos. Where low-levels of asbestos are present, following the procedures herein will provide adequate protection for employees. No work shall be carried out on suspected asbestos containing materials without first consulting managers.

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2 **What is asbestos?**

- 2.1 There are three main types of asbestos - chrysotile, amosite and crocidolite: they are usually called white, brown and blue asbestos respectively. However they cannot be identified just by their colour.
- 2.2 Blue and brown asbestos (the two most dangerous forms) have not been imported into the UK for nearly 20 years and are now banned by law. However, construction and maintenance workers may still come across them:
 - In stripping out old insulation from buildings
 - In the demolition and clearance of former industrial sites and premises including power stations
 - In fire doors and ceiling tiles.
- 2.3 In particular plumbers, carpenters, electricians and cabling engineers may also come across asbestos during routine repair, installation or refurbishment work. Asbestos insulating board is particularly common in buildings constructed before 1980 and was used in fire doors, ceiling tiles, internal walls and panels.

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3 What Are The Risk From Asbestos?

- 3.1 Asbestos-related diseases are currently responsible for about 3000 deaths a year in Britain. There is usually a long delay between first exposure to asbestos and the onset of disease. This can vary between 15 to 60 years. The vast majority of those now dying were exposed to asbestos during the 1950s and 1960s, before the current regulations were introduced.
- 3.2 Work with asbestos can release small fibres into the air. Breathing in these fibres can cause fatal diseases. But provided the asbestos is intact, it does not pose a risk to health.

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4 How Does Asbestos Get Into The Body?

- 4.1 Although the body will get rid of most of the larger fibres that can enter the nose and mouth, tiny fibres can pass into the lower parts of the lung. They can stay there for years and in some cases work their way through the lung lining. The body naturally gets rid of any asbestos fibres that you might take in with food and water, and asbestos fibres cannot be absorbed through your skin.

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5 What Does Asbestos Do?

- 5.1 Breathing in asbestos fibres can eventually lead to a number of diseases. These include:
- Asbestosis or fibrosis (scarring) of the lungs
 - Lung cancer
 - Mesothelioma, a cancer of the inner lining of the chest wall or abdominal cavity.

THERE IS NO CURE FOR ASBESTOS RELATED DISEASES

- 5.2 Until recently it was thought that those now dying from asbestos-related diseases were exposed to large amounts of asbestos either regularly or during a single spell of work lasting from a few weeks to a few years. It is now thought possible that repeated low level exposures, during routine repair work, may also lead to asbestos-induced cancers. The scientific evidence on exactly what levels of exposure cause disease is unclear. **But we do know the more asbestos dust you inhale the greater the risk to your health.**

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6. What kind of work creates asbestos dust?

6.1 Some processes or products give off dust more easily than others, but work on any of the following activities is likely to produce some asbestos dust:

- The removal (stripping) of old asbestos insulation materials from buildings or machinery. This is an activity that is likely to produce very high dust levels and should normally be carried out by a contractor licensed by HSE
- The manufacture of products wholly or partly made from raw asbestos, eg asbestos textiles
- The installation, maintenance, repair and general handling of products containing asbestos, e.g. asbestos cement products, insulating board, friction materials such as brake pads and clutch linings
- The removal of roofing felts, old floor tiles, textured paints and plasters containing asbestos
- Routine installation, repair and maintenance work by plumbers, electricians, carpenters etc.

6.2 If you come across something during construction or maintenance work which you think may be asbestos, **stop work and tell your supervisor and/or health and safety representative.** Report the finding immediately to Head Office so that arrangement can be made for sampling and tests to be carried out by people trained to do so **under no circumstances should any employee make any attempt to touch or deal with the suspected material until cleared to do so.**

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7. Employer's responsibility's to protect health at work?

7.1 All work involving asbestos is covered by the Control of Asbestos at Work Regulations 1987, as amended in 2002 and 2005. Employers are required by these regulations to protect employees and anyone else who may be affected by their work (e.g. visitors, and people living in the neighbourhood) from exposure to asbestos.

7.2 The employer is required to:

- Assess your likely exposure to asbestos before you start any work
- Take steps to prevent your exposure or reduce it to the lowest level possible
- Make sure that you are fully aware of the risks to your health of breathing in asbestos dust, and that you are properly trained to use the control measures provided, included when necessary a mask/respirator
- Issue you with protective clothing

- Provide adequate washing facilities and, if appropriate, changing facilities and separate storage facilities for protective clothing and for personal clothing
- Monitor your exposure to asbestos when there is doubt about the level of exposure, or to check the effectiveness of control measures
- Provide you with a mask/respirator if you are likely to be exposed to asbestos dust levels higher than those described in the Regulations as the control limits.

The control limits are:	fibres per millilitre of air averaged over	
	4 hours	10 minutes
Chrysotile (white asbestos)	0.5	1.5
Crocidolite (blue asbestos)	0.2	0.6
Amosite (brown asbestos)	0.2	0.6
Mixtures of chrysotile and any other type of asbestos	0.2	0.6

But remember these are not 'safe limits of exposure'.

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8. Protecting your own health?

- Make full use of the control measures provided by your employer, and report any faults, e.g. in air extraction equipment
- Use protective clothing and a mask/respirator when required and make sure that they fit properly
- Don't go into a 'respirator zone' without wearing the correct mask/respirator
- Follow any recommended working procedures to reduce dust levels, e.g. use hand tools rather than power tools when cutting asbestos, but if power tools are necessary, use the lowest possible speed; **and keep the material damp whenever possible**
- Keep the work area clean by using the equipment provided by your employer, e.g. a special 'H' type vacuum cleaner
- Make sure that all waste material is put in a polythene bag labelled with the asbestos warning sign
- Co-operate if asked to wear a device to measure your exposure while you work. This is for your benefit because it will show whether you need extra protection, e.g. a different type of mask/respirator
- Don't smoke. Working with asbestos plus cigarette smoking increases the risk of lung cancer. If you can't stop smoking, cut down as much as possible

- Wash your hands and face thoroughly before eating, drinking or smoking
- Don't eat, drink or smoke in the working area
- Don't take home clothing contaminated with asbestos. Wash and change before you go home.

8.1 Employers must by law do everything they reasonably can to protect their workers. The employees also have a duty to co-operate with them to do all you reasonably can to protect yourself and those around you.

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9 What About Health Checks?

9.1 If you are exposed to a level of asbestos dust higher than the appropriate **action level** laid out in the Control of Asbestos at Work Regulations, the employer must arrange to have medical examinations, which should include a chest examination, at least every two years. Your employer should keep records of your health checks.

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CONSULTATION WITH EMPLOYEES

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1 Executive Summary

There is a requirement under various legislation to consult and inform with employees about health & safety. Where a company is unionised it must allow the recognised union to represent the workforce. In other companies compliance with the legislation may be achieved by direct consultation via the use of notice boards, meetings or bulletins but it is always best practise to actively involve the workforce by appointment of safety representatives (elected by the workforce) and to hold committee meetings. The company may decide from time to time to vary the method by which it meets its obligations.

This section covers all three methods of consultation that meet the legal duties of employers.

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2 Consultation with Employees – Unionised Organisations

Specific provisions requiring employers to consult with employees on matters of health and safety are contained in four pieces of legislation, the Health and Safety at Work Act 1974, the Safety Representatives and Safety Committees Regulations 1977, the Management of Health and Safety at Work Regulations 1999, and the Health and Safety (Consultation with Employees) Regulations 1996.

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2.1 Health and Safety at Work Act 1974

2.1.1 Section 2(4) of this Act provided for Regulations to be made which allowed the appointment of safety representatives from “recognized trade union” members — for the purposes of these Regulations a “recognized trade union” is one that is accepted by the employer for “collective bargaining” negotiations. These safety representatives are required to represent their particular group of employees in consultations with employers on health and safety matters, and undertake other prescribed duties. The Safety Representatives and Safety Committees Regulations 1977 implemented this particular provision.

2.1.2 In addition, employers have a specific duty under Section 2 (6) to consult such safety representatives on the drawing up and maintaining of arrangements for the effective promotion, development and monitoring of measures to ensure the health and safety at work of employees.

2.1.3 The Safety Representatives and Safety Committees Regulations 1977, detail the appointment, functions and rights of trade union safety representatives, including their right to consult with the employer on matters relating to the Health and safety of the employees they represent.

2.1.4 An amendment to these Regulations made by the Management of Health and Safety at Work Regulations 1999, requires employers to consult with safety representatives, in good time, on matters concerning:

- The introduction of any measure that will affect the health and safety of the employees represented by the safety representative
- The persons nominated to provide health and safety assistance, and assist in emergency procedures (as required by regulations 6 and 7 of the 1992 Management Regulations).
- Any health and safety training or information the employer is required to provide to the employees the safety representatives.
- The health and safety consequences of the planning and introduction of new technologies into the workplace.

Note: the 1992 “Management Regulations” which have themselves been revoked and replaced by the 1999 Regulations originally introduced these changes.

2.1.5 As the 1977 Regulations only apply to safety representatives from recognised trade unions, many non-unionised workers did not have any rights of consultation with their employers on matters of health and safety.

2.1.6 This has now been redressed by the Health and Safety (Consultation with Employees) Regulations 1996 which require employers to consult with employees directly, or through elected “representatives of employee safety”. The roles and functions of union safety representatives are not affected by these Regulations.

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3. Consultation with Employees – Elected Safety Representatives (Health and Safety (Consultation with Employees) Regulations 1996)

These Regulations came into effect on 1 October 1996 and implement the consultation provisions of the “Framework” Directive, which extend the rights of consultation on health and safety matters to all workers, not just those represented by trade union safety representatives.

In workplaces where employees are not represented by trade union safety representatives, employers must consult with their employees in good time on health and safety matters, particularly with regard to:

- the introduction of any measure that will affect the health and safety of employees
- the arrangements for appointing/nominating persons to assist the employer in complying with relevant legislation, and to assist in emergency procedures (as required by regulations 7 and 8 of the 1999 Management Regulations)
- the provision of relevant information as required under health and safety legislation
- any planning and organisation of relevant training required to be provided to the employees under health and safety legislation
- the health and safety consequences of introducing new technologies into the employees’ workplace.

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3.1 Persons to be Consulted (Regulation 4)

3.1.1 Employers may consult with their employees through “representatives of employee safety” (hereafter referred to as “employee representatives”) elected by a group of employees to represent them in consultations on health and safety matters with the employer.

3.1.2 Where consultation is through such employee representatives the employer must inform the employees of the names of these representatives, and the group of employees they represent.

3.1.3 Employees must also be told when the employer discontinues consultation with these employee representatives. Such discontinuation may occur when:

- the employee representatives have informed the employer that they no longer intend to represent their group of employees in health and safety consultations;
- the employee representatives no longer work in the group of employees they represent;

- the period of election has elapsed without the employee representatives being re-elected, or, the employee representatives have become incapacitated from performing the duties required under these Regulations.
- Employees and their representatives must be informed by the employer if the employer decides to change from consulting with the employee representatives to consulting with the employees directly.

3.1.4 Where employers consult with employees representatives they must provide all such information, as the employees will require in order for them to participate fully in the consultations. In addition these employee representatives must also be provided with information associated with the records to be kept under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR), where the information relates to the workplace of the employees they represent.

3.1.5 The employer is not obliged to disclose information that:

- does not relate to health and safety;
- is against the interests of national security;
- would contravene any prohibition imposed under any legislation;
- relates specifically to an individual (unless that individual has given their consent);
- would damage the employer's undertaking, or the undertaking of another person where that other person supplied the information, or, that has been obtained by the employer for the purpose of any legal proceedings.

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3.2 Functions of Representatives of Employee Safety (Regulation 6)

3.2.1 Employee representatives may make representations to the employer on any hazards, (dangerous occurrences and general health and safety matters, particularly in relation to the matters on which employers are obliged to consult as defined in regulation 3 above), which may affect the health and safety of the employees they represent. They may also represent their group of employees in consultation with enforcing authority inspectors.

3.2.2. Training, Time Off and Provision of Facilities (Regulation 7)

3.2.2.1 Employers must provide employee representatives with appropriate and reasonable training and other relevant facilities so as to enable the representatives to perform their functions.

3.2.2.2 Employers must also meet all reasonable costs associated with the training, including travel and subsistence costs. In addition, the employee representatives must be given paid time off to perform their functions and to

attend relevant training courses. Paid time off must also be provided for candidates standing for election as employee representatives, in order for them to perform their functions as such candidates.

3.2.2.3 Employers must pay employee representatives their normal work remuneration, where that remuneration does not vary with the amount of work carried out, or, at an average hourly rate where the remuneration does vary with the work carried out. In the after case, if no fair estimate can be made within the workplace then an estimate from comparable external work may be used. Full details relating to paid time off are contained in Schedule 1 to the Regulations.

3.2.2.4 If employers refuse to allow employee representatives time off with pay to fulfil their duties, the representatives may make a complaint to an Industrial Tribunal. Full details in relation to Employment Tribunals are contained in Schedule 2 to the Regulations.

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3.3 Safety Committees

3.3.1 Objectives and Functions

The object of every safety committee must be to promote co-operation between the employer and the employees in instigating, developing and carrying out measures to ensure employees' health and safety at work. Safety committees should consider drawing up agreed objectives and terms of reference, with particular regard to the following:

- the study of accident disease statistics and trends, so that reports can be made to management on unsafe or unhealthy conditions and practices, along with
- recommendations for remedial action
- examination of safety audit reports on a similar basis
- analysis of information and reports provided by enforcing authority inspectors, egg HSE and local authority inspectors consideration of reports from appointed safety representatives
- the development, introduction and monitoring of works safety rules and safe systems of work
- the constant appraisal of the effectiveness of safety training
- a watch on the adequacy of safety and health communication and publicity in the workplace, and
- the provision of a link with the appropriate inspectors appointed by the enforcing authority.

Whilst management is ultimately responsible for the regular and effective checking of health and safety precautions and for ensuring that its declared

health and safety policy is being fulfilled, safety committees may, from time to time, consider it useful to carry out independent inspections of the workplace. The work of the safety committee must be seen as supplementing the arrangements introduced by management for ensuring the continued well-being of employees.

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3.3.2 Membership of Safety Committees

3.3.3.1 The membership and structure of safety committees should be a matter for agreement between management and the Company's employees. The committee should be a compact body but compatible with the need to represent the interests of all employees (including safety representatives) and management alike.

3.3.3.2 The number of management representatives should not exceed the number of employee representatives, and should include not only line managers but others such as works engineers and personnel managers. Supervisors should also be represented.

3.3.3.3 Management representation should be aimed at ensuring adequate authority to give proper consideration to views and recommendations, and must include those with the necessary knowledge and expertise to provide accurate information to the committee on Company policy, production needs and on technical matters in relation to premises, processes, plant, machinery and equipment.

3.3.3.4 The relationship between safety representatives and the safety committee should be a flexible but intimate one. Neither is responsible to, or for, the other. The aim should be to form the most effective organisation appropriate to the particular undertaking, and in particular effective co-ordination between the work of the committee and the safety representatives.

3.3.3.5 Membership of a safety committee must be regarded as part of an individual's normal work. Members should not suffer any loss of pay through attendance at meetings of the committee or at other agreed activities, such as safety inspections undertaken by, or on behalf of, the committee."

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3.4 The Conduct of Safety Committees

3.4.1 Safety committees should meet as often as necessary. The frequency of meetings will depend on the volume of business, as well as local conditions such as the size of the workplace, the numbers employed, the kind of work carried on and the degree of inherent risks. Meetings should not be cancelled or postponed. The dates of meetings should be planned well in advance, and all members of the committee should be sent a personal copy of the

programme giving the dates of the meetings. Suitable notices should be pinned to the workplace notice boards.

- 3.4.2 The minutes of the committee meetings should be kept and a copy supplied to each member and each safety representative, as well as to the senior executive responsible for health and safety. Copies should be distributed amongst members of the workforce or pinned to the notice boards.
- 3.4.3 Inspection reports made by safety representatives should be brought to the attention of the safety committee. In such cases, the committee may suggest suitable publicity.

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4 Consultation with employees – direct consultation

Where employers consult directly with employees they must provide all such information, as the employees will require, in order for them to participate fully in the consultations. This may be done by meetings, notice boards or bulletins. The company **MUST** be able to demonstrate that they involve, inform and instruct all employees on all matters to do with their safety. It is important that employees are informed at the induction stage of their responsibilities, the responsibilities of the employers and their rights. The HSE statutory poster must be displayed where it accessible by all employees.

HAZARDOUS SUBSTANCES

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1. Summary

All companies will use substances that come under COSHH, whether it be domestic cleaning products, toners for printers and copiers or more aggressive substances used in industrial processes.

The Control of Substance Hazardous to Health (COSHH) Regulations of 1988, consolidated in 1994, amended in 1996, 1997 and 1998, 1999 and further consolidated in 2002 are the main piece of legislation covering control of the risks to employees and other people arising from exposure to harmful substances generated out of or in connection with any work activity under the company's control. The main objective of the Regulations is to reduce occupational ill health by setting out a simple framework for controlling hazardous substances in the workplace

In terms of the Regulations, a **Substance Hazardous to Health** is:

- one that has already been classified as being very toxic, toxic, harmful, corrosive or irritant under the Chemicals (Hazard Information and Packaging) Regulations or CHIP (The Approved Supply List).
- or a substance which has been assigned exposure limits
- or a substance that is carcinogenic, mutagenic or toxic to reproduction
- or a biological agent,
- or dust in substantial concentrations in air and
- any substance not mentioned above but which creates a hazard to health comparable to those mentioned above.

Complying with COSHH involves:

- assessing the risks to health arising from hazardous substances at work and deciding what precautions are needed,
- preventing or adequately controlling exposure,
- ensuring that control measures are used, maintained, examined and tested,
- if necessary, monitoring exposure and carrying out health surveillance and
- ensuring that employees are properly informed, trained and supervised.

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2. Company Responsibility

The company acknowledges that no substance can be considered completely safe. All reasonable steps will be taken to ensure that all exposure of employees to substances hazardous to health is prevented or at least controlled to within statutory limits.

The company undertakes to control exposure by engineering means where reasonably practicable. Where exposure cannot be adequately controlled by engineering means, appropriate PPE will be provided free of charge after consultation with employees or their representatives.

All employees will be provided with comprehensible information and instruction on the nature and likelihood of their exposure to substances hazardous to health.

The implementation of this policy requires the total co-operation of all members of management and staff.

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3. Arrangements for securing the Health and Safety of Workers

The company will implement the following.

1. An inventory of all substances hazardous to health kept on site will be maintained, with appropriate hazard information.
2. Competent persons will be appointed to carry out risk assessments of the exposure to substances hazardous to health and advise on their control.
3. All operations that involve, or may involve, exposure to substances hazardous to health will be assessed and appropriate control measures will be taken where elimination or substitution of the hazardous substance is not possible.

4. Engineering controls will be properly maintained and monitored to ensure their continued effectiveness. This will be achieved by planned preventive maintenance and annual performance monitoring.
5. The type and use of PPE will be carefully assessed and maintained according to manufacturers' instructions. Where possible, the number of different types will be minimized to prevent mistakes with servicing or replacement.
6. Each assessment will be reviewed annually and all operations using hazardous substances will be reassessed every three years.
7. Health surveillance of employees, where indicated to be necessary by the assessment, will be carried out by qualified professionals.
8. Employee health records will be kept of all exposures to substances hazardous to health for a minimum of 40 years.
9. All employees will be provided with comprehensible information and appropriate training on the nature of the hazardous substances with which they are working and they will be informed about any monitoring and health surveillance results.
10. All changes to control measures and changes of PPE will be properly assessed and no new substances will be introduced into the workplace without prior assessment.

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4. Procedures for Dealing with Health and Safety Issues

Where an employee raises a point related to the use of substances hazardous to health the company will:

- (a) Ensure that the hazard associated with the substance has been correctly identified
- (b) Ensure that the assessment of the use of the substance is correct and up to date
- (c) Ensure that the controls in place are adequate
- (d) Correct any observed deficiencies in the control of the hazards
- (e) Inform the employee and his representative where appropriate, of the results of the investigation and actions taken.

If an identified exposure has taken place, those affected, and their managers and representatives, will be informed immediately. Possible health effects will, in addition, be communicated to the company occupational health physician, where applicable, and the employee's own general practitioner.

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5. Information and Training

The company will give sufficient information and training to ensure full understanding of the hazards to health posed by substances in the workplace and the importance of the control measures provided. Information will also be given to others who may be affected, such as contractors, temporary staff and visitors.

Managers and supervisors of areas that use substances hazardous to health will be given additional training to ensure the proper management of the risks.

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6 Control of Substances Hazardous to Health (C.O.S.H.H) 2002

These regulations apply to any substance the use of which creates a health hazard and place obligation on the company to assess and control such hazards. The only exceptions are substances subject to other existing regulations such as Lead Compounds, Asbestos, Radioactive, Flammable or Explosive substances. The key regulation is No. 6: -

“The employer shall not carry on any work which is liable to expose any employees to any substances hazardous to health unless he/she has made a suitable and sufficient assessment of the risks created by that work to the health of those employees and of the steps that need to be taken to meet the requirements of the regulations.”

There is also a requirement to prevent or control exposure to substances hazardous to health - so far as is reasonably practical by means other than by the provision of personal protective equipment. With regard to the hazard from inhalation, there is a requirement that Workplace Exposure Limits (WELs) are not exceeded. All reasonable steps must be taken to ensure that control measures, (i.e. personal protective equipment or other facility) is properly used and employees are required to make full and proper use of such equipment etc.

Health surveillance is required where it is appropriate for the protection of the health of employees exposed to substances hazardous to health.

Employees must be provided with such information, instruction and training as is suitable and sufficient for them to know the risks to health created by their exposure and the precautions that should be taken. This regulation also requires that employees or their representatives be informed of the results of any monitoring of exposure and in particular, informed forthwith if the monitoring results show that a Workplace Exposure Limit has been exceeded.

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7 Health Risk Assessment of Substances Hazardous to Health

The company will not carry on any work liable to expose employees to substances hazardous to their health, unless a suitable and sufficient assessment of the risks created by that work, and of the steps needed to comply with COSHH, has been made. The company will inform their employees of the results of the assessments.

7.1 Reviewing the assessment

A review of any COSHH assessment will be carried out regularly and certainly if its validity becomes suspect, or if significant changes in the work take place. Also the assessment will be reviewed if new evidence emerges about particular substances hazardous to health.

7.2 Recording the assessment

Except in the simplest of situations assessments will be in written form. This will enable the company to demonstrate readily that all factors have been considered; that they have adequate knowledge on which to base the control measures to achieve compliance with COSHH; and that they can show continuity of effort and achievement in dealing with health risks associated with the work.

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8. Health Risk Prevention and Control of Substances Hazardous to Health

The prevention of exposure of employees to substances hazardous to health is the company's main aim. Only where prevention is not reasonably practicable will the company turn to the provision of adequate control as a legitimate second option.

Prevention can be achieved by:

- (a) eliminating the use of the substances hazardous to health completely
- (b) replacing substances hazardous to health with non-hazardous forms.

Adequate control will be secured first by means other than personal protective equipment (PPE).

Control will be achieved, where practicable, by:

- (a) enclosure of the process
- (b) alterations to machinery to minimise exposure
- (c) reducing the possibility of cross-contamination by good housekeeping
- (d) limiting the number of employees exposed to the substances hazardous to health
- (e) prohibiting eating and drinking in potentially contaminated areas
- (f) reducing the time employees are exposed to substances hazardous to health
- (g) local exhaust ventilation (except where the exposure relates to a carcinogen or biological agent).

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9 Provision of PPE

Where such control measures are found to be inadequate by themselves, then and only then will the company resort to the provision of suitable PPE. Any item of PPE provided by the company will meet the requirements of any relevant EC Product/Design as listed in Schedule I of the Personal Protective Equipment at Work Regulations 1992.

There are some situations where the use of PPE may be necessary, such as during routine maintenance or during emergencies.

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10 Exposure standards and limits

Certain substances (listed in Schedule I of COSHH as amended) have been given workplace exposure limits (WELs). Where such limits exist, control of exposure so far as inhalation of those substances is concerned, can only be treated as adequate if the level of exposure is reduced so far as is reasonably practicable, and in any case below the listed WEL. A list of WELs can be found in the HSE's annual revised publication EH40. The omission of a chemical from EH40 does not mean it is always safe to use. For these substances exposure should be reduced to the level where nearly all the population could be exposed repeatedly, day after day, without any adverse effect on their health.

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11 Provision of respiratory protective equipment (RPE)

Where it is necessary to provide respiratory protective equipment (RPE), it will be suitable for its intended purpose and will be of a type that conforms to any UK legislation which implements relevant EC Product Directives concerning design and manufacturer.

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12 Carcinogens

Carcinogens are capable of causing cancer. Where it is not reasonably practicable to prevent exposure to carcinogens by alternative substances or processes the following steps will be taken:

- (a) total enclosure of the process or system
- (b) minimising, suppressing and containing the generation of carcinogenic spills, dusts, fumes, leaks and vapour through the use of appropriate plant, processes and work systems
- (c) minimising the quantities of carcinogens on site and the number of persons likely to be exposed
- (d) prohibiting eating, drinking and smoking in contaminated areas
- (e) providing facilities for personal washing and premises cleaning
- (f) designation of contaminated areas and installations (including suitable marking)
- (g) safe storage, handling and disposal of carcinogens (including the use of closed and clearly labelled containers).

If the failure of a control measure results in the escape of a carcinogen into the workplace, the company will ensure that only personnel necessary for the repairs are authorised to enter the affected area and that they are provided with suitable PPE. Employees and anyone else who may be affected by the escape will be informed immediately.

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13 Control Measure Use and Maintenance

The company will employ control measures, including PPE, and will take all reasonable steps to ensure they are properly used or applied.

The company will make full and proper use of control measures, including PPE, which is provided to comply with COSHH requirements, this includes taking all reasonable steps to ensure PPE is returned to any accommodation provided for it. Additionally, if employees discover any defect in what is provided they must report the defect at once to line management. How to recognise defects and understand their implication and significance is an important part of the training regime and this will be given by the company.

The company will ensure that all the control measures provided are maintained in an efficient state, in efficient working order and in good repair. Where PPE is involved this will additionally be kept clean.

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14 Local exhaust ventilation

Local exhaust ventilation controls will be thoroughly examined and tested at least once in every 14 months (in certain specified cases the interval between consecutive examination is a shorter period). The nature and content of the thorough examination and test depends upon the inherent reliability of the control measure and the consequence of any deterioration or failure. Other engineering controls will be thoroughly examined and tested at suitable intervals.

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15 RPE

Where respiratory protective equipment is provided, the company will ensure it is examined at suitable intervals and where appropriate, tested. If the RPE is disposable obviously examination and test are not required. However, if the RPE is of a respirator type it will be subject to a tough examination of at least once a month. Thorough visual examination should be made of RPE paying particular attention to the filters, valves and the straps.

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16 Record keeping

Suitable records of examinations and tests, and of the repairs found to be necessary, and thereafter carried out, will be kept available for inspection for at least five years. The records should include company details, particulars of the equipment, and condition in which used.

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17 Monitoring Exposure at the Workplace

Where employees are exposed to hazardous substances and it is necessary to ensure that adequate control of their exposure is maintained, that exposure will be monitored by a suitable procedure. Monitoring is required when failure or deterioration of control measures could result in a serious health effect and where the company cannot be sure that a workplace exposure limit (WEL) is not being exceeded.

Procedures for monitoring will be established to determine:

- (a) when it is to be done
- (b) where it is to be done
- (c) how is it to be done
- (d) what measuring and sampling methods are available and most appropriate
- (e) who will be monitored
- (f) how often the monitoring will be performed
- (g) how the results will be obtained and interpreted.
- (h) what processes will be in operation at the time of monitoring
- (i) how long monitoring will carry on for.

Where appropriate monitoring should be carried out in conjunction with HSE Guidance Notes in the EH series.

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18 Records of monitoring

In specified cases the frequency of monitoring is stipulated (Schedule 4 of COSHH Regulations sets out the specific substances and processes for which the minimum frequency of monitoring is laid down) and records of monitoring are required to be kept for at least five years. Where the record of monitoring is representative of the personal exposure of identifiable employees, the period for maintaining the records is extended to 30 years. Monitoring records should include the information derived in establishing the procedure for monitoring as above.

Monitoring records should be made available to employees and their representatives and EMAs or appointed doctors.

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19 Health surveillance

Where it is appropriate to protect the health of employees exposed to substances hazardous to health the company will ensure such employees are under suitable health surveillance including, where necessary, biological monitoring.

Health surveillance which includes medical surveillance (see below under Employment medical advisors) can include such things as regular skin inspections, enquiries about any signs and symptoms or other tests. It should only be carried out by EMAs, occupational health nurses or other responsible or competent persons.

Biological monitoring is where employees exposed to substances hazardous to health have their metabolites, e.g. blood or urine assessed and measured for uptake of these substances hazardous to health.

For the substances and processes specified in Schedule 5 of the Regulations, health surveillance is appropriate unless the exposure is not significant. Apart from the cases schedule, surveillance may also be appropriate where exposure to hazardous substances is such that an identifiable disease or adverse health effect may be linked to the exposure. There must be a reasonable likelihood that the disease or effect may occur under the particular conditions of work prevailing and that valid techniques exist to detect such conditions and effects.

Health surveillance can be beneficial to employees by protecting their health, detecting adverse changes and helping in identifying the effectiveness of control measure.

Where health surveillance has to be carried out suitable accommodation and equipment will be provided.

19.1 Health surveillance records

Records of surveillance in respect of each employee will be kept by the company for at least 30 years after the last date of entry. This requirement still applies where companies cease to trade, in which case the records must be offered to the HSE.

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20 Employment medical advisors (EMAs)

In specified cases (detailed in Schedule 5) health surveillance has to include medical surveillance under the supervision of an employment medical advisor (EMA) or appointed doctor at 12 month intervals (or at shorter intervals as they may themselves prescribe). The EMA or appointed doctors may suspend, absolutely or conditionally, those employees who, in their opinion should not continue to be exposed to the hazardous substances concerned. Medical surveillance may also be required by the EMA or doctor to be continued after the employment has ceased.

The company will also allow their employees access to health records, bear the costs of any health or medical surveillance programmes, and allow employees to attend during normal working hours. Employees for their part must make themselves available for health and medical surveillance procedures and furnish the EMA or doctor with information concerning their health which may be reasonably required. The EMA or doctor may require the company to permit them to inspect their workplaces and/or any records associated with the health surveillance.

Conditions imposed by employment medical advisors (EMAs) or doctors and their decision on suspension may be the subject of reviews by a procedure approved by the Health and Safety Commission (HSC). To invoke the provider, employees must make written application to the HSE within 28 days if being notified of the EMA or doctor's decision. The results of the review must be notified to both employee and employer and entered in the health record.

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21 Information, Instruction and Training for Employees

COSHH contains two requirements on information provision to:

- (a) employees
- (b) others who may be affected, eg the emergency services.

Employees exposed to substances hazardous to their health will be provided with such information instruction and training as is suitable and sufficient for them to know the health risks associated with their exposure to the substances with which they work.

The company will use, if required, competent persons to conduct this training, in any event the following training objectives should be met to:

- (a) understand the fundamental principles of COSHH and the arrangements in force to enable a company compliance
- (b) understand the potential toxic effects of the substances hazardous to health in use
- (c) know why the likely routes of entry into the body of substances hazardous to health
- (d) understand the results of assessments, monitoring and health surveillance
- (e) understand the risks of exposure to substances hazardous to health
- (f) understand the principles of the control measure provided so far as is reasonably practicable provide and how to use them.

- (g) understand the reasons behind the requirement to report faults/breakdowns in control measures and to report such faults promptly
- (h) know and use the appropriate spillage and emergency procedures
- (i) know and be familiar with sources of information on the toxicology, control limits and safe use of substances hazardous to health.

Included in the information provided for employees will be the results of monitoring and the collective, but not individual, results of any health surveillance undertaken.

Where monitoring results indicate exposure limits have been exceeded, employees or their representatives, will be told at once. All persons carrying out any work in connection with COSHH (assessment, monitoring, health surveillance, training, examining control equipment, etc) will have had the necessary information, instruction and training. This applies whether the persons concerned are employees or otherwise.

Key points of information to be addressed in training are detailed in the ACOP to COSHH and may be summarised as follows:

- results of assessments
- risks to health created by exposure
- precautions
- results of air monitoring
- results of health surveillance where carried out
- information on control measures
- information on PPE
- information on emergency procedures
- background information
- any previous incidents.

The above points will also satisfy the legal requirements to provide information, for example, to emergency services or contractors.

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22 Persons not employed but affected by substances hazardous to health

Where duties are placed on the company to protect their employees, they are, so far as is reasonably practicable, under a similar duty in respect of persons they do not employ (whether they are at work or not) who may be affected by their handling of hazardous substances at the workplace — there is no duty on the company to provide health surveillance for non-employees, and the provisions relating to monitoring, exposure, information and training only apply to non-employees where they are on the premises carrying out the work.

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23 Employees

Employees will need to understand:

- (a) the general requirements of COSHH
- (b) the general nature of substances hazardous to health and their biological effects

- (c) the importance of the principal routes of entry into the body (inhalation and skin absorption)
- (d) the principles of COSHH assessment, air monitoring and health surveillance
- (e) the use and importance of control measures, including PPE
- (f) the details of the hazardous substances they are using to which they may be exposed
- (g) how to deal with spillages and emergencies
- (h) the correct, safe methods of waste disposal.

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24 Managers and supervisors

In addition to the above, managers and supervisors must understand:

- (a) the need to ensure that assessments are regularly reviewed and operations re-assessed at least every five years
- (b) the requirement to ensure workplace changes and new knowledge on the risks to health of substances are addressed and assessments reviewed as necessary
- (c) the requirement to ensure that control measures are maintained, continue to be adequate and are used
- (d) how to deal with concerns regarding the use of what the employee may regard as hazardous substances, both biological and chemical
- (e) that standards are likely to become more strict and the need to be prepared to challenge accepted practice and be aware of the principles of the management of change.

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25 Record keeping

Records of training will be maintained in order to demonstrate legal compliance, ensure that training is up-to-date and appropriate, and to assist in the defence of any civil claim alleging negligence. They should include the following:

- (a) name of the trainee
- (b) date and duration of the training
- (c) course details and results
- (d) the hazardous substances to which the employee may be exposed
- (e) name and position of trainer
- (f) review date.

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DISPLAY SCREEN EQUIPMENT

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1 Summary

The term "display screen equipment" (DSE) is used to refer to any alphanumeric or graphic display screen, and when referring to DSE it is customary to consider the related components making up the workstation as a whole.

