Summary of the main legal requirements

21

21.1 Introduction

The achievement of an understanding of the basic legal requirements can be a daunting task. However, the health and safety student should not despair because at NEBOSH National Certificate in Construction level they do not need to know the full history of UK health and safety legislation, the complete range of Regulations made under the Health and Safety at Work Act 1974 or the details of the appropriate European Directives. These summaries, which are correct up to the 1st October 2007, cover those Acts and Regulations which are essential for the Certificate student and will provide the essential foundation of knowledge. They will also cover many of the requirements for similar awards at Certificate level and below. Students should check the latest edition of the NEBOSH Construction Certificate guide to ensure that the regulations summarized here are the latest for the course being undertaken. Remember that NEBOSH does not examine on legislation until 6 months after it has been published.

Many managers will find these summaries a useful quick reference to the legal requirements. However, anyone involved in achieving compliance with legal requirements should ensure that they read the Regulations themselves, any approved codes of practice (ACOP) and HSE guidance.

21.2 The legal framework

21.2.1 *General*

The Health and Safety at Work etc Act 1974 (HSW Act) is the foundation of British Health and Safety law. It describes the general duties that employers have towards their employees and to members of the public, and also the duties that employees have to themselves and to each other.

The term '*so far as is reasonably practicable*' (SFARP) qualifies the duties in the HSW Act 1974. In other words, the degree of risk in a particular job or workplace needs to be balanced against the time, trouble, cost and physical difficulty of taking measures to avoid or reduce the risk.

The law simply expects employers to behave in a way that demonstrates good management and common sense. They are required to look at what the hazards are and take sensible measures to tackle them.

The Management of Health and Safety at Work Regulations 1999 (MHSWR, the Management Regulations) clarifies what employers are required to do to manage health and safety under the Health and Safety at Work Act. Like the Act, they apply to every work activity.

The law requires every employer to carry out *risk assessments*. If there are five or more employees in the workplace, the significant findings of the risk assessment need to be recorded.

In a place like an office, risk assessment should be straightforward; but where there are serious hazards, such as those on a construction site or when construction work is undertaken in a chemical plant or on an oil rig, it is likely to be more complicated.

The Factories Act 1961 and The Office Shops and Railway Premises Act of 1963, while still partly remaining on the Statute Book for most practical health and safety work, can be ignored. However, strangely, the notification to the authorities of premises which come within the definition of these two acts are carried out on Form 9 for factories, Form 10 for construction and OSR 1 for office shop and railway premises.

21.2.2 *The relationship between the regulator and industry*

The Health and Safety Commission (HSC) consults widely with those affected by its proposals.

The HSC/HSE works through:

- the HSC's Industry and Subject Advisory Committees, which have members drawn from the areas of work they cover, and focus on health and safety issues in particular industries (such as the construction industry and education or areas such as toxic substances and genetic modification)
- intermediaries, such as small firms' organizations
- Construction Industries Training Board (CITB)
- providing information and advice to employers and others with responsibilities under the Health and HSW Act 1974
- guidance to enforcers, both HSE inspectors and those of local authorities
- the day-to-day contact which inspectors have with people at work.

The HSC consults with small firms through Small Firms Forums. It also seeks views in detail from representatives of small firms about the impact on them of proposed legislation.

21.3 List of Acts and Regulations summarized

The following Acts and Regulations are covered in this summary:

- Health and Safety at Work etc Act 1974 (HSW Act)
- Environmental Protection Act 1990
- New Roads and Street Works Act 1991.

For health and safety issues the most important of these is the HSW Act 1974. Most of the relevant Regulations covering health and safety at work have been made under this Act since 1974. These are included here and are all relevant to the Construction Certificate student.

The Fire Safety Order was made under the Regulatory Reform Act 2001 and the Hazardous Waste Regulations 2005 under the Environmental Protection Act 1990.

The first list is alphabetical and some titles have been modified to allow an easier search. They are:

21.3.1 *Alphabetical list of regulations summarized*

Control of Asbestos Regulations 2006
Chemicals (Hazard Information and Packaging for Supply) Regulations 2002 plus 2005 amendment
Confined Spaces Regulations 1997
Construction (Design and Management) Regulations 2007
Construction (Head Protection) Regulations 1989
Consultation with Employees Regulations 1996
Control of Substances Hazardous to Health Regulations 2002 and 2005
Dangerous Substances and Explosive Atmospheres Regulations 2002
Display Screen Equipment Regulations 1992
Electricity at Work Regulations 1989
Employers Liability (Compulsory Insurance) Act 1969 Regulations 1998
Fire Safety Order 2005
First Aid Regulations 1981
Hazardous Waste (England and Wales) Regulations 2005
Information for Employees Regulations 1989
Ionising Radiations Regulations 1999
Lead at Work Regulations 2002
Lifting Operations and Lifting Equipment Regulations 1998
Management of Health and Safety at Work Regulations 1999
Manual Handling Operations Regulations 1992
Noise at Work Regulations 2005
Personal Protective Equipment at Work Regulations 1992
Provision and Use of Work Equipment Regulations 1998 (except Part IV – Power Presses)
Reporting of Injuries Diseases and Dangerous Occurrences Regulations 1995
Safety Representatives and Safety Committees Regulations 1997
Safety Signs and Signals Regulations 1996
Supply of Machinery (Safety) Regulations 1992
Vibration at Work Regulations 2005
Workplace (Health, Safety and Welfare) Regulations 1992
Work at Height Regulations 2005 as amended in 2007