Since the introduction of to the office environment, and the subsequent proliferation in the use of DSE in almost all working environments, the related health and safety aspects have been the subject of much conjecture. Initial concerns were centred around the belief that there might be some risk from radiation, particularly to the

unborn child of a pregnant worker, however there has been no scientific evidence provided to support this theory.

Since the mid-1980s, conditions thought to be caused by intensive keyboard use, and other related musculo-skeletal problems have become more prevalent. The condition "repetitive strain injury (RSI)" or, now more accurately referred to as "work-related upper limb disorders (WRULDs)", has occurred in ever-increasing numbers within the workplace.

The possible effects of long periods of DSE use upon eyes and eyesight has also raised questions from the user population. It is now acknowledged that whilst the use of such equipment will not cause a visual defect, it may exacerbate an existing condition or highlight a previously unidentified one.

With such a dramatic increase in the use of DSE, and the advent of specific legislation (Health and Safety (Display Screen Equipment) Regulations 1992), employers have begun to recognise the importance of providing suitable furniture and equipment, and of designing the job to obviate the need for prolonged periods of intensive DSE use.

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2 LEGISLATION

The Health and Safety (Display Screen Equipment) Regulations 1992 (DSE Regulations) were introduced under the provisions of the Health and Safety at Work Act 1974 (HSW Act), to enable the UK to implement the requirements of European Directive 90/270/EEC.

The Regulations lay down minimum health and safety requirements for work with display screen equipment. The Schedule to the Regulations specifies the technical requirements that have to be achieved.

Definition of Terms

"Display Screen Equipment" means any alphanumeric or graphic display screen, regardless of the display process involved. The law therefore does not only apply to conventional visual display units (VDUs), but also to non-electronic systems such as microfiche viewers and production process control panels.

The Regulations do not apply in the case of:

- DSE in driver's cabs or control cabs for vehicles or machinery
- DSE on board a means of transport
- systems intended mainly for public use
- portable systems not in prolonged use
- small data display panels on calculators, cash registers, medical and scientific equipment, etc
- display panels on "window typewriters".

Where the DSE Regulations refer to a “user” this means an employee who habitually uses DSE as a significant part of normal work. An “operator” means a self—employed person similarly occupied.

It is for the employer to determine which of the employees fall within the definition of a “user”. Guidance to the Regulations states that where use is more or less continuous on most days, the worker will be deemed a “user”. A person should also be classified as a “user” if most or all of the following criteria apply:

- the job cannot be done effectively or at all without DSE
- the worker has no discretion over whether to use DSE
- the job requires significant training or particular skills
- the worker uses DSE for periods of an hour or more at a time, more or less on a daily basis
- the task depends upon the fast transfer of information between the worker and screen
- attention and concentration demands are high, such as where there may be critical consequences of an error.

Workers who are almost certain to be classified as “users” include: those employed as VDU operators and who spend all their time keying information, secretaries who copy-type onto a word processor or transcribe from a dictation machine for two or three hours a day, data input operators, tele-sales staff and others who continually use DSE whilst taking calls, news sub-editors, journalists working to deadlines, graphic designers including those engaged in page make-up. This list is not exhaustive.

Definitely not included as “users” are: senior executives who use DSE for occasional periods such as for producing performance statistics at the end of the month, receptionists who only use DSE for limited purposes, for example to look up a name or telephone number.

“Workstation” means an assembly comprising:

- DSE, with or without an input device (keyboard, mouse, etc)
- optional accessories to the DSE
- peripheral items at the workplace, such as a disk drive, telephone, printer, desk lamp or document holder
- work surface, chair and other furniture
- the environment in the immediate vicinity.

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2.1 REQUIREMENTS FOR WORKSTATIONS

The Schedule (Note: Compliance with BS EN 29241 will normally be sufficient to demonstrate compliance with the Schedule).

Employers must comply with the Schedule to the extent that the requirements relate to a component that is present at the workstation. For example, a requirement for an adjustable document holder does not mean that all workstations must be supplied with such equipment. However, where one has been supplied it must meet the criteria listed in the Schedule.

Employers must also comply with the Schedule only to the extent that meeting the requirement will make a contribution to the health, safety and welfare of the worker.

Where it can be clearly demonstrated that there is no benefit to be gained, replacement of equipment solely to meet a requirement of the Schedule will not be necessary. Some workers may require specially adapted furniture or equipment, for example those with disabilities; it is always the individual requirement that must take priority.

Finally, employers comply with the Schedule if the characteristics of the task make compliance appropriate. If the demands of the task mean that the effectiveness or safety of the work may be adversely affected, the Schedule need not be applied. For example, in the case of a bank of display screens used for security surveillance it may not be appropriate for them all to be capable of being tilted at different angles.

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2.2 The Screen

The Schedule states that:

- the display screen must have well-defined characters of adequate size and adequate spacing the image must be stable and flicker-free (to 90% of users)
- the brightness and the contrast between the characters and the background must be easily adjustable, and must also be adjustable to suit ambient conditions
- the screen must swivel and tilt freely to suit the needs of the “user” or “operator”
- it must be possible to use a separate base for the screen, or there must be some other method to achieve an appropriate screen height
- the screen must be free of reflections and glare that may cause discomfort to “users” or “operators”.

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2.3 The Keyboard

The Schedule states that:

- the keyboard must be separate from the screen and must be tilt able, to enable a comfortable position to be found during use
- there must be enough space between the front of the keyboard and the edge of the work surface to provide hand/arm support (50mm)
- the surface must be matt to avoid reflective glare
- the arrangement of the keyboard and the function of the keys must facilitate its use
- key symbols must be adequately contrasted and visible during normal use.

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2.4 The Work Surface

The Schedule states that:

- the work surface must be of low-reflectance, large enough for the task and to accommodate a flexible arrangement of all necessary equipment and material upon it
- the document holder must be stable and adjustable so as to minimize the need for awkward head/eye movements
- the space must be sufficient to allow a comfortable working position to be achieved.

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2.5 The Chair

The Schedule states that:

- the chair must be stable anti allow easy freedom of movement and a comfortable position
- the seat must be adjustable in height
- the back rest must be adjustable in height and angle of tilt
- a footrest must be made available to a “user” or “operator” who wishes for one.

Note: Whilst good ergonomic practice is for adjustments to be independent of each other, the Schedule does not require this. Therefore, where a tilt able backrest is fixed to the seat and can only be raised/lowered at the same time as the seat, it will comply. A risk assessment may, however; indicate a requirement for independent adjustability.

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ENVIRONMENT

2.6 Space

The Schedule states that there must be sufficient space for workers to change position and to vary movements.

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2.7 Lighting

The Schedule states that:

- room lighting or task lighting (desk lamps, etc) must ensure satisfactory conditions and appropriate contrast, taking into account the type of work and the needs of the worker (lighting level at the work surface should lie between 300 and 500 lux for a combination of screen work and non-screen tasks)
- glare and reflections on the screen or other equipment that may cause disturbance must be prevented; prevention must be achieved by co-ordinating the layout of the workstation with that of the lighting.

Note: Regulation 8(2) of the Workplace (Health, Safety and Welfare) Regulations 1992

Requires lighting, so far as is reasonably practicable, to be by natural light.

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2.8 Reflections and Glare

The Schedule states that:

- workstations must be designed to prevent glare or reflections on the screen from windows, brightly coloured walls, etc
- windows must be fitted with adjustable coverings to control daylight falling upon the workstation (window blinds).

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2.9 Noise

The Schedule states that:

- noise emitted by workstation equipment must be considered when the workstation is being equipped. In particular, noise should not distract attention or disturb speech.

Note: This requirement would not apply, for example, to noise from an alarm bell on a display panel that is deliberately intended to distract attention.

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2.10 Heat

The Schedule states that workstation equipment must not produce excess heat liable to cause discomfort.

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2.11 Radiation

The Schedule states that radiation (other than visible light) must be reduced to negligible levels from the point of view of health and safety.

Note: The HSE advise that it is unnecessary and highly complicated to even attempt to measure radiation from DSE, amid that employers generally do not need to take any action to comply with this part of the Schedule.

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2.12 Humidity

The Schedule states that an adequate level of humidity must be maintained (40%-60% RH).

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2.13 Interface between DSE and “User” or “Operator”

The Schedule states that the employer must check that:

- software must be suitable for the task
- software must be easy to use and where appropriate adaptable to the abilities of the worker
- the software must not measure worker’s speed or accuracy of work without their knowledge
- the system must provide feedback on its own performance to those using or operating it
- information must be displayed in a format and at a pace that is suitable for users or operators
- the principles of software ergonomics should be applied, particularly to human data processing.

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3 EMPLOYERS’ DUTIES

3.1 Analysis (Regulation 2)

The employer must perform a suitable and sufficient analysis of the workstations of “users” or “operators” (regulation 2), regardless of who has provided those workstations and where they are used. Use of DSE at home for the purposes of work falls within the scope of the Regulations. This remains the case regardless of ownership of the relevant equipment.

An assessment must be reviewed where there is reason to believe that it is no longer valid, or where there has been a significant change in the matters to which it relates.

Any risks identified by the assessment must be reduced to the lowest extent reasonably practicable.

Where use of a workstation does not fall within the DSE Regulations, the safety of those engaged in such activities are covered by other general duties of the employer. For example, there will be a requirement for a risk assessment under regulation 3 of the **Management of Health and Safety at Work Regulations 1999** (MHSW Regulations).

The principal risks associated with DSE work relate to musculoskeletal problems, visual fatigue and mental stress. The DSE Regulations are the first to specifically require the employer to consider the stress of work activities.

Risks to non-employees, for example agency “temps” and freelance staff, must also be assessed and controlled¹. Assessment of workstations used at home is best carried out, in the first instance, by the “user” completing a suitable checklist.

Records of each assessment should be kept in writing or some other retrievable form, except where:

- the assessment is quickly and easily repeatable
- the assessment finds no significant risk
- the workstation is temporary.

Participation of the “user” or “operator” is essential to a successful workstation assessment, and ~ best be achieved by means of completing a checklist. Involvement of the individual worker is important because some of the required criteria are subjective, for example in ascertaining the comfort of a chair. The “user” should have suitable information and training to enable constructive participation.

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3.2 Work Routine

The employer must plan the daily work routine of DSE “users” in such a way as to incorporate periodic interruption by breaks or changes of activity (regulation 4). The effect must be to reduce total DSE work rather than to concentrate the same amount of work over a shorter total period.

Short, frequent breaks are more satisfactory than longer infrequent ones. Wherever possible, breaks or changes of activity should be taken at the discretion of the “user”. In some circumstances it may be necessary for the employer to enforce the taking of breaks.

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3.3 Eyesight

Employees are entitled, but are not obliged to undergo, an appropriate eye and eyesight test (regulation 5):

- if they are a “user” of DSE, or
- upon a change of job or workload that brings them into the definition of a user.

Note: The results of an eye and eyesight test can only be disclosed to the employer with the consent of the employee (Access to Medical Reports Act 1988).

Repeat testing must be available at regular intervals, normally in line with the recommendations of the practitioner that carried out the previous test.

Repeat testing must also be available where the employee has reason to believe that they have visual difficulties that have arisen from the use of DSE.

An appropriate eye and eyesight test is defined within **the Opticians Act 1989**. Where facilities exist an employee may forego the entitlement to a full test, and opt for a less comprehensive test, such as may be carried out in-house on a vision screening instrument by an occupational health nurse. Where this screening indicates a vision defect, the employer is obliged to provide a full eye and eyesight test upon request.

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3.4 Provision of glasses

Where special corrective appliances (normally spectacles) are prescribed specifically for work with DSE, it is the “user’s” employer that must provide these regardless of the premises at which the workstation is used. Glasses required for any other purpose are not the employer’s responsibility.

The employer is not expected to supply tinted lenses or so-called “VDU glasses” that purport to protect from radiation.

Some people who normally wear glasses may also require special corrective lenses specifically for work with DSE.

The employer has to pay only the basic cost of suitable lenses and frames. Employees who wish to upgrade to designer frames will have to fund the excess cost themselves.

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3.5 Training

Employers must provide adequate health and safety training in the use of workstation equipment (regulation 6). Where a person has USE equipment but does not fall within the definition of a “user”, the general duty to give instruction and training, etc under s.2 of HSW Act applies. Training under regulation 6 should be directed toward reducing the risks of musculoskeletal problems, visual difficulties and mental stress. The “user” needs to understand:

- the importance of comfortable posture and postural change
- how and why to adjust furniture and equipment

- sensible layout and positioning of workstation equipment
- requirements for screen cleaning and other maintenance
- the importance of breaks and/or changes of activity
- the need to report problems promptly, and the procedures for this.

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4 Employees' duties

The MHSW Regulations require each employee to properly use any equipment, system of work or other measure provided by the employer in accordance with the instruction and advice that has been given. This general duty extends to the proper use of DSE. A similar, but more general, requirement also exists under s.7 of the HSW Act.

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5 Information

“Users” and “operators” must be informed about all aspects of health and safety relating to their workstation (regulation 7), the risks identified and what the employer proposes by way of remedy. “Users” must be advised of their entitlement to eye and eyesight tests, and glasses where appropriate.

There is a general duty under the MHSW Regulations to provide information on risks to health and safety to all employees, employees of another employer who may be on the first employer’s site, and to the self-employed.

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6 TRAINING OBJECTIVES

1. To enable the employee to function with a minimum of risk to health and safety, with particular regard to risks of muscular-skeletal discomfort, visual fatigue and mental stress.
2. To enable the employee to fully understand the policy of the organization, including the arrangements for reporting problems or obtaining eye and eyesight tests, the opportunities for rest breaks and the duties of employer and employee under legislation.
3. To ensure that the manager has enough information and understanding to enable:
 - employees and others to work safely, efficiently and effectively
 - full compliance with statutory duties and with common law
 - compliance with the company's own health and safety policy and internal procedures
 - a prompt and accurate response to problems
 - recognition of the extent of his or her own competence.

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6.1 Legal Requirements

Employers must provide adequate health and safety training in the use of workstation equipment before a person becomes a user (as defined) of display screen equipment, and whenever the organisation of a workstation is substantially modified (regulation 6 of the Health and Safety (Display Screen Equipment) Regulations 1992).

Where a person has display screen equipment but does not fall within the definition of a user, there is a general duty to give instruction and training, etc under s.2 of the Health and Safety at Work Act 1974 together with the duty to ensure adequate health and safety training under regulation 13 of the Management of Health and Safety at Work Regulations 1999.

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6.2 Scope of Training

6.2.1 Employees

Training should be directed towards reducing the risks of muscular-skeletal problems, visual difficulties and mental stress. Users of display screen equipment will need to understand:

- the importance of achieving a comfortable posture and the need for regular postural change
- how and why to adjust workstation furniture and equipment
- the benefits of arranging a suitable layout and positioning of workstation equipment
- the requirements for regular screen cleaning and other forms of maintenance
- the importance of breaking up periods of intensive screen work by changes of activity
- the functions and purpose of any computer software that they are required to utilize
- the need to report health problems or equipment defects promptly and the procedures for doing this.

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6.2.2 Managers and Supervisors

In addition to the above, managers must understand:

- how to identify risk by carrying out workstation assessments and the importance of informed input from the employee (and the employee safety representative where relevant)

- how to prioritize any remedial actions found to be necessary as a result of a risk assessment
- the benefits to the individual and the organisation of effective job design
- the possible consequences to the health of an individual arising from the inappropriate use of furniture or workstation equipment
- the reasons for the reluctance of some employees to report symptoms (whether or not these are work related) and how to recognize those symptoms
- the importance of a prompt and effective response to issues raised
- their obligations under common law towards the employee and the potential for civil claims and subsequent compensation payments
- how and when to seek additional assistance, for example in the use of medical advice or professional ergonomics support
- how to respond to concerns about health hazards alleged to be caused by work with display screen equipment, e.g. in the case of a pregnant worker who may wrongly believe that there is a serious risk to the unborn child from radiation.

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6.3 Record Keeping

The purpose of keeping records of training in the use of display screen equipment is to:

- demonstrate that the law has been complied with
- enable management to ensure that training is up to date and is relevant to the particular workstation equipment used by the employee
- assist the insurers in the defence of any subsequent civil claim alleging negligence.

Records should be kept of the following.

- Name of employee.
- Date(s) and duration of training.
- Course details and results.
- Name of trainer.
- Review date.

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6.4 Methods of Training

Management training should consist of a briefing on the law, company policy, organizational arrangements and the corporate philosophy. Unless there is considerable internal expertise, management training may require attendance at an external seminar on the health and safety aspects of display screen equipment use.

Where there are a number of managers who require such training it may be more effective for this to be conducted in-house.

Training employees in the use of display screen equipment is best achieved by classroom instruction, followed where necessary by more specific advice at the workstation. A typical employee-training programme may contain:

- a basic introduction to the law
- an explanation of the duties of the employer and the employee
- how and why the employee should adopt a comfortable position
- a videotape to demonstrate how to achieve comfort
- details of the range of adjustments possible with the furniture and equipment supplied
- the importance of breaking up periods of intensive screen work
- recognizing and reporting problems
- the organizational arrangements for eye and eyesight testing.

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6.5 Validation

Training should be validated using the following techniques.

Observation of Working Practices

- Has the employee adopted a sensible arrangement of equipment upon the work surface?
- Has the chair been adjusted to an appropriate height for the user?
- Is the employee sitting in a suitable posture?
- Is the employee taking the opportunities for breaks from screen work and changes of activity?
- Is defective equipment or furniture promptly identified and reported for repair or replacement?
- Are display screens regularly cleaned?
- Are employees and/or their representatives giving useful and sensible feedback about the working environment and the task?

Monitoring of Complaints of Ill Health and Sickness Absence Statistics

- Have there been fewer complaints of eye fatigue?
- Have there been fewer complaints of headaches?
- Are there fewer instances of muscular-skeletal discomfort?
- Has there been a reduction in ill health absence?

The initial effects of training may be to *increase* complaints of ill health. However, this increase is merely indicative of a greater awareness and should not be taken to imply an upsurge in total instances of discomfort.

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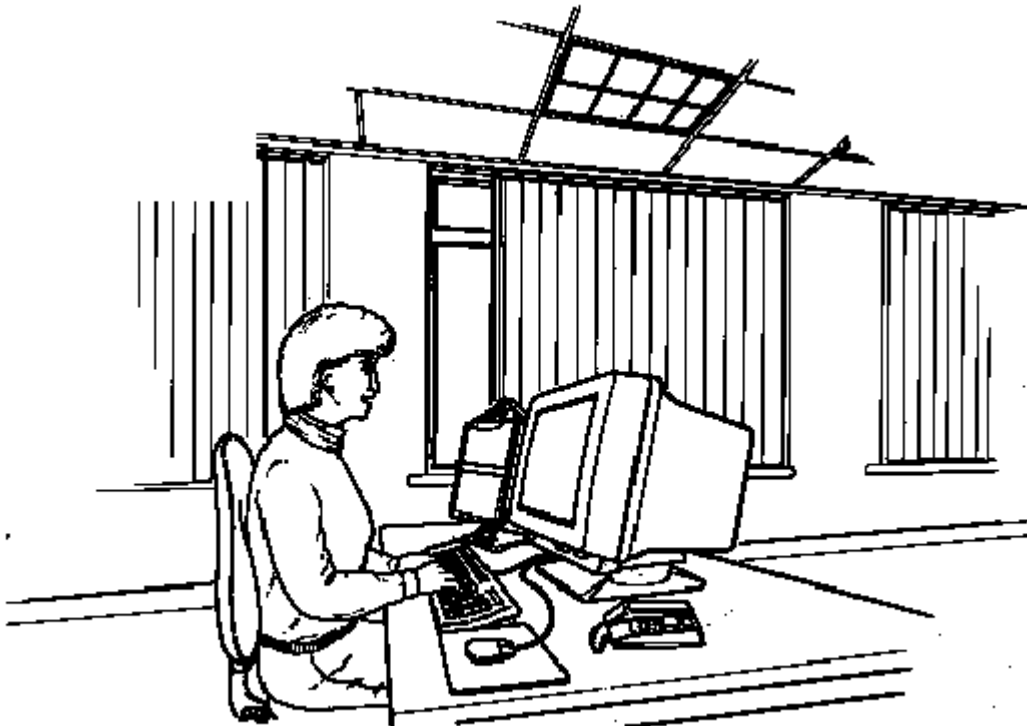
6.6 Additional Training

The employer must provide additional training:

- whenever there is a significant or substantial alteration to the organisation of the workstation
- upon the introduction of different or additional equipment, including software
- when the task is significantly modified
- where there is reason to question the effectiveness of the original training
- where there is a change in the law or in official guidance
- where necessary as a result of the findings of scientific research or of technological advances.

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7 GUIDANCE FOR EMPLOYEES WORKING WITH VDU'S



The Health and Safety (Display Screen Equipment) Regulations 1992

The Health and Safety (Display Screen Equipment) Regulations 1992 came into effect from January 1993 to implement an EC Directive. They require employers to minimize the risks in VDU work by ensuring that workplaces and jobs are well designed.

The Regulations apply where staff habitually use VDUs as a significant part of their normal work. Other people, who use VDUs only occasionally, are not covered by these Regulations.

VDUs have been blamed - often wrongly - for a wide range of health problems. In fact, only a small proportion of VDU users actually suffer ill health as a result of their work. Where problems do occur, they are generally caused by the way in which VDUs are being used, rather than the VDUs themselves. So problems can be avoided by good workplace and job design, and by the way you use your VDU and workstation.

Some users may get aches and pains in their hands, wrists, arms, neck, shoulders or back, especially after long periods of uninterrupted VDU work. Repetitive strain injury (RSI) has become a popular term for these aches, pains and disorders, but can be misleading - it means different things to different people. A better medical name for this whole group of conditions is upper limb disorders. Usually these disorders do not last, but in a few cases they may become persistent or even disabling.

Problems of this kind may have a physical cause, but may also be more likely if a VDU user feels stressed by the work. If you get aches or pains you should alert your supervisor or line manager.

Problems can often be avoided by good workplace design, so that you can work comfortably, and by good working practices. Prevention is easiest if action is taken early, before the problem has become serious.

People who use a VDU sometimes complain of stress, but this usually arises from increased pace of work or pressure to meet deadlines, not the VDU itself. Some VDU workers find stress reduced because the VDU makes their job easier or more interesting, but for others stress becomes worse. This can happen when a system does not work well or when the user does not feel in control or competent to operate it. If this is the case you should alert your supervisor or line manager who will make arrangements for the right training to be provided.

Extensive research has found no evidence that VDUs can cause disease or permanent damage to eyes. But long spells of VDU work can lead to tired eyes and discomfort. Also, by giving your eyes more demanding tasks, it might make you aware of an eyesight problem you had not noticed before. You and the company can help your eyes by ensuring your VDU is well positioned and properly adjusted, and that the workplace lighting is suitable.

The heat generated by VDUs can make the air seem drier, and some contact lens wearers find this uncomfortable. If you have this problem but don't want to change to spectacles, you can try blinking more often or using tear-substitute drops.

People with bifocal spectacles may find them less than ideal for VDU work. It is important to be able to see the screen easily without having to raise or lower your head. If you can't work comfortably with bifocals, you may need a different type of spectacles. Consult your optician or doctor if in doubt.

Headaches may result from several things that occur with VDU work, such as:

- screen glare
- poor image quality
- a need for different spectacles
- stress from the pace of work
- anxiety about new technology
- reading the screen for long periods without a break;
- poor posture; or a combination of these.

Many of these things can easily be put right once the cause of the problem has been found.

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There is no legal limit, but you need to break up long spells of VDU work. How long you should work without a break depends on the type of work you are doing.

Intensive use of a mouse, trackball, or similar pointing device may give rise to aches and pains in the fingers, hands, wrists, arms or shoulders. This can also happen with a keyboard, but mouse work concentrates activity on one hand and arm (and one or two fingers), and this may make problems more likely. Adopting a good posture and technique can reduce risks.

Make adjustments to suit your needs

Make full use of the equipment provided, and adjust it to get the best from it and to avoid potential health problems.

Getting comfortable

- Adjust your chair and VDU to find the most comfortable position for your work. As a broad guide, your forearms should be approximately horizontal and your eyes the same height as the top of the VDU.
- Make sure you have enough workspace to take whatever documents or other equipment you need.
- Try different arrangements of keyboard, screen, mouse and documents to find the best arrangement for you. A document holder may help you avoid awkward neck and eye movements.
- Arrange your desk and VDU to avoid glare, or bright reflections on the screen. This will be easiest if neither you nor the screen is directly facing windows or bright lights. Adjust curtains or blinds to prevent unwanted light.
- Make sure there is space under your desk to move your legs freely. Move any obstacles such as boxes or equipment.
- Avoid excess pressure from the edge of your seat on the backs of your legs and knees. A footrest may be helpful, particularly for smaller users.



Keying in

- Adjust your keyboard to get a good keying position. A space in front of the keyboard is sometimes helpful for resting the hands and wrists when not keying.
- Try to keep your wrists straight when keying. Keep a soft touch on the keys and don't overstretch your fingers. Good keyboard technique is important.

Using a mouse

- Position the mouse within easy reach, so it can be used with the wrist straight. Sit upright and close to the desk, so you don't have to work with your mouse arm stretched. Move the keyboard out of the way if it is not being used.
- Support your forearm on the desk, and don't grip the mouse too tightly.
- Rest your fingers lightly on the buttons and do not press them hard.

Reading the screen

- Adjust the brightness and contrast controls on the screen to suit lighting conditions in the room.
- Make sure the screen surface is clean.
- In setting up software, choose options giving text that is large enough to read easily on your screen, when you are sitting in a normal, comfortable working position. Select colours that are easy on the eye (avoid red text on a blue background, or vice-versa).
- Individual characters on the screen should be sharply focused and should not flicker or move. If they do, the VDU may need servicing or adjustment.

Posture and breaks

- Don't sit in the same position for long periods. Make sure you change your posture as often as practicable. Some movement is desirable, but avoid repeated stretching to reach things you need (if this happens a lot, rearrange your workstation).
- Most jobs provide opportunities to take a break from the screen, e.g. to do filing or photocopying. Make use of them. If there are no such natural breaks in your job, the company will plan for you to have rest breaks. Frequent short breaks are better than fewer long ones.

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Electricity

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Electricity

1 Summary

When misdirected or misused, electrical energy can severely burn, injure or kill individuals. Currently about 1000 accidents each year are caused by electricity and about 25% of those accidents involve portable electrical appliances. Whilst only about 3% of all industrial accidents are electrical, nearly 7% of all industrial fatalities are caused by electricity; this suggests that an electrical accident is approximately 20 times more likely to prove fatal than most other types of accident.

Under the Health and Safety at Work, etc Act 1974 (HSW Act), the employer has a duty to ensure, so far as is reasonably practicable, the health, safety and welfare of all employees. This is a wide duty which includes the provision, and thereafter maintenance, of safe plant and equipment, much of which will be electrical in nature. Electrical safety at work is dealt with by the Electricity at Work Regulations 1989 (EAWR).

The Memorandum of Guidance published by the Health and Safety Executive (HSE), provides positive information on means of complying with the Regulations. The Memorandum superseded a previous long standing document which gave guidance on the original and now revoked 1908 and 1944 Regulations.

The EAWR applies to all work situations and came into effect on 1 April 1990.

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2 Record Keeping

With electrical fixed plant, the company will keep an inventory of equipment to be tested and a repair history.

Records of all portable/transportable equipment test results will be kept in a form which will allow their inspection and reproduction when required.

The users of the portable appliances will require certain information to allow the dutyholders to fulfil their statutory responsibilities. The test person should fix a label to equipment that has been successfully tested giving the following information:

- (a) the date tested
- (b) the identity of the test person
- (c) the date of the next test.

A label colour of white lettering on a green background would visually indicate a "safe condition".

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3. Policy and Procedures

3.1 The company accepts that it has obligations:

- To assess work activities involving electricity in terms of direct and any associated risks.
- To ensure that electrical equipment is properly constructed, installed and maintained.
- To ensure that installations are suitable for the environment in which they are used.
- To provide suitable PPE and maintain in good condition.
- To ensure that work activities, including maintenance, are carried out safely, and that persons carrying out electrical work are competent for the tasks which are assigned to them.
- Having made satisfactory arrangements for compliance, ensure there are adequate records.

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4 Equipment Safety

- 4.1 110V portable electrical equipment should be used in hazardous environments such as out of doors or internally in dirty conditions. An assessment of risk will be carried out as appropriate
- 4.2 If portable equipment is in use continuously, it will receive accelerated wear and tear. Inspection and testing schedules will be designed with this in mind.
- 4.3 This high usage means there is a greater chance of damage resulting in electrical danger hence 110 V may be appropriate to decrease the overall level of assessed risk.
- 4.4 When tools are being used in normal as opposed to adverse environments and for short, infrequent periods, there is no need specifically for the use of 110v equipment.
- 4.5 Inspections and testing as appropriate will be organised and equipment properly maintained.
- 4.6 Any 240V equipment as a matter of good practice will use a portable RCD as additional protection unless the supply circuit was similarly equipped.
- 4.7 RCD's must be tested before each use to "prove" the unit.

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5 Check List

- The flex should be checked to ensure that it is in good condition. You are looking to see that the outer sheath has not been damaged in any way by cuts, burns or abrasions and that it is not fraying. You should also check that, where the flex is positioned normally, this will not result

in damage, for example by being trapped between or under furniture, or be damaged by people walking on it or tripping over it. The flex should be checked for any improperly made joints, for example using insulating tape instead of a proper connector.

- The plug should be checked to ensure that it is in good condition and the cable is secure. You are looking for any broken parts in the plug casing or scorch marks, and that the cable is securely gripped by the outer sheath.
- The socket outlet into which the plug normally goes needs to be checked to see if there are any signs of overheating and that it is in good condition. You are looking for scorch (brown) marks, cracks or damage and that the socket is firmly fixed. It is important to remember *not* to touch the socket if it is loose or if it is sufficiently broken such that the live parts can be touched.
- The equipment itself should then be checked to ensure that it is in good condition and works properly. You are looking for the correct operation of the mains switch, ie. does it switch on and off correctly, any serious cracks or damage to the casing so that any of the live parts could be touched, that the casing has not been seriously damaged by heat or chemicals so as to seriously weaken it, and that any indicator lamps fitted to it work and indicate correctly.
- The environment in which the equipment is to be used should be checked to see if it is suitable for the design of the equipment. For example normal, office-type electrical equipment is not suitable for use in damp, corrosive atmospheres or in areas where there are extremes of temperature, such as cold stores.

Finally, you should satisfy yourself that the equipment is being used for the purpose it was originally intended. If you are unsure, then you should seek guidance from your supervisor, manager or safety advisor.

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5.1 Definition

Any appliance that is held by hand or handled when switched on is considered to be a portable appliance

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6 Fundamentals of Electricity

For reasons of economy, electricity is transmitted by the UK National Grid at high voltage. Some heavy power large industrial machinery may run at high voltage but most industrial, commercial and domestic equipment operates on a 240/415 V system (230/400 V in Northern Ireland). Technically this is defined as low voltage (LV), but there should be no misunderstanding with regard to safety: 240 V is a

potentially lethal voltage. Local electricity transmission is usually low voltage and under the control of a regional electricity company (REC). Some major industrial complexes purchase supplies at high voltage from an REC or have private high voltage generation facilities for on-site distribution.

Electrical power is measured in watts (W) or kilowatts (kW) and is a product of the supply voltage (V) and current (I).

$W \text{ (watts)} = \text{Voltage (voltage)} \times \text{Current (amps)}$

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6.1 Terminology

To avoid confusion, correct electrical terminology is essential. The three supply conductors are phase, neutral and earth. In the past, the word "live" was used for the phase conductor and this term is still used, for example, on plug terminals.

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6.2 The Mechanism of Electric Shock

Two life-supporting functions of the body can be affected and in some cases disabled by electricity, namely the circulatory and the respiratory systems.

The respiratory control signal is passed from the brain to the diaphragm. The diaphragm comprises a large flat muscle situated immediately below the base of the lung and this muscle initiates the breathing cycle.

The mechanisms which control the body's circulatory and respiratory functions are electro-chemical systems, situated in the upper torso. The most dangerous path for an electrical current to take is through the body's upper trunk. This could be as a result of an electric shock resulting from hand to hand contact.

The severity of an electric shock will depend on the magnitude and duration of the current which flows and, in certain disadvantageous conditions, a shock received between one hand and earth may be equally dangerous. Much will depend upon the electrical resistance of the body. Most of the human body's resistance to the flow of electric current is provided by the skin. The actual value of this resistance is dependent on the skin's thickness, its moisture content and the applied voltage. All of these are personal, climatic and environmental variables. The resistance figures quoted below represent average values and are given to emphasise the uncertain degree of low voltage hazards.

At mains voltage (240 V) the body's resistance allows a current of 240 milli-Amperes (mA) to flow. This level of current would prove fatal if the contact occurred for longer than a few milliseconds. At 90 V (the voltage likely to be present on, for example the faulty metal case of a piece of portable electrical equipment, with a phase to earth short circuit and before fuse failure), the body may carry a potentially fatal current of 45mA.

It is generally accepted that a potential below 50 V ac extra low voltage (ELV) is unlikely to prove fatal. The body may only pass a current in the region of 12.5 mA

and no permanent harm will be done. The experience may still prove painful and cause a consequential non-electrical injury. In some circumstances related to age, health and environmental conditions even ELV may be fatal to humans. A farm or domestic animal can be killed by ELV as low as 25 V.

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6.3 Effects of Electric Current

The human threshold of perception of a 50 Hertz electric current (UK mains frequency) is approximately 1.5 mA; below this level it is unlikely that any sensation of current flow will be felt. As the prospective current level increases, contraction of the muscles occurs resulting in the person gripping the points of contact and being "held-on". A further small increase in current will cause the respiratory muscles and heart muscles to be affected. At 50 mA ventricular fibrillation may occur (ie the heart "flutters" rapidly and no longer serves as a pump). This can result in death. A current of 100 mA is likely to prove fatal.

Relatively small amounts of current flowing through the body will cause serious damage. This current is related to the applied voltage, the current path through the body and the resistance of this path is also time related. The fundamental aim of electric shock prevention measures is to ensure that the human body is subjected to the minimum voltage and current for the shortest period of time.

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7 Control of Overcurrent

There are two definable types of overcurrent: overload and fault current.

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7.1 Overload

This occurs in a healthy circuit where equipment has been mechanically overloaded or an excessive number of appliances have been added to a system. The consequences of overload usually involve overheating and, if uncontrolled, fire.

Overload protection relies upon the detection of excess current and disconnection when predetermined time limits have been exceeded. Two detection methods are employed:

- (a) thermal: using wire fuses
- (b) magnetic: using circuit breakers.

The two methods may be combined for certain conditions. It will be appreciated that the current level for overload disconnection will always be in excess of the normal working load. This will usually be measured in terms of amps and inevitably will be greater than human electric shock tolerance which is measured in thousandths of an amp (mA).