The following Acts and Regulations have also been included even though they are not in the NEBOSH Construction Certificate syllabus. Very brief summaries only are given:

Corporate Manslaughter and Corporate Homicide Act 2007
Disability Discrimination Act 1995 and 2005
Electrical Equipment (Safety) Regulations 1994
Gas Appliances (Safety) Regulations 1992
Gas Safety (Installation and Use) Regulations 1998
Occupiers Liability Acts 1957 and 1984
Personal Protective Equipment Regulations 2002
Pesticides Regulations 1986

Pressure Systems Safety Regulations 2000
The Manufacture and Storage of Explosives Regulations 2005
Working Time Regulations 1998, 2003 and 2007

21.3.2 *Chronological list of regulations summarized*

The list below gives the correct titles (minus the year), year produced and Statutory Instrument number.

Year	SI no.	Title
1977	0500	Safety Representatives and Safety Committees Regulations
1981	0917	Health and Safety (First Aid) Regulations
1989	0635	Electricity at Work Regulations
1989	0682	Health and Safety (Information for Employees) Regulations
1989	2209	Construction (Head Protection) Regulations
1992	2792	Health and Safety (Display Screen Equipment) Regulations
1992	2793	Manual Handling Operations Regulations
1992	2966	Personal Protective Equipment at Work Regulations
1992	3004	Workplace (Health, Safety and Welfare) Regulations
1992	3073	Supply of Machinery (Safety) Regulations
1995	3163	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
1996	0341	Health and Safety (Safety Signs and Signals) Regulations
1996	1513	Health and Safety (Consultation with Employees) Regulations
1997	1713	Confined Spaces Regulations
1998	2306	Provision and Use of Work Equipment Regulations (except Part IV – Power Presses)
1998	2307	Lifting Operations and Lifting Equipment Regulations
1998	2573	Employers Liability (Compulsory Insurance) Regulations
1999	3232	Ionising Radiations Regulations
1999	3242	Management of Health and Safety at Work Regulations
2002	2677	Control of Substances Hazardous to Health Regulations
2002	3247	Chemicals (Hazard Information and Packaging for Supply) Regulations
2002	2676	Control of Lead at Work Regulations
2002	2776	Dangerous Substances and Explosive Atmospheres Regulations
2005	735	Work at Height Regulations
2005	1093	Control of Vibration at Work Regulations
2005	1541	Regulatory Reform (Fire Safety) Order
2005	1643	Control of Noise at Work Regulations
2006	2739	Control of Asbestos Regulations
2007	0320	Construction (Design and Management) Regulations

Very brief summaries only for:

1957 and 1984	Ch31 and Ch3	Occupiers Liability Acts
1986	1510	Control of Pesticides Regulations
1992	0711	Gas Appliances (Safety) Regulations
1998	2451	Gas Safety (Installation and Use) Regulations
1994	3260	Electrical Equipment (Safety) Regulations
1998	1833	Working Time Regulations
2000	128	Pressure Systems Safety Regulations
2002	1144	Personal Protective Equipment Regulations
2005	894	The Hazardous Waste (England and Wales)
2005	895	The List of Wastes (England) Regulations
2005	Ch50	Disability Discrimination Act 1995 and 2005
2005	1082	The Manufacture and Storage of Explosives Regulations
2007	Ch19	Corporate Manslaughter and Corporate Homicide Act 2007

21.4 Health and Safety at Work Etc Act (HSW Act) 1974

The HSW Act 1974 was introduced to provide a comprehensive and integrated piece of legislation dealing with the health and safety of people at work and the protection of the public from work activities. A very small amount of pre-1974 legislation is still in place despite strenuous efforts to repeal and replace it with updated legislation under the HSW Act 1974.

The Act imposes a duty of care on everyone at work related to their roles. This includes employers, employees,

owners, occupiers, designers, suppliers and manufacturers of articles and substances for use at work. It also includes self-employed people. The detailed requirements are spelt out in Regulations.

The Act basically consists of four parts:

Part 1 covers:

- the health and safety of people at work
- protection of other people affected by work activities
- the control of risks to health and safety from articles and substances used at work
- the control of some atmospheric emissions.

Part 2: sets up the Employment Medical Advisory Service
Part 3: makes amendments to the safety aspects of building regulations
Part 4: general and miscellaneous provisions.

21.4.1 *Duties of employers – section 2*

The employers' main general duties are to ensure, SFARP, the health, safety and welfare at work of all their employees, in particular:

- the provision of safe plant and systems of work
- the safe use, handling, storage and transport of articles and substances
- the provision of any required information, instruction, training and supervision
- a safe place of work including safe access and egress
- a safe working environment with adequate welfare facilities.

When five or more people (The Employer's health and safety Policy Statements (Exception) Regulations 1975 (SI No 1584) exempted an employer who employs less than five people) are employed the employer must:

- prepare a written general health and safety policy
- set down the organization and arrangements for putting that policy into effect
- revise and update the policy as necessary
- bring the policy and arrangements to the notice of all employees.