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7.2 Fault current

This occurs when a faulty electrical component causes excess current to flow between conductors or from one or more conductors to earth. The consequences may generate sufficient heat to cause fire and in this case the overload protection will usually take effect. Under some conditions only a small fault current is produced but this may be sufficient to apply a live potential to exposed metalwork or some other conductive part. A typical incident would be where cable insulation is damaged and a small value of current "leaks" to earth.

In the case of fault current to earth, disconnection should occur when a hazardous voltage arises between exposed conductive parts and earth. The detection level will be small (typically 30 mA). This safety function can be performed by a residual current device (RCD). The operation of an RCD is based on a current-balance principle.

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7.3 Supplementary Shock Protection

No electro-mechanical device can be 100% reliable. An RCD relies upon moving parts and speed of contact separation. For this reason a sensitive RCD may only be used to provide supplementary personal shock protection. The primary protection against contact with live parts must be by way of insulation and appropriate mechanical protection. Supplementary shock protection may then be added with an RCD which will disconnect 30 mA in 200 mS (milli-seconds) — equivalent to 0.2 seconds — and 150 mA in 40 mS (0.04 seconds).

Higher rated may be used to give protection against fire or large earth faults in circumstances where there is an inherent earth leakage associated with equipment. Over sensitive operation is not desirable. In some cases rapid, low fault current disconnection may be inconvenient or even introduce consequential dangers.

A residual current device may be combined with a circuit breaker overcurrent mechanism in which case the combined unit is termed a residual current circuit breaker (RCCB).

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8 Earthing Principles

Earthing provides an electrical distribution system with basic safety characteristics.

When a fault current arises from phase-to-earth or phase-to-neutral, a low resistance "fault loop impedance" will cause sufficient overcurrent to flow, to melt a fuse or trip a circuit breaker (ie disconnect the supply).

Note: For the purposes of this explanation the term "impedance" is synonymous with "electrical resistance".

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8.1 Bonding

All conductors, including earth, have electrical resistance. Consequently, when current is flowing there will be voltage drop causing a difference of potential along the conductor. This is the simple Ohms Law condition: Voltage drop in conductor = Current (amps) x Resistance (ohms)

To reduce any possible shock or fire hazard to a minimum, regulations require that an equipotential zone should be established within a building. This is achieved by main and supplementary bonding of the supply neutral/earth to all extraneous "earthy" metalwork. Main bonding is applied to incoming water and gas services as well as structural steel. .

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9 Switching and Isolation

A switch is an item of switchgear which is able to mechanically disconnect the electrical supply from a part of an installation or an appliance. Some switchgear is designed to operate only on normal load current, other devices will be able to break fault current.

There are four possible reasons for switching and these may be combined in one or more devices.

1. Functional switch. This is the user-convenient device for normal operation of a light, an appliance or a motor.
2. Emergency switch. This may be required on some equipment where a hazardous condition might be anticipated, eg machinery or a domestic cooker. It will not be required if there is no conceivable hazard such as with lighting or a domestic refrigerator.
3. Isolator. This device will disconnect all electrical supplies to an installation or appliance in order that a competent person may carry out electrical work. Security in the OFF position is important. This may be achieved either by a lock-off facility or with local isolation under the direct supervision of the operative. The internal design of an isolator must be such that contact separation is ensured.
4. Mechanical maintenance. This switch may be used by a non-electrical person to ensure safety whilst carrying out cleaning, mechanical adjustments or lamp changing. This also requires provision for security to ensure that the supply is not restored inadvertently.

Although all circuits must have isolation facilities, not every situation requires all of the above functions and, in most cases, some or all of the functions can be combined. In all cases there must be no possibility of confusion as to the function of switchgear. Where the function is not obvious, appropriate labelling arrangements are laid down in regulations.

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10 Electrical Installations in Buildings

The usual distribution system in industrial and commercial buildings will be three phase 240/415 V. This supply is potentially lethal and can cause fires. The

dutyholder has an obligation to ensure that new work and maintenance is carried out by competent electrical personnel.

Permanent records of all electrical activity should be retained for future reference.

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10.1 Temporary installations

Particular concern should be given to temporary installations. No relaxation of safety rules or protection is permissible. Temporary installations must be designed to at least the same standard as permanent installations and must be inspected and tested more frequently (ie every three months).

Strict control must be enforced to resist any temptation to carry out an installation that is unprotected physically or electrically.

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11 Employment of Competent Electrical Staff

It is a legal requirement that all electrical work should be carried out by competent persons. If in-house technical staff are employed it is essential that they do not undertake tasks beyond their competence and are adequately trained. Such training must cover current regulatory requirements, new techniques, safety and first aid topics.

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12 Live working

Live working and removal of enclosure covers should be strictly forbidden except on very rare occasions when isolation cannot be achieved. Inconvenience or expense is no justification for taking risks with life or property.

Unavoidable live working should only be undertaken after a permit to work procedure has been completed. It is advisable that one of the authorising signatories should be from senior management who should be fully aware of their legal responsibilities.

Special tools, rubber mats and gloves will be needed for live work. These should be kept fully maintained for such occasions and certified according to the relevant quality standard. It is considered essential for an operative working live under a permit to work system to be accompanied by another person who understands the activity and is competent to handle an emergency. This includes removal of a victim from further danger and first aid treatment.

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13 Employment of contractors

There are three acceptable registration bodies for electrical contractors in the UK. They only recognise competent contractors and do not consider "moonlighting" or inadequately trained electrical operatives. At the very least, the latter may not have appropriate insurance cover.

The National Inspection Council for Electrical Installation Contracting (NICEIC) is an independent, consumer protection body which maintains a roll of some 10,000 approved contractors. Both large and small contracting companies with a competent "qualifying manager" are enrolled and there is a team of NICEIC Inspecting Engineers which monitors contractors' work.

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13.1 Contract Management

Any contract or invitation to tender offered to an electrical contractor should specify the following details:

1. Contractors may use only competent and fully trained staff operating under appropriate supervision. The correct safe plant and tools must be available for use as required on site.
2. Contractors' staff should operate in accordance with the client's site health and safety standards and all appropriate safety legislation.
3. All work must comply with the current edition of the IEE Wiring Regulations, relevant British and International Standards and all statutory safety regulations, HSE guidance, etc.
4. A full specification must be prepared before work commences on the proposed installation. This should indicate that the new work has been designed in accordance with correct procedures, good practice and regulations.
5. All electrical work must be fully documented and tested with correct commissioning procedures. An installation manual should be prepared for the client. This will contain "as-fitted" data of equipment specifications, the location and operational functions of switchgear and the routes of all cables.
6. The contractor should delegate by name the person responsible for safety matters, who must be the most senior or supervising contractor.

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13.2 Supervising the contract

The person ordering work from an electrical contractor will need to be assured that work is progressing safely in accordance with the specification. The following is a list of items which may be observed to check compliance:

1. Is the work progressing in a structured, workman-like manner?
2. Are good design details being used or does the work appear to be constructed on an ad hoc unplanned basis?
3. Is there a copy of the current IEE Wiring Regulations on site and does the work comply?
4. Does all of the equipment and method of installation appear to suit the environment? Consider, for example, moisture, dust or explosive atmospheres.
5. Is there adequate physical protection for vulnerable equipment and cables?
6. Are suitable arrangements being made for future access to switchgear and other equipment?
7. Is all switchgear labelled before the system is switched on?

8. Does the contractor have a procedure for testing and certifying parts of installations before they are commissioned?
9. Are there any unsafe temporary arrangements?
10. Does the contractor have working tools and plant on site? Are ladders in good condition and are all portable tools reduced low voltage with BS 4343 (yellow) plugs and couplers?

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13.3 Inspection and testing

An installation should be tested by the installer to ensure that the required safety parameters have been complied with upon completion of the work. A copy of the test results should be contained within completion documentation given to the occupier.

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14 Electrical Safety Training

The Electricity at Work Regulations 1989 (EWAR) apply to all areas where work is done on or near electricity, and regulation 3 nominates each person at work as a duty holder with regard to those matters within his or her control. It follows that not all persons working near electricity may be specifically trained in methods of avoiding electrical danger if their primary vocational skill is non-electrical.

Under s.2 of the HSW Act, you are required to provide adequate training where this is necessary to prevent danger.

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15 Periodic Inspection and Testing

You are required to ensure that electrical equipment in buildings is kept in a safe condition. IEE Guidance Note No. 3: Inspection and Testing recommends procedures for periodic inspection and testing. Suitable intervals between inspections are listed. In some instances these are recommendations for good practice and in other situations they are statutory requirements associated with licensing of public buildings.

Some typical examples are as follows.

Type of Premises/System	Inspection Interval
Commercial	5 years
Industrial	3 years
Petrol Filling Stations	1 year
Emergency Lighting	3 years
Fire Alarm Systems	1 year
Hotels, leisure complexes, restaurants and theatres	1 year

In the case of licensing considerations, local conditions may vary.

The subject of frequency of inspections is always a matter for discussion with the designer, the installer, the occupier, the fire officer and the insurer.

Additional periodic inspection and testing should be considered:

- on a change of ownership or tenancy
- on a change of use of premises
- after alterations to the original installation
- because of significant changes to the electrical loading
- where there is reason to believe that damage may have been caused to the installation.

A recommended date for the next inspection should be given by the installer or designer and shown both in the Maintenance Manual and on a suitable notice displayed at the mains intake position. Full details of this notice are contained in IEE Guidance Note No. 3: Inspection and Testing.

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15.1 Routine Safety Testing

Once the plant is installed, it may be regarded as part of the "fixed system". The frequency of routine safety testing may be determined in accordance with the requirements of the current edition of the IEE Wiring Regulations and IEE Guidance Note No. 3: Inspection and Testing. Person(s) conducting tests on electrical systems must have an adequate understanding of the system to be worked on, and practical experience of that class of work.

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15.2 Maintenance

When working with three phase supplies, safe systems of work must be established before any work begins. The first choice of safe system to be employed must only allow work on a system after it has been isolated. Any form of live working must be justified under strict criteria.

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15.2.1 Equipment made dead

It is essential that all equipment should be made dead before any electrical work commences. Isolators must be secured in the OFF position by padlocking or similar means. Temporary notices are not good enough as the sole safety measure but may be used in addition to locking devices.

A full test procedure should be employed by the competent person to ensure that the system is safe. Test equipment should be tested on a live circuit both before and after proving a dead circuit.

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15.2.2 Live working

It cannot be emphasised too strongly that live working should be a rare and avoidable practice. The correct permit to work system must be employed and full

justification given. Inconvenience and/or expense are not sufficient reason for putting lives at risk.

If no alternative is possible and live working can be fully justified, adequate safe systems of work must be employed and prior planning is essential. It will therefore be necessary to consider:

- (a) the competence of the worker
- (b) the procedures to be employed
- (c) the equipment to be used
- (d) the conditions at the workplace
- (e) the safety measures to be employed.

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15.2.3 Record Keeping

Records should be kept of all electrical plant with details of safety testing, modifications and repairs in order to demonstrate that all reasonable steps were taken and all due diligence was exercised to prevent an offence being committed.

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16 Portable Equipment

16.1 Purchase and use

Many electrical accidents occur with the use of hand-held portable appliances. In industry such equipment tends to be abused to the extent that leads are damaged and patched up with, for example, insulating tape. Such repairs are hazardous and should be prohibited. Any lead which requires a repair is a potential shock or fire hazard.

Many accidents arise with badly fitted 13 A plugs. Plugs should only be fitted by personnel who have received some basic instruction in this simple exercise.

There is a range of shock protection methods applied to portable appliances.

1. Earthing (Class 1). All exposed conductive parts of the appliance are connected via a circuit protective conductor to the system earth.
2. All insulated (Class 2). There is no exposed metalwork on the appliance.
3. Double insulation (Class 2). Exposed metalwork is isolated by functional and protective insulation.

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16.2 Rechargeable battery operated tools

In addition to safety, these have the advantage that no supply connection is required and leads are avoided. These tools require regular maintenance to ensure good battery connections. Batteries should be handled with care and not carried with terminals unprotected in pockets or tool boxes.

Reduced low voltage systems are most appropriate for most industrial applications but the risk of cable damage must always be taken into account. Transformers are

required either to supply individual tools or for fixed circuitry. Plugs and sockets must be to BS 4343, colour coded yellow.

Supplementary protection may be given to the user with the use of 30 mA RCD protection. The IEE Wiring Regulations specify that any socket outlet which may reasonably be expected to supply portable equipment outdoors should have supplementary RCD protection. This applies to all types of equipment.

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16.3 Extension leads

The use of long extension leads should be avoided in any situation since an excessively long mains cord may increase the earth fault loop impedance (EFLI) at the tool, to such an extent that an earth fault will not rupture the fuse quickly enough to prevent danger to the user. If extension leads are purchased, the style of lead fitted to a drum or coiled in some other way should be avoided since they must be completely unwound to be safe to use at their marked current carrying capacity, and this requirement is difficult to monitor and enforce.

If extension leads must be used and particularly if they are to be used under adverse environmental conditions, only connectors protected to the standard IP 55 or better should be used. Such components are usually manufactured to BS 4343 (IEC 309): Industrial plugs and sockets.

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16.4 Routine Safety Testing

The Regulations requires portable equipment to be tested on a "regular" basis. The regulations offer no explanation of the term "regular". An on-site judgement must be made to take into account the conditions of service and type of equipment.

Two levels of regular inspection are suggested.

1. A frequent visual check by the user of the equipment. The intended user requires some basic instruction to know what to look for.
2. A full inspection with all appropriate electrical tests. The following is a suggestion from the HSE for the frequency of inspections, but these must be adjusted to suit the conditions of use.

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Type of business	User checks	Formal visual inspection	Combined inspection and test
Construction (see Electrical safety on construction sites for more detail)	110 V – Weekly 230 V mains – Daily/every shift	110 V – Monthly 230 V – weekly	110 V – Before first use on site then 3 monthly 230 V mains – Before first use on site then monthly
Light industrial	Yes	Before initial use, then 6 monthly	6 months to 1 year
Heavy industrial/high risk of equipment damage	Daily	Weekly	6 months to 1 year
Office information technology eg desktop computers, photocopiers, fax machines	No	1 to 2 years	None if double-insulated, otherwise up to 5 years
Double insulated equipment not hand-held, e.g. fans, table lamps	No	2 to 3 years	No
Hand-held double insulated (Class II) equipment, e.g. some floor cleaners, kitchen equipment and irons	Yes	6 months to 1 year	No
Earthed (Class I) equipment, e.g. electric kettles, some floor cleaners	Yes	6 months to 1 year	1 to 2 years

Type of business	User checks	Formal visual inspection	Combined inspection and test
Equipment used by the public, e.g. in hotels	By member of staff	3 months	1 year
Cables and plugs, extension leads	Yes	1 year	2 years

Further guidance can be found in EEA recommendations for periodic safety checks for business equipment (available from the EEA).

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16.4.1 Test parameters

The regular simple visual check should consist of the following:

- visual check for signs of damage to the equipment and its supply cord
- check lead and plug and cord-grip at both ends
- check any extension leads.

If any faults are found the equipment should be withdrawn from service for repairs followed by a full test.

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16.4.2 The physical inspection

The most important and relevant test is the visual inspection since approximately 80% of equipment defects are found at this important first stage. A detailed physical inspection by a competent and conscientious person will make a significant contribution to hazard elimination.

Typical hazards may include:

- incorrectly wired plugs
- loose plug top connections
- wrong value fuses or fuses replaced with a metal foil or bar
- plug cord grips not gripping the cord outer sheath
- damaged flexible cord
- unsafe cable joints
- damaged case mounted components (eg fuseholders, voltage selectors, neon indicators, etc).

All physical defects must be corrected at this stage, before any electrical tests are attempted. Unless a cable is damaged near to its end when it may be shortened, all

flexible cords which show any sign of damage should be replaced since cable repairs and joints are unlikely to meet the stringent safety standards required.

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16.4.3 Competence to test

There are no nationally recognised formal qualifications in electrical safety testing. The Regulations require, however, that all persons who undertake work involving electricity are competent to prevent danger arising from that work. Those being considered for competence in testing portable equipment should have practical experience or adequate knowledge of:

- (a) the principles of electricity together with a sound appreciation of the source and nature of electrical hazards
- (b) the precautions required to avoid danger
- (c) whether it is safe for testing to continue following an abnormal result
- (d) the relevant safety standards
- (e) the hazards which may arise because of the testing location
- (f) the operating principles of the test equipment and the unit under test
- (g) appliance testing and the use of test equipment
- (h) the interpretation of test results
- (i) the correct frequency of testing.

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17 RCD testing

Every fixed RCD is fitted with a test button which should be operated periodically and this check may be done by the user. Pressing the test button will cause an imbalance to occur between live and neutral currents which in turn should operate the RCD. The magnitude of this imbalance is preset at the rated sensitivity of the device.

Two important points should be noted with regard to this check:

- (a) no indication of the tripping time is obtained and the check is not therefore a verification that the device is within its design standard (BS 4293).
- (b) the internal test circuit is not connected to earth and the test will not therefore verify that an earth exists at that point in the circuit.

The operation of the test button serves two important functions.

1. It will provide a confidence check that the RCD will operate.
2. Its actual operation will minimise the chance of the device sticking.

Most RCDs are electromechanical devices and if not operated for relatively long periods, the mechanical parts may stiffen sufficiently to cause the operating time to be lengthened by a few milliseconds when first activated. Periodic operation of the mechanical parts should produce clean operating surfaces and ensure consistent results.

It is suggested that all RCDs are checked at least at quarterly intervals with the test button. Portable RCDs are particularly vulnerable to maltreatment and damage. The test button on these devices should be operated regularly to ensure that the mechanism is working.

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It is important to instruct users of equipment supplied through an RCD protected socket that if the RCD trips, the assumption must be that the appliance is faulty. The appliance should be withdrawn and given a full test.

It is dangerous to "check" the appliance by plugging into an unprotected socket.

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EMERGENCY EVACUATION PROCEDURE

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1 Summary

The Regulatory Reform (Fire Precautions Act) requires all controllers of premises to carry out a Fire Risk Assessment for their premises. As a part of this assessment it is a requirement to produce a procedure for emergency evacuations and carry out training. The company has an Emergency Plan which is explained to all employees on induction and available throughout the premises. The procedure for raising the alarm, evacuation and assembly are described within that plan and on Fire Action notices. Fire Marshals have been nominated.

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2. Procedure

- 2.1 The objective of the Emergency Evacuation Procedures is to ensure that in the event of an emergency situation arising, whether from fire, explosion or other hazard, on the alarm being raised all persons within the area, with the exception of certain nominated persons, will evacuate to specified to assembly areas. The assembly areas are nominated on Fire Action notices.
- 2.2 The nominated persons will go to the Control Point for the evacuation area where the senior person present will take charge. (Emergency Services liaison duties)
- 2.3 On arriving at the evacuation areas personnel will assemble in work groups where supervisors will carry out a roll call with a view to accounting for all persons under their supervision.
- 2.4 The supervisors will then report to the senior person the result of the roll call, giving details of any person not accounted for and the last known location of those persons.
- 2.5 The senior person will pass this information to the Emergency Services Officer in Charge.
- 2.6 It is essential that personnel are accounted for as soon as possible as this is the priority objective of the Fire Service before tackling the fire.

- 2.7 The supervisors will remain at the area Control Point until advised otherwise. They may be detailed for tasks as required by the senior person. This may include organising dispersal of those evacuated to safer areas where necessary.
- 2.8 It is the responsibility of those entertaining visitors to ensure that they are evacuated to the appropriate assembly area. This fact must be reported to the supervisor taking the roll call.
- 2.9 Where company personnel are visiting an area when an evacuation of that area takes place, they should at once return to their normal place of employment and inform their immediate supervisor that an emergency evacuation has taken place in the area they have been visiting.
- 2.10 To achieve a swift and positive accounting procedure each department must compile lists of their personnel working within that area, broken down into small groups for each of which a supervisor is responsible. This list must be issued to, or be available to, the supervisor for use where necessary when taking a roll call after evacuation.
- 2.11 Employees registered as disabled will have a nominated evacuation escort who is responsible for ensuring safe exit from the building
- 2.12 Details of employees on-site will be obtained from the method in use for recording personnel's presence.

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3 Visitors

Visitors to the Company will be requested to sign the Visitors Book in Reception on arrival. This will detail the host who is responsible for escort from the building. In the unlikely event of an evacuation being necessary, the duty Receptionist will consult the Visitors Book to ascertain which visitors are still on the premises.

Visitors to the company become the responsibility of their host who will ensure the visitor's safety at all times including accompanying them to the assembly point and accounting for them to the senior person

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4. Method Of Raising The Alarm

4.1 There is no automatic fire detection (AFD) within the building therefore the method used to raise an alarm will be "verbal" or by a person or persons shouting "Fire, Fire, Fire" in such a manner so that it will be heard by all remaining occupants of the working premises.

4.1 There is automatic fire detection (AFD) installed which may raise the alarm, or persons may use the nearest call point or raise the alarm verbally shouting

“Fire, Fire, Fire” in such a manner so that it will be heard by all remaining occupants of the working premises.

- 4.1 There is a fire alarm system installed and persons should use the nearest call point or raise the alarm verbally shouting “Fire, Fire, Fire” in such a manner so that it will be heard by all remaining occupants of the working premises.

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5 **Emergency Drills**

5.1 An emergency drill involving a complete evacuation of the premises/site will be carried out at least once a year.

5.2 Records of drills will be maintained. The following details will be recorded:

- Date
- Time taken for complete evacuation
- Number of participants (including number of visitors and number of registered disabled)
- Signage appropriate/insufficient

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FIRE

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1 Summary

The Regulatory Reform (Fire Precautions) Regulations 2005 require all employers to carry out a risk assessment of fire hazards in their workplaces and to provide relevant information to specified persons. They also require employers to meet basic fire precautions including the provision of satisfactory emergency routes and exits, means of fighting and detecting fire, and appropriate maintenance of the workplace and any relevant equipment/devices.

The following points have been considered by the company in relation to fire safety:

- fire detection and warning systems, including inspection, testing, servicing and maintenance
- staff training, information and instruction
- fire safety signs, etc.

The company understands that fire safety is also implicit in the general duties under s.2 and 3 of the Health and Safety at Work, etc Act 1974 (HSW Act) which requires employers to ensure the health and safety of employees and non-employees, so far as is reasonably practicable.

The company has considered three essential components:

- Fire prevention, i.e. the actual prevention of any outbreak of fire
- Fire protection, i.e. the design and installation of measures that will reduce the danger to the building, its occupants and contents if fire does occur — which is achieved by detecting, extinguishing or containing the fire and facilitating escape by occupants
- Contingency planning, i.e. planning for action at the time of fire and for recovery afterwards.

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2 Fire Safety

The precise nature of the fire safety required in any workplace depends on factors such as the layout, the building construction, the nature of the work, and the number of occupants.

The basic elements of fire safety are:

- (a) understanding the common causes of fire and how fire and smoke spread through a building
- (b) a means of detecting fire and raising the alarm
- (c) a means of fighting fire
- (d) adequate means of escape, including emergency lighting, and the provision of suitable information and training.

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3 Common Causes of Fire

Most fires result from a small number of specific causes including arson, cigarettes and matches and faulty/misused electrical equipment and appliances. All of these fire hazards and any other significant factors should be identified and addressed by the fire safety risk assessment.

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3.1 Arson

This is the most common cause of workplace fires and its control is based on effective premises security and housekeeping standards within the workplace. Security measures may include ensuring the premises, i.e. the grounds and any buildings, are secure from intruders, setting up security patrols, installing security alarms and lighting, and increased awareness and vigilance by staff. Factors which

may influence the likelihood of arson attacks include the nature of the business, the vulnerability of the target, the relationship between employers and employees, customers, etc and geographical location.

Good housekeeping practices may include regular rubbish collections so that combustible materials do not accumulate, and providing robust, lidded containers for any rubbish awaiting collection.

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3.2 Electrical equipment

Fires of electrical origin can be divided into three groups:

- the fixed, permanent electrical installation in the building
- temporary wiring and leads to portable electrical appliances
- electrical appliances.

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3.2.1 Installation and Inspection

A modern electrical installation, installed and maintained in accordance with good practice, should present a minimal risk unless it is abused, inadequately modified or mechanically damaged. It is therefore important that all installation work, including the design of any new installation or modifications to an existing installation, complies with the relevant edition of the Institution of Electrical Engineers Regulations for Electrical Installations (currently the 16th edition), which are more commonly known as the "IEE Wiring Regulations" or British Standard BS 7671: 1992 Requirements for electrical installations — IEE wiring regulations. Inspection of the electrical installation will be carried out at a periodicity to be determined by assessment that will consider the condition of the building and its usage. The period will generally be between 3 and 5 yearly as recommended by NICEIC and IEE.

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3.2.2 Appliances

Leads to portable appliances are more exposed to damage than fixed wiring, particularly in industrial locations, and should be checked frequently. The use of trailing leads and multiple adaptors should be avoided as far as possible as long leads have greater exposure to damage, and multi-way adaptors increase the potential for overload, and also for bad connections that may lead to overheating. The company has a procedure for testing portable appliances at a periodicity decided by assessment and following the guidelines set down by HSE/IEE.

In addition, all electrical appliances must be suitable for their intended tasks and regularly tested and inspected — all electrical systems and equipment will be part of a planned preventative maintenance programme. Many types of electrical equipment produce heat when operating normally and must be kept well clear of readily combustible materials — even electric light bulbs can cause a fire if paper, etc is placed too close.

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3.2.3 Personal Electrical Equipment

Employees should not be permitted to bring their own electrical appliances, eg heaters, and radios, onto the premises. If the use of personal electrical appliances is permitted, they should first be checked for safety and compliance with relevant standards, and should be subject to the same maintenance programme as other electrical appliances in the workplace. All equipment should be switched off, and preferably unplugged, at the end of the working day unless its continued operation is essential. This applies even if the equipment itself is considered to be of low risk.

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3.3 Staff Training

Staff training and awareness in identifying fire risks associated with electrical equipment and the consequences of its mis-use are also important controls. In addition, all electrical design, installation and maintenance work will be carried out by competent, qualified persons. The National Inspection Council for Electrical Installation Contracting (NICEIC) publish a roll of approved contractors though the company is aware that other organisations are competent to accredit their members.

Fires involving electricity may be started by any of the following:

- overloading, e.g. overloaded multiple adaptors
- short circuits
- leakage of current to earth
- loose connections
- arcs and sparks
- overheating, e.g. from coiled extension leads which are not fully unwound prior to use.

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3.4 Electrical Safety

Electrical safety devices which reduce the risk of fire include:

- fuses or miniature circuit breakers to protect against the overcurrents arising from overload or short circuit
- de-rating of cables, i.e. reduction of the maximum permissible current that the cable may carry, where protection against overcurrents is provided by semi-enclosed (rewirable) fuses, since these devices are slower to operate than cartridge fuses or miniature circuit breakers and where the cables are surrounded by thermal insulation
- residual current devices (RCD) which protect against small earth leakage currents by isolating the supply automatically — these may be of value to protect the electrical installation in localised areas, such as workshops or laboratories, but are not generally suitable for the entire installation throughout workplaces such as factories, owing to the "nuisance tripping" that might occur because of the electrical equipment that is used.

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3.5 Smoking materials and matches

Smoking is prohibited in any areas where discarded smokers' materials are likely to act as a source of ignition, where a fire could develop unnoticed, and where even a small fire could result in a significant loss. Examples are:

- areas in which flammable liquids or gases, or combustible dusts may be present
- areas in which large amounts of combustible storage, waste, or packing materials are present
- warehouses, storage areas and loading bays
- plant rooms
- infrequently visited areas
- computer rooms and rooms housing sensitive electronic equipment.

Rules that prohibit smoking will be effectively enforced.

Prominent "No smoking" signs are located in all areas in which smoking is prohibited and at the entry points to such areas.

The locations of no smoking areas is clearly outlined, both in writing and orally (as part of fire safety training). The provision of designated smoking rooms may reduce the risk of surreptitious smoking in infrequently used areas, where there is a smoking ban in work areas.

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3.6 Heaters

Fixed heating installations are safer than portable heaters, which should be avoided if at all possible. Electrical installations supplying electric heaters should comply with the IEE Wiring Regulations and be installed by competent persons. Gas appliances, if installed, shall be installed in accordance with the Gas Safety (Installation and Use) Regulations 1984, which do not apply to factories but may be used as general guidance for installations in factories. The appliances will be installed by a contractor registered with the Confederation for the Registration of Gas Installers (CORGI).

Sensible use of heating appliances could do much to prevent fires. A clear space should be kept around all sources of heat, so that combustible materials cannot be ignited and there is free circulation of air for cooling purposes. Adequate guards may be required to ensure this.

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3.7 Cooking operations

Cooking operations are forbidden on the premises.

Sensible use of cooking appliances minimises fire hazards. Appliances should never be left unsupervised and staff should be properly trained both in the use of the appliances and in emergency action in the event of fire. The kitchen should be kept clean and build up of grease deposits should not be permitted. A clear space should be kept around each appliance, particularly between deep fat fryers and other

appliances. There should be facilities to shut off power, fuel and extract in an emergency; this facility should be clearly labelled and be sited so as to be accessible in the event of fire.

All appliances should be regularly inspected and maintained. Grease filters, extract ductwork and grease traps should, in particular, be subject to regular cleaning. Construction around ductwork should be non-combustible. Deep fat fryers should be regarded as a particular hazard, although many new units are now thermostatically controlled so that the heat is automatically turned off before the fat reaches ignition temperature — there should also be a high temperature cut-out in case the thermostat fails. Deep fat fryers should have lids which can be easily closed in the event of a fire. Grease traps should be fitted to any low level ductwork. The risk of fire is high enough to merit consideration of a fixed manual or automatic fire extinguishing system for any deep fat fryers.

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3.8 Contractors

Contractors' operations are a well-known cause of fire. The range of hazards that contractors may, indirectly or directly, introduce to a building include:

- flammable liquids and gases, such as adhesives, paints, thinners, timber preservatives
- flammable gases, such as acetylene and liquefied petroleum gases
- hot work, such as cutting, welding and use of blow lamps
- temporary electrical and lighting installations
- combustible materials, sometimes finely divided, eg sawdust and wood shavings and packaging
- careless disposal of smokers' materials by the workforce
- exposure to arson due to breaches in physical security
- burning of waste and waste removal
- temporary heating appliances
- temporary buildings, partitions and screens of combustible construction
- tar boilers.

Fire safety requirements will form an integral part of the contract between a client and a contractor. Ideally, contractors should produce their own standard fire precautions for use in all contracts. Contract conditions should cover all the specific matters listed above.

In situations where the contract work is in a workplace which is already occupied there should be clear demarcation as to fire responsibilities between the client and contractor, and both parties should consider, and if necessary act on, any provisions in the other party's respective fire policies and risk assessments.

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4 Fire Spread and Compartmentation

Fire spread occurs in one or more of three ways, ie convection (movement of hot air currents), conduction (direct transfer of heat between close surfaces), and radiation (emission of electromagnetic waves). In practice, a combination of all three ways will probably occur.

Smoke usually moves ahead of a fire, and as it is lighter than air it will rise upwards in any given area or space. Compartmentation of a building, ie the division of a building into separate units by means of fire doors, etc is important in controlling the spread of fire and/or smoke, and in providing a safe exit route away from the danger.

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4.1 Protection of escape routes

An escape route, such as a corridor or staircase, is protected if it is enclosed (other than in the case of an external wall of the building) by fire-resisting construction. A protected staircase is regarded as a place of relative safety in which there are no limits on the distance that needs to be travelled to reach safety.

Fire-resisting structures, ie walls, floors, ceilings or doors, are structures that can resist attack by fire for a specified time — the fire resistance is usually expressed in minutes.

For protection of means of escape, a fire resistance of 30 minutes is normally specified, however, longer periods of fire resistance may be required for high risk areas, and may be required by building regulations to minimise fire spread as opposed to protecting escape routes.

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4.2 Fire-resisting glazing

Any glazing in the enclosure of a protected route, other than glazing in an external wall, should also be fire-resisting. The most common fire-resisting glasses, eg Georgian wired glass, resist the passage of flame but cannot provide insulation — insulation can be provided with some of the more expensive fire-resistant glasses. There are restrictions on the use of non-insulating fire-resisting glass in protected routes or on the height below which glass may be used.

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5 Fire Detection and Warning Systems

All workplaces are required to have an appropriate means of detecting and giving warning of fire, usually via a fire alarm system.

There are many different types of fire alarm systems, ranging from a simple manually operated one to the more sophisticated radio-controlled type. When selecting a fire alarm system, account has to be taken of the degree of risk involved, and its intended purpose, i.e. is it simply to alert the persons in the building in the event of an emergency, or is it also required to protect the building by activating automatic fire-fighting systems. Advice on the type of system suitable for the individual premises is normally given by the fire authority.

All new fire alarm systems should comply with British Standard 5839: Part 1: 1988 Code of practice for system design, installation and servicing.

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5.1 Manual systems

These consist of a number of call points connected to sounders throughout the building; the number and type of call points and sounders should be agreed with the enforcing authority. Guidance is again contained within BS 5839.

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5.2 Automatic systems

These consist of a similar system to the manual type but contain additional features, such as heat and smoke detectors or radiation flame detectors. Ancillary features which may be added to an automatic system could include:

- automatic actuation of fixed fire extinguishing systems, an example of which would be sprinkler or drencher systems
- automatic closing of fire doors
- control of ventilation systems.

Under most circumstances, equipment used for automatic systems must comply with BS 5445 Components of automatic fire detection systems and BS EN 54 Fire detection and fire alarm systems.

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5.3 Routine attention

With both manual and automatic fire alarm systems, it is important that regular testing, inspection and maintenance is carried out. BS 5839: Part 1: 1988 describes this routine

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6 Portable Fire-fighting Equipment

Portable fire extinguishers

All premises must have adequate means for fighting fire. The selection of appropriate fire extinguishers depends on the identified and assessed risks. Fires are generally classified as follows.

Class A	Free burning materials, paper, wood, etc
Class B	Burning liquids, eg oils, petrol
Class C	Fires involving gases
Class D	Fires involving metals

BS EN 3: 1996 Portable fire extinguishers recommends that all extinguishers should be red, although BS 8763 allows a colour coded panel to be affixed to indicate the extinguishing contents. The standard colours are:

- water — red (signal)
- foam — cream (pale)
- dry powder — blue (French)
- carbon dioxide (CO₂) — black
- vaporising liquid — green (emerald).

Extinguishers should be marked with the words "fire extinguisher", along with the type of extinguishing medium, the size in litres or kilograms, and the method of discharging. Wherever possible, all the extinguishers in the workplace should have the same operating mechanism.

It is important that extinguishers are readily accessible, simple to operate and clearly signed. It is recommended that they are fixed in position, either on brackets or shelves, with the handle of the extinguisher no more than 1.1m from the floor. Extinguishers should be checked at least monthly and inspected annually by trained personnel. The date of the service should be recorded on the extinguisher itself.

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6.1 Fire blankets

Fire blankets are another useful extinguishing medium, particularly in kitchens and laboratories. The blankets are generally of a fibreglass material which are laid across the top of a fire to effectively cut off the oxygen supply. They should be sited in a position away from the identified fire risk but within easy reach, as speed is particularly important in ensuring their effectiveness.

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6.2 Fixed Fire-fighting Systems

Fixed systems work by releasing the extinguishing medium when the warning/alarm system is activated. They are often found in large buildings, or where there is a special need for protection against fire, ie computer/record rooms, etc. Advice on the need to install fixed systems may be obtained from the fire authority.

The types of installation are:

- water sprinklers — suitable for general use
- foam — low expansion foam is suitable for flammable liquid fires, and high expansion foam is especially useful in inaccessible areas, eg cable tunnels and basements
- carbon dioxide — suitable for hazardous plant, eg electrical equipment, computer areas, control rooms and sensitive materials
- vaporising liquid — used in similar situations to carbon dioxide
- dry powder — suitable for flammable liquids, electrical equipment or situations where water damage must be kept to a minimum; dry powder is not suitable where re-ignition may occur.

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6.2.1 Routine inspection

Fixed fire-fighting systems require a systematic weekly check carried out in-house, supported by a more complicated six monthly inspection, ideally carried out by an engineer under a service contract.

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7 Means of Escape in the Event of a Fire

An adequate means of escape is required for all work premises. More specific details will be available in the fire risk assessment.

The following general factors should be taken into consideration when planning an escape route.

1. The route must be sufficiently wide, and of sufficiently short distance, to allow speedy and safe evacuation — the minimum recommended width of exits is 0.75m for an occupancy of 5–100 persons and 1.05m for 101–200 persons. Recommended travel distances are also given in the guidance documents.
2. There should be alternative routes leading in different directions to ensure that there is always a safe route away from the fire.
3. Everyone should be able to escape unaided (if able bodied) — the needs of disabled people likely to be present in the workplace should also be addressed.
4. The route should be protected from the effects of any fire and lead directly to the open air.
5. The distance between workstations and the nearest fire exit should be minimised.
6. The escape route should be adequately, clearly and comprehensibly sign-posted and easy to follow for all people likely to be in the workplace.

Illumination of exit and directional signs should be provided by an emergency energy source, eg an emergency generator or batteries, independent of the mains supply. The provision of Braille signs along escape routes may need to be considered for blind or poorly sighted people in the workplace.

Means of escape are conventionally divided into three stages:

- travel within rooms
- horizontal travel to a storey exit or a final exit
- vertical travel within a stairway and thus to a final exit.

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7.1 Means of escape for disabled people

Guidance on means of escape for disabled people is contained in BS 5588: Part 8: Fire precautions in the design, construction and use of buildings. Code of practice for means of escape for disabled people. Although this is intended primarily for new buildings or buildings undergoing substantial refurbishment, an appendix to the code considers application of the code to existing buildings. It also recognises that compliance with the code is not always possible in existing buildings, but that alternative ways of meeting the objectives of the code should be sought. Non-compliance with its recommendations should not be regarded as adequate grounds for excluding disabled people from a building.

Much of BS 5588: Part 8 is concerned with structural measures to facilitate escape by non-ambulant persons in the event of fire. However, management procedures are also an essential part of arrangements for escape by disabled people, including assisting wheelchair bound persons or others with walking difficulties along corridors or stairways and for supervising the use of an evacuation lift if one is provided.

BS 5588: Part 8 also introduces the concept of "refuges" which are defined as areas that are both separated from a fire by fire-resisting construction and provided with safe routes to a storey exit, thus constituting temporarily safe spaces for disabled persons to await assistance for their evacuation.

A refuge is required to be of sufficient size only to accommodate a wheelchair and permit the wheelchair user to manoeuvre into the space without undue difficulty (numerical specifications are given in BS 5588).

Examples of satisfactory refuges include an enclosure, such as a compartment, protected lobby, protected corridor or protected stairway, and spaces in the open air, such as balconies or flat roofs, that are remote from the fire and provided with means of escape. It is recommended that a refuge should be provided for each protected stairway on each storey.

Refuges are not required for:

- single storey buildings
- storeys from which all exits are final exits
- storeys consisting exclusively of plant rooms, and buildings in single occupancy comprising not more than a basement, ground and first storey with a floor area per storey of 280m² or less.

Prolonged periods of fire resistance are not required for the enclosures of refuges — a period of 30 minutes is recommended by the code.

BS 5588: Part 8 also describes the technical requirements for evacuation lifts, which may be used by disabled people in the event of fire. In the case of evacuation lifts, the requirements include enclosure of the lift well in fire resisting construction, a recall-to-ground switch and, with minor exceptions, a secondary source of power supply with cables that are separated from those of the primary supply.

The provision of an evacuation lift merely reduces, and does not eliminate, the possible need to arrange physical assistance for evacuation of disabled people by way of staircases.

Checking means of escape

Emergency routes and exits must not be obstructed — daily checks will help to ensure this. The person responsible for the check should ensure that fire exit doors are not locked and that fire doors are not wedged open. All signs should be in place and not obscured by stacked goods, etc.

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7.2 Fire Doors

Fire doors are provided to prevent the spread of heat and smoke and to protect escape routes. The location of these doors should be indicated on plans, together with a requirement to keep them closed.

All fire doors should be fire resistant and fitted with self-closing devices and marked on both sides with the words "Fire Door – Keep Closed" in white letters on a blue circular background. In some cases fire doors may be held open on magnetic catches to allow easy access of people and equipment. However, in the event of the fire alarm system being activated, the magnets are automatically turned off and the doors close. A timer switch may also be added which turns off the magnets at a pre-determined time.

Fire-resisting doors may perform several functions. The function required of the door, and therefore the design of the door, will depend on its location. They may:

- prevent spread of fire into protected escape routes
- prevent spread of smoke into protected escape routes (in which case they are really a dual fire and smoke-resisting door)
- be used to prevent smoke spread throughout a long corridor (in which case their fire resistance is less important)
- be used to prevent spread of fire from one floor to another, eg via service ducts
- be used to prevent the spread of fire from a high risk area, eg a plant room.

Modern fire-resisting doors incorporate an intumescent strip in either the door or the frame. This swells at temperatures of, typically, 150°C and seals the gap around the edge of the door — in many timber doors, a colour coded plug is inserted in the door edge to indicate the level of fire resistance. Older doors may not incorporate intumescent strips, and thus are unlikely to afford a fire resistance of 30 minutes in accordance with modern test methods. This does not invariably mean that they should be replaced, unless the fit of the door in its frame is poor, eg because the door has become warped.

Modern practice, in the case of doors that are required to provide smoke control as well as fire resistance, is to fit smoke (or draught) seals. Combined intumescent/smoke seals are readily available.

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7.3 Fire exit doors

Ultimately, all escape routes should lead to a final exit from the premises directly to a place of safety. Common requirements in respect of final exits are as follows:

- the exits should be obvious and/or signposted — if the exit door is not visible from any point on the escape route, a notice in the same white and green colouring should be provided at such a point reading "To Fire Exit" and accompanied by directional arrows if necessary
- the number, location and size of exits and emergency routes must be adequate for the number of persons likely to be present, the substances and equipment in use and the size and layout of the work area

- doors from rooms holding a large number of occupants should be secured by panic bolts only and should be marked "Push Bar to Open" in white letters on a green background
- exit doors not used as normal routes of travel from the building should be marked "Fire Exit" in white letters on a green background
- all final exits must be kept clear of internal and external obstructions at all times
- the exits must open easily in the direction of travel, without use of a key
- revolving doors are normally required to have conventional exit doors sited adjacent to them, unless they fold flat
- where necessary emergency lighting must be provided to illuminate emergency routes and exits
- wicket doors, goods delivery shutters and window exits are not normally acceptable as final exits and are generally regarded as unsuitable for members of the public under any circumstances
- on escape through a final exit, it must be possible to disperse from the vicinity of the building without re-entering it.

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8 Emergency Lighting

Emergency lighting systems in any premises for which a fire risk assessment states a need must be installed and maintained in accordance with BS 5266: Emergency lighting.

The prime function of an emergency lighting system is to illuminate escape routes and fire equipment, which includes fire alarm call points, in the event of mains failure.

There are two main types of emergency lighting systems: central battery systems and self-contained battery units. BS 5266 recommends a minimum standard of 0.2 lux at floor level on the centre line of defined escape routes, and for escape routes up to 2m in width, 50% of the route should be illuminated to a minimum of 0.1 lux. In addition to the two main types of emergency lighting generally accepted, the enforcing authority may permit a generator system which is provided for the sole purpose of powering an emergency lighting system. The generator must be capable of producing the required lighting automatically, normally within 5 seconds but in certain circumstances in a maximum of 15 seconds.

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8.1 Routine inspection

A routine inspection requires the emergency lighting system to be illuminated with the consequential running down of the batteries. Because of the possibility of a power failure, it is recommended that all tests are carried out at a time of minimal risk.

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9 Staff, Training and Procedures

Responsible persons

Whatever the number of employees, it is vital that responsibilities for action in the event of fire is assigned to specific persons. Premises with a large number of occupants may have trained fire wardens who will notify the fire brigade, oversee evacuation and carry out "first aid" fire fighting. It will also be necessary to nominate a "senior person", eg a safety officer or senior manager, to be responsible for all aspects of fire safety including training, overseeing of fire contracts (eg equipment maintenance), and record keeping.

The senior person will organise fire drills and training programmes.

Deputies should be nominated to take over these responsibilities when the warden or senior person is absent.

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9.1 Training

Staff should be aware of the following information:

- (a) the fire safety policy and any designated fire responsibilities
- (b) how to raise the alarm
- (c) action to be taken on discovering a fire, including how to call the fire brigade
- (d) evacuation procedures, including for disabled persons if necessary
- (e) location and use of fire-fighting equipment
- (f) location and use of escape routes.

Such training should be given to all new employees, and risk assessments frequently specify that this induction training should be followed by regular re-training sessions.

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9.2 Fire routine notices

Notices giving instructions on what to do in the event of fire should be displayed as specified by the fire risk assessment, although clear procedures to be followed in the event of a fire should be displayed around all workplaces and be included in the health and safety policy. They should comply with BS 5499 Fire safety signs, notices and graphic symbols.

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9.3 Fire drills

Fire drills will take place at least once a year and preferably once every six months. Records should be kept indicating the date, evacuation time, number of participants, etc.

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FIRST AID

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1 Summary

The company has a duty of care under The Health & Safety at Work Act and must also comply with the Health and Safety (First-Aid) Regulations 1981 which require employers to provide adequate and appropriate equipment, facilities and personnel to enable first aid to be given to employees if they are injured or become ill at work. These Regulations apply to all workplaces including those with five or fewer employees and to the self-employed.

It is important that an assessment is done to ascertain the level of support required. At the very minimum an appointed person is required. That is, a person nominated to take charge of first aid matters. The regulations do not **specify** what cover is required but does give **recommendations**. As always the company must do a **suitable and sufficient** risk assessment and will have to justify the result in the event of an incident where the cover may have proved to be insufficient. The principle “as far as reasonably practicable” applies.

This section is NOT a definitive document on first aid but a general guide to the principles underlying the provision of treatment.

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2 Definition

First aid is:

- any treatment given to save life and minimise the consequences of injury until qualified medical help can be obtained
- any treatment given to minor injuries that do not require qualified medical assistance, or that would otherwise remain untreated.

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3 Legislation

The Health and Safety (First Aid) Regulations 1981 require employers to ensure that there is adequate first aid provision for employees who are injured or become ill at work. A person should be appointed to take responsibility for first aid provision. A suitable person is someone who has undergone training and has obtained a qualification approved by the Health and Safety Executive (HSE).

The Approved Code of Practice (ACOP) and Guidance to the Regulations states that employers should carry out a risk assessment considering the following factors, in order to determine the number of trained personnel required:

- (a) number of persons employed
- (b) shift patterns
- (c) proximity of external professional assistance, eg nearest hospital
- (d) nature and extent of hazards at the workplace
- (e) size and geographical spread of the workplace.

Provision should also be made for itinerant and mobile workers, and for adequate facilities for night work and shift work.

To become a fully qualified first aider, the candidate must attend an HSE-approved course of training and be assessed in the practice and theory of first aid. Qualifications remain valid for three years and must be renewed by attending an approved course.

Where hazards are few and employee numbers are small, it may be appropriate to have an appointed person rather than a fully qualified first aider.

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4 Assessment of First Aid Needs

The level of first aid provision within a workplace will depend on specific circumstances. The employer should make an assessment of the first aid requirements at each individual workplace. First aid provision must be adequate and appropriate in the circumstances. The assessment should consider the following factors, in order to make a judgment about the appropriate level of first aid provision for each particular workplace or site:

- the nature of the undertaking and the risks involved
- the size of the establishment and distribution of employees
- the location of the establishment and its employees (eg itinerant workers)
- past history of accidents
- the remoteness of the site from emergency medical services
- the number of employees — although less emphasis is put on numbers than on other relevant factors
- planned and unplanned absences of first aid personnel.

Whilst there is no specific requirement for this assessment process to be documented, it would be prudent to ensure that this is done; use of the checklist below may assist in both clarifying the first aid needs and providing documentation of the process.

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4.1 Checklist for assessment of first aid needs

Issues to be considered	How this might affect first aid requirements
Risks identified by assessments carried out under the Management of Health and Safety at Work Regulations 1992, including specific risks in particular areas of work	First aid provision should take account of these risks; consideration may need to be given to extra first aid facilities, careful siting of facilities and additional specialist training for first aiders.
Arrangement of premises, ie are there several floors or various different buildings?	Consideration should be given to facilities for each floor or building separately, particularly if there are different levels of risk in different areas.
How far are the premises from emergency medical facilities (e.g. hospital accident and emergency department)?	First aid requirements for remote sites may be greater, and emergency medical services may need information about the premises, location, access, etc
Past accident record details.	Consideration may need to be given to location of first aid facilities, and in some cases provision of specialist first aid equipment.
How many staff are on site?	This may affect your the number of first aiders required, but all other relevant factors should also be taken into account

<p>Do you have any of the following on site:</p> <ul style="list-style-type: none"> • disabled members of staff with special health problems; • staff with reading or language difficulties; • trainees or inexperienced staff; • work experience trainees? 	<p>Consideration may need to be given to: specialist equipment siting of equipment communication arrangements additional training. First aid provision must cover work experience trainees in the same way as employees.</p>
<p>Do you have any shift work or "out-of-hours" work?</p>	<p>First aid provision must cover all staff all of the time whilst at work.</p>
<p>Do any staff work alone or travel for a significant part of their job?</p>	<p>Consideration should be given to: training needs issue of travelling/individual first aid kits communications facilities.</p>
<p>Do members of the public visit the premises?</p>	<p>There is no legal requirement to make first aid facilities available to them (although the HSE recommends that this should be done); levels of provision for staff must be maintained if this is done.</p>
<p>Do you have any premises shared with other employer(s) or employees working at other premises?</p>	<p>First aid arrangements should be clarified with the other employers.</p>

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5 First Aid Facilities

First aid personnel

The organisation must provide a sufficient number of trained and qualified first aiders, as determined by the assessment process.

It is impossible to lay down any precise ratio for the number of first aiders to employees, but the relevant factors to consider would be similar to the list given above. Those selected for first aid training should be of a reliable and calm disposition, and should be able to leave their job immediately, at any time. They should preferably be volunteers, in view of the study necessary to obtain the qualification. The HSE give the following suggestions.

Category of risk	No. employed at any location	Suggested number of first aid personnel
<p>Lower Risk E.g. shops, offices</p>	<p>Fewer than 50 50-100 More than 100</p>	<p>At least one appointed person At least one first aider One additional first aider for every 100 employed</p>
<p>Medium Risk E.g. light engineering, warehousing, food processing</p>	<p>Fewer than 20 20-100 More than 100</p>	<p>At least one appointed person At least one first aider for every 50 employed One additional first aider for every 100 employed</p>
<p>Higher Risk E.g. construction, work with dangerous machinery or sharp instruments</p>	<p>Fewer than five 5-50 More than 50</p>	<p>At least one appointed person At least one first aider One additional first aider for every 50 employed</p>

Foreseeable absences, such as holidays and training course attendances should be taken into account when determining the numbers of suitable persons. In exceptional circumstances, eg the unforeseeable absence of a first aider, or in very low risk situations, the employer may rely on an appointed person. It is important to remember that appointed persons are not first aiders and therefore they should not attempt to give first aid for which they have not been fully trained.

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6 Suitable qualifications

First aiders must hold a valid certificate of competence in first aid at work, before taking up their duties. This certificate is issued by an organisation approved by the HSE to give the relevant training. Qualifications are only valid for the length of time prescribed by the HSE (currently three years); therefore the first aider must receive approved refresher training within the three months before this time expires. Courses are offered by various training providers; alternatively an organisation may conduct its own training, providing it gains approval from the HSE. This approval will be subject to a number of criteria including the qualifications of the trainers, the syllabus of the proposed course, the equipment and the assessment arrangements.

Where particular hazards exist within the workplace this should be taken into consideration when designing the syllabus. Additional training may be necessary to cover the administration of first aid in more complex situations (e.g. work with chemicals or work in confined spaces).

It is prudent to provide at least some basic training for appointed persons, so that they know how to look after and use the first aid equipment provided. Many training providers offer suitable courses, typically of about four hours' duration, which do not require HSE approval (although employers must be able to justify the competency of any trainers used), or alternatively courses can be run in-house.

A basic "emergency first aid" course should include:

- (a) emergency actions
- (b) cardio-pulmonary resuscitation
- (c) control of bleeding and treatment of wounds
- (d) treatment of unconscious casualty.

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6.1 Duty of care

First aiders will have the same responsibilities as other employees under s.7 of the Health and Safety at Work, etc Act 1974 (HSW Act). Additionally, it is considered that they may have a duty of care in civil law to those to whom they administer first aid. However, because, in most instances, the first aider is appointed by the employer, the normal laws regarding duty of care would apply. The first aider is still an employee and the employer may be potentially vicariously liable for the employee's actions whilst at work. Obviously, if the first aider was to use his or her skills outside of work, the duty of care would pass to the individual rather than the employer. There is not yet any case law in this respect.

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7 First aid containers

All organisations will need at least one first aid kit, which must contain sufficient quantities of materials, depending, again, on factors such as size and nature of undertaking, etc. However, the following are recommended as a minimum:

- a leaflet giving general guidance on first aid
- 20 individually wrapped sterile adhesive dressings (of assorted sizes) appropriate to the work environment (which may be detectable dressings for the catering industry)
- 2 sterile eye pads, with attachments
- 4 individually wrapped triangular bandages
- 6 safety pins
- 6 medium sized individually wrapped sterile unmedicated wound dressings (approximately 12 cm x 12cm)
- 2 large sterile individually wrapped unmedicated wound dressings (approximately 18cm x 18cm)
- one pair of disposable gloves.

First aid containers should protect their contents from dust and damp; they should be easily accessible and should be identified by a white cross on a green background.

They should not contain tablets and medication.

In situations where mains tap water is not readily available for eye irrigation, at least one litre of sterile water or sterile normal saline solution (0.9%) in sealed disposable containers should be provided. Once opened containers must not be reused. The assessment may indicate a need for other basic equipment (eg adhesive tape, scissors, aprons, blankets, etc); these may be stored either in the first aid container or close by, depending on space constraints. Extra equipment, or items required for special hazards (eg protective equipment, antidotes, etc) may be kept near first aid boxes, but only in situations where first aiders have been specifically trained in their use.

The contents of all first aid containers should be replenished as soon as possible after use, to ensure a continued sufficient supply of materials. All first aid containers and other facilities should be checked regularly to ensure that they are fully stocked and that materials are not used after their expiry date.

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7.1 Portable/travelling first aid kits

The contents of portable/travelling first aid kits should reflect the circumstances in which they may foreseeably be used, but the following might typically be included:

- a leaflet giving general guidance on first aid
- 6 individually wrapped sterile adhesive dressings
- 1 large sterile unmedicated dressing (approximately 18cm x 18cm)
- 2 triangular bandages
- 2 safety pins
- individually wrapped moist cleansing wipes
- one pair of disposable gloves

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7.2 First aid rooms

In some cases the assessment process may determine the need for a suitably equipped, and staffed, first aid room. This need is not based purely on numbers of employees, but on the nature of the potential hazards within the workplace and the remoteness of the site. A designated person should be responsible for the room.

A first aid room should have the following features:

- where possible, it should be reserved exclusively for giving first aid
- it should be easily accessible, including for stretchers and wheelchairs
- it should be as close as possible to a point of access for transport (eg to hospital)
- it should be large enough to contain a couch, with adequate clearance for working, a desk, chair and any other essential equipment
- it should be available for immediate use at all times when employees are at work
- it should be kept clean and tidy, with washable surfaces and adequate heating, lighting and ventilation.

The following facilities might typically be considered when equipping a first aid room:

- a basin or sink with hot and cold water
- drinking water and disposable cups
- soap and paper towels
- a suitable store for first aid materials
- a range of first aid equipment (at least to the standard required in first aid containers — see above)
- a refuse container lined with disposable plastic bags that is suitable for clinical waste
- a couch (with a waterproof surface)
- clean pillows and blankets
- a chair
- an appropriate record keeping book.

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8 Record keeping

It is prudent for all first aiders and appointed persons to be provided with a formal system for recording incidents with which they are involved. Where feasible, one central recording facility is less complicated to manage, but on larger or more dispersed sites this may not be practical. Such records can be used to identify accident trends and areas where arrangements for health and safety might be improved; they can also be used to inform any review of the assessment of first aid needs.

Additionally, insurance companies, health and safety inspectors, etc may find it helpful to have such information available. Information to be recorded should include:

- the date and time of the incident
- the location of the incident
- the name of the injured person (and any other identifying details such as their job title, address, etc as necessary)
- the details of the injury/illness and any first aid administered

- the subsequent actions (eg taken to hospital, sent home, went back to work, etc)
- the details (name, signature, etc) of the first aider or appointed person.

Although these records are distinct from the accident record book required by the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR), employers may find it helpful to combine the two.

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9 Communication

Employers are required by the Regulations to inform their employees of the arrangements for first aid within the workplace. Employees need to know the following as a minimum:

- the names and locations of first aiders and/or appointed persons
- the location of first aid containers
- the locations of other first aid facilities and equipment.

First aid arrangements will only work in practice if all staff are aware of them. Employees should be informed of arrangements at induction and the prominent display of first aid notices within the workplace (together with refresher training where necessary) should ensure that employee awareness is maintained. Provision should be made for those who have language or reading difficulties.

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10 Multi-occupancy sites

Where more than one organisation is working on the same site, it is perfectly acceptable for first aid provision to be shared, provided that the assessment of first aid needs is based on the requirements of all organisations involved, and any specific hazards. All employers involved should agree on the provision, and it is prudent to keep a written record of this agreement. Employees of all organisations should be fully aware of the arrangements.

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11 Provision of first aid facilities to those who are not employees

The Regulations do not require employers to provide first aid facilities for anyone other than their employees, but some organisations (eg schools, hospitals, etc) may choose to do so, and the HSE do recommend that such provision should be made.

Where such facilities are provided, the employer must ensure that facilities for employees are still maintained to the standard required by the regulations. Employers should ascertain whether their public liability insurance policy sets down any restrictions on such provision before making it available. In some circumstances other legislation may be relevant and should be consulted (eg road traffic legislation regulates the provision of first aid facilities on buses and coaches).

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12 Emergency First Aid

The first aid procedures outlined below will help the person attending a casualty to prevent serious damage to health and perhaps help to save life. First aiders will be aware of these techniques and procedures as part of their training. The following information should serve only to refresh the memory and to review certain procedures, but not as a substitute for approved first aid training.

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12.1 First Aid Treatment

12.1.1 Treatment position

Casualties should be seated or lying down when being treated, as appropriate.

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12.2 Advice on treatment

If you need help send for it immediately. If an ambulance is needed, arrangements should be made for it to be directed to the scene without delay.

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12.3 Priorities in first aid

12.3.1 Breathing

If casualty is not breathing the following action should be taken.

1. Place on back.
2. Open and clear mouth.
3. Tilt head backwards to open airway. Maintain this position throughout.
4. Support jaw. While keeping the head tilted backwards, open mouth and pinch nose.
5. Open your mouth, take a deep breath. Seal the casualty's mouth with yours and breathe out firmly into it. Casualty's chest should rise.
6. Then remove your mouth and let casualty's chest fall. If chest does not rise, check head is tilted backwards sufficiently. Continue at a rate of 12 times a minute until the casualty is breathing by his or herself.
7. Place casualty in the recovery position.

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12.3.2 Unconsciousness or semi-consciousness

1. Check mouth for obstructions.
2. Open airway by tilting head backwards (thus lifting chin).
3. Maintain this position, supporting jaw, until professional medical assistance arrives.

The airway of an unconscious person must be kept open, however, if this cannot be achieved, place the casualty in the recovery position.

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12.3.3 Severe bleeding

Control by direct pressure (using fingers and thumb) on the bleeding point. Apply a dressing. Apply another dressing on top if the bleeding continues — do not remove original dressing. Raising the bleeding limb (unless it is broken) will help reduce the flow of blood.

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12.3.4 Suspected broken bones

Do not move the casualty unless he or she is in a position which exposes him or her to immediate danger.

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12.3.5 Burns and scalds

Do not remove clothing sticking to the burns or scalds or burst blisters. If burns and scalds are small, flush with plenty of clean, cool water — cooling may take over 10 minutes but do not delay in getting casualty to hospital.

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12.3.6 Chemical burns

Avoid becoming contaminated with the chemical. Remove any contaminated clothing which is not stuck to the skin. Flush with plenty of clean, cool water for 10–15 minutes — on the way to hospital if necessary. Send to hospital.

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12.3.7 Eyes

Wash hands first.

Loose foreign bodies in the eye: wash out with clean, cool water. Do not try to remove any foreign body which is embedded.

Chemical in the eye: wash out open eye continuously with clean, cool water for 10–15 minutes. People with eye injuries should be sent to hospital with the eye covered with an eye pad.

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12.3.8 Electric shock

Do not touch the casualty until the current is switched off. If the current cannot be switched off, stand on some dry insulating material and use a wooden or plastic implement to free the casualty from the electrical source — do not put yourself in danger. If breathing has stopped, start mouth to mouth breathing and continue until casualty starts to breathe by him or herself or until professional help arrives.

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12.3.9 Gassing

Use suitable protective equipment.

Move casualty to fresh air.

If breathing has stopped, start mouth to mouth breathing and continue until casualty starts to breathe by him or herself or until professional help arrives. Send to hospital with a note of the gas involved.

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12.3.10 Minor injuries

Casualties with minor injuries of a sort they would attend to themselves if at home may wash their hands and apply a small sterilised dressing from a first aid box.

Wounds should be kept clean and dry.

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12.3.11 Illness

Reassure casualty. Remove to quiet area/first aid room. Seek assistance if in doubt.

Do not offer any medication — casualty may take his or her own personal pain relief tablets as appropriate.

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13 HIV and Hepatitis B Infection and First Aid

Human Immunodeficiency Virus (HIV) infection in the workplace has presented employers with a range of issues requiring specific attention, one such issue is the management of first aid. Unlike Hepatitis B there is no vaccine to prevent infection. Hepatitis B is a disease affecting the liver which can lead to death through liver cancer, or cirrhosis. Hepatitis B virus (HBV) is blood borne (like the Acquired Immune Deficiency Syndrome (AIDS) virus) but is considered to be many times more infectious than HIV, it is capable of surviving on surfaces (eg chairs) for up to seven days at room temperature. However, as mentioned, unlike AIDS, vaccines are available to prevent acute infection. There have been problems in the workplace related to HIV infection and first aid. In some instances this has led to industrial disharmony, disruption of normal working practices and needless discrimination and victimisation. HIV continues to spread across all sections of the population in this country. This means that more and more employers will have members of their workforce who are infected with HIV. It is therefore in the interest of all those who manage health and safety to know how this matter should be dealt with in their organisation.

Several issues need to be considered in order to identify and develop an approach suitable to the organisation and its employees. The importance of forward planning and preparation is the key to successfully managing this issue, thus reducing or preventing:

- fear and anxiety
- breaches of health and safety procedures
- rumour, harassment and victimisation.

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13.1 Transmissions of HIV

Many of the problems in the workplace that have been associated with HIV infection and first aid have stemmed from a lack of understanding of how the virus is spread. HIV infection is transmitted in very specific ways, as a result of:

- unprotected vaginal or anal intercourse, with an infected male, or female, gay or straight partner, in which infected semen, vaginal secretions or blood enter the body
- entry into the body of blood carrying HIV, for example as a result of sharing equipment, including needles and syringes, or a blood transfusion in a country where blood is not screened to make sure it is not infected with HIV
- blood from mother infected with HIV passing the infection on to her baby, before and during birth.

HIV is not transmitted through everyday social contact such as touching, shaking hands, hugging, social kissing, from a toilet seat, or sharing cups, cutlery, crockery and books.

In most occupations employees will only come into contact with blood or other body fluids after an accident. This is clearly of potential concern for first aiders. Therefore, it is sensible to have a system in place that manages these concerns and ensures that the procedures prevent:

- employees becoming infected whilst carrying out their work
- customers or clients becoming infected whilst on your premises or using your services.

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13.2 Infection control

The key message for first aiders is that the HIV virus is not easily transmitted and the standard hygiene and first aid procedures to prevent infection from HBV will protect the casualty and the first aider from infection from HIV. Please note that any injection first aiders may receive to protect them from HBV offers no protection from HIV.

The underlying strategy should be to regard all body fluids and body tissue as potentially dangerous. Infection control measures include the following.

1. Avoiding contact with blood and other body fluids by covering any cuts, sores, chapped skin or other open wounds with a waterproof dressing or putting on gloves before giving first aid. Unbroken skin is a natural barrier.
2. Washing hands before and after applying dressings.
3. Wearing gloves when mopping up blood or body fluids with paper towels.
4. Not using teeth when putting gloves on or removing them.
5. Washing or rinsing gloves before taking them off.
6. Pulling off gloves so that they are inside out and the contaminated side is not exposed.
7. Putting used gloves in a plastic bag and disposing of them in a bin or incinerator.
8. Washing hands or other skin surfaces immediately after contact with blood or other body fluids and after removing gloves.

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9. If blood or body fluids are spilt, put on rubber gloves and flood the spill with a 1–10 solution of household bleach and water, and mop up with disposable towels, placing towels in a plastic bag for incineration. Care should be taken as bleach is corrosive and can damage skin.
10. If clothes are stained, change them once a wound has been treated (stained clothes should be handled with rubber gloves and soaked in cold water before machine-washing them on a hot cycle.
11. Taking care to avoid accidental piercing of the skin when handling needles or other sharp equipment.

If a first aider has direct contact with another person's blood or other body fluids, the exposed part of his or her body should be washed immediately with soap and water. Clean cold tap water should be used if the lips, mouth, tongue, eyes or broken skin are involved and medical advice sought.

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MANUAL HANDLING

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1. Summary

- 1.1 Statistics show that manual handling is one of the most common causes of absence through injury at the workplace. More than one third of lost time accidents are caused in this way. These injuries may often have long-term effects.
- 1.2 This policy is intended to reduce the risk of manual handling injuries and to provide guidance on the measures that should be taken to ensure safe lifting and carrying at the workplace.

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2. Elimination of Hazardous Manual Handling Activities

- 2.1 The company will ensure that operations which involve manual handling are eliminated, so far as is reasonably practicable.
- 2.2 Measures to achieve this include ergonomic design of the workplace and activity and the provision of automated or mechanical aids such as trolleys, chutes and conveyors.

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3. Assessment of Risk

- 3.1 An assessment of manual handling activities will be carried out by competent persons. Risks which are identified will be reduced to the lowest level reasonably practicable. The following factors will be considered during the assessment.

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4. The Task

- 4.1 Bending and stooping to lift a load significantly increase the risk of back injury. Items should ideally be lifted from no lower than knee height to no higher than shoulder height. Outside this range, lifting capacity is reduced and the risk of injury is increased. Where items are required to be lifted from above shoulder height, a stand or suitable means of access should be used. Items which are pushed or pulled should be as near to waist level as possible. Pushing is preferable particularly where the back can rest against a fixed object to give leverage.
- 4.2 Carrying distances should be minimised, especially if the task is regularly repeated. Repetitive tasks should be avoided wherever possible. Tasks which involve lifting and carrying should be designed in such a way as to allow for sufficient rest breaks to avoid fatigue. Avoid tasks which require twisting the body wherever possible.

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5. The Load

- 5.1 The load should be kept as near as possible to the body trunk to reduce strain and should not be of such size as to obscure vision. An indication of the weight of the load and the centre of gravity should be provided where appropriate.
- 5.2 Unstable loads should be handled with particular caution. The change in centre of gravity is likely to result in overbalancing. Ensure that there is a secure handhold, using gloves where necessary to protect against sharp edges or splinters.

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6. The Individual

- 6.1 Consideration must be given to age, body weight and physical fitness. Regard must be given to personal limitation; employees must not attempt to handle loads which are beyond their individual capability. Assistance must be sought where this is necessary.
- 6.2 Persons with genuine physical or clinical reasons for avoiding lifting should be made allowance for, as should pregnant women, who should not be required to undertake hazardous lifting or carrying tasks.
- 6.3 Sufficient knowledge and understanding of the work is an important factor in reducing the risk of injury. Individuals undertaking lifting or carrying will be given suitable instruction, training and information to undertake the task with minimum risk.

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7. The Working Environment

- 7.1 There must be adequate space to enable the activity to be conducted in safety and the transportation route must be free from obstruction. Lighting, heating and weather conditions must be taken into account. Floors and other working surfaces must be in a safe condition, and adequate ventilation is required, particularly where there is no natural ventilation.

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8. Other Factors

- 8.1 Use of personal protective equipment (PPE) may be necessary whilst carrying out manual handling activities. If the use of PPE restricts safe and easy movement, this should be reported. Constant interruptions from other workers must be avoided, as this can reduce the concentration of an individual.

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9. Duties of Managers and Supervisors

- 9.1 Managers or supervisors must ensure that:

- manual handling assessments are carried out where relevant and records are kept
- employees are properly supervised
- adequate information and training is provided to persons carrying out manual handling activities
- any injuries or incidents relating to manual handling are investigated, with remedial action taken
- employees adhere to safe systems of work
- safety arrangements for manual handling operations are regularly monitored and reviewed
- employees undertaking manual handling activities are suitably screened for reasons of health and safety, before undertaking the work
- special arrangements are made, where necessary, for individuals with health conditions which could be adversely affected by manual handling operations
- competent assessors, trainers or outside advisors are used where necessary.