Employers must also:

- consult safety representatives appointed by recognized trade unions
- consult Representatives of Employee Safety (ROES) elected by employees
- establish a safety committee if requested to do so by recognized safety representatives.

Note that this has been enacted by the Safety Representatives and Safety Committees Regulations 1977 and enhanced by the Health and Safety (Consultation with Employees) Regulations 1996 (see later summaries).

21.4.2 *Duties of owners/occupiers – sections 3 and 4*

Every employer and self-employed person is under a duty to conduct their undertaking in such a way as to ensure, SFARP, that persons not in their employment (and themselves for self-employed) who may be affected, are not exposed to risks to their health and safety.

Those in control of non-domestic premises have a duty to ensure, SFARP, that the premises, the means of access and exit, and any plant or substances are safe and without risks to health. The common parts of residential premises are non-domestic.

Section 5 in relation to harmful emissions into the atmosphere was repealed by the Environmental Protection Act 1990.

21.4.3 *Duties of manufacturers/ suppliers – section 6*

Persons who design, manufacture, import or supply any article or substance for use at work must ensure, SFARP, that:

- it is safe and without risks to health when properly used (i.e. according to manufacturers' instructions)
- carry out such tests or examinations as are necessary for the performance of their duties
- provide adequate information (including revisions) to perform their duties
- carry out any necessary research to discover, eliminate or minimize any risks to health or safety
- (the installer or erector must ensure that) nothing about the way in which the article is installed or erected makes it unsafe or a risk to health.

21.4.4 *Duties of employees – section 7*

Two main duties are placed on employees:

- to take reasonable care for the health and safety of themselves and others who may be affected by their acts or omissions at work
- to co-operate with their employer and others to enable them to fulfil their legal obligations.

21.4.5 *Other duties – sections 8 and 9*

No person may misuse or interfere with anything provided in the interest of health, safety or welfare in pursuance of any of the relevant statutory provisions.

Employees cannot be charged for anything done, or provided, to comply with the relevant statutory provisions, for example personal protective equipment (PPE) required by a health and safety regulation.

21.4.6 *Powers of inspectors – sections 20 and 25*

Inspectors appointed under the HSW Act have the authorization to enter premises at any reasonable time (or anytime in a dangerous situation), and to:

- take a constable with them if necessary
- take with them another authorized person and necessary equipment
- examine and investigate
- require premises or anything in them to remain undisturbed for purposes of examination or investigation
- take measurements, photographs and recordings
- cause an article or substance to be dismantled or subjected to any test
- take possession of or retain anything for examination or legal proceedings
- take samples as long as a comparable sample is left behind
- require any person who can give information to answer questions and sign a statement. Evidence given under this Act cannot be used against that person or their spouse
- require information, facilities, records or assistance
- do anything else necessary to enable them to carry out their duties
- issue an **Improvement Notice(s)**, which is a notice identifying a contravention of the law and specifying a date by which the situation is remedied. There is an appeal procedure which must be triggered within 21 days. The notice is suspended pending the outcome of the appeal
- issue a **Prohibition Notice(s)**, which is a notice identifying and halting a situation which involves or will involve a risk of serious personal injury to which the relevant statutory provisions apply. A contravention need not have been committed. The notice can have immediate effect or be deferred, for example to allow a process to be shut down safely. Again there is provision to appeal against the notice but the order still stands until altered or rescinded by an Industrial tribunal
- initiate prosecutions
- seize, destroy or render harmless any article or substance which is a source of imminent danger.

21.4.7 *Offences – section 33*

Offences prosecuted under the HSW Act or Regulations attract a maximum fine of £5,000 if tried on summary conviction in a magistrates' court. Exceptionally this is a maximum of £20,000 for breaches of sections 2 and 6 (General duties) and £20,000 and/or 6 months' imprisonment for contravening a prohibition notice, an improvement notice or order of the court.

A number of cases can also be tried on indictment, in the Crown Court where the fines are unlimited and the maximum prison sentence can be up to 12 years. However, prison sentences are limited to certain cases only. Table 21.1 summarizes the position. Note that the offences relating to breaches of general health and safety requirements (shown in bold) do *not* attract a prison sentence.

If a Regulation has been contravened, failure to comply with an ACOP is admissible in evidence as failure to comply. Where an offence is committed by a corporate body with the knowledge, connivance or neglect of a responsible person, both that person and the body corporate are liable to prosecution.

In proceedings the onus of proving the limits of what is reasonably practicable rests with the accused.

21.4.8 *The Health and Safety Commission/ Executive – section 10*

Section 10 of the Act established these two bodies whose chief functions were to 31 March 2008:

- The HSC had the prime responsibility for administering the law and practice on occupational health and safety. Its nine members were appointed by the Government from industry, trade unions, local authorities and others. The HSC had wide powers to do anything (except borrow money) which is calculated to facilitate, or is conducive or incidental to, the performance of its functions.
- The Health and Safety Executive (HSE) is the executive and enforcement arm of the HSC. The HSC may direct its work except where it involves enforcement of the law in individual cases. Enforcement of the law in certain premises like offices and shops is the responsibility of local authority environmental health departments, whose officers have identical powers to HSE inspectors.

From 1 April 2008 the HSC/HSE have merged to form a single National Regulatory Body called The Health and Safety Executive. See press Release At 21.38.

21.4.9 *References*

An Introduction to Health and Safety: Guidance on a Health and Safety for Small Firms. INDG259 (rev1), reprinted 2006, HSE Books, ISBN 9780-7176-2685-7.

Health and Safety at Work etc Act 1974. Chapter 37, London, The Stationery Office.

Table 21.1 Offences and penalties under HSW Act

Offence	Summary conviction	Conviction on indictment
HSW Act s.33(1A) ➤ breach of HSW Act ss.2, 3, 4 or 6	**Max. £20,000 fine**	**Fine (unlimited)**
HSW Act s.33(2) ➤ obstructing an inspector, impersonating an inspector, contravening requirement of inspector under s.20, or similar	Max. £5,000 fine	
HSW Act s.33(2A) ➤ failure to comply with enforcement notice or court order	Max. £20,000 and/or up to 6 months' imprisonment	Fine (unlimited) and/or up to 2 years' imprisonment
HSW Act s.33(3) ➤ all other offences (except those specified in s.33(4)) ➤ breach of HSW Act ss.7, 8 or 9 ➤ breach of Regulations made under the Act ➤ making false statements or entries ➤ using, or possessing a document with the intent to deceive	**Max. £5,000 fine**	**Fine (unlimited)**
HSW Act s.33(3) – *offences specified in s.33(4)* ➤ operating without, or contravening the terms or conditions of, a licence when one is required (e.g. Under Asbestos (Licensing) Regulations 1983) ➤ acquiring or attempting to acquire, possessing or using an explosive article or substance in contravention of the relevant statutory provisions ➤ using or disclosing information in contravention of sections 27(4) and 28 (relates to information provided to HSC/HSE, etc. by notice or under relevant statutory provisions)	Max. £5,000 fine	Fine (unlimited) and/or up to 2 years' imprisonment

The Health and Safety System in Great Britain. 3rd edition, HSC, 2002 HSE Books, ISBN 9780-7176-2243-6.

What to Expect When a Health and Safety Inspector Calls: A Brief Guide for Businesses, Employees and Their Representatives. HSC 14, 1998 HSE Books.

21.5 Environmental Protection Act 1990

21.5.1 *Introduction*

The Environmental Protection Act 1990 (EPA) is still the centrepiece of current UK legislation on environmental protection. It is divided into nine parts, corresponding to the wide range of subjects dealt with by the Act.

Integrated pollution control (IPC) was a system established by Part 1 of the Act. Part 1 introduced *Part A Processes*, which are the most potentially polluting or technologically complex processes. In England and Wales these are enforced by the Environment Agency. In Scotland there is a parallel system enforced by the Scottish Environment Protection Agency.

Less polluting industry were classified as Part B, with only emissions released to air being subject to regulatory control. For such processes local authorities are the enforcing body and the system is known as Local Air Pollution Control (LAPC).

Both IPC and LAPC have now been replaced by an Integrated Pollution Prevention and Control (IPPC) regime that implements the requirements of the EC Directive 96/61 on IPPC. This was introduced under the Pollution Prevention and Control Act of 1999 (1999 Chapter 24), which repealed Part 1 of the Environmental Protection Act.

The change is outlined in Box 21.1.

Box 21.1 Pollution Prevention and Control Regime Outline

PPC REGIME
Pollution Prevention and Control

IPC (regime A)
Integrated Pollution Control
LAPC (regime B)
Local Air Pollution Control
IPPC (regime A1 and A2)
Integrated Pollution Prevention and Control
LAPPC (regime B)
Local Air Pollution Prevention and Control

Under Environmental Protection Act 1990 – Part 1

Regime A – This is an integrated permitting regime. Emissions to the air, land and water of the potentially more polluting processes are regulated. The Environment Agency is the regulator.

Regime B – This regime permits processes with a lesser potential for polluting emissions. Only emissions to the air are regulated. The Local Authority is the Regulator.

Under Pollution Prevention and Control Act 1999

Regime A1 – This is an integrated permitting regime. Emissions to the air, land and water of potentially more polluting processes are regulated. The Environment Agency is the Regulator.

Regime A2 – This is an integrated permitting regime. Emissions to the air, land and water of processes with a lesser potential to pollute are regulated. The Local Authority Agency is the regulator.

Regime B – This is the permitting of processes with a lesser potential to pollute. Only emissions to the air are regulated. The Local Authority is the Regulator.

21.5.2 *Integrated Pollution Prevention and Control*

The system of Integrated Pollution Prevention and Control (IPPC) applies an integrated environmental approach to the regulation of certain industrial activities. This means that emissions to air, water (including discharges to sewer) and land, plus a range of other environmental effects, must be considered together. It also means that regulators must set permit conditions so as to achieve a high level of protection for the environment as a whole. These conditions are based on the use of the 'Best Available Techniques' (BAT), which balances the costs to the operator against the benefits to the environment. IPPC aims to prevent emissions and waste production and where that is not practicable, reduce them to acceptable levels. IPPC also takes the integrated approach beyond the initial task of permitting, through to the restoration of sites when industrial activities cease.

21.5.3 *Setting the legal framework*

The PPC Regulations implement the European Community (EC) Directive 96/61/EC on Integrated Pollution Prevention and Control ('the IPPC Directive'), insofar as it relates to installations in England and Wales. Separate Regulations apply the IPPC Directive in Scotland and Northern Ireland and to the offshore oil and gas industries.