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10. Duties of Employees

10.1 Employees must ensure that:

- they report to management (in confidence) any personal conditions which may be detrimentally affected by the manual handling activity
- they comply with instruction and training which is provided in safe manual handling activities
- their own health and safety is not put at risk when carrying out manual handling activities
- they use equipment which has been provided to minimise manual handling activities
- any problems relating to the activity are reported to a responsible person.

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11. Information and Training

11.1 Suitable information and training will be provided to persons who are required to carry out manual handling activities. Training needs will be identified and reviewed by a responsible person.

11.2 Refresher training will also be given at reasonable intervals.

11.3 Employees will be informed of approximate weights of loads which are handled and objects which have eccentric weight distribution.

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12 Safe System of Work

The Task - Assessing the task elements of a manual handling operation

The assessor needs to consider the actions that are carried out by the handler's body and the positional relationship between the body and the load. The following features of the operation should be assessed:

Distance of the load from the trunk

The distance of the load from the trunk is a crucial feature of manual handling operations which involve lifting, lowering or carrying. The further away a load is from the body, the greater the stress on the lower back.

Position of the load in relation to the trunk

The position of the load in relation to the handler's trunk influences the risk of back injury. It is best if the load is situated directly in front of the handler, rather than to one side. If the load is to one side, asymmetric weight distribution places extra stress on the spine, a sideways bend is created,

uneven pressure is put on the discs, and the centre of gravity is usually further away from the pivot point at the base of the spine, which increases the overall pressure on it. It is sufficient in both the initial appraisal and the full assessment to note the position of the load.

Posture

Adopting a good posture during a manual handling operation minimises the risk of losing control of the load and enables the strain on different parts of the body to be better balanced. In the initial appraisal and full assessment, it will be sufficient to note good or bad postural features, such as stooping or twisting.

Distribution of weight on the feet

The feet should be arranged so that the load can be evenly distributed. As a general principle, keeping the feet comfortably apart and, if possible, at right angles to each other, makes for the greatest stability.

Twisting of the trunk

Twisting the trunk, which occurs frequently when picking up and moving off with items or when seated at a workbench, increases the stress on the lower back and reduces the safe load.

Stooping

Stooping creates high stresses on the back, and there is a high risk of injury regardless of the weight of load that is being lifted. Bending backwards to reach for objects from a high shelf should also be noted and treated as a risk factor, due to both the danger posed by the falling objects, and also the extra stresses imposed on the spine.

Lifting position and lowering distance

Stresses upon the back are minimised when the handling points of the load are between the middle of the thigh and the waist. As the handling points move away from this area stresses will increase. Also the further the vertical distance through which the load has to be moved, the greater the physical workload. If the distance and load are such that the grip has to be changed, stresses are increased still further.

Carrying distance

A load which is regarded as acceptable for lifting will not endanger the back if carried for a short distance. The fatigue associated with static work, such as holding an object, will however build up if carrying over any great distance. If the distance over which a load is carried is greater than about 10m then the safe weight limit will be reduced. In the initial appraisal, the assessor should note whether the carrying distance exceeds 10m. In the full assessment, note the distance travelled and time taken.

Pushing and pulling

Pushing and pulling are activities rely on the handler having good frictional contact with the floor, and the object being pushed or pulled moving freely and smoothly. Pushing and pulling with the hands much below waist height or

above the shoulder increases the risks of injury. Pushing and pulling actions, however, allow individuals to move loads that would be impossible to carry and they are often (rightly) introduced to replace unacceptable lifting actions.

Dynamic activities such as throwing

The force required to impart momentum to a load, especially upward, is greater than for simply lifting it. If the object fails to release properly, the unexpected stresses imposed on the spine can be increased considerably. Examples of this sort of activity can be found in delivery of items such as post bags, or refuse collection. Team throwing of objects, for example throwing sacks of grain, requires special precautions. Lack of co-ordination between the throwers can lead to application of opposing forces, ie pushing or pulling against each other, or the total load being imposed upon one individual. For the purposes of initial appraisal it is sufficient to note that team handling is involved with the throwing.

Frequency and duration of effort

Frequent operations, or operations that require long periods in fixed postures, can increase the risk of injury, even with relatively light loads. Frequent stresses from light loads can accumulate and lead to as much damage as one handling of a heavy load.

Where the muscles become fatigued the ability to control the body accurately will decrease and the risks of injury increase. This is more likely to occur with static work than dynamic work. There is an inverse relationship between frequency and load. As one increases, the safe limit for the other decreases. "Frequently" may be taken to mean more often than once every five minutes for an initial appraisal.

Seated handling

The seated handler has to rely on the arms and torso for strength. The much stronger leg muscles normally used for lifting play no role. Moreover, the ability to use the body as a counterbalance is severely reduced.

Consequently, the safe weight limit for seated work is much lower than for standing work. Weights over 5kg (3.5kg for women) should be regarded as risky for the purposes of the initial appraisal. Postural features of the seated activity, ie stretching, stooping and twisting, reduce the safe weight limit further. Lifting from below the level of the work surface will almost always create these risk factors.

Team handling

Under ideal conditions, two people can lift about 1.3 times as much as one person, while three people can lift about 1.5 times as much.

When climbing stairs, or carrying loads with very uneven weight distribution, the bulk of the load may fall on one individual and the safe load may be greatly reduced. Even on a level surface, a load with evenly distributed weight, eg a ladder or plank, can create risks if the team members are of different sizes, because the weight acts through the lower point of contact and the shorter individual supports a greater share of the weight of the object.

The main advantages of team handling occur with large loads that are too bulky rather than too heavy. A prime example would be large boards that

would be subject to gusts of wind. Very small heavy loads may create problems since there may not be space for the whole team to grasp the load and adopt good postures. The initial appraisal need only mention that team handling is used. All team handling tasks should then be given a full assessment.

Reducing risks by modifying the task

Having carried out an assessment of the task elements of the manual handling operation, it is possible to devise changes that will reduce the risks. These changes are "task oriented" insofar as they alter what the individual does. Planning risk reduction should not be attempted until the load, the environment and individual capability have also been assessed, and their relationship to each other understood.

Changing the task

Altering the task to remove the need for the manual handling operation is a primary aim of the Regulations. The question is: "Does the load need to be moved at all?"

Task layout

Improvements in task layout can provide major benefits. If, for example, materials can be delivered close to the handler, reducing the distance through which the objects are moved, either vertically or horizontally, processing time will also be reduced. Particular emphasis should be given to providing loads at waist height, which is the optimum height for lifting. Storage or delivery systems which provide for this can significantly reduce the risks of handling.

Good design of storage racks, and more importantly placing heavy or frequently used items at waist height on the racks, can appreciably reduce the risks associated with manual handling. The need to stoop is minimised, and when stooping does occur the distance through which the load has to be lifted or lowered is lessened.

Use of body

Task layouts that permit the load to be held closer to the body reduce risks of injury. The level of stress on the lower back will be reduced, the weight of the load will be more easily counterbalanced by the weight of the body. The load will be more stable so the handler is less likely to lose control of it.

Addressing (the way in which the load is approached and grasped) and placing of the load should be carefully controlled by:

- (a) designing layout so the handler can get close to the load without twisting
- (b) designing layout so the handler's feet can get as close to the centre of gravity of the load as possible
- (c) storing objects so that they can be picked up and carried away without an immediate change of direction or twisting.

Changes to work routine

Changes to work routine can go a long way towards reducing the stress on the handler's back. If operations are relatively frequent, larger but less frequent loads may be possible in conjunction with a manual handling aid. Work which is self-paced should be used in preference to machine-paced if practicable to give the handler more control.

A system which allows for flexible work breaks should be adopted whenever possible. The purpose of work breaks should be to prevent the onset of fatigue rather than to enable recovery from it. If the work involves a heavy static load the handlers should be encouraged to take breaks and move around at convenient times. Workers carrying out batch operations at machines should also get up and move around rather than rest in the same place. This action can often be arranged to coincide with transfer of batch documentation and need not imply loss of production.

Job rotation is a particularly effective way of avoiding fatigue, especially when the different operations use different muscle groups. It also has the advantage of reducing the monotony of the tasks. Rotation from one activity to another which requires the use of the same muscles will however be ineffective.

Seated handling

The measures that can be taken to reduce the risks from seated handling are broadly similar to those for standing work. Lifting loads from the floor should be avoided. The material should be provided at working height and it should be possible to grasp it without stretching. The most important aspect of seating at work is to ensure that the work surface is at the correct height relative to the seat. Since the correct height depends on the operator, adjustable seating is preferable. A firm footrest should be supplied if the handler needs one.

Team handling

Reduction of risks associated with team handling can be achieved by following a few simple guidelines ensure:

- (a) enough space is available for the team to manoeuvre with the load
- (b) all members of the team have adequate access to the load
- (c) sufficient handholds are present, if not use stretchers or slings.

One person should be in charge of the lifting, both to plan and co-ordinate actions. This person should ensure that one individual is not left supporting the whole load, or worse, that two individuals find themselves applying opposing forces.

Team members should be of similar build wherever possible to prevent a shorter person bearing most of the weight. Uneven weight distribution can also occur when items are carried up stairs or ramps. In these cases, variations in build can even be helpful to some extent if the taller individual handles the lower end of the load.

Personal protective equipment

Personal protective equipment (PPE) includes such items as gloves, safety shoes, overalls and aprons. Choosing well-fitting and appropriate equipment is essential. Employers should:

- (a) ensure that a range of sizes of PPE is available (gloves which are too tight, too loose, or made of inappropriate material could lead to loss of control of the load)
- (b) ensure that the PPE is appropriate in light of the hazards present
- (c) emphasise the importance of PPE to staff, and monitor and enforce its use (a positive example from management is essential).

Maintenance and accessibility

If equipment, including PPE, is used for manual handling, employers must:

- (a) see that it is maintained
- (b) ensure that there is a defect reporting and correction system

(c) see that the equipment is supplied in sufficient quantities and that it is easily accessible (for example if fork-lift trucks or trolleys are on the other side of a site, handlers will be tempted to improvise).

12.2 The Load

Assessing the load:

The features of the load which are relevant to the handler are related to:

- (a) the forces required to handle it
- (b) its size
- (c) how easy it is to grasp
- (d) its stability
- (e) external features that may create a hazard.

Heaviness of the load

There is no single safe weight for lifting or single safe force for pushing or pulling. Safe weights depend very much on the other features of the operation, such as the task, the environment and individual capability. Guidance for acceptable weights applies to very few operations, for example two-handed lifting in front of the body. The Health and Safety Executive (HSE) has, however, provided brief guidance as to weights and forces that are "unlikely to create a risk of injury sufficient to warrant more detailed assessment".

The HSE contends that the guidelines would give reasonable protection to about 95% of the population. It explicitly states that the figures are not force limits and may be exceeded provided a more detailed assessment shows that it is safe to do so. It follows that any employers continuing to require employees to use weights or forces greater than these will have contravened the Regulations unless they can demonstrate that they have made a detailed assessment.

Shape and size of the load

The size and shape of the load are factors which influence risks to the back in manual handling. The further the centre of gravity of the load from the body, the greater the leverage effect on the spine, and the higher the risk of injury. If a load has an even weight distribution, the centre of gravity is in the centre of the load. The centre of gravity of a large load is therefore always further away from the body than the centre of gravity of a small load. This is because the sheer physical bulk of a large load separates the handler from the centre of gravity. Even if the two loads weigh the same, the larger load will cause more strain due to the leverage effect.

Where loads have their weight unevenly distributed, the heaviest side should be nearest the handler. Information on weight distribution should be marked on loads.

Handling points of the load

Many loads are not particularly easy to grasp. The load may be large, slippery or have sharp edges. In these cases extra grip strength is needed, which fatigues the muscles more quickly. As handlers tire, their grip becomes weaker, and they may have to change either their grip or their posture to maintain control of the load. The risk of dropping the load altogether is thereby increased.

Stability of the load

If a load is unstable or its contents are likely to shift during handling (eg containers of fluid), the risk of injury increases since stresses on the spine are less predictable and the handler may not be prepared.

External features of the load

Assessing hazards arising from the external features of a load is largely a matter of observation.

Factors to look out for are:

- (a) sharp or rough edges which may increase the difficulty of holding a load and cause other hazards (splinters of wood, for example, create a risk of infection)
- (b) hot or cold objects
- (c) chemical hazards (these should be dealt with under the Control of Substances Hazardous to Health Regulations 1994 (COSHH))
- (d) slippery loads, eg those which are wet, greasy or have a non-stick covering (eg Teflon)
- (e) loads with damaged containers.

Reducing risks by modifying the load

Once the assessment has been completed, a range of changes may be suggested that will reduce the risks to health arising from the nature of the load. The following possible changes are load oriented:

Making the load lighter

Making the load lighter is usually an effective way of reducing the risks from manual handling. Making individual loads lighter, however, often results in a greater number of journeys having to be made which will tend to increase the frequency of lifting. Other risks from high hand-arm repetition rates or energy expenditure may therefore arise. It should be remembered that when lifting from, or lowering to, floor level the weight of the handler's body creates a substantial part of the stress on the spine and increases in the frequency and number of these actions should be avoided. If weight guidelines are exceeded or a detailed analysis shows weight to be a problem, possible solutions include:

- splitting the load into lighter containers
- instructing suppliers to provide items in lighter boxes.

Reducing the size or changing the shape of the load

If the assessment shows size to be a risk factor then consider:

- making the load smaller (eg reducing the size of packaging)
- distributing the weight so the centre of gravity is nearer the handler's body.

Improving the handling points on the load

When the assessment has indicated that risks from the load slipping or undesirable postures (especially twisting) appear to be related to difficulty with holding the load, then consider providing:

- handles, hand grips or indentations to improve the grasp of the load
- handling points towards the top of loads (to reduce stooping).

Ensure that handholds are wide enough to allow the whole palm to obtain a grip on the object (preferably a power grip) and are deep enough to accommodate the knuckles (and gloves if these are likely to be worn).

Making the load more stable

Where the assessment shows the load to be unstable if the load is:

- not rigid, consider using slings or a stretcher to increase stability
- a container of liquid, ensure that it is transported in either full or empty states (fluid in a half empty container will surge about, causing weight or load variations that impose unpredictable and potentially damaging stresses upon the back).

Making the load less damaging to hold

When hazards arise from the nature of the load:

- keep the load clean and free of oils or contaminants
- place hot or cold loads in an insulating container
- remove or cover sharp edges and corners

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CONTROL OF NOISE

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1 **Summary**

Noise can be defined as unwanted sound. The "unwanted" aspect of noise may be because of many reasons, such as damage to hearing or annoyance. Excessive exposure to noise at work can cause deterioration in the sensitivity of the ear and hearing can become irretrievably damaged, resulting in noise induced hearing loss (NIHL). The risk of developing NIHL depends on both the sound level and the length of exposure to the sound.

The Health and Safety at Work, etc Act 1974 (HSW Act) contains general duties on employers to ensure, as far as is reasonably practicable, the health, safety and welfare of employees. This is a wide duty which extends to the duty to control noise. Noise is dealt with specifically by the Noise at Work Regulations 2005 (NAWR). There is not an Approved Code of Practice (ACOP) accompanying the NAWR, however Health and Safety Executive (HSE) guidance, in the form of Noise Guides, go into detail about how to comply with the Regulations.

NAWR gives clear guidance about how priorities should be decided and emphasise that many approaches may be valid. The Regulations set out the ways in which employers are required to control the exposure of their employees to noise in the workplace. Employers should assess the noise levels to which their employees are exposed, where they believe that exposure reaches or exceeds the action levels defined in the Regulations.

It must be ensured that a competent person makes an adequate noise assessment which identifies employees at risk and provides information on the steps to be taken which may be appropriate to reduce noise levels. Records should be kept of the assessment and reviewed periodically. Noise levels should be reduced to the lowest level reasonably practicable in an order of priority set out in NAWR. Any equipment supplied to reduce noise exposure should be adequately maintained and regularly tested.

Employers must also provide the necessary information, instruction and training to employees so that they are aware of the risk of damage to hearing from noise, methods of working to minimise this risk, how to obtain personal ear protectors and their duties under NAWR.

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2 Noise at Work

Properties of noise

The two most important qualities of noise are frequency and intensity. These qualities are important because the degree of hearing loss an employee may suffer depends on several factors including:

- overall intensity of noise
- duration of exposure
- frequency characteristics
- individual susceptibility.

Frequency determines the number of vibrations over a period of time, usually seconds, made by sound in the air and is measured in Hertz (Hz). Intensity determines the strength with which sound vibrates the ear drum and is measured in decibels (dB).

Note: Most sound level meters are adjusted to adapt to the fact that the majority of hearing damage is caused by exposure to high frequencies. This adjustment is known as "A-weighting" and is characterised as dB(A).

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2.1 Noise exposures at work

Many jobs involve exposure to noise. Any activity where it is suspected that noise levels reach the action levels set out in NAWR will require a proper assessment. The range of noise levels that may be encountered at work is vast from a 20 dB whisper in a hospital ward at night to a 120 dB hydraulic press one metre away. Intensive noises of a very short duration, such as loud explosive noises, for example from

guns, cartridge operated fixing tools or drop forges, can cause damage even though total exposure time may be very limited.

Many jobs involve machinery that create noise. As a rough guide, if there is a need to shout to be clearly heard by someone two metres away, or if a ringing sound in the ears is experienced after leaving the workplace exposure levels may be too high.

2.1.1 Noise intensity is expressed on a logarithmic scale and measured in decibels (dB). The decibel scale runs from 0 - 160 dB. Example noise intensities are as follows:

- 10 dB Rustle of a leaf
- 30 dB Whisper
- 60 dB Normal conversation
- 90 dB Heavy goods vehicle
- 100 dB Factory floor
- 110 dB Grinding machine
- 120 dB Propeller aircraft
- 130 dB Riveting hammer
- 140 dB Jet engine

2.1.2 Noise level meters incorporate three weighting filter networks (A, B and C). The most common weighting is A which tends to filter out the lowest frequencies of sound (inaudible to the human ear) and attaches greater importance to values obtained in the sensitive frequencies. Measurements taken using the A filter are expressed in dB(A).

2.1.3 Noise intensity measurement is of most use when taken over a period of time to allow for fluctuations in level. Daily average noise level is expressed as (LEP,d).

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2.2 Assessment of Noise Exposure

Action levels and daily personal noise exposure

There are three action levels. The first action level establishes a daily personal noise exposure of 80 dB(A) and the second action level establishes a daily personal noise exposure of 85 dB(A).

"Daily personal noise exposure" (designated LEP,d), is the total exposure over the whole working day, taking into account the varying noise levels in the working

environment and how long a person is exposed to them. In calculating the level of LEP,d, no account is taken of any ear protectors being worn. The third defined level is a peak action level of 135 dB(A)(lower level), 137dB(A) (upper level) and is likely to be linked with the use of cartridge operated tools, shooting guns and similar loud explosive noises. This action level is most likely to be important where workers are subject to a small number of loud impulses during an otherwise quiet day.

Irrespective of action levels, the risk of damage to hearing from exposure to noise must be reduced to the lowest level reasonably practicable.

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2.3 Assessing exposure

Adequate arrangements for the assessment of exposure where this is likely to be at or above either the first or peak action levels must be gauged. The assessments should be made by a competent person who could probably advise on any action needed to comply with other requirements or on the need for further specialist advice.

Exposure is defined to mean only exposure at work and therefore no account needs to be made of an individual's possible leisure exposure.

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2.4 Recording exposure

Noise assessments must be reviewed when there has either been a significant change in the work to which the assessment relates or wherever there is reason to suspect that the assessment is no longer valid. Employers must ensure that an adequate record of the assessment and/or any review is kept.

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2.5 Noise surveys

Carrying out a noise survey

The best way in establishing an accurate assessment of exposure and therefore to ensure that suitable controls are set up (ultimately preventing the risk of any noise induced hearing loss (NIHL)) is to carry out a noise survey.

Although the first and second action levels are expressed in terms of an eight hour exposure, it is not usually necessary to carry out measurements of an individual's exposure for a full eight hours in order to make an adequate assessment. In the simplest cases, where exposure is to a continuous steady noise for an eight hour shift then two or three measurements of Leq, each over a period of two or three minutes, will normally be sufficient. In actual practice these sorts of conditions are usually only found in the textbooks. Most operators will have a variable exposure over a period of a day.

Actually carrying out the survey and making an assessment of exposure requires a mixture of measurements, observation and information. The initial stage of the survey

usually involves going round the complete area with a sound level meter set to read the sound pressure level directly, and identifying the areas in which it is unlikely that the exposure will approach the first action level and areas that will require more detailed surveying and assessment.

In certain cases it may be advantageous to actually carry out measurements of exposure over a complete shift using personal dosimeters (ie sound measuring equipment attached to an operator). It must be remembered, however, that an individual whose exposure is variable during the course of one shift is likely to have an exposure that is extremely variable from shift to shift as well. In other words, measurement of exposure during one shift is not going to help in predicting future exposure, and is therefore pointless. In such cases, the main use of the information from a personal noise dosimeter is to identify the times and operations which contribute to the exposure and the measures which will be effective in controlling exposure.

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2.6 Control of Noise in the Workplace

Reducing the risk of hearing damage and reducing noise exposure

The Regulations do not prescribe precise methods of noise control but recognise that many approaches will be valid depending on the circumstances. Some methods that could be used in your workplace are discussed below.

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2.6.1 Control of noise at source - Vibration isolation

Noise is generated by vibration of a surface or a fluid flow. Any modification of this vibration will modify the noise generated. The first stage is therefore to identify the vibrations which are causing the most significant contribution to the noise.

For instance, the stiffness of a vibrating surface can be modified if the structure is altered by bolting or welding ribs on the surface. The size of the surface can also be reduced or the surface can be isolated from the remaining structure.

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2.6.2 Damping

Damping treatments include coating the surface of sheet metal or bonding two sheets with the use of rubber-like or plastic materials. Also, structures which are bolted together rather than welded are usually more rigid and quieter.

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2.6.3 Silencers

Where the noise is caused by turbulent air or liquid flow in ductwork or at air exhausts or jets, these can be modified by reducing the velocity, fitting silencers,

limiting pressures and flows to the minimum required. Doubling the air flow rate within a duct can increase the noise levels by up to 15 dB(A).

Aerodynamic noise can be generated by fans and air jets. The basic control technique here is to reduce the speed of the fan or the air jet causing the air turbulence which is the source of the noise. However, with simple fan noise it is often most economic to install a silencer.

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2.6.4 Maintenance

Fans, even in small equipment such as office printers, may become dirty and so get out of balance and vibrate. Adequate lubrication is important because, apart from reducing wear, the wetting of surfaces in contact can reduce noise generation. Mechanical handling equipment such as component sorting, counting, transport and packaging often involves repeated impact. The use of plastics or rubber, which do not vibrate as readily as metal, can reduce noise.

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2.6.5 New machinery

When selecting new machinery it is important to select that which is least noisy. Ideally, this will have been a primary consideration at the planning and design stage. The purchaser should liaise with the supplier before installing any equipment and between them agree on appropriate noise specifications.

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2.6.6 Controlling noise at source: checklist of techniques

1. Adequate and regular maintenance of machinery.
2. Substitute a quieter machine or process.
3. Isolate/coat vibrating parts.
4. Apply coatings to vibrating panels.
5. Use mufflers or silencers on noisy air jets.

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2.6.7 Noise control in the open

Enclosing the noise source is clearly the most effective means of noise control in the open. Screens or barriers can be used but their value is limited because noise does not travel in precisely straight lines, but tends to curve round obstacles. The effectiveness of a screen depends on its height and length in relation to its distance from the source and its distance from the receiver. In general, a screen will be effective only if:

- it is higher than the source and higher than the receiver
- the source is close to the screen or the receiver is close to the screen (or both for maximum benefit)
- its length is greater than its distance from the source or the receiver (or both for maximum benefit).

The screen must be solid and continuous with no gaps or openings. A reflecting surface such as a high wall behind either the source or the receiver will reduce the effectiveness of the screen between them.

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2.6.8 Control of the noise path

The next method of noise reduction to consider is to modify the route which the noise must take to get from the source to the operator. One of the problems with this approach is that, unless the work is being carried out in the open, there will be a number of routes by which the noise reaches the operator. If the operator is within two metres of the sound source then most of the noise is likely to be received directly. As the distance between the operator and the noise source increases, so does the importance of the indirect routes, eg noise reflected off the ceiling or from the wall behind the machine or any other hard surfaces.

This means that any point in the room will be subjected to direct noise from the machine and indirect noise released off the other surfaces. This reflection of noise is known as "reverberation".

If the room has hard, flat surfaces and no openings, the reverberant level will be nearly constant over the whole room. Close to the machine most of the energy travels by the direct path from the machine so the presence of the room's walls and ceiling makes little difference. Further away, the reflected paths are more important and the total noise level approximates to a constant reverberant level. Inside a reverberant room a screen is likely to be of little value because noise energy, in effect, just bounces back and forth until it gets round the screen. The only noise path interrupted is the direct path which carries only part of the total noise energy reaching the receiver. If a machine is completely enclosed in a brick building or steel box the noise level is increased inside the enclosure as a consequence of reverberation. This effectively reduces the noise insulating value of the enclosure.

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2.6.9 Total or partial enclosure of noise source

The most obvious way of modifying the route from the noise source to the operator, and normally the most cost-effective approach, is to enclose, or partly enclose, the machine with a suitable sound absorbing material. This has the effect of reducing the direct noise which is normally the most important component. The more complete the enclosure, the more effective will be the noise attenuation.

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2.6.10 Simple noise barriers

The background noise component of exposure can be modified by using absorbent materials on the ceiling and walls of the building and therefore reduce the amount of the noise which is radiated back from these surfaces. The effectiveness of this type of acoustic treatment will depend on a number of factors such as the reflectiveness of the existing surfaces, the importance of the background noise level in the overall noise, the frequencies of the noise produced and the size, shape and layout of the

room. This acoustic or absorptive treatment is only useful where reverberant noise is a problem as it does not control direct noise. It is generally useful in two types of situation.

1. In large work areas containing local noise sources. The noise level remote from the machines can be reduced considerably and local screens can also be used beneficially. This can apply in a workshop, a large office with office machinery at one end or a computer room where one part is required as a quiet work area.
2. In a large work area with many noisy machines distributed through it, the total reverberant noise level may then be higher than the direct noise level at the operative's position beside each machine, so absorbent treatment is helpful.

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2.6.11 Distance

If machines cannot be silenced then moving or re-siting the machinery so that it is further away from workers will help to reduce exposure levels. Arrangements can be made for pipework to be re-routed or for exhausts to be discharged well away from workstations.

Groups of noisy machines can be sited together or noisy processes segregated so that less people will be exposed to them, and the area can be designated as an ear protection zone. By segregating the sources of noise, using protective equipment and setting up a job rotation scheme, exposure times can be significantly reduced. Introducing the use of remote controls can also have a beneficial effect.

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2.6.12 Basic noise control techniques: summary checklist

Presented with a noisy machine, the following steps could be followed.

1. Go round the machine, making observations as to where the noise is generated and how the energy is radiated into the air.
2. Take measurements of sound pressure levels round the machine, close to surfaces and further away.
3. Is it possible to modify the noisy machine in some way? If this is impracticable then it is generally necessary to employ one of the basic techniques of isolation, insulation or absorption.

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3 Prevention of Noise Exposure

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3.1 Ear protection

The Noise at Work Regulations 2005 (NAWR) make it clear that the use of hearing protection should be considered as a method of last resort or solely as an interim measure in protecting operators from noise.

When it is likely that exposure will be to the first action level or above in circumstances where the daily personal noise exposure is likely to be less than 85 dB(A), suitable and efficient personal ear protectors are available to those who request them. For exposures at or above the second or peak action levels, suitable ear protectors must be provided which when properly worn can be reasonably expected to reduce risk of hearing damage to below that caused by an unprotected exposure at these levels.

There are various forms of hearing protection equipment available including ear plugs, ear muffs and helmets. Each form of protection has its own specific characteristics. However, all types should:

- be comfortable and safe to use
- be aesthetically acceptable
- not provoke a toxic reaction in the wearer
- not impair speech communication.

Ear protectors provided must comply with any relevant UK legislation and be compatible with other protective equipment worn simultaneously.

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3.1.1 Ear plugs

Ear plugs are made of soft pliable material and fit in the ear canal. They may be separate or connected by a cord or neck band which can prevent loss. They can be permanent, disposable or reusable. Disposable ear plugs are probably the most commonly used and are generally made from plastic foam or glass wool covered in plastic. Their main advantage is that they will fit most people. Permanent ear plugs are made from rubber or plastic and come in a range of sizes so that they fit the individual ear more tightly. It is possible to obtain custom-made plugs.

Where reusable ear plugs are employed, the employer should have a system which ensures their regular cleaning and replacement. This may be important in hygiene sensitive areas, such as food preparation. Ear plugs are not suitable for all persons. If the user has experienced outer ear infection or irritation, care should be taken in their use and any medical opinion on suitability should be noted.

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3.1.2 Ear muffs

Ear muffs usually consist of hard plastic cups that sit over the ears. A soft seal containing plastic foam or a viscous liquid limits noise leakage through to the ears and the inner surfaces. These are normally covered in noise absorbing materials, again often a soft plastic foam. Cotton covers can be used over the cup seals in particularly hot environments as an aid to comfort.

Various kinds of headband are used to hold the cups in place, the selection of which may depend on the situation the ear muffs will be used in. A simple sprung plastic or steel band over the head is the simplest form which may be adjustable for pressure. Unfortunately this type is difficult to wear with a helmet of any kind. Soft bands that pass over the top of the head, using a pressure band behind the neck can be used

with helmets, but these can be inconvenient to use if they need to be removed frequently.

Where head protection is necessary, it may be beneficial to use ear muffs directly attached to the helmet and many manufacturers produce this type. If spectacles of any type are worn at the same time they may interfere with the cup seals.

While it would be simplest in most organisations to provide a single type of hearing protection for all staff in all areas in which they are needed, it can be seen that such a solution is not always possible. Most organisations tend to offer a selection of suitable equipment for use in each area and leave it to the individual to choose which to use on the basis of comfort, etc. Even so it is seldom necessary for a company to provide more than two specific types of ear plugs and two types of ear muff.

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3.2 Issue of PPE

Disposable and reusable ear plugs need no special procedure for their issue. They do have to be readily available, and instruction and training issues are as important as with the other forms of protection. They are especially useful for visitors or those infrequently exposed to noise. Any of the "permanent" type of plug should be fitted to individuals by someone trained in this process.

Ear muffs do not need specialist fitting but a check on complete coverage of the ears and completeness of the seal should be made.

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3.2.1 Maintenance

Hearing protectors must be in good condition to provide the designed noise reduction. Points that should be checked include:

- the condition of ear muff seals: they can become torn, detached and liquid seals can become hard or leak
- tension of headbands whether there has been unauthorised modifications, such as holes drilled in ear muff cups, noise-absorbing material removed or personal stereo speakers fitted
- general condition, resilience and softness of ear plugs and cleanliness.

These simple checks can be carried out by the users after suitable instruction and the use of a set of new protectors for comparison is good practice. Spare replaceable parts should be kept in stock and repair or replacement carried out immediately defects are discovered. Cleaning should be carried out regularly and scrupulous attention must be paid to this with reusable and permanent plugs. It is important to have clean hands when inserting plugs to prevent contamination of the outer ear canal during insertion. If ear muffs are to be re-issued to another person they must first be carefully cleaned and sanitised.

Proper facilities for storage must be provided to keep ear protectors secure. For plugs this could be a small plastic container in which they are often supplied; for ear muffs a locker or small individual container in a convenient location may need to be

provided. Cleanliness of the storage facilities, eg the small plastic supply bags for ear plugs is also important in stopping infection.

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3.2.2 Training

The training in use of protectors will depend on the types in use but should include:

- the correct method of ear plug insertion
- importance of correctly fitting ear muffs, making sure the seals fit all around and that no protection is lost through wearing spectacles or other intrusions
- the importance of cleanliness and methods of cleaning
- the importance of use at all times of exposure to the noise environment.

Records of training and subsequent issue of protectors should, as with all PPE, be kept.

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4 Ear protection zones

Any part of the premises where employees are likely to be exposed to the second action level or above, or to the peak action level or above as must be designated as an ear protection zone. Signage should include text indicating that this is an ear protection zone and that personal ear protectors must be worn whilst in the zone.

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5 Provision of Information

Every employer must provide employees who are likely to be exposed to the first or peak action levels or above with adequate information, instruction and training on:

- the risk of hearing damage that exposure may cause
- possible actions to reduce that risk
- steps to be taken by employees in order to obtain personal ear protection
- employees' obligations.

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PERSONAL PROTECTIVE EQUIPMENT (P.P.E.)

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1 **Summary**

The company has a duty under the Management of the Health and Safety at Work Regulations to carry out risk assessments for all significant risks. Where this risk

assessment determines that personal protective equipment is required the company has a duty to provide that equipment free of charge, to maintain and replace that equipment, to train employees in its use and to provide storage if required.

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2 Use of PPE

There are many uses of PPE which include:

- to provide protection in the event of something going wrong, eg something falling onto an employee's head or toes
- as back-up to other control systems
- first-line protection to enable a job to be done that could not be done otherwise, or at least with difficulty to protect the product, eg contaminants in the food industry.

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3 Provision of PPE

However, PPE should be used only as a "last resort", and then employers must provide appropriate PPE and training in its correct use (see Training). The Management of Health, Safety and Welfare Regulations 1992 (MHSWR) require all employers to identify and assess risks to their employees' health and safety at work so that appropriate action can be taken to eliminate or control those risks to an acceptable level. Elimination, engineering controls and use of safe systems of work should always be considered and implemented before PPE is used to protect against residual risks.

Where the risks are considered to be low and do not need further control, the provision of PPE is unnecessary. The adequate control of risks is the standard that has to be achieved. The duty on the employer is to do this "so far as is practicable" and it should be noted that this is a stricter duty than "so far as is reasonably practicable". This duty entails ensuring that the fullest extent of what is technically possible has been achieved: the cost of this is not relevant to the duty, even though PPE can be expensive.

There are cases where PPE cannot provide complete protection and the duty on the employer is to provide the PPE which offers the best protection to the user which is practicable when all factors (eg of risk and of the individual) have been considered. Clothing provided to protect against radiant heat and flames in the steel industry, or for fire-fighters, cannot provide total protection and so other measures to ensure the wearer's health and safety must be taken. PPE should not be used if the risk caused by using it is greater than the risk against which it is meant to protect.

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4 Suitability of PPE

In order for PPE to be suitable, certain ergonomic factors must be considered. PPE should, therefore, be selected bearing in mind the sort of work that is being done and the demands this may place on the employee wearing the PPE. This would include considering the following points:

- (a) the physical effort necessary for the task
- (b) any additional effort imposed by wearing the PPE
- (c) the method of work
- (d) how long the PPE has to be worn
- (e) requirements for visual ability of the wearer
- (f) ease of communication whilst wearing the PPE.

It is essential to consult with the potential wearers to ensure the most appropriate selection of these and other factors such as fit and comfort.

Other factors (this is not an exhaustive list) should also be considered if PPE is to be suitable:

- mobility
- dexterity
- manual handling
- hearing
- wind pressure if worn out of doors
- entry into restricted spaces
- thermal aspects
- decontamination.

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5 Compatibility

Each individual item of PPE must be designed so that it can be used with other items of PPE, where applicable. A common problem is the need for employees to wear eye protection and respiratory protection at the same time and, unless care is taken in the selection of both items, one may interfere with the correct fit and, therefore, protection of the other. Acceptability of the combination will influence whether the PPE is used hence employees should be involved in the selection. Where PPE is already in use, the desired characteristics should be compared with the specification of those already in use to ensure the required protection can be achieved.

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6 Assessment

As discussed in the above section, Provision of PPE, the MHSWR require all employers and the self-employed to carry out an assessment of risks to health and safety at work. The purpose of the assessment is to ensure that any PPE chosen as a means of controlling the risk or risks identified is suitable for the particular risks involved and the circumstances in which it is to be used. The level of risks which needs to be protected against must be assessed. An assessment should also consider the characteristics the PPE will need to have to protect against those risks.

For the simplest examples there is no need to record the assessment for the selection of PPE but it is still wise to keep a simple record of the hazard to be protected against and the type of PPE chosen. For more complex assessments, details should be recorded and kept readily available.

The risks at the workplace and the parts of the body affected are important aspects of the assessment.

Some of the tasks that could be considered for risk assessment include:

- using lasers
- spray painting
- use of adhesives and solvents
- steam cleaning
- welding
- working with power tools.

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7 Maintenance and Storage of PPE

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7.1 Maintenance

Once selected, a system of maintenance of PPE is necessary to ensure that PPE can continue to provide the designated level of protection. Maintenance will include cleaning, disinfection, examination for defects, replacement or repair and testing. Some or all of this may be done by the wearers after they have been properly instructed and trained.

A written system should be introduced which lays down the responsibilities for maintenance. The procedures to be followed, methods of examination, ways of cleaning and the frequency should be specified. Where appropriate, examination and testing should be recorded.

In most cases, PPE should be examined to ensure it is in good working order before being issued to a wearer. It should also be examined before actually being used and should not be used if found to be defective. This examination before use should be carried out by properly trained employees following manufacturers' information.

Where PPE is not issued for the sole use of an individual, arrangements for cleaning and disinfecting before re-issue will be required.

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7.2 Storage

Arrangements need to be made to keep PPE safe when not in use. This may range from hooks for outdoor coats or safety helmets to lockers for larger items. The accommodation may consist of a wallet or case for safety spectacles, which can be carried by the individual user. Where workers are mobile, suitable containers may need to be provided for storage in vehicles. The storage should provide adequate physical protection and prevent contamination from harmful substances. It should also keep PPE clean and prevent exposure to sunlight if necessary (eg plastic helmets can be adversely affected).

If the PPE becomes contaminated in use it may be necessary to have separate accommodation from that provided to individuals for their other work clothing or ordinary clothing. If particularly dirty activities are involved, the ease of cleaning the

storage facilities should be taken into account when planning and installing them. The The Workplace (Health, Safety and Welfare) Regulations 1992 deal with the requirement to provide accommodation for ordinary work clothing.

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8 Reporting lost or defective PPE

In addition, there must be arrangements for reporting lost or defective PPE, so that it can be returned to good working order before an employee needs it again. Employers must ensure that employees are informed of their responsibility to report any loss or obvious defect as soon as possible to their employer. The employer must also ensure that employees take reasonable care of any PPE issued to them and that they consult with their employer if they have any concerns about its serviceability.

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9 Standards of PPE

PPE has often been required to comply with established standards, for example eye protection has to be made to British Standard (BS) 2092, and this principle is now being extended within the European Community. The Personal Protective Equipment Directive (89/686/EEC) has led to the drawing up of Regulations to ensure appropriate standards for PPE used at work. The Personal Protective Equipment (EC Directive) Regulations 1992 (as amended) came into effect on 1.1.93. Under these Regulations, most PPE made or sold in the UK, including imports, must satisfy wide-ranging safety requirements based on various levels and classes of protection. For PPE of "simple design", it must be subject to a manufacturer's declaration of conformity. For PPE of "non-simple design" affording protection against minimal risks, it must be subject to type-examination by an Approved Body (an EC type-examination is a procedure carried out by a body approved by a Member State, to establish and certify that prototype PPE satisfies the relevant provisions of the PPE Directive (89/686/EEC)).

For PPE of "complex design" it must be subject to type-examination by an Approved Body and be subject to ongoing production surveillance by an Approved Body (or satisfy other approved methods of manufacture). It must carry the CE marking and necessary information (CE marking indicates that the PPE has been satisfactorily type-examined by an Approved Body or in the case of PPE of "simple design" the manufacturer has made a declaration of conformity). It must also be accompanied by instructions in the official language of the country of use. In addition, the manufacturer must draw up and keep available a technical file relating to the PPE. However, the requirements do not apply to PPE supplied in the EC before 1.1.93 or to PPE covered by other Directives designed to achieve the same objectives as this Directive, or to second-hand PPE, or to retailers of PPE.

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10 Purchasing PPE

From 30.6.95 virtually all PPE should carry a CE mark. After this date only CE marked PPE should be sold or purchased. PPE in use before the above date may continue in use for as long as it remains suitable for the use to which it is being put.

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11 Disadvantages of Using PPE

It should be remembered that use of PPE is expensive and may not provide the level of protection desired. PPE is seldom 100% effective, and its effectiveness is not easily measured. PPE may impede access, limit visibility or mobility and impose extra strain on the user, eg heat stress when wearing chemical protection suits.

Additionally, use of PPE is very dependent on good discipline but some users are careless, foolhardy or indifferent and hence the level of protection is not as good as it could be. PPE only protects the wearer or user. Measures controlling the risk at source protect everyone within range of the risk and are clearly more effective and desirable.

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12 Situations Where the PPE Regulations do not Apply

The PPE Regulations do not apply where, in any of the following sets of Regulations, there is a more comprehensive requirement for the provision and use of PPE:

- Control of Lead at Work Regulations 1980
- Ionising Radiations Regulations 1985
- Control of Asbestos at Work Regulations 1987
- Construction (Head Protection) Regulations 1989
- Noise at Work Regulations 1989 (NAWR)
- Control of Substances Hazardous to Health Regulations 1994 (COSHH).

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13 Charging for PPE

An employer cannot charge employees for anything done or provided in order to comply with a specific requirement of a relevant statutory provision. The PPE Regulations impose such a specific requirement where a risk assessment has been made under the MHSWR and a residual risk or risks exist after other control measures have been applied. Provision of PPE would, therefore, be a specific requirement. In these circumstances, no charge can be made by the employer for PPE which is used only at work.

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14 Duty of the Self-employed

Self-employed persons are also required to carry out assessments of risk to their own health and safety under MHSWR and have a duty to provide themselves with appropriate PPE where there are residual risks which cannot be controlled by any other means.

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15 Types of PPE

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15.1 Head protection

Head protection may be required in the following work processes:

- construction and building, particularly in the vicinity of scaffolding
- underground work including working in pits, trenches and tunnels.

Industrial safety helmets can protect against falling objects or impact with fixed objects and are the most commonly thought of type of head protection and the one normally found on building sites. On building sites there will be designated "hard hat" areas and it is mandatory to wear safety helmets in them. The only exception to this rule is turban-wearing Sikhs, who are exempt and so they should be considered in the risk assessment.

Most safety helmets are plastic and can be seriously weakened if paint is applied, if solvents are used for cleaning or if stickers are affixed. All these can chemically weaken the shell, causing deterioration. Storing helmets in the back window of a car, where they could be in direct sunlight or in heat, will quickly weaken the plastic. The employer must ensure that safety helmets are never modified by drilling holes or being cut, and the internal harness or headband must never be modified. Also employers must ensure that hard hats are never worn the wrong way round which is often seen as fashionable and trendy.

In all cases comfort is important and may be influenced by:

- the flexibility of the headband, its width, contour and adjustability
- a replaceable or easily cleanable absorbent sweat band
- textile cradle straps
- chin straps, if fitted, that do not cross the ears, are made from non-irritant materials, have smooth adjustment buckles and are compatible with other PPE.

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15.1.1 Issue and maintenance

The need for head protection has long been recognised and was made a legal requirement through the Construction (Head Protection) Regulations 1989. These Regulations do not require blanket usage of head protection, only where there is a risk of head injury. Once provided, the employees have a duty to wear the head protection properly.

Some activities and types of head protection may not come within the scope of the PPE Regulations.

Hairnets used for purposes of hygiene control would not be included but such hairnets used to contain hair where there was a risk of entanglement with moving machinery would be.

Motorcycle crash helmets used by employees on the public road would not be included, as road traffic legislation is more relevant, but s.2 of the Health and Safety

at Work, etc Act 1974 (HSW Act) still applies. There may be times when such helmets are required at work, for instance when employees drive all-terrain vehicles or motorcycles on farmland; in these cases the Regulations would apply.

It is important for all forms of head protection to fit correctly and manufacturers' guidance on this should be followed. All forms of head protection must be compatible with the work being done.

Head protection used in the food industries must be easy to clean, whilst that for use on building sites must be robust. A chin strap is essential if much stooping or leaning forward is necessary. For hardened forms of protection, the shell must be the correct size, and harnesses, nape band and chin strap of safety helmets easily adjustable for the individual wearer. The size should be capable of incorporating thermal liners if these are to be used during the winter. If other hazards are likely to be present in the workplace, this could require other PPE which may interfere with the safety helmet. If high noise levels are likely to require the use of hearing protection, for example, then a safety helmet design incorporating ear defender attachments may be most appropriate.

Head protection is often seen lying around when not in use but, as with any other equipment, correct storage to maintain its performance, and to minimise replacement costs, is essential. It should be visually inspected regularly by the users to identify any damage or to see if there is a need to replace sweat bands or chin straps. If it is to be reissued to another person, it must be thoroughly cleaned, inspected and serviced as necessary.

Plastic shells can be damaged through striking or being hit by falling or thrown objects. They should be replaced if a severe impact has occurred and if there are deep scratches or any visible cracks. Further reduction of protection can result from exposure to chemicals, exposure to heat or sunlight, ageing due to heat, sunlight, humidity or rain.

Head protection should never be stored in that commonly seen position on the rear parcel shelf of the car, or on radiators or window sills.

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15.2 Eye protection

Eye protection may be required in the following:

- handling chemical substances such as acids, alkalis and other corrosive or irritant substances
- working with molten metals
- working with abrasive wheels or any machine likely to eject particles
- during welding operations where intense light may otherwise cause damage to the eye.

Types of protectors available include safety spectacles, eyeshields, goggles, visors or faceshields.

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15.2.1 Safety spectacles.

These appear similar to prescription spectacles but usually incorporate sideshields to give limited lateral protection to the eyes. They provide protection against lesser impacts, the lenses being made from toughened glass or tough optical quality plastic such as polycarbonate. Most manufacturers are able to supply a range of safety spectacles fitted with prescription lenses.

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15.2.2 Eyeshields. Eyeshields are like safety spectacles but usually designed with a frameless, one-piece moulded lens. Vision cannot be corrected as with safety spectacles but certain designs of eyeshield may be worn over prescription spectacles.

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15.2.3 Faceshields. Faceshields protect the face but as they do not fully enclose the eyes, and they do not provide protection against dusts, gases, mists or vapours. With appropriately designed brow guards and shield, they may give a high level of protection against direct splashing of liquids and may give a high level of impact protection.

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15.2.4 Goggles. Goggles usually consist of a flexible plastic frame into which is fitted a one-piece lens and they usually have an elastic headband. They give a greater degree of protection than spectacles or eyeshields as the tough plastic frame should be in contact with the face around its whole periphery. Lenses may be of plastic or toughened glass and are usually replaceable. Goggles are prone to misting and over the years many designs have been developed to reduce this. Some may be double glazed and/or treated with an anti-mist coating. Vents may be fitted and consist of perforations around the frame to give "direct ventilation" but these reduce the level of protection against dusts, gases or splashes.

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15.2.5 Issue and maintenance

If assessing the risk of eye injury and the need for protection, employers should identify the type of hazard present such as liquid splashes or projectiles. The likely size and speed of projectiles will influence the type of eye protection most suitable. Eye protection can then be selected from CE marked eye protectors available for protection against different risks such as liquid splashes, molten metal splash, dusts, gases, chemical splash or impact. Eye protection should usually be issued on a personal basis and then used only by that person. If eye protection is reissued to another person it should first be thoroughly cleaned and sanitised. A suitable record of issue should be kept. Eye protectors should be protected by being kept in suitable cases when not in use. Larger items, such as visors, may need to be kept in small lockers.

The following should be remedied immediately:

- damage to side frames of spectacles
- loose sideshields
- elastic bands losing their elasticity
- damage to visor support headbands

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15.3 Hand and arm protection

Hand protection may be required for the following work practices:

- handling chemical substances where there is a risk of dermatitis or of damage to skin tissue
- during construction and outdoor work
- where there is a risk of cuts or abrasions
- where articles may be hot, cold or slippery
- where there is a risk of electrical shock when using vibratory tools.

The range of gloves and other protection is vast with different materials having different properties.

Gloves can be made up of anything from PVC which are resistant to oil, grease, acids and solvents to latex which has excellent strength and temperature resistance.

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15.3.1 Issue and maintenance

As well as the types of gloves there are also many variation within that length and thickness, lining, grip, cuff style and of course size. The glove is often seen as a simple, easily used form of protection. It is not. Care in selection must be followed by proper training of the wearer in their use. This must include training in inspection for holes, cuts, distortion or wear before use. The training must explain the hazards being protected against, and any limitations of the protection being issued. It must also be properly recorded.

Cleaning of gloves is very frequently overlooked yet can significantly improve their life expectancy and reduce the risk of cross-contamination and development of skin irritation or dermatitis. Repeated washing may remove fungal or bacterial inhibitors from linings which will need to be replaced.

Methods of donning and removing gloves should be explained as this can seriously influence the risk of skin contamination. Gloves contaminated on the inside can be a frequent problem. Washing before removal is one aid to reducing this risk. During use, good discipline by the wearer is needed to prevent touching other parts of the body, especially eyes and mouth.

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15.4 Foot and lower leg protection

Foot protection may be required in the following:

- where there is a risk from molten metal splashes

- to prevent injury from falling objects
- where special slip-resistance is required
- in flammable atmospheres, where the build-up of static electrical charges creates a risk of explosion.

Foot protection encompasses the use of:

- safety boots and shoes
- wellingtons, often including protective toecaps
- clogs
- footwear to control anti-static or electric hazards
- specialised boots or footwear relevant to industry hazards.

In the foundry industry, protection may include gaiters used in conjunction with boots to provide protection to the leg and foot from splashes of molten metal.

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15.4.1 Issue and maintenance

Boots and shoes should have treaded soles to give slip resistance. They may need to be resistant to oil, heat, chemicals, be anti-static or electrically conductive and provide impact shock protection.

Soles which are stitched or glued to uppers may leak or separate exposing the foot to the hazard.

Footwear with steel midsole protection may be needed where there is a risk of penetration injuries from nails or similar objects.

Footwear for use in very wet activities must be impervious to water. Rubber and PVC may be suitable but as they are not "breathable" materials there may be a build-up of heat and condensation within the footwear. There are some "breathable" materials now in use that can be more comfortable in some circumstances. Also it must be taken into consideration that water or other fluids may spill over the top of the boots.

Leather or other heat-resistant materials may be needed to protect against molten metal, radiant heat or sparks from welding or gas/plasma cutting activities. Wooden clogs can provide excellent heat insulation where work is carried out on high temperature plant.

Anti-static footwear helps to protect against static electricity. The soles have a low resistance that allows a static charge to leak away but which is high enough to give some protection from electric shock. This type of footwear may be used as part of a system to reduce risks of static ignition of flammable atmospheres.

Conductive footwear has a very low resistance and allows static to flow through rapidly. It is used when handling electronic components which are very sensitive to static. It gives no protection whatsoever from electric shock.

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15.5 Body protection

Body protection may be required for the following:

- as warm clothing when working outdoors in low temperatures, or in cold-stores
- protection against intense heat and/or flame-retardant clothing when working at a foundry, or with welding equipment
- high-visibility clothing when working in the vicinity of moving traffic such as, airports, etc cut-resistant clothing when using chain saws or butcher's knives
- lifejackets when working near deep water.

For general body protection, aprons, coats or boiler suits give protection very much dependent on the material of construction. "Breathable" waterproof fabrics will keep out water whilst allowing a certain amount of water vapour from perspiration to escape. Specialised clothing for work in harsh environments includes insulated suits, waterproofs and cooling garments for use in very hot conditions. Suits are also available to provide protection in very cold environments.

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15.5.1 Issue and maintenance

Some of the PPE described above is very specialised and will require considerable training of the users. It should only be used for the purpose for which it is intended and be regularly checked for damage, wear and tear that indicate a need for repair or replacement.

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16 Training

Employees must be given adequate and comprehensible instructions, information and training in:

- the purpose for which PPE has been provided
- the risks that it will protect against
- the correct method of use
- the employee's part in ensuring that PPE remains in an efficient state, properly working and in good repair.

For the simpler items training will be short and easily organised using employees as trainers, who have themselves become "competent" by training using manufacturers' literature and guidance. With more complex PPE it may be necessary to have trainers trained by manufacturers or suppliers, or in some cases have the actual training carried out by them.

Provision of information and training is only of benefit when the employee fully understands all of the content. English may not be the first language of some employees, so allowance may have to be made for this in the way the material is presented. It may be necessary to provide the training in the employee's mother tongue.

Even when English is the first language, some people may have difficulty understanding technical information and sufficient explanation must accompany provision of written materials. A full understanding of all the training aspects listed

below must be achieved and in some cases the practical training can be slightly adapted to form part or all of a practical assessment, of knowledge and skill.

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16.1 Theoretical training

Theoretical training should generally include:

- an explanation of the risks
- why PPE is required
- the limitations of the PPE
- how it works and its performance
- instructions in the selection use and storage of PPE
- any written procedures, permits to work or systems of work that require PPE should be explained
- factors that can reduce the performance of the PPE, eg wearing other PPE that interferes with it
- recognising defects in PPE and the arrangements for reporting defects and any loss
- the duties of the employee under the relevant legislation

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16.2 Practical training

This should include:

- practice in putting on, wearing and taking off the PPE
- instruction and practice in carrying out inspections and if appropriate the testing of PPE before use
- instruction and practice in the maintenance which may be done by the user and replacement of components.

With some PPE there will be limits placed on what the wearer is allowed to clean or repair and this must be clearly explained instruction in the safe storage of the PPE. In addition to initial training, users of PPE will require refresher training from time to time. Records of both initial and refresher training should be kept along with details of the content of the training programme.

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16.3 Training in the use of specific PPE

The following gives advice on how to train employees to use specific types of PPE. The general advice given above should be taken into consideration at the same time.

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16.4 Training in use of head protection

Training should include the correct fitting of head protection to the individual user, and information about what it is capable of protecting against and what its limits for protection are. The following must be adequately covered:

- correct adjustment
- the need to wear protection correctly

- how to clean and inspect for damage
- how to obtain replacements
- correct storage, eg not in car rear windows.

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16.5 Training in use of eye protection

Training should take account of the types of eye protectors in use, the hazards they are protecting against and the likely exposure to dirt and contamination. It should include:

- limitations of protection
- the hazards the wearer may be exposed to
- how to adjust side frames of spectacles, retaining straps or headbands
- how to use specialised equipment such as flip-up welding goggles
- recognising wear and tear and defects
- correct cleaning
- storage
- the need for prompt reporting of loss or damage to allow speedy replacement.

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16.6 Training in use of hand protection

The glove is often seen as a simple, easily used form of protection. It is not. Care in selection must be followed by proper training of the wearer in their use. This must include training in inspection for holes, cuts, distortion or wear before use. The training must explain the hazards being protected against, and any limitations of the protection being issued. It must also be properly recorded.

Cleaning of gloves is very frequently overlooked yet can significantly improve their life expectancy and reduce the risk of cross-contamination and development of skin irritation or dermatitis. Repeated washing may remove fungal or bacterial inhibitors from linings which will need to be replaced.

Methods of donning and removing gloves should be explained as this can seriously influence the risk of skin contamination. Gloves contaminated on the inside can be a frequent problem. Washing before removal is one aid to reducing this risk.

During use, good discipline by the wearer is needed to prevent touching other parts of the body, especially eyes and mouth.

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16.7 Training in the use of footwear protection

The hazards to which the employee is exposed and the protection afforded by the footwear should be explained including any limitations in the protection. Where the footwear has to be worn in a particular way (ie foundry boots and gaiters) there must be clear instruction and practical demonstration given. Records of both issue and of training and instruction should be kept.

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16.8 Training in the use of body protection

Some of the PPE used to protect the body is very specialised and will require considerable training of the users. It should only be used for the purpose for which it is intended and be regularly checked for damage, wear and tear that indicate a need for repair or replacement. As with other training a record should be kept.

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17 Employees whose first language is not English

Provision of information and training is only of benefit when the employee fully understands all of the content. English may not be the first language of some employees, so allowance may have to be made for this in the way the material is presented. It may be necessary to provide the training in the employee's mother tongue. Even when English is the first language, some people may have difficulty understanding technical information and sufficient explanation must accompany provision of written materials.

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PREGNANT WOMEN IN THE WORK PLACE

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1 Summary

The company's duties to ensure the health and safety at work of employees means that it has to take factors into account that may put certain individuals more at risk than others.

For women pregnancy, recent childbirth and breastfeeding may put them, or their children, at increased risks in certain situations at work. Employers must make sure that risks to new or expectant mothers at work (and their baby) are assessed and controlled in the same way that risks to all employees must be assessed and controlled.

Factors that may put new and expectant mothers at increased risk include the following:

- Physical, e.g. radiation, manual handling, shock and vibration
- Substances, e.g. lead
- Biological
- Working conditions.

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2 Definition of a pregnant woman.

A new or expectant mother is someone who is pregnant, has given birth within the previous six months, or is breastfeeding.

Giving birth means having delivered a baby, either live or stillborn, after at least 24 weeks of pregnancy.

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3 Duties of the employer.

The Health and Safety at Work Act 1974 is the primary piece of health and safety legislation, and section 2 places a general duty on employers to ensure the health, safety and welfare of employees at work, so far as is reasonably practicable. As this

duty is owed to employees individually, not to employees collectively, consideration should therefore be given to anyone who is, or may be, at particular risk, which includes new and expectant mothers.

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4 Duties of the employee.

The Act places a personal duty on employees to ensure their own health and safety at work, and to ensure that their actions do not pose a risk to the health and safety of anyone else. This personal responsibility on each individual employee has a greater implication for pregnant women and nursing mothers.

They not only have a duty of care to themselves but also to their unborn, or newly born, children, where any actions they may take in the course of their employment puts them, or their children, at unnecessary or unacceptable risk.

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5 What Notification is required?

The Management of Health and Safety at Work Regulations 1999 specifically state that employers are not required to alter the hours of, or suspend from work, a new and expectant mother unless she has given them written notification that she is pregnant, has given birth within the previous six months, or is breastfeeding.

Employers are also not required to allow a woman to continue working altered working hours or continue on suspension from work if:

- She does not give them a medical certificate confirming her pregnancy within a reasonable period after notifying them.
- The employer knows that she is no longer a new or expectant mother.
- The employer is unable to find out whether or not she is still a new or expectant mother.

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6 What is the risk from Display Screen Equipment (DSE)?

Since the introduction of to the office environment, and the subsequent proliferation in the use of Display Screen Equipment in almost all working environments, the related health and safety aspects have been the subject of much conjecture.

Initial concerns were centred on the belief that there might be some risk from radiation, particularly to the unborn child of a pregnant worker, however there has been no scientific evidence provided to support this theory.

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7 What Pregnant workers and managers must be aware of?

Frequent exposure to shocks and low-level vibration, e.g. from driving on rough terrain, may create a greater risk of miscarriage, due to actions which may cause a detachment of the placenta from the womb. The long-term effects of exposure to vibrations may be thought to create an increased risk of premature births and lower birth weights. The work of pregnant women should therefore be organised so that exposure to shocks and vibration is avoided.

The risk of injury resulting from manual handling activities may be increased due to the weakening effect on ligaments caused by the hormonal changes that occur during pregnancy. The controls needed depend on the level of risk, but it may be necessary to reduce the amount of manual handling carried out by pregnant workers, e.g. by giving them less physical work or providing them with manual handling aids.

Standing for long periods and the strain of heavy physical work is known to increase the risk of miscarriage, premature birth and low birth weight. Pregnant women should avoid heavy physical work and should be given relief from standing, e.g. by having seating available, taking frequent breaks and organising their work so they do not have to stand for a long time.

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8 Working Conditions.

Working conditions can have a significant effect on the health of new and expectant mothers. For example, unsuitable seating, prolonged static postures, long hours, shift work, lack of space, lack of readily accessible toilets, etc are all associated with the work environment and may all adversely affect the health of new and expectant mothers.

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9 Workplace Facilities.

The Workplace (Health, Safety and Welfare) Regulations 1992 require suitable rest facilities to be provided for pregnant or nursing mothers.

These facilities should include a comfortable chair for pregnant workers to rest and preferably somewhere to lie down. It is also good practice for the facilities to allow privacy for nursing mothers to express milk and a refrigerator or freezer where they can safely store expressed milk.

Arrangements must additionally be implemented to protect non-smokers from the effects of tobacco smoke in rest facilities. This is an important consideration for pregnant women, given the known adverse health effects of tobacco smoke during the early stages of pregnancy.

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10 Risk Assessment

Risk assessments carried out under the Management of Health and Safety at Work Regulations 1999 must be extended to new and expectant mothers.

The methods used will be the same as those used to assess the risks to all of employees, but the extra risk factors introduced by pregnancy, recent childbirth and breastfeeding should be taken into account.

A risk assessment involves identifying the hazards, evaluating the risks (taking into account the likelihood and severity of the outcome) and determining the necessary control measures associated with each of the following factors:

- Work activities
- Materials, articles and substances used or produced
- Work equipment
- Workplace, workstation and working environments.

The risk assessment should also identify exactly who is at risk from each hazard, and include consideration of all the work procedures in place at the time of the assessment.

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RISK ASSESSMENT

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 - 9.2 [Young Persons](#)

1 Summary

Regulation 3 of MHSWR states that a risk assessment must be carried out by a competent person for the purpose of identifying the measures that employers or self-employed persons must take in order to comply with their duties under all applicable health and safety legislation. The regulations require that all activities must be the subject of a risk assessment but only **significant** risks need to be documented (if five or less employees then none need to be documented). The problem is that if an accident occurs then that risk must have been significant and therefore a risk assessment should have been done. Also, all risk assessments must be **suitable and sufficient**. That is, they must be comprehensive enough to cover all practical eventualities.

All activities must be made as safe as is reasonably practicable so the risks must be quantified. There are various methods of doing this but the purpose is to ensure that residual risks (that is, after taking precautions, called control measures) are as low as practicable. So the risk assessment may show that a task has high, medium or low risks, or it may give the risks a numerical ranking. In the latter case there must be a key to show the significance of the number. Any task which shows a high risk should not be carried out – further control measures must be put in place to reduce the risk. Even medium risks must have extra precautions to reduce the risk further. Remember that by stating a task has a significant residual risk you are admitting liability in the event of an accident if you have not taken all “reasonable & practicable” precautions

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2. Hazard and Risk

2.1 A hazard can be defined as something with the inherent potential to cause harm or injury. Risk can be defined as the likelihood of harm or injury arising from a hazard.

2.2 Examples of hazards and the associated risks include:

- handling of chemical substances — there may be a risk of exposure to the chemical
- walking upon floor surfaces — there may be a risk of slips, trips or falls
- climbing up or down ladders —there may be a risk of falling from, or collapse of, the ladder
- use of electrical equipment — there may be a risk of electrical shocks or burns.

2.3 The extent of a risk can only be quantified by an examination of the adequacy of any existing control measures. In first example above, factors that would greatly increase risk include use of unlabelled containers, lack of employee training and poor ambient lighting. Those particular risks can be effectively reduced by means of control measures such as ensuring that containers are properly labeled, that employees have sufficient training and that lighting is suitable for the task.

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3 Scope And Extent Of An Assessment

3.1 A suitable and sufficient risk assessment is one that:

- correctly and accurately identifies a hazard
- disregards inconsequential risks and those trivial risks associated with life in general
- determines the likelihood of injury or harm arising
- quantifies the severity of the consequences and the numbers of people who would be affected
- takes into account any existing control measures
- identifies any specific legal duty or requirement relating to the hazard
- will remain valid for a reasonable period of time
- provides sufficient information to enable the employer to decide upon appropriate control
- measures, taking into account the latest scientific developments and advances
- enables the employer to priorities remedial measures.

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4. Generic Assessments

- 4.1 Generic risk assessments are "model" assessments designed to cover more than one undertaking in which the risks associated with particular types of workplace, work activity, plant and substance, etc may be common to all.
- 4.2 Regulation 3 of MHSWR requires an employer to make a suitable and sufficient assessment of risks. If an assessment made at one site is to be used at another, whether or not the employer is in control of both sites, the employer has to review and assess the assessment and make any necessary revisions to ensure the assessment is suitable and sufficient for all the circumstances in which it is to be used. Thus the position of an employer, for example a major bank which makes model assessments for use by all its branches, is exactly the same as a single site employer which acquires copies of assessments made by a similar enterprise or recommended by a trade association or commercial publisher, etc.
- 4.3 A generic risk assessment, therefore, must be assessed and any necessary modifications made to adapt it to the circumstances in which it is to be used. Nonetheless, an appropriate generic assessment can save considerable time: managers at a site can start with a generic form that includes information about hazards, risks and precautions which they can review and make the changes needed to render it suitable and sufficient. However, an inappropriate generic assessment can also waste time: after struggling to understand the form and relevance of information in a model assessment, the managers at the site may eventually start afresh and model their own form.

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5. Setting Priorities

- 5.1 The risk assessment should enable the employer to prioritise remedial measures. In many cases it will be clear to the competent person that some risks require attention before others. Where there is uncertainty, a "risk rating" may be attributed to each identified hazard by using a simple formula, such as that given below. The risk rating is the effect of hazard multiplied by the likelihood of harm.

5.2	Effect of hazard		Likelihood of harm	
	Major	H	High	H
	Serious	M	Medium	M
	Slight	L	Low	L

It may also be necessary to apply a weighting factor to take account of the numbers of people exposed. For example, for a given process if there is a 1 in a 1000 risk (call it a medium risk) of someone getting seriously injured in a year then a workforce of 5 will, statistically, have an accident every 200 years, but a workforce of 1000 will have one every year, which now becomes a high risk. The smaller company could argue that the medium risk was acceptable but the larger company, for the same process, would **have** to add controls to reduce the same risk further.

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6. Reducing Risks

6.1 The employer is under a general duty to reduce risks, so far as is reasonably practicable. The following “hierarchy of control measures” is given in regulation 4 and schedule 1 of MHSWR:

- avoid risks
- evaluate risks which cannot be avoided
- combat risks at source
- adapt work to the individual, taking into account workplace design, selection of work equipment, work and production methods, so as to eliminate monotonous work and work performed at a pre-determined rate and reduce the associated effects on health
- adapt to technical progress
- substitute the dangerous for the non or less dangerous
- develop an encompassing prevention policy which addresses technology, work organisation, working conditions, working environment and social relationships

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7. Limits of reasonable practicability

In order to establish the limits of reasonable practicability, the employer (which in practice means the competent person(s) appointed by the employer under regulation 6 of MHSWR) must decide on the most effective control measures possible having balanced the degree of risk to employees or others against the cost (in terms of money, time and trouble) of eliminating or minimising that risk. A risk assessment will therefore in some cases involve a cost/risk analysis to establish which of various proposed control options is the most cost/risk effective.

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8. So far as is practicable

There are a few circumstances where it is necessary to go beyond not only the minimum standards set by specific regulations but beyond even the limits of reasonable practicability. This is where subordinate legislation imposes a requirement qualified by the term so far as is practicable. This generally means that the most effective risk control which is technically feasible must be used, irrespective of cost and inconvenience to the employer. An example is with regards to electricity where the requirement for safety is **absolute** rather than as far as reasonably practicable.

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9 Specific Requirements for Risk Assessment

The general requirement to carry out assessment of risks to employees at work has been extended by a number of subsequent Regulations.

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9.1 New and expectant mothers at work

Regulation 13 of the Management of Health and Safety at Work Regulations 1992 has been modified by the Management of Health and Safety at Work (Amendment) Regulations 1994. These changes impose additional provisions relating to pregnant women, women who have recently given birth or who are breastfeeding (new or expectant mothers).

These provisions include extending the risk assessment required under regulation 3(1) of the 1992 Regulations to women of child bearing age or to new or expectant mothers where they may be exposed to any process, working condition or physical, chemical or biological agent which may adversely affect their health and safety or that of their baby.

HSG122: New and Expectant Mothers at Work details the following specific risks:

- physical agents such as shock, vibration or other movements; manual handling of loads; noise; ionising and non-ionising radiation; temperature extremes; postures and movements that cause mental and or physical fatigue; and hyperbaric (high pressure) atmospheres
- biological agents such as bacteria, viruses and other micro-organisms known to cause adverse human health effects, especially those known to cause abortion or physical/neurological damage
- chemical agents such as mercury, lead, substances absorbed through the skin, cytotoxic drugs, carbon monoxide and chemicals labelled with the following risk phrases:
 - R40: possible risk of irreversible effects
 - R45: may cause cancer
 - R46: may cause heritable genetic damage
 - R61: may cause harm to the unborn child
 - R63: possible risk of harm to unborn child
 - R64: may cause harm to breastfed babies
- working conditions which includes underground mining.

Additionally, guidance regarding infection risks has been published. Infection Risks to New and Expectant Mothers in the Workplace: A Guide for Employers, ISBN 0 7176 1360 7, is available from HSE Books and deals specifically with these potential problems.

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9.2 Young persons at work

The Health and Safety (Young Persons) Regulations 1997 modify the Management of Health and Safety at Work Regulations 1992 to ensure adequate protection for young persons, i.e. under the age of 18 years, at work. Several existing pieces of legislation which are no longer relevant, have been repealed/revoked.