- Prior to the PPC Regulations coming into force, many industrial sectors covered by the IPPC Directive were regulated under Part I of the EPA 1990. This introduced the systems of IPC, which controlled releases to all environmental media and LAPC, which controlled releases to air only. Other industrial sectors new to integrated permitting, such as the landfill, intensive farming and food and drink sectors were regulated, where appropriate, by separate waste management licences issued under Part II of the EPA and/or water discharge consents under the Water Resources Act 1991 or Water Industry Act 1991.
- The PPC Regulations create a coherent new framework to prevent and control pollution, with two parallel systems similar to the old regimes of IPC and LAPC. The first of these – the 'Part A' regime of IPPC – applies a similar integrated approach to IPC while delivering the additional requirements of the IPPC Directive. 'Part A' extends the issues that regulators must consider alongside emissions into areas such as energy use and site restoration. The main provisions of IPPC apply equally to the ex-IPC processes and the other sectors new to integrated permitting. There are also some further requirements that apply solely to waste management activities falling under IPPC.
- The IPPC Directive applies to those landfills receiving more than 10 tonnes per day or with a total capacity exceeding 25,000 tonnes (but excluding

landfills taking only inert waste; the landfill Directive applies to all landfills. The PPC Regulations have been amended to include all landfills. For landfills the technical requirements are met through the Landfill Regulations. Department for Environment, Food and Rural Affair (DEFRA) issued separate guidance on the Landfill Regulations in 2004.

- The Environment Agency regulates Part A (1) installations. Part A (2) installations are regulated by the relevant local authority – usually the district, London or metropolitan borough council in England and the county or borough council in Wales. However, the local authority will always be a statutory consultee where the Environment Agency is the regulator, and vice versa. Moreover, the local authority and the Environment Agency will work together in the permitting process. Local authorities have expertise in setting standards for noise control, while the Environment Agency will ensure that permit conditions protect water adequately. Annex I describes how IPPC installations are classified into either Part A (1) or Part A (2) installations depending on what activities take place within them.
- The second new regime – the 'Part B' regime of Local Air Pollution Prevention and Control (LAPPC) – represents a continuation of the old LAPC regime. LAPPC is similar to IPPC from a procedural perspective, but it still focuses on controlling emissions to air only. DEFRA provides separate guidance on local authority air pollution control.

21.5.4 *Overview of the regulatory process*

The basic purpose of the IPPC regime is to introduce a more integrated approach to controlling pollution from industrial sources. It aims to achieve 'a high level of protection of the environment taken as a whole by, in particular, preventing or, where that is not practicable, reducing emissions into the air, water and land'. The main way of doing that is by determining and enforcing permit conditions based on BAT.

- The entire regulatory process for IPPC consists of a number of elements. These are outlined below. IPPC applies to specified 'installations', both 'existing' and 'new', requiring each 'operator' to obtain a permit from the regulator – either the Environment Agency or the local authority.

Stage 1 – Permitting

1. The procedure begins with the preparation of an application by the operator. Once the regulator receives the application, they will consult various 'statutory consultees'. Operators should be encouraged to engage the public at the earliest opportunity. Operators are required to advertise in one or more local papers and in the London Gazette details of the activity and its location together with a statement of where public representations should be made. After giving further public participation in the case of applications in respect of 'new installations', or 'substantial changes' to installations, the regulator will then determine the application, either granting a permit with conditions or refusing it.
2. The Landfill Regulations required operators of all existing landfill sites to submit a conditioning plan (CP) by 16 July 2002. If a site closed before 16 July 2002, then no plan was required. Otherwise the Environment Agency decides whether a landfill should continue operating on the basis of the CP. A PPC application building on the CP will then be required to be submitted by the date notified to the operator.
3. In making an application the operator must cover various environmental issues. These include:
   - satisfactory environmental management of the installation and no significant pollution caused
   - adequate compliance monitoring
   - waste production is avoided and where waste is produced, it is recovered. Where that is not possible it is disposed of in a way producing the least impact on the environment, if any impact is produced at all
   - assessment of polluting releases and the identification of BAT (see Box 21.2 for a definition)
   - compliance with other EU directives, community and national environmental quality standards (EQSs) and domestic regulations
   - energy is used efficiently
   - measures are taken to avoid accidents and limit their consequences
   - necessary measures are taken on the closure of an installation to avoid any pollution risk and return the site to a satisfactory condition
   - for landfills, alternative requirements are specified by the Landfill Regulations.
4. The operator must also consider the condition of the site at the time of the original application. This will contribute to assessing the need for restoration when the installation closes (stage 3).
5. In determining the application, the regulator must be satisfied that the operator has addressed the above points appropriately. It is therefore the operator's responsibility to demonstrate that this is the case.

Stage 2 – Operation

1. Once the regulator has issued a permit, the operator of an IPPC installation will have to carry out monitoring

Box 21.2 Best available techniques

This term is defined as 'the most effective and advanced stage in the development of activities and their methods of operation which indicates the practicable suitability of particular techniques for providing the basis for emission limit values designed to prevent, and where that is not practicable, generally to reduce the emissions and the impact on the environment as a whole'.