The new requirements place a duty on employers to assess the risks to young persons working in their undertaking, with particular regard to their lack of experience, absence of awareness of associated dangers, and immaturity. The assessment must be carried out before the young person starts work, and the assessment outcome, including necessary control measures, reported back to the young person's parents or guardian.

Where the assessment identifies harmful exposure to:

- toxic and carcinogenic substances
- radiation
- extreme temperatures, vibration and noise
- work beyond the young person's physical or mental abilities, or any risks that are unlikely to be recognised by the young person

then, the young person will be prohibited from any employment that exposes them to such risks. These prohibitions will not apply to young persons over school leaving age who are undertaking a vocational training programme.

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SAFETY SIGNS

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1. INTRODUCTION

- 1.1. Safety signs and warning notices will be used as required by relevant Regulations, where a risk has not been adequately controlled by other methods and where they could be used as an aid to hazard identification. Safety signs will comply with the Health and Safety (Safety Signs and Signals) Regulations as follows:

2 STOP OR PROHIBITION

- Colour Red
- Contrasting Colour White
- Symbol Colour Black



Description of Sign - Red circular band and crossbar over black symbol on white background

3 CAUTION OR RISK OF DANGER

- Colour Yellow
- Contrasting Colour Black
- Symbol Colour Black



Description of Sign - Yellow triangle with black band and symbol

4 MANDATORY ACTION

- Colour Blue
- Contrasting Colour White
- Symbol Colour White



Description of Sign - Blue circular disc with white symbol

5 SAFE CONDITION

- Colour Green
- Contrasting Colour White
- Symbol Colour White



Description of Sign - Green square or rectangle with white symbol

STRESS POLICY

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2. [Objective](#)
3. [What is Stress?](#)
4. [What can cause harmful stress?](#)
5. [What can be done to tackle the causes of stress?](#)
6. [Working With People With Too Much Harmful Stress](#)
7. [Action Taken By The Company To Deal With Stress](#)
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1. Summary

Stress is part of everyday life – it can have positive or negative effects on health. However, what is of concern is the stress which causes people harm, and how this can be dealt with.

Stress at work can be harmful both to the individual it affects and their performance at work. Therefore it is in the interests of individual employees and the company to deal with harmful stress.

The company Limited has a duty of care, as set out in health & safety legislation, towards its employees to provide a healthy and safe working environment. It is essential that managers and employees throughout the organisation take action to manage those things, which cause harmful stress at work.

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2. Objective of Policy Statement

The objective of this Policy Statement is to ensure, so far as is reasonably practicable, that no person is placed in a position where work stress is caused as a result of their employment with the company

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3. What is Stress?

3.1 Stress is the reaction people have to excessive pressures, or other types of demand placed upon them.

3.1.1 Stress can involve:-

- **Physical effects**, such as raised heart rate, increased sweating, headache, dizziness, blurred vision, aching neck and shoulders, skin rashes; and lowering resistance to infection.

- **Behavioural effects**, increased anxiety and irritability, a tendency to drink more alcohol and smoke more, difficulty in sleeping, poor concentration and an inability to deal calmly with every day tasks and situations.
- **Employment effects**, if untreated, continual stress has a detrimental effect on performance and, therefore, on the quality of service provided. It is therefore in the interests of the employer to recognise dangers of stress and to ensure that effective measures are put in place to identify stress and to provide effective remedies.

3.2 These effects are usually short-lived and cause no lasting harm. When the pressures, recede, there is a quick return to normal. However, where the pressures are intense and continue for some time the effects of the stress can be far more damaging, leading to longer-term psychological problems and physical ill health.

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4. What can cause harmful stress?

4.1 People react differently to the pressures placed on them. These are examples of causes of harmful stress:

- Relationships at work – social or physical isolation, poor relationships with managers, interpersonal conflict including bullying, harassment, or clash of personalities.
- Factors intrinsic to the job – some jobs contain elements which are inherently stressful. High exposure to customer/clients particularly if emotional issues have to be dealt with or peoples demands cannot be met.
- Poor communication.
- Workload – too high a workload, or too little work, lack of control of work pacing.
- Participation and involvement in decision making – lack of control over work and how work can be or is changed, i.e. lack of empowerment.
- Changes at work – major and rapid changes, particularly if the goals and objectives of the organisation or for individuals are not clear.
- Culture at work – the way we work and the informal pressures people feel, for example working long hours, skipping lunch breaks.
- Job design – lack of variety, difficult work schedules, under use of skill.

- Pressures from home – conflicting demands of work and home especially if the employer does not try to accommodate the employee's needs, low levels of support at home, personal trauma.
- Expectations of employees – some employees have too high expectations of what the Organisation might do to accommodate their circumstances and concerns.

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5. What can be done to tackle the causes of stress?

5.1 Managers must take action to reduce factors that may cause harmful stress. These are examples of the issues which managers should tackle.

- Recruitment and Selection, induction and probation – it is important to have the right people in the right jobs, to support them properly, and assess/review their performance when they join the organisation or change jobs.
- Supporting People – regular communication with managers and supervisors, encouraging and enabling teams to be supportive, proper use of formal systems such as Staff Development Reviews will give people feedback and support, and the opportunity to express concern. It is the responsibility of managers to communicate effectively and not wait for problems to come to them.
- Clear goals and priorities – this needs to be tackled across the organisation at service level and for individuals.
- Dealing with inappropriate behaviour at work – employees should raise problems or concerns about the behaviour of managers or colleagues and when this happens managers must deal with the complaints effectively and sensitively. Particular kinds of unacceptable behaviour such as harassment or bullying should be dealt with effectively.
- Involving people in decision making – appropriate participation and involvement in making decisions about making improvements at work, helps people to have more control over their work which should help to increase job satisfaction and performance at work.
- Having reasonable expectations – what the organisation expects from employees and what employees might expect from the organisation needs to be clearly communicated.
- Helping to balance work and home issues – at certain times employees may have greater demands placed on them by their home circumstances. This may be helped by temporarily adjusting working hours or schedules or granting Special Compassionate Leave.

- Identifying the causes of stress by completing a stress risk identification form with any member of staff returning from sickness absence caused by stress. The progress of the individual and any identified action should be reviewed regularly by the line manager.

5.2 Employees should also try to manage their own stress and seek ways of doing this.

- Sleep well, eat well and exercise well.
- Take time out.
- Take holidays.
- Learn relaxation techniques.
- Keep a diary and see if you can do anything about stressful situations – find possible solutions.
- Plan your time – if you feel in control you will feel less stressed.
- Ensure you plan fun and relaxation.
- Talk to people. If you have any problems which are causing you stress you must make your line manager aware of this. If you feel that your line manager is not responding talk to your “grandparent manager”.

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6. Working with People with Too Much Harmful Stress

6.1 Employees will react to harmful stress in different ways, but when people do react adversely to stress it is important that managers take action to tackle the problems.

6.2 Employees who feel they are suffering with stress can seek advice and support from a variety of sources.

- **Managers** – if employees raise problems or concerns it is essential they are seriously considered and that managers take the appropriate action to either assist the employee to manage the stress, in the short term, and to tackle the causes of stress.
- **Occupational Health** – confidential counselling is available for employees to explore their concerns and seek advice on how to manage their stress or tackle the cause of their stress.

6.3 The following need to be considered:-

- Employees who are absent from work with stress should be consulted about the causes of their stress.
- Action should then be taken to deal with the causes of their stress. If this is not possible it may be necessary to look for an alternative job. People may be able to cope with the tasks of the job but may find that other factors cause difficulties, e.g. lack of support from managers and/or colleagues. If this is the case, these factors need to be dealt with. Generally it is not acceptable to return people to the same situation they faced before they were sick. In addition, work that has not been carried out in that persons absence should be controlled. It is not acceptable for people to return to work that has been left and therefore piled up.
- Employees should be encouraged to return to work as soon as possible, but only if they are well enough. For this to happen it may be appropriate for employees to work on a phased basis.
- When somebody returns to work after illness as a result of stress they need support, encouragement and the situation needs to be monitored and documented. There will be an agreed plan of action and monitoring between the staff member and their line manager for the process of re-integration into work.
- In some cases, if the person's illness is severe, or long term, ill health retirement may be considered.

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7. Action Taken By the Company to Deal with Stress

7.1 The company is seeking to tackle harmful stress by taking the following specific actions:-

- To offer confidential advice and counselling to employees on how to manage stress.
- To monitor sickness absence to identify general trends and specific concerns.
- To provide training for employees to help them to manage their own stress.
- To provide training for managers on preventing and dealing with stress.
- To provide advice and support to managers to help them identify stress in individuals and tackle the causes of that stress.
- To continually review job content and design in order to identify and deal with situations causing stress.
- To regularly monitor and review this policy and advice.

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VEHICLE USAGE AND DRIVER SAFETY POLICY

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1 Summary

1.1 The organisation, as a pro-active employer, recognises its responsibility to the health and safety of both employees and members of the public resulting from necessary driving on the organisation's business. Consequently the organisation is introducing an on-going programme to ensure that the organisation's employees embrace the concept of "driving awareness with responsibility" by:

- Appreciating how dangerous driving can be
- Understanding how to recognise potentially dangerous driving situations
- Being equipped to minimise the risk of being involved in driving incidents
- Staying focused on the need to, and the means by which, driving incidents can be prevented.

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2. RESPONSIBILITIES

2.1 Management: - Driving for work purposes is a significant part of many employees' working day and as much should be treated no differently to any other work activity. As well as normal driving activities there are also special activities with specific legislation or guidance, which may apply to them; these are covered in specific safety procedures/guidance.

2.2 A suitable and sufficient 'Risk Assessment' of work activities is the responsibility of line management under the 'Management of Health and Safety at Work Regulations 1992'. Therefore as driving is a work activity; the risks associated with this activity must be assessed accordingly. As part of a comprehensive occupational health and safety management strategy, relevant and sufficient information, instruction and training should be made available.

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3. EMPLOYEE RESPONSIBILITIES

3.1 Employee: - It is the responsibility of all employees to inform their line manager/supervisor of any health/fitness reasons that may affect their safety whilst driving on the organisation's business. It is the responsibility of the line manager/supervisor to assess these risks accordingly, and to take the appropriate measures. Employees must also ensure that actions carried out (or neglected to be carried out) by them must not affect the health, safety or well being of others.

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4. SCOPE/APPLICATION – WHO IS AFFECTED BY THE POLICY?

4.1 This policy applies to all the organisation's personnel who are required to drive as part of their job. This includes:

- All drivers of company registered vehicle and those driving, privately registered cars on the organisation's business

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5. OBJECTIVES – WHAT DO WE WANT TO ACHIEVE?

5.1 The Objective of this policy is to eliminate injury or ill health of employees resulting from driving on the organisation's business by reducing the number of driving incidents in which they are involved.

5.2 In achieving this objective it is also the organisation's intention to make both the professional and private lives of its employees safer.

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6. COURTESY AND CARE

6.1 All employees, whilst on business, are considered as ambassadors for the organisation and their behaviour whilst driving is a reflection on the organisation's corporate image and as such drivers are expected to be courteous and abide by the 'Highway Code' and road traffic laws in place (especially speed restriction).

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7. MILEAGE

7.1 Employees provided with company cars are permitted to use the vehicles for private use. This, however, is a taxable benefit for the employee for the purposes of Income Tax.

7.2 Details of the value of the benefit are reported annually to the Inland Revenue by way of forms P11D, which are completed by the Accounts department.

7.3 Business Mileage records must be maintained and handed to Human Resources Department

- Date of travel;
- Related business mileage, and
- Customer visited or purpose of the trip.

7.4 The Company's Expenses Claim Form has been designed to enable employees to record these details although an alternative form of business mileage log will be accepted provided the above details are recorded.

7.5 Employees should note that mileage from home to his/her normal place of work and vice versa does not constitute business.

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8. LEGAL - LICENSING AND INSURANCE

8.1 The organisation's employees shall only drive vehicles for which they hold the appropriate licence and insurance.

8.2 Validity of licences will be checked annually. Drivers will be required to sign the annual driver eligibility statement shown in appendix 6.

8.3 Any changes in circumstances affecting either the drivers' licences or insurance must be immediately reported to their line manager and Human Resources Department.

8.4 A comprehensive risk assessment should be carried out for all young persons (those under 18) driving vehicles as part of their work duties. All assessments should

be recorded and control measures implemented where reasonably practicable. Management must ensure where young people are involved that all precautions are taken to protect them.

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9. VEHICLE

9.1 MOBILE TELEPHONES

9.1.1 The 'Highway Code' states that hand-held telephones should not be used whilst driving and is a criminal offence to do so in certain circumstances.

9.2 HAND HELD

9.2.1 the organisation's employees with hand-held mobile phones shall not:

- Use them whilst driving
- Stop on the motorway hard shoulder to make or receive calls except in circumstances where personal safety is at risk

9.2.2 the organisation's employees with hand-held mobile phones shall:

- Stop in a safe place before making or receiving a call
- Use the motorway phones in the case of a breakdown or emergency in preference to a mobile – unless by doing so you would be placing yourself at greater risk
- Switch the phone off and use the memory or message function if applicable, whilst driving

9.3 HANDS-FREE

9.3.1 the organisation's employees with mobile phones fitted with a hands-free kit shall:

- Only use them whilst driving when this can be done safely e.g. not in towns or heavy traffic or where particularly high levels of concentration are required
- Use memory dialling to reduce the number of buttons that need to be pressed to make a call
- Stop in a safe place before making or engaging in what is likely to be a long call or may require reference to papers
- Reduce the number of calls made whilst on the move to a minimum

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10. MAINTENANCE/SERVICING

10.1 Ensure The Vehicle Is Fit For The Proposed Journey

10.1.1 it is the responsibility of the vehicle driver to ensure that the vehicle is in a safe, roadworthy condition and to ensure that the vehicle has sufficient oil, water and that the tyre pressures are correct. Any problems should be reported immediately to line management.

10.1.2 Fire extinguishers and first aid kits should be obtained free of charge where a risk assessment identifies a need. Employees are to use them only when it is safe to do so, ensuring they are not placing themselves at increased risk, additional managers/supervisors in a risk assessment.

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11 DRIVING UNDER THE INFLUENCE OF DRUGS/ALCOHOL – DRIVER FITNESS

11.1 Certain prescription and ‘over the counter’ drugs have the potential to cause adverse side effects such as drowsiness. Normally there would be a written warning on the bottle or in the instructions informing of negative or side effects. Employees are expected to take notice of any such warnings that accompany medications. If necessary, employees should seek further advice from their GP/Pharmacist and if appropriate, discuss any adverse effect with their line manager.

11.2 The organisation’s employees whose work involves driving are strongly advised not to consume alcoholic drinks during working hours. All employees likely to drive should be aware that heavy drinking during the evening before work can effect their ability to drive safely and may leave them over the legal drink drive limit. Any employee who has their licence suspended must immediately inform line management, who in turn should inform the Human Resources Department

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12. TIREDNESS - DRIVER AWARENESS

12.1 Tiredness and falling asleep whilst driving are conservatively estimated to be the cause of 20% of road incidents. To help alleviate this problem realistic schedules must be made allowing time for sufficient rests from driving, especially during long journeys. The organisation’s employees should take breaks of no less than 15 minutes after every 2.5 hours driving. Drivers who feel drowsy must stop as soon as possible. Caffeine and a ten-minute nap (no longer) is the proven best method of remaining alert.

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13 PERSONAL SAFETY GUIDANCE - PROTECT YOURSELF

13.1 Personal safety issues need to be addressed especially for female drivers travelling alone. See Appendix 4 for guidance.

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14 ERGONOMICS AND DRIVER COMFORT - PROTECT YOUR BACK

14.1 Correct adjustment of seat and head restraint is essential firstly to reduce injury potential in case of accident and secondly, to ensure good posture for prevention of back problems. Important factors to consider for driver comfort are the positioning of the following:

- Seat height adjustment
- Seat tilt
- Seat rake
- Lumbar support
- Head restraint
- Seatbelt
- Steering wheel adjustment

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15 SEATBELTS AND BOOSTER SEATS

15.1 Use of seatbelts (where fitted) by drivers and all vehicle occupants is a condition of employment. It is the responsibility of the driver but also the duty of any employee, driver or not, to ensure that all vehicle occupants are wearing seatbelts.

15.2 It is an offence under section 15(2) of the Road Traffic Act 1988, for a person, without reasonable excuse, to drive a motor vehicle on a road unless any child under the age of fourteen in the front of the motor vehicle is wearing a seat belt in conformity with the regulations. Booster seats are to be fitted for all children under 135 cms in height and less than 12 years of age.

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16. SPECIFIC - LEGISLATION

16.1 Relevant legislation, guidance and contact points can be found in Appendix 5.

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APPENDIX 1

1 CONTROL MEASURES

1.1 When considering the use of control measures managers must make a conscious evaluation, balancing risk against cost. The result of this evaluation must ensure that risk control measures are not excessive (possibly resulting in wasted resources) nor insufficient (leading to unnecessary risk).

1.2 i.e. there is no point in continuing to spend ever more time, money or effort on reducing risks if the improvement in safety becomes increasingly small.

1.3 These control measures should be implemented on the hierarchical basis demonstrated below.

- **Elimination of journey** – this may be done by new advances in technology for example the use of teleconferencing or on-line systems.
- **Change in mode of transport** – this simply would require a change in the transport used, i.e. simply swapping to a safer means for example using trains or planes where possible and practical thus removing the excess risk imposed by driving.
- **Journey planning** – this again implies that a conscious assessment is made considering factors such as:
 - Actively discouraging non-vital journeys when driving conditions are bad.
 - Driving time and distance reduction methods
 - Realistic scheduling when planning journeys, ensuring sufficient time is allowed to make journeys as stress free as possible
 - Optimising schedules to avoid repeat or unnecessary driving
- **Ensuring appropriate vehicle use** – vehicles used should be 'fit for purpose', as well as maintained and serviced to ensure driver safety.

1.4 Driver training should be provided for any company car driver, designated drivers of commercial vehicles as well as any others where it is deemed necessary by a risk assessment or previous driver history e.g. high mileage drivers, employees with frequent car incidents etc.

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APPENDIX 2

ASSESSING RISK FOR BUSINESS DRIVERS

HIERARCHICAL LEVEL OF CONTROLS	PURPOSE	FACTORS TO CONSIDER	EXAMPLES OF SOLUTIONS
Can the journey be avoided or changed to an easier mode?	This is the first question that should be asked. Avoidance is the best solution to reduce the risks associated with driving on business.	Is the journey really necessary? Can a safer mode of transport be used? Is there technology that eliminates the necessity for the journey?	Use rail or air instead. Use of e-mail or fax Make meetings effective by covering all points in one journey Teleconferencing
Planning the safest journeys	This reduces the risks and unknown quantities from the journey.	Environmental/climatic conditions Road conditions Distance reduction Specify 'safest' routes Reduce driving time (if possible) Is the journey reasonable?	Use of electronic route planner Avoid accident black spots Restrictions on driving times Sufficient rest and breaks
Specifying appropriate vehicles	Ensure the vehicle is fit for the journey.	Distance to be travelled Load carrying Passengers Off-road driving.	Ensure the car is capable of travelling the distance Stowage and security of tools and equipment is safe Make sure that there are enough seatbelts for all passengers Effective vehicle maintenance
Using appropriate drivers	By using the appropriate drivers, risks can be reduced	Driver fitness Driver attitude	Ensure driver checks have been done Ensure the driver is sufficiently trained or competent Suitable driving footwear
Other supporting measures	Final line of support to driver	Personal safety Emergency planning Emergency equipment Posture/ergonomics	Provision of alarms Provision of mobile phones Fire extinguisher and first aid kits Awareness of emergency procedure

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APPENDIX 3

1. DRIVER RISK ASSESSMENT CHECKLIST

1.1 Has a safe journey plan been formulated (whether written or not) covering:

- Starting time?
- Finishing time?
- Intermediate stops?
- Adequate rest breaks?
- The safest route?

1.2 For example, does it take account of:

- Environmental conditions (daylight, weather forecast, ice, snow, fog, rain, high winds etc)?
- Sufficient time for breaks?
- Restrictions on maximum distance and driving hours?
- Times of day associated with 'sleepiness'?
- Incident 'hot spots'?
- Traffic conditions?
- Pedestrian densities?
- Likely business over-runs and hold-ups?
- Other contingencies?

2. THE VEHICLE

2.1 Is the vehicle fit for the journey purpose, including:

- Distance to be travelled?
- Load carrying?
- Passengers?
- Off-road driving?

2.2 Has the vehicle been serviced?

2.3 Have pre-journey safety checks been carried out on:

- Tyres?
- Lights?
- Indicators?
- Windscreen/windows?
- Washers and wipers?
- Mirrors?
- Oil/coolant/battery levels?
- Condition of controls?
- Signs of vehicle damage?

2.4 Is the vehicle one with which you are familiar? Do you know its:

- Seating position?
- Mirror settings?
- Hand brake/gear operation?
- Starting procedure?
- Warning lights?
- Fuel indicator?
- Other controls?

2.5 Is it properly insured?

2.6 Is it properly equipped with:

- Desirable additional safety features?
- On-board emergency kit (first aid kit, fire extinguishers etc)
- Vehicle handbook?
- Essential phone numbers?

3 THE DRIVER

3.1 Do you possess a valid driving licence to drive the class of vehicle concerned?

3.2 Are you fit to drive?

3.3 For example are you:

- Fatigued?
- Suffering from an ill-health condition that could affect your driving performance?
- Suffering from high levels of stress?
- Taking any medication or substance that may impair your ability to drive?
- Close to or over the blood alcohol limit because of recent drinking?

3.4 Are you wearing suitable clothes/footwear?

3.5 Have you received any necessary driver training?

3.6 Do you know what to do in the event of an accident or emergency?

3.7 Are you in the right frame of mind?

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APPENDIX 4

1 PERSONAL SAFETY GUIDANCE FOR DRIVERS

1.1 ROAD RAGE

1.1.1 Road rage is an increasingly prominent feature of driving on Britain's roads today therefore it is an increasing risk, the organisation's drivers should be alert for potentially dangerous or competitive situations and avoid them. When unavoidably encountering such a situation employees are advised to:

- Not take your eyes off the road
- Avoid eye contact with an aggressive driver
- Stay calm – do not react to provocation
- Keep away from drivers behaving erratically

1.2 SECURITY ISSUES

1.2.1 Consider keeping your car doors locked and windows wound up in slow-moving traffic

- Always lock the doors when you leave the vehicle
- Fill up with fuel regularly to avoid running out
- Pull over to read maps and papers, or to use a mobile phone, except in an emergency
- If you witness an accident ensure it is reported to the police
- Beware of other drivers signalling faults about your vehicle; do not immediately stop, drive on slowly until it is safe to stop and check
- Do not keep car and house keys together

1.3 BREAKDOWN GUIDANCE

1.3.1 the best way of dealing with breakdowns and the associated risks is, where possible, by preventing their occurrence. The best method for preventing breakdowns is journey planning and preparation considering all the factors outlined on the manager/driver checklist and any others that may be applicable. Maintenance of vehicles is an essential element of breakdown prevention, ensuring through regular servicing and driver checks and minor maintenance for example oil, petrol, tyres, water, etc.

1.3.2 Other Useful Advice:

- It is also important for employees driving on business to ensure that their diary/schedule is up to date and accessible so if problems arise people know where you are, it is also advisable to give either your line manager or someone else a copy of your journey/route plan
- If you breakdown on a motorway you should use the motorway telephone service provided as it will give the relevant authorities an accurate location where to find you. However, if you are afraid to go to the emergency telephone, stay near your vehicle and wait for a police

patrol. Never accept lifts from strangers. If appropriate, tell the motorway control you are a lone female

- At night wear something light or reflective. Put on hazard warning lights and side lights
- Whilst waiting for help (if weather conditions allow) stand outside the vehicle, well back on the grass verge or embankment. Lock all doors except the passenger door, keep this door ajar
- If an unknown vehicle draws up, get in your car and lock it. If a car stops whilst you are on the phone, take its registration number and give the vehicle details to the operator

1.3.3 In the event of a breakdown it may prove useful for your car to contain the following items.

- Mobile phone (charged)
- Personal safety alarm
- Torch
- Map
- Coat (or blanket)
- Ice scraper and/or shovel (in winter)

1.4 PARKING

- Choose a well-used and well-lit car park
- Try to park near an entrance or exit in such a way that you can drive forwards out of the space
- In multi-storey car parks try to park near ramps or staircases on one of the lower level floors and, if there is an attendant, as near as possible to their office
- Remove valuables from view
- When returning to your car in the dark, have your car keys ready and check inside and around the vehicle for tampering before getting in

1.4.1 The most important thing is to use your common sense and keep thinking.

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APPENDIX 5

1 RELEVANT LEGISLATION, GUIDANCE AND POINTS OF CONTACT

1.1 LEGISLATION

- Health and Safety at Work etc Act
- Provision and Use of Work Equipment Regulations
- Management of Health and Safety at Work Regulations
- Working Time Regulations

1.2 CODES & GUIDANCE

- Highway Code
- ROSPA – Managing Occupational Road Risk – the ROSPA guide

1.3 INITIAL CONTACT POINTS

1.3.1 Any safety issues or problems involving driving should be primarily brought to the attention of the line management/supervisor or your local safety representative. For further advice or clarification contact the Human Resource Department.

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**APPENDIX 6
DRIVER ELIGIBILITY STATEMENT**

To: From:

Date: Issue number:

1. ANNUAL DRIVER ELIGIBILITY STATEMENT

1.1 Please complete the details below and return to the **Office Manager** as soon as possible. Replies will be treated in the strictest confidence.

2. INSURANCE PARTICULARS ETC.

- | | |
|---|---------------|
| 1. Do you hold a relevant, full, UK valid license? | YES/NO |
| 2. Have you received any license endorsement or points in the last 12 months? (If YES, please give details on a separate sheet) | YES/NO |
| 3. Have you ever (within the terms of the Rehabilitation of Offenders Act) been convicted, or have you any prosecutions pending, for a motoring offence falling within any of the following categories? | |
| a. Dangerous driving, causing death by dangerous driving or manslaughter | YES/NO |
| b. Driving under the influence of drink or drugs | YES/NO |
| c. Failing to stop after an incident | YES/NO |
| d. Other offences which have or might result in disqualification | YES/NO |
| 4. Have you ever been refused motor vehicle insurance or renewal or had a policy cancelled? | YES/NO |
| 5. Do you suffer or have you ever suffered from any physical disability, infirmity or condition that would disqualify you from holding or obtaining a current driving license? | YES/NO |

2. RESPONSIBILITY

I agree that I am personally responsible for ensuring my vehicle is maintained properly and that it complies in all respects with the law.

I further undertake to drive the vehicle as safely and competently as possible and agree to abide by any initiatives instigated by the company to improve the safety of its employees.

Signed.....

Name.....

Department.....

Date.....

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APPENDIX 7

1. INCIDENT REPORTING

1.1 All incidents, including potentially serious 'near misses', must be reported to transport managers. It is the employee's responsibility to ensure that this is done immediately.

1.2 At the time of an incident.

- Organise traffic to avoid further incidents or damage.
- Call emergency services if there are any injuries or in other dangerous circumstances.
- Organise first aid if available.

1.3 Legal Requirements.

- Stop
- Give your name and address and address of the organisation, to anyone having reasonable grounds for requiring it.
- Exchange registration numbers.
- The police must be called if there are any personal injuries sustained. It is advisable to call them if the accident is serious or you suspect any driver of being under the influence of drink / drugs.

1.4 DO NOT

- Admit responsibility or liability.
- Sign any documents, other than a European Statement (for use whilst travelling in a foreign country)
- Make payments, or any offers of payment.

1.4.1 In the event of an incident, drivers must obtain the following information:

- Time
- Witness
- Position of vehicle(s)
- Road and lighting conditions
- Third party vehicle registration and description
- Third party driver's name and address
- Third party's insurers and policy number
- Name and number of any attending Police Officer
- Other relevant information
- A brief sketch of the scene of the accident, showing positions of vehicles before and after impact and any relevant signs etc.
- Take photographs if possible

1.4.2 Failure to report damage or loss promptly may invalidate the organisation's insurance policy, in which case drivers may be held personally liable.

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WORKING ALONE

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- 5 [What Training is required to Ensure Competency in Safety Matters?](#)
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1 Summary

The company has responsibilities for the health, safety and welfare at work of their employees and the health and safety of those affected by the work, e.g. visitors, such as contractors and self-employed people who employers may engage.

These responsibilities cannot be transferred to people who work alone.

It is the company's duty to assess risks to lone workers and take steps to avoid or control risk where necessary. Employees have responsibilities to take reasonable care of themselves and other people affected by their work and to co-operate with their employers in meeting their legal obligations.

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2 Who Are Lone Workers And What Jobs Do They Do?

2.1 Lone workers are those who work by themselves without close or direct supervision.

2.2 They are found in a wide range of situations; some examples are given below.

2.3 People in fixed establishments where:

- only one person works on the premises, e.g. in small workshops, petrol stations, kiosks, shops and also home workers
- people work separately from others, e.g. in factories, warehouses, some research and training establishments, leisure centres or fairgrounds
- people work outside normal hours, e.g. cleaners, security, special production, maintenance or repair staff etc. Mobile workers working away from their fixed base
- on construction, plant installation, maintenance and cleaning work, electrical repairs, lift repairs, painting and decorating, vehicle recovery etc
- service workers, e.g. rent collectors, postal staff, social workers, home helps, district nurses, pest control workers, drivers, engineers,

architects, estate agents, sales representatives and similar professionals visiting domestic and commercial premises.

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3 Assessing and Controlling the Risks

- 3.1 Although there is no general legal prohibition on working alone, the broad duties of the HSW Act and MHSW Regulations still apply. These require identifying hazards of the work, assessing the risks involved, and putting measures in place to avoid or control the risks.
- 3.2 It is important to talk to employees and their safety representatives as they are a valuable source of information and advice. This will help to ensure that all relevant hazards have been identified and appropriate controls chosen; consultation with employees and their representatives on health and safety matters is a legal duty anyway.
- 3.3 Control measures may include instruction, training, supervision, protective equipment etc.
- 3.4 Employers should take steps to check that control measures are used and review the risk assessment from time to time to ensure it is still adequate.
- 3.5 When risk assessment shows that it is not possible for the work to be done safely by a lone worker, arrangements for providing help or back-up should be put in place.
- 3.6 Where a lone worker is working at another employer's workplace, that employer should inform the lone worker's employer of any risks and the control measures that should be taken. This helps the lone worker's employer to assess the risks.
- 3.7 Risk assessment should help decide the right level of supervision. There are some high-risk activities where at least one other person may need to be present.
- 3.8 Examples include some high-risk confined space working where a supervisor may need to be present, as well as someone dedicated to the rescue role, and electrical work at or near exposed live conductors where at least two people are sometimes required.
- 3.9 Employers need to be aware of any specific law on lone working applying in their industry (examples include supervision in diving operations, vehicles carrying explosives, fumigation work).

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4. Safe Working Arrangements for Lone Workers

- 4.1 Establishing safe working for lone workers is no different from organizing the safety of other employees. Employers need to know the law and standards which apply to their work activities and then assess whether the requirements can be met by people working alone.
- 4.2 Lone workers face particular problems. Some of the issues which need special attention when planning safe working arrangements are as follows:
- Can the risks of the job be adequately controlled by one person?
 - Lone workers should not be at more risk than other employees. This may require extra risk control measures.
 - Precautions should take account of normal work and foreseeable emergencies, e.g. fire, equipment failure, illness and accidents.
 - Employers should identify situations where people work alone and ask questions such as:
 - Does the workplace present a special risk to the lone worker?
 - Is there a safe way in and a way out for one person? Can any temporary access equipment which is necessary, such as portable ladders or trestles, be safely handled by one person?
 - Can all the plant, substances and goods involved in the work be safely handled by one person? Consider whether the work involves lifting objects too large for one person or whether more than one person is needed to operate essential controls for the safe running of equipment.
 - Is there a risk of violence?
 - Are women especially at risk if they work alone?
 - Are young workers especially at risk if they work alone?
 - Is the person medically fit and suitable to work alone?
- 4.3 Check that lone workers have no medical conditions which make them unsuitable for working alone. Seek medical advice if necessary. Consider both routine work and foreseeable emergencies which may impose additional physical and mental burdens on the individual.

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5 What Training Is Required To Ensure Competency In Safety Matters?

- 5.1 Training is particularly important where there is limited supervision to control, guide and help in situations of uncertainty.
- 5.2 Training may be critical to avoid panic reactions in unusual situations. Lone workers need to be sufficiently experienced and to understand the risks and precautions fully.

- 5.3 Employers should set the limits to what can and cannot be done while working alone. They should ensure employees are competent to deal with circumstances which are new, unusual or beyond the scope of training, e.g. when to stop work and seek advice from a supervisor and how to handle aggression.

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6. How will the person be supervised?

- 6.1 Although lone workers cannot be subject to constant supervision, it is still an employer's duty to ensure their health and safety at work.
- 6.2 Supervision can help to ensure that employees understand the risks associated with their work and that the necessary safety precautions are carried out. Supervisors can also provide guidance in situations of uncertainty.
- 6.3 Supervision of health and safety can often be carried out when checking the progress and quality of the work; it may take the form of periodic visits combined with discussions in which health and safety issues are raised.
- 6.4 The extent of supervision required depends on the risks involved and the ability of the lone worker to identify and handle health and safety issues.
- 6.5 Employees new to a job, undergoing training, doing a job which presents special risks, or dealing with new situations may need to be accompanied at first. The level of supervision required is a management decision which should be based on the findings of risk assessment.
- 6.6 The higher the risk, the greater the level of supervision required. It should not be left to individuals to decide whether they require assistance.
- 6.7 Procedures will need to be put in place to monitor lone workers to see they remain safe.

These may include:

- supervisors periodically visiting and observing people working alone;
- regular contact between the lone worker and supervision using either a telephone or radio;
- automatic warning devices which operate if specific signals are not received periodically from the lone worker, e.g. systems for security staff;
- other devices designed to raise the alarm in the event of an emergency and which are operated manually or automatically by the absence of activity;
- checks that a lone worker has returned to their base or home on completion of a task

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7 What Happens If A Person Becomes Ill, Has An Accident, Or There Is An Emergency?

- 7.1 Lone workers should be capable of responding correctly to emergencies. Risk assessment should identify foreseeable events. Emergency procedures should be established and employees trained in them. Information about emergency procedures and danger areas should be given to lone workers who visit your premises.
- 7.2 Lone workers should have access to adequate first-aid facilities and mobile workers should carry a first-aid kit suitable for treating minor injuries.