This definition implies that BAT not only cover the technology used but also the way in which the installation is operated, to ensure a high level of environmental protection as a whole. BAT take into account the balance between the costs and environmental benefits (i.e. the greater the environmental damage that can be prevented, the greater the cost for the techniques).

to demonstrate compliance with the permit conditions. Regulators will also carry out their own monitoring and inspections, and have a range of enforcement powers.

2. Over time, regulators may vary permits to reflect changes in how installations are operated, or for other reasons. The regulator may vary permit conditions at either its own or the operator's instigation, with the possibility of consultation in either case. The regulator may also transfer permits from one operator to another, for example when one operator is taken over by another. More generally, regulators must review permits periodically, or whenever circumstances make a review necessary, such as when significant pollution occurs.
3. Specific conditions may apply to individual installations that the regulator considers appropriate to ensure a high level of protection to the environment as a whole. If the regulator believes that the operator is breaching the conditions of a permit, enforcement options are available where enforcement, suspension or a revocation notice can be served (the operator may appeal against this to the Secretary of State).

Stage 3 – Closure and Surrender

1. When an installation closes, an operator should apply to surrender a permit, to end regulation under IPPC and payment of the associated annual charges to the regulator. The application to surrender the permit must include a site report identifying, in particular, any changes in the condition of the site since the time at which the permit was issued. The operator is required to identify any steps that have been taken to avoid any pollution risk resulting from the operation of the installation or return it to a satisfactory state. If on closure the operator satisfies the regulator that they have removed any pollution risks and restored the site to a satisfactory state, the regulator accepts the surrender and gives the operator notice of its determination. The permit then ceases to have effect on the date specified in the notice of determination. If the regulator is not satisfied, it has to give notice of its determination stating that the application has been refused.

21.5.5 *Wider scope of IPPC*

IPPC takes a wider range of environmental impacts into account than IPC. The current system of IPC regulates emissions to land, water and air. The IPPC regime will additionally take into account waste avoidance or minimization, energy efficiency, accident avoidance and minimization of noise, heat and vibrations. These aims will achieve a higher level of protection as a whole.

IPPC applies to a wider range of industries than IPC. These industries include all installations that are currently regulated under IPC, some installations currently under LAPC, and some installations that are not currently under either regime, such as landfill sites, intensive agriculture, large pig and poultry units, and food and drink manufacturers.

Under IPPC, regulated industries are referred to as 'installations' as opposed to 'processes', which is the term used for IPC. This change in terminology enables a more integrated approach to regulation; a whole installation must be permitted rather than just individual processes within the installation.

Guidelines to establish which BAT are used published by the European Commission's IPPC Bureau. These reference notes are known as BREF notes and provide the basis for national sectoral guidance. The Environment Agency has supplementary guidance to cover many issues, some, for example energy efficiency, site remediation and noise, are new issues under IPPC. Industry sectors not previously regulated under the Environmental Protection Act 1990, such as intensive farming and food and drink installations, are also covered by guidance.

Once issued, permits for IPPC are to be reviewed periodically in addition to any updating which is made necessary by technological or other changes.

Permits have been required for all new installations and existing installations undergoing a substantial change (where there is a change in operation that

may have a significant negative effect on human beings or the environment) from 31 October 1999. For existing installations IPC permits will continue to be in force until IPPC permits are phased in on a sectoral basis by October 2007.

21.5.6 *Duty of care*

Waste and the duty of care

The duty of care is covered in Part II of the Environmental Protection Act 1990. The duty of care applies to anyone who produces or imports, keeps or stores, transports, treats or disposes of waste. It also applies if they act as a broker and arrange these things.

The duty holder is required to take all reasonable steps to keep the waste safe. If they give waste to someone else, the duty holder must be sure that they are authorized to take it and can transport, recycle or dispose of it safely.

The penalty for breach of this law is an unlimited fine.

Waste can be anything owned, or which a business produces, that a duty holder wants to get rid of. Controlled waste is defined in Box 21.3.

Box 21.3 Controlled Waste

Controlled waste means household, commercial or industrial waste. It includes any waste from a house, school, university, hospital, residential or nursing home, shop, office, factory or any other trade or business premises. It is controlled waste whether it is solid or liquid and even if it is not hazardous or toxic.

If the waste comes from a person's own home, the duty of care **does not** apply to them. But if the waste is not from the house they live in, for example, if it is waste from their workplace or waste from someone else's house, the duty of care **does** apply.

Animal waste collected and transported under the Animal By-Products Order 1992 is not subject to the duty of care.

Duty holders must take all reasonable steps to fulfil the duty and complete some paperwork. What is reasonable depends on what is done with the waste.

Steps to take if the duty of care applies when a duty holder has waste are as follows. They must:

- stop it escaping from their control and store it safely and securely. They must prevent it causing pollution or harming anyone
- keep it in a suitable container. Loose waste in a skip or on a lorry must be covered
- if the duty holder gives waste to someone else, they must check that they have authority to take it. The law says the person to whom they give the waste must be authorized to take it. Box 21.4 explains who is allowed to take waste and how the duty holder can check
- describe the waste in writing. The duty holder must fill in and sign a transfer note for it and keep a copy. To save on paperwork, the description of the waste can be written on the transfer note (see Box 21.5).

Box 21.4 Who has authority to take waste?

Council waste collectors

The duty holder does not have to do any checking, but if they are not a householder, there is some paperwork to complete. This is explained in Box 21.5.

Registered waste carriers

Most carriers of waste have to be registered with the Environment Agency or the Scottish Environment Protection Agency. Look at the carrier's certificate of registration or check with the Agencies.

Exempt waste carriers

The main people who are exempt are charities and voluntary organizations. Most exempt carriers need to register their exemption with the Environment Agency or the Scottish Environment Protection Agency. If someone says they are exempt, ask them why. Check with the Agencies that their exemption is registered.

Holders of waste management licences

Some licences are valid only for certain kinds of waste or certain activities. Ask to see the licence. Check that it covers the kind of waste being consigned.

Businesses exempt from waste management licences

There are exemptions from licensing for certain activities and kinds of waste. For example, the recycling of scrap metal or the dismantling of

scrap cars. Most exempt businesses need to register their exemption with the Environment Agency or the Scottish Environment Protection Agency. Check with the Agencies that their exemption is registered.

Authorized transport purposes
Waste can also be transferred to someone for 'Authorized transport purposes'. This means:

- the transfer of controlled waste between different places within the same premises
- the transport of controlled waste into Great Britain from outside Great Britain and
- the transport by air or sea of controlled waste from a place in Great Britain to a place outside Great Britain.

Registered waste brokers
Anyone who arranges the recycling or disposal of waste, on behalf of someone else, must be registered as a waste broker. Check with the Environment Agency or the Scottish Environment Protection Agency that the broker is registered.

Exempt waste brokers
Most exempt waste brokers need to register with the Environment Agency or the Scottish Environment Protection Agency. Those who are exempt are mainly charities and voluntary organizations. If someone tells you they are exempt, ask them why. You can check with the Environment Agencies that their exemption is registered.

Box 21.5 Filling in paperwork

When waste is passed from one person to another the person taking the waste must have a written description of it. A transfer note must also be filled in and signed by both persons involved in the transfer.

The duty holder can write the description of the waste on the transfer note. Who provides the transfer note is not important as long as it contains the right information. The Government has published a model transfer note with the Code of Practice, which can be used if desired.

Repeated transfers of the same kind of waste between the same parties can be covered by one transfer note for up to a year. For example, weekly collections from shops.

The transfer note: The transfer note to be completed and signed by both persons involved in the transfer must include:

- what the waste is and how much there is
- what sort of containers it is in
- the time and date the waste was transferred
- where the transfer took place
- the names and addresses of both persons involved in the transfer
- whether the person transferring the waste is the importer or the producer of the waste
- details of which category of authorized person each one is. If the waste is passed to someone for authorized transport purposes, you must say which of those purposes applies
- if either or both persons is a registered waste carrier, the certificate number and the name of the Environment Agency which issued it
- if either or both persons has a waste management licence, the licence number and the name of the Environment Agency which issued it
- the reasons for any exemption from the requirement to register or have a licence
- where appropriate, the name and address of any broker involved in the transfer of waste.

The written description: The written description must provide as much information as someone else might need to handle the waste safely.

Keeping the papers: Both persons involved in the transfer must keep copies of the transfer note and the description of the waste for 2 years. They may have to prove in Court where the waste came from and what they did with it. A copy of the transfer note must also be made available to the Environment Agency or the Scottish Environment Protection Agency if they ask to see it.

When a person takes waste from someone else they must:

- be sure the law allows them to take it. Box 21.4 explains who is allowed to take waste.
- make sure the person giving them the waste describes it in writing. The waste receiver must fill in and sign a transfer note and keep a copy (see Box 21.5).

21.5.7 *Hazardous waste*

On 16 July 2005 the Hazardous Waste (England and Wales) Regulations 2005 and the List of Wastes (England) Regulations came into force replacing the Special Waste Regulations. The Special Waste Regulations 1996 transposed the requirements of the European Hazardous Waste Directive (91/689/EEC) which sets out requirements for the controlled management of hazardous (special) waste. The Regulations set out procedures to be followed when disposing of, carrying and receiving hazardous waste. The Special Waste Regulations 1996 were amended by the Special Waste (Amendment) Regulations 1996, the Special Waste (Amendment) Regulations 1997 and the Special Waste (Amendment) (England and Wales) Regulations 2001. These can be found on the The Office of Public Sector Information (OPSI) website at. http://www.opsi.gov.uk/legislation/.

The new regime includes a requirement for most producers of hazardous waste to notify their premises to the Environment Agency. The facility to notify premises has been available since April 2005. Preliminary guidance on notification was published by DEFRA in January 2005. Guidance on notification, including the on-line notification facility, and more general guidance on the new regime can be found on the Environment Agency's *hazardous waste* pages.

21.5.8 *Applying for a waste management licence*

Introduction

A waste management licence is a legal document issued under the Environmental Protection Act 1990. There are two types of waste management licence:

- a site licence – authorizing the deposit, recovery or disposal of controlled waste in or on land
- a mobile plant licence – authorizing the recovery or disposal of controlled waste using certain types of mobile plant.

A licence has conditions to make sure that the authorized activities do not cause pollution of the environment, harm to human health or serious detriment to local amenities.

Anyone who deposits, recovers or disposes of **controlled waste** must do so either:

- within the conditions of a waste management licence or
- within the conditions of an exemption from licensing

and must not cause pollution of the environment, harm to human health or serious detriment to local amenities. Otherwise they could be fined and sent to prison.