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WORKING AT HEIGHT

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6. **Safe system of work**
- 7 **Summary Policy Statement**
- 8 **Appendix A – Use of Ladders**
- 9 **Appendix B – Use of Mobile Towers**

1 Summary

The Work at Height Regulations 2005 incorporates important changes to the superseded version. The most significant of these changes is that 'at height' now means at any elevation from which an operator can fall. Thus all elevations ranging from 'below grade', through 'at grade', to 'above grade' now have to be considered when assessing the risk of falls. The previous commonly considered minimum 'at height' figure of '2m above grade' is no longer valid. There are also changes to the minimum permitted width of platforms/walkways. The regulations, which formerly were deemed not to apply to the work of the company now therefore do apply and are the reason for this section being added to the manual.

The company complies with the hierarchy of risk in that it shall:

- Where possible remove the need to work at height;
- Where not possible to avoid the need to work at height it shall provide facilities or procedures to prevent falls;
- Where it is not possible to remove the risk of falls, the company shall put into place facilities or procedures to mitigate the results of falls, including fall arrest equipment, collective protective devices or other practicable device.

2. Policy Statement

2.1 All reasonable steps shall be taken by the company to provide a safe working environment for employees required to carry out their trade or professional skills at height.

2.2. The Company shall provide the necessary preventive and protective measures to prevent falls of persons or materials from the workplace and will liaise with any other persons involved in the work activity.

2.3 The employee and any other person involved in the work activity shall cooperate in the implementation of this policy.

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3 Arrangements for Securing the Health and Safety of Workers

The Company will, in consultation with workers and their representatives:

- carry out an assessment of the risks involved in work at height and take steps to eliminate or control them provide all the necessary equipment to allow safe access to and egress from the place of work.
- provide suitable plant to enable the materials used in the course of the work to be safely lifted to, and stored if necessary at the workplace.
- when working in an open environment, assess the effect of weather conditions on the type of work being undertaken and, if necessary, halt work temporarily (once the work, plant and equipment have been left in a safe condition) until such time as it is safe to continue.
- when working at dusk, night or dawn, provide sufficient local lighting, so that work can be carried out safely and access and egress are easily visible.
- arrange for the regular inspection of all equipment required for working at height, particularly where there is a statutory requirement to do so.
- appoint a competent person to be responsible for the supervision of the erection, altering and dismantling of scaffolding and for the inspection of equipment used in work at height.

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4 Procedures for Dealing with Health and Safety Issues

The Company will prepare a method statement (a written safe system of work incorporating the results of any risk assessments made) for work at height, to be followed by all involved in such work. Where it is not possible to follow the method statement:

- no further work should be undertaken
- a responsible person should be informed
- alternative procedures will be outlined and workers will be advised of these following appropriate consultation.

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5 Information and Training

The company shall provide any information, instruction and training that an employee may require to carry out his or her trade or skill in a safe manner when working at height. The company shall ensure that supervisors responsible for ancillary plant and equipment used for the work are suitably and adequately trained and capable of providing the correct information on its use.

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6. Safe system of work

In order to prevent falls of persons or objects from a height, the following measures should be taken:

- Plan work in advance to anticipate potential problems and implement safe procedures.
- If at all possible, arrange for work to be done at ground level or provide adequate platforms where this cannot.
- Scaffolding should be erected by trained and experienced workmen making use of all the necessary plant and equipment including lighting where required.
- Ensure that adequate edge protection is provided.
- Ensure that the surfaces of working platforms, gangways and runs are free of protrusions and obstructions and that they are large and strong enough to hold workers along with their tools and materials.
- Erect barriers or use covers to prevent falls through openings in the floor.
- Make use of safety harnesses and belts, or safety nets, where these are required.
- Follow the method statement laid down by the company; if this is not possible, inform a responsible person immediately.
- Inspect equipment before use, scaffolding should be inspected by a competent person.
- Report any defects found to a responsible person immediately.

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7 Summary Policy Statement

Working at height poses additional risks to persons carrying out those activities which they would normally carry out at ground level, so it is important to remember:

- to adhere to the plan of work prepared in advance (or the method statement)
- to make full use of edge protection, and safety belts and harnesses if appropriate
- to maintain equipment in a good condition, check it visually before use and inspect it as frequently as required by legislation or more often if necessary.

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Appendix A

Use of Ladders

Safe System Of Work

Ladder accidents are mainly due to the following causes.

- Using a ladder for the wrong purpose, e.g. as a working platform instead of scaffolding.
- Using the wrong type of ladder, e.g. a metal ladder near overhead electricity lines.
- Dropping tools or materials from a ladder due to lack of adequate means of carrying them.
- Inadequate securing of ladders, resulting in falls.
- Ladders not extending far enough above their landing place, leading to falls.
- Using defective or poorly maintained ladders.

Many of these accidents can be avoided by adopting the following precautions:

- (a) take necessary measures to reduce risks found as a result of risk assessments carried out by the company. These will include:
 - (i) selection of suitable ladders
 - (ii) inspection before use
 - (iii) keeping records of ladder identification, inspection and maintenance
 - (iv) correct storage between use
 - (v) use of ladder at correct angle (75°, ie one metre out at the base for every four metres in height)
 - (vi) secure fixing or footing during use
 - (vii) ensuring only one person is on the ladder at a time
 - (viii) ensuring suitable footwear is worn
 - (ix) use of tool-carrying bags to leave both hands free to hold ladder
 - (x) reporting of defects and removal of ladders from service if necessary
- (b) obtain the necessary instruction, information and training concerning ladder safety
- (c) ensure that all ladders are from reputable manufacturers and suppliers and that they conform to the relevant British and European standards.

Securing the Ladder:

The foot of the ladder should be supported on a firm level surface and should not rest either on loose material or on other equipment to gain extra height.

Wherever practicable the top of the ladder should be securely fixed to the structure so that it cannot slip. Lashings can be used, straps or proprietary clips. While lashings etc. are being secured someone should foot the ladder.

If the ladder cannot be secured at the top it should be secured at the base using fixing blocks or cleats, sandbags, or if appropriate by stakes embedded in the ground. Where it is not practicable to do this a second person should foot the ladder until the user has returned to the bottom. Serious accidents have occurred because the person responsible for footing the ladder has wandered off to do other work.

AFS Haul:

Footing is not considered effective for ladders longer than 5m

Different grades of ladder are available. Ensure that the ladders chosen is strong enough for the work planned.

Do not overload ladders - they are liable to break! Only one person should be on the ladder at any one time.

Ensure that the ladder is in good condition. Do not carry out makeshift repairs to a damaged ladder! Do not use defective ladders!

Ensure that ladders are examined at regular intervals for defects such as cracked stiles and rungs.

Never paint a wooden ladder - it can hide defects (they may be treated with a non-conductive coating such as varnish, shellac or clear preservative).

The top of the ladder should extend at least 1.05m above the platform or other landing place or above the highest rung on which the user has to stand, unless there is a suitable manhole to reduce the risk of over-balancing.

Place the top of the ladder at a suitable angle to minimise the risk of it slipping outwards (ideally at about 75 degrees to the horizontal, i.e.; 1m out from the building for every 4m in height).

Rest the ladder against a solid surface; proprietary spreader arms or similar equipment should be used to span windows or other openings.

A ladder should not rest against plastic gutters or other such surfaces! (Appropriate equipment such as ladder stays should be used). Do not support ladders on their rungs!

Lifting materials and tools:

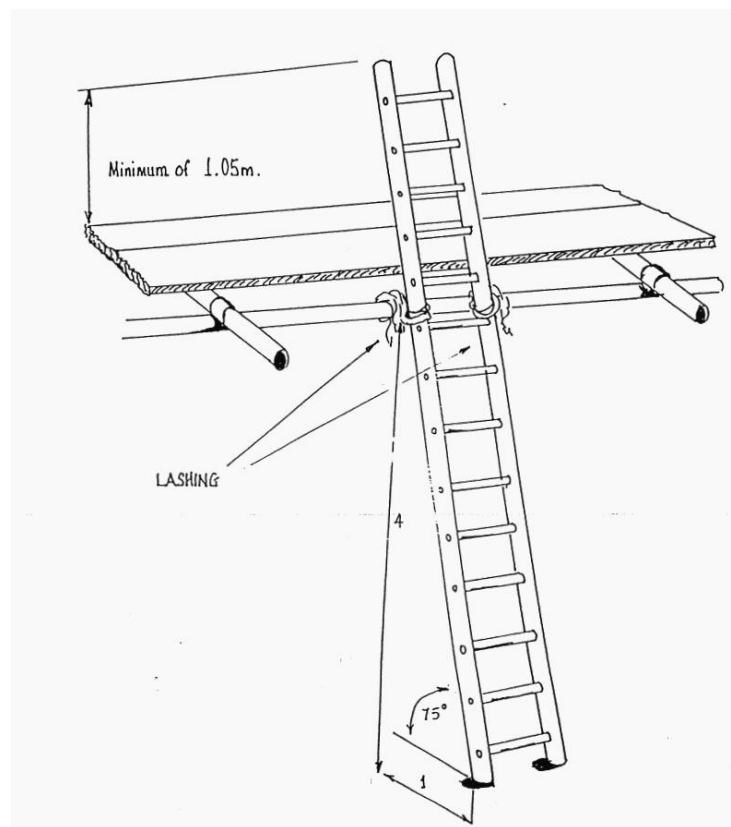
Never try to carry heavy or awkward loads up a ladder!

Step-ladders

Step-ladders and folding trestles are not designed for any degree of side loading. Workers have been killed or seriously injured trying to descend from work platforms or landing places using unsecured step-ladders.

Do not use the top platform for work unless it is designed with special handholds, and avoid over-reaching. The step-ladder is liable to overturn!

Never place a ladder where there is danger from moving vehicles, overhead cranes or electricity lines!



Records

Records are important in order to ensure that ladders are initially safe and kept safe throughout their working life.

Records should be kept of the following.

1. Date of purchase of ladder.
2. Manufacturer's or supplier's name.
3. Identification mark.
4. Intended use.
5. Dates inspected.
6. Problems revealed through inspection, ie:
 - (a) defects
 - (b) deterioration of previous repair
 - (c) paint or varnish covering wooden ladders
 - (d) warning sign missing from metal ladders informing that they are not to be used near overhead lines
 - (e) damaged or worn stiles, particularly at the top or bottom of the ladder
 - (f) broken, missing, loose or worn rungs and treads
 - (g) mud or grease on rungs
 - (h) rungs or treads supported solely by nails or spikes, etc
 - (i) decayed timber, corrosion of fittings
 - (j) insecure tie-rods
 - (k) warping, sagging or distortion — check that the ladder stands firmly
 - (l) condition of ropes, cords, pulleys, hinges and other fittings.
7. Action taken following inspection, ie repair, removal from service or no action required.
8. Dates maintenance carried out, action carried out during maintenance and date for next inspection or maintenance.
9. Anticipated life of ladder.
10. Training provided to users of ladders.

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Appendix B

Mobile Towers

Safe System Of Work

Introduction:

Tower scaffolds are one of the most widely used pieces of access equipment in construction and they are involved in numerous accidents each year. These are usually caused by the tower being incorrectly erected or because it is not being properly used. Aluminium towers are light in weight and severe loading or excessive forces applied at the top can easily cause them to overturn. Towers rely on all the components being in place to ensure adequate strength and sections left out cause them to collapse.

Erecting the Tower:

There are a number of different types of prefabricated towers available. The manufacturer should provide an adequate instruction manual or erection guide for their particular type. This should give detailed advice on the erection sequence including the bracing requirements and be passed on to the erector.

The person erecting the tower should be competent and adequately trained.

Stability:

The base of the tower should rest on firm level ground with the wheels or feet properly supported.

Bricks or building blocks should not be used to take the weight of any part of the structure.

The taller the tower the more likely it is to become unstable if a tower is to be used in exposed conditions i.e.; outside regardless of weather conditions.

The height of the working platform above ground level should not exceed the manufacturer's recommended height as detailed in the instructions

The maximum height should be checked against the instruction manual. The tower might become unstable despite not exceeding this height if the tower is:

- a. Sheeted and likely to be exposed to strong winds.
- b. Loaded with heavy equipment or materials.
- c. Used to hoist heavy materials or support rubbish chutes.

To prevent the tower overturning when any of the above applies, additional support must be provided. This may be achieved by rigidly tying the tower to the structure it is serving, or by using ballast weights, guy ropes or ground anchors.

Before using the tower check:

- a. That the scaffold is vertical;
- b. That the wheel brakes are on.

Access:

There must be a safe way to get to and from the work platform.

IT IS NOT SAFE TO CLIMB UP THE END FRAMES OF THE TOWER!

The only exceptions to this are:

- a. where the frame has built-in ladder sections with rungs no more than 300mm apart and stiles no more than 480mm apart.
- b. where a purpose-made ladder can safely be attached to provide adequate hand and foot hold on the inside (or the outside of a tube and fitting tower).

Note: If a ladder is fitted to the outside: a check must be made with the supplier/manufacturer to determine whether this is acceptable as the weight of someone climbing the outside may make the tower unstable. Alternatively safe access can be made by means of internal ladders. Where internal ladders are used there must be a secure handhold at the landing place

Guardrails and Toe-boards:

Platforms from which a person could fall more than 2m must be fitted with guardrails and toe-boards. This also applies to the intermediate platforms. The guardrails should be 910mm above the platform with the toe-boards at least 150mm high with no more than 765mm between the top of the toe-board and the guard-rail. Where an assessment determines that guardrails and toe boards are required from platforms less than 2m high they must be fitted

Moving the Tower:

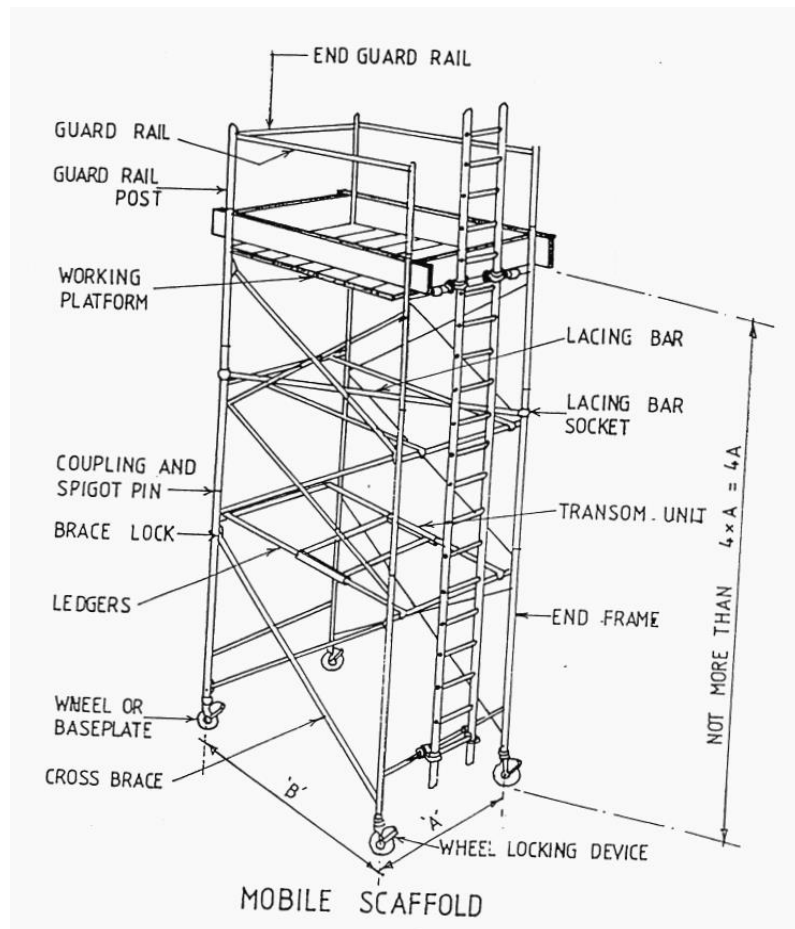
Before attempting to move a mobile tower a check is to be made to ensure that there are no power lines or other overhead obstructions. The ground should be firm and level.

When moving a tower:

- Push or pull only from the base - never use powered vehicles!
- Never move it while there are people or materials on the upper platforms!
- Never move it in windy conditions!

Protecting Others:

When towers are used in public places additional precautions may be necessary. Barriers are to be erected at ground level to prevent people walking into the tower or work area. If the tower is to be left unattended, the access ladders are to be removed or boarded over to prevent unauthorised access!



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WORK PLACE EQUIPMENT

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1 Summary

In general terms, the Regulations require that equipment provided for use at work is:

- suitable for the intended use;
- safe for use, maintained in a safe condition and, in certain circumstances, inspected to ensure this remains the case;
- used only by people who have received adequate information, instruction and training; and
- accompanied by suitable safety measures, eg protective devices, markings, warnings.

Generally, **any equipment** which is **used by an employee at work** is covered, for example hammers, knives, ladders, drilling machines, power presses, circular saws, photocopiers, lifting equipment (including lifts), dumper trucks and motor vehicles. Similarly, if you allow employees to provide their own equipment, it too will be covered by PUWER and you will need to make sure it complies.

Examples of **uses** of equipment which are covered by the Regulations include starting or stopping the equipment, repairing, modifying, maintaining, servicing, cleaning and transporting.

The Regulations apply if the company provides equipment for use at work, or if it have control of the use of equipment.

While employees **do not** have duties under PUWER, they do have general duties under the HSW Act and the Management of Health and Safety at Work Regulations 1999 (MHSWR), for example to take reasonable care of themselves and others who may be affected by their actions, and to co-operate with others.

The company will ensure that the work equipment it provides meets the requirements of PUWER. In doing so, it will ensure that it is:

- **suitable** for use, and for the purpose and conditions in which it is used;
- **maintained** in a safe condition for use so that people's health and safety is not at risk; and
- **inspected** in certain circumstances to ensure that it is, and continues to be, safe for use. Any inspection should be carried out by a competent person (this could be an employee if they have the necessary competence to perform the task) and a record kept until the next inspection.

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2. **The Provision and Use Of Work Equipment Regulations 1998**

2.1 The Provision and Use of Work Equipment Regulations 1998 (PUWER 98) make more explicit the general duties contained in the HSW Act. The Regulations apply to all work equipment, including second hand, hired or leased equipment.

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3. **The Provisions of The Supply Of Machinery (Safety) Regulations 1992**

3.1 The provisions of the Supply of Machinery (Safety) Regulations 1992, as amended, apply to machinery manufactured on or after 1 January 1993 (see regulation 10 below).

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4. **Interpretation** (Regulation 2)

4.1 The following definitions and terms are important in understanding the requirements laid down by these Regulations.

- **Inspection:** This means a visual or more rigorous inspection, as required by regulation 6 carried out by a competent person, and may include appropriate testing.
- **Power press:** This means a press or press brake that is power driven and contains a flywheel and clutch, and is used for working metal by means of tools, or for die proving.
- **Thorough examination:** This means a thorough examination, as required by regulation 32, carried out by a competent person, and may include appropriate testing.

- **Work equipment:** This includes all machinery, appliances, apparatus, tools or installations for use at work — the definition will cover single machines such as guillotines right through to complete entities such as bottling plant.
- **Use:** This includes any activity that may be associated with the work equipment, such as starting, stopping, programming, setting, transporting, repairing, modifying, maintaining, servicing and cleaning.

Unless otherwise stated the requirements of these Regulations are absolute, ie they must be achieved.

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5. **Application** (Regulation 3)

5.1 The Regulations apply to:

- work equipment provided by employers for use by their employees at work
- work equipment provided by self-employed persons for their own use at work
- persons who have any control of work equipment, or who use, supervise or manage its use
- the way work equipment is used

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6 **Suitability** (Regulation 4)

6.1 Employers must ensure that any equipment provided for work is constructed or adapted so as to be suitable for its intended purpose.

6.2 This includes taking account of reasonably foreseeable working conditions, inherent health and safety risks where the equipment is to be used and any risks associated with the equipment itself.

6.3 Work equipment must only be used for tasks, and under the conditions, for which it is suitable. "Suitable" in this regulation means suitable with respect to the health and safety of any person. Regulation 3(1) of MHSW, i.e. risk assessment, is relevant.

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7. **Maintenance** (Regulation 5)

7.1 Work equipment must be maintained in an efficient state, in efficient working order, in good repair, and where a maintenance log is required, ie under other

legislation (eg COSHH), such logs must be kept up to date. However, the accompanying guidance does recommend that maintenance records are kept.

Note: The emphasis of this regulation is on efficiency with respect to health and safety not productivity.

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8. Inspection (Regulation 6)

- 8.1 Where the safety of work equipment depends on the installation conditions, the work equipment must be inspected after installation and before it is used for the first time, or after it has been installed at a new location or premises. The inspections are to ensure that the work equipment has been installed correctly and is safe to use.
- 8.2 In addition, work equipment which is exposed to conditions which may cause deterioration and consequent danger as a result of that deterioration must be inspected at suitable intervals, and whenever exceptional circumstances have occurred that may have had adverse effects on the safety of the work equipment. The inspections are to ensure that health and safety conditions are maintained, and that defects are identified and corrected quickly.
- 8.3 Records of all inspections must be made and kept until the next inspection has been completed and recorded.
- 8.4 No work equipment may leave an employer's undertaking, or be used in the undertaking, if supplied by another person, unless there is accompanying physical evidence that the last inspection was carried out.

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9. Specific Risks (Regulation 7)

- 9.1 Employers must ensure that where the work equipment poses a specific risk to health and safety, the use and maintenance of such equipment is restricted to designated persons who have received adequate training in the operations they have been designated to carry out.

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10 Information and Instructions: Training (Regulations 8 and 9)

- 10.1 These regulations require employers to make available to all persons using work equipment adequate health and safety information, and where appropriate written instructions on the use of such equipment.
- 10.2 The employer must also provide adequate health and safety training in the use of the work equipment, including any associated risks and necessary precautions.

- 10.3 Adequate information and training, and written instructions where appropriate, must also be made available to persons who supervise or manage the use of work equipment.
- 10.4 The information and instructions must be comprehensible and include: the conditions and methods of use of the equipment; foreseeable abnormal situations and any necessary actions, and any conclusions drawn from experience in the use of the equipment.

Note:

- The guidance points out that, where appropriate, the written instructions should include the manufacturers'/suppliers' instruction manuals, etc. Employers should therefore ascertain that such information has been provided as required under Section 6 of the HSW Act.
- With regard to training, the guidance specifically points out the importance of considering additional requirements for young and/or inexperienced persons.

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11. Conformity with EC Requirement (Regulation 10)

- 11.1 Employers must ensure that work equipment provided for use after 31st December 1992, has been designed and constructed in compliance with any essential requirements that are contained in any relevant UK legislation which implements appropriate EC "product" Directives. Where it is shown that work equipment does comply with the relevant UK implementing legislation, then any corresponding requirements of PUWER 98, regulations 11 to 19, and 22 to 29 will not apply.
- 11.2 This means that employers will have to ensure that any work equipment, when first provided for use, has been made to the requirements set down in the relevant EC "product" Directive, as implemented by appropriate UK legislation. Eventually the presence of the CE mark will confirm necessary compliance with the "product" Directives.
- 11.3 This duty on employers complements existing duties, on manufacturers and suppliers, concerned with the initial integrity of the equipment.
- 11.4 Relevant EC Directives are given in Schedule 1 to PUWER 98, and an example would be the "machinery" Directive which has been implemented in the UK by the Supply of Machinery (Safety) Regulations 1992, as amended. However, not all work equipment yet has a corresponding "product" Directive.

Note:

- This regulation is not retrospective and will only apply to work equipment provided for use on or after 1 January 1993.

- Dangerous Parts of Machinery (Regulation 11)
- Employers must take measures to prevent access to dangerous parts of machinery or any rotating stock-bars, or stop the movement of any dangerous machinery or rotating stock-bars before any part of a person enters a danger zone.
- The hierarchy of such measures includes, to the extent that it is practicable, the provision of: fixed guards, then other guards or protection devices, then jigs, holders, push-sticks or similar protection appliances, then information, instruction, training and supervision.
- All guards, protection devices and protective appliances must: be suitable for their intended purpose; be of good construction, sound material and adequate strength; be maintained in an efficient state, in efficient working order and in good repair; not increase any risks to health and safety, and not unduly restrict the view of the operating cycle where such a view is necessary. In addition, guards and protection devices must: not be easily by-passed or disabled; be situated at a sufficient distance from the danger zone and be constructed/adapted to allow replacement, repair or maintenance work, but only in the area where such work is necessary, and where possible without dismantling the guards or protective devices.
- For the purposes of this regulation "danger zone" means any zone in or around machinery in which a person is exposed to a risk to their health and safety arising from contact with a dangerous part.
- Over the years the terms "dangerous part" and "dangerous" have been considered by the courts and the interpretations below are particularly relevant.
- A "dangerous part" of a machine is one which might be "a reasonably foreseeable cause of injury to anybody acting in a way in which a human being may be reasonably expected to act in circumstances which may be reasonably expected to occur. Employers must ensure appropriate measures are taken to prevent, or if this is not reasonably practicable then to adequately control, exposure to any of the "specified hazards" arising from the use of work equipment. Such measures must be by means other than personal protective equipment (PPE) or information, instruction and training, so far as is reasonably practicable, and include measures to minimise the effects of the hazard as well as reducing the likelihood of the hazard occurring.
- The "specified hazards" are: falling or ejected articles or substances; component rupture or disintegration, equipment overheating or catching fire and unintended or premature discharges or explosions.

11.5 This regulation does not apply where the specific legislation listed below already exists:

- Ionising Radiations Regulations 1999
- Control of Asbestos at Work Regulations 1987

- Control of Substances Hazardous to Health Regulations 1999
- Noise at Work Regulations 1989
- Construction (Head Protection) Regulations 1989
- Control of Lead at Work Regulations 1998.

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12 High or Very Low Temperature (Regulation 13)

- 12.1 Employers must ensure that work equipment, components or any articles or substances which are at high or very low temperatures are protected so as to prevent burn, scald or sear injuries through contact with the offending surface.
- 12.2 Related risks such as radiated heat and glare are not covered by this regulation.

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13 Controls and Control Systems (Regulations 14 to 18)

- 13.1 Employers must ensure, where appropriate, that start and operating controls (i.e. controls that change speed, pressure, etc) are fitted to work equipment, and that where these controls are fitted, they can only be operated by a deliberate action. The normal operation of automatic devices is exempt from this requirement (regulation 14).
- 13.2 Work equipment must also be provided with readily accessible stop controls, where appropriate, that will bring the equipment to a safe condition in a safe manner. In some cases this may mean bringing the equipment to a complete stop and/or switching off all energy sources. Stop controls must have priority over start and operating controls (regulation 15).
- 13.3 Employers must also ensure, again where appropriate, that work equipment is provided with readily accessible emergency stop controls, unless these controls are unnecessary by the nature of the hazard and the time required to bring the equipment to a complete stop as a result of activating a normal stop control. Emergency stop controls must have priority over any normal stop controls.
- 13.4 The guidance emphasises that emergency stop controls should be provided where other safeguards are inadequate to prevent the risk of some irregular event — they are not substitutes for safeguarding and should never be used to stop the equipment in normal work routines (regulation 16).
- 13.5 Where controls required under regulations 14, 15 and 16 are fitted to work equipment then such controls must be clearly visible and identifiable including appropriate marking if necessary, and in such a position so as not to create risks to the health and safety of the control operator (regulation 17). The regulation also defines a hierarchy of other measures including ensuring that

the control operator can determine that no person is in any place of danger due to the activation of the controls, or where that is not reasonably practicable, then ensuring that safe systems of work are devised to prevent persons being in a danger zone created by the starting of a piece of work equipment, or where that is not reasonably practicable by ensuring an audible, visible or other suitable warning is given when work equipment is about to start. Where persons are in a place of danger due to the starting or stopping of work equipment, employers must take appropriate measures to ensure such persons have sufficient time and means to avoid the danger.

- 13.6 Regulation 18 requires employers to ensure, so far as is reasonably practicable, that all work equipment control systems are safe, i.e. the operation of a control system does not increase any risks to health and safety. Additionally, faults in or damage to control systems, or the loss of an energy supply should not result in further or increased risks to health and safety, so far as is reasonably practicable, and must not impede any stop or emergency stop controls. Control systems must also be chosen taking into account any failures, faults and constraints that may be expected during the planned circumstances of use.
- 13.7 The guidance defines "control system" as a system or device which responds to input signals and generates an output signal causing the work equipment to operate in a particular way.

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14 Isolation from Sources Of Energy (Regulation 19)

- 14.1 Employers must ensure that work equipment is provided with a clearly identifiable and readily accessible means of isolating it from its energy source, where appropriate.
- 14.2 Reconnection of the equipment to the energy source must not expose persons using the equipment to any risks to their health and safety.

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15 Stability (Regulation 20)

- 15.1 Employers must ensure all work equipment is stabilised where necessary to protect health and safety.
- 15.2 The guidance expands on this duty by suggesting that equipment liable to fall over, collapse or overturn must be fixed to the ground, stabilised, tied, fastened or clamped as appropriate.

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16 Lighting (Regulation 21)

- 16.1 Suitable and sufficient lighting must be provided, which takes account of the operations carried out on a particular piece of equipment. The guidance suggests additional lighting may be necessary for precision tasks.

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17. Maintenance Operations (Regulation 22)

- 17.1 This regulation places a duty on employers to ensure, so far as is reasonably practicable, that work equipment is constructed or adapted to allow maintenance work that involves a risk to health and safety to be carried out while the equipment is shut down or inactive. Where this is not possible the maintenance operations should be carried out in such a way that the person doing the maintenance work is not exposed to health and safety risks and appropriate measures should be taken for their protection.
- 17.2 The guidance suggests the provision of temporary guards, limiting the movement, power or speed of the equipment, etc and the provision of PPE, instruction and supervision, as ways of preventing or reducing risks in situations where the equipment cannot be stopped for maintenance.

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18 Markings and Warnings (Regulations 23 and 24)

- 18.1 These two regulations place duties on employers to ensure work equipment has appropriate and clearly visible health and safety markings, and that any appropriate health and safety warning or warning devices are incorporated. Such warnings must be unambiguous and easily perceived and understood.

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19 Employees Carried On Mobile Work Equipment (Regulation 25)

- 19.1 Mobile work equipment must not be used to carry employees unless it is suitable for that purpose and incorporates measures to reduce any risks to safety (including risks from wheels or tracks), as low as is reasonably practicable.

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20 Rolling Over Of Work Equipment (Regulation 26)

- 20.1 Risks to employees riding on mobile work equipment from its rolling over must be minimised by:
- stabilising the work equipment
 - incorporating structures that restrict work equipment from doing anything other than roll on its side, or that provide sufficient clearance to anyone being carried if it does roll over further

- providing any device offering comparable protection.
- 20.2 Fork lift trucks which comply with 2nd item above are exempt from the requirements of this regulation.
- 20.3 Suitable restraining systems must be fitted to prevent anyone being carried on mobile work equipment being crushed in the event of the work equipment rolling over.
- 20.4 Non-compliance with this regulation is permitted where:
- compliance would increase safety risks it would not be possible to operate mobile work equipment as a result of complying, or
 - it is not reasonably practicable in relation to items of work equipment provided for use prior to 5 December 1998.

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21 Overturning Of Fork Lift Trucks (Regulation 27)

21.1 Fork lift trucks used to carry employees must be adapted or equipped to reduce, as low as is reasonably practicable, the risk to the employees' safety from overturning.

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Trainees and Young Persons on Work Experience

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- 3** **[Safe System of Work](#)**

1 Summary

The company is aware of the additional risks that may follow as a consequence of the employment of young persons and will take all measures necessary to minimize those risks so far as is reasonably practicable. We will assess and document the additional risks and measures provided to ensure the health and safety of young persons.

There are statutory restrictions imposed upon work undertaken by young persons and the company will comply with these restrictions. Young persons will be given the raised level of information, instruction, training and supervision required to enable them to work safely.

Employees' concerns regarding young persons in the workplace should be addressed to the company Health & Safety Officer or advisors and measures will be taken to investigate the circumstances and provide a solution.

The company is aware that *The Health and Safety (Training for Employment) Regulations 1990* extended the meaning of the term 'employee' to include those receiving 'relevant training'. Consequently, pupils on work experience have the same status as employees under *the Health and Safety at Work etc Act 1974*, and employers have a general duty (under section 2) to ensure their health, safety and welfare. Section 7 of the Act places a duty on employees, including Young Persons, to take reasonable care for the health and safety of themselves and anyone else who may be affected by their acts or omissions, and to co-operate as much as necessary with their employer and others to ensure that obligations imposed on the employer by health and safety legislation can be complied with.

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2 Arrangements for ensuring the Health and Safety of Young Workers

- 2.1 All reasonable steps will be taken by the company to secure the health and safety of young persons placed with the company either through a training scheme or work experience programs. There will be a thorough preparation before trainees/pupils arrive, enabling a risk assessment to be undertaken of any hazards to which they may be exposed.
- 2.2 On arrival at the company's premises a thorough induction will be undertaken, not only to provide an introduction to the company but also to explain the health and safety rules, regulations and precautions that must be taken. Staff at all levels who may be involved in the exercise will be briefed as what their responsibilities are and the extent of the work trainees may undertake.
- 2.3 The company will identify the activities that the trainees will be engaged and ensure all risks are controlled and a safe system of work implemented. The

company will also determine whether it will be necessary' to impose any limitations or special arrangements on medical grounds (e.g. where a trainee suffers from asthma, defective colour vision or hearing impairment etc).

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3 Safe System of Work

3.1 The company recognizes that training, coupled with proper supervision, is particularly important for young persons because of their relative immaturity and unfamiliarity with the working environment. In addition to the specific training they will need to carry out assigned work tasks, young persons need to be aware of the following general rules for safeguarding their own safety and the safety of others:

- Games and practical jokes are not appropriate in the workplace; potentially serious injuries could result from such conduct
- Work areas and gangways need to be kept tidy. Do not leave things where people could trip or bump into them
- Good hygiene, and the use of barrier creams where appropriate, are needed to prevent risks to health and safety from dangerous articles and substances
- Protective clothing needs to be kept in good condition
- Running in the workplace can be dangerous and is generally prohibited. Safe routes must always be used
- Lifting and carrying should be carried out in the correct manner; training will be carried out as required
- Compressed air is provided for approved uses only. It should not be used for cleaning benches or clothing and NEVER on other people
- Electricity is very dangerous and electrical equipment should only be used according to appropriate instructions
- Machines should not be used unless appropriate training has been given, including the use of safety guards, etc.
- Hazard warning signs for harmful substances are in place in the workshop and should be heeded. In the event of any doubt the advice of a supervisor should be sought.
- Care must be taken when handling flammable substances and smoking prohibitions must be observed. Carelessly discarded rubbish or smoking materials presents a fire hazard
- Any injury must be reported to a supervisor
- Be fully aware of emergency and first aid arrangement actions

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