The conditions of the exemptions from licensing are found in the Waste Management Licensing Regulations 1994. If an activity may be exempt this should be discussed with the Environment Agency.

Before applying for a licence contact the Environment Agency for advice. If a licence is needed the Environment Agency will:

- meet to discuss your proposals
- explain the application process and provide an application package
- provide guidance on preparing a working plan
- set out in writing any additional information required specifically for the proposals
- help work out the application fee and
- say who will deal with the application.

There are financial and legal implications to holding a licence and the licensee may want to get independent advice about these.

Box 21.6 What is a working plan?

As part of the licence application a working plan will need to be prepared. This is a document describing how the licensee intends to prepare, develop, operate and restore (where relevant) the site or plant. If they write a comprehensive working plan it will help to avoid delays in processing the application. It may also mean that some of the licence conditions could be less restrictive, giving more opportunity for flexibility in the operations.

21.5.9 *Applying for a licence*

To apply for a waste management licence the licensee must send:

- a completed application form
- the fee for processing the application (this cannot be refunded)

- any additional information which the Agency has asked for in writing and
- the supporting information in the checklist on the application form to the Environment Agency at the address shown on the application form.

When all the information has been received the Environment Agency will write to confirm that the application is complete and that the 4-month period allowed in law for deciding the application has started.

The application form will be put on the public register. If the licensee feels that any information on the form should not be made public because it is commercially confidential, they can apply to have that information withheld. The application form tells them how to do this.

21.5.10 *Processing the application*

Licence applications are processed by the Environment Agency using the waste management licensing process handbook, which helps to ensure that the licensing service is efficient and consistent.

The Environment Agency will consider whether it can write licence conditions which will make sure that the proposed activities do not cause pollution of the environment, harm to human health or serious detriment to local amenities.

When processing an application the Agency will also:

- check that the activities to be licensed have planning permission or equivalent (where it is needed). It is the licensee's responsibility to make sure that the activities have the necessary planning permission
- consult with other regulatory bodies and
- decide whether the licensee is a fit and proper person.

Box 21.7 What is a fit and proper person?

When considering whether the licensee is a fit and proper person the Agency will look at:

- whether they have made adequate financial provision to cover the licence obligations. If the Agency plans to issue a licence then a draft of the licence conditions will be sent to the licensee. They should use this draft to help calculate the amount of financial provision needed
- whether a technically competent person will be managing the licensed activities
- whether the licensee, or another relevant person, has been convicted of a relevant offence.

If the Environment Agency is not satisfied on any aspect, it will write and say what it needs. If the licensee is still unable to satisfy the Agency the application will be rejected.

21.5.11 *After a licence is issued*

Once the site is licensed, the licensee must comply with the licence conditions at all times. The Environment Agency will make visits to check that the licence conditions are being met.

There will be an annual fee to cover the costs of these visits. The fees for waste management licensing are in the Waste Management Licensing (Charges) Scheme.

The licence and working plan will be put on the public register. If the licensee thinks any of the information should not be made public because it is commercially confidential, they can apply to have that information withheld.

The licensee will be responsible for the obligations arising from that licence until:

- the Agency accepts an application to transfer the licence to another person
  - for a site licence – the Agency accepts the surrender of the licence
  - for a mobile plant licence – the licensee surrenders the licence.

Changes to licence conditions can only be made by the Environment Agency. If the licensee wants to change their operations, this should be discussed with the Agency.

21.5.12 *Future Environmental Permitting Programme*

The Environmental Permitting Programme (EPP) is a joint initiative between the Environment Agency, the Department for Environment, Food and Rural Affairs (DEFRA), Welsh Assembly Government (WAG) and other groups to develop a new and simplified regulatory system. It starts by combining Waste Management Licensing and Pollution Prevention and Control (PPC).

The objectives of EPP can be summarized as:

- bringing waste and PPC regulation into one joined-up risk-based regime
- reducing red tape while maintaining environmental standards
- simplifying and clarifying supporting documents and information systems and
- delivering savings for both operator and regulator.

The first step will be to make a number of sets of standard rules for waste activities available from April 2008. This was the subject of consultation issued on 13 September 2007.

Standard Rules and Guidance for the introduction of the Environmental Permitting Regulations

When the new Environmental Permitting Regulations (EP Regulations) came into force in April 2008, standard permits will be available from the Environment Agency. A standard permit has one condition which refers to a fixed package of standard rules. These permits are for low- to medium-risk operations that do not require site-specific assessment of risk. The Environment Agency will be able to issue these quickly because they have no decisions to make on site-specific conditions.

For more information on the draft Standard Rules and the Environmental Permitting Regulations see the Defra website: http://www.defra.gov.uk/environment/epp/.

21.5.13 *Further information*

The law

Environmental Protection Act 1990, ISBN 9780-10-544390-5.

Hazardous Waste (England and Wales) Regulations 2005. The Stationery Office, SI 2005, No. 894.

Pollution Prevention and Control Act 1999. Stationery Office 1999, ISBN 9780-10-542499.

Waste Management Licensing Regulations 1994. SI 1994, No. 1056 (as amended), ISBN 9780-11-044056-0.

Government guidance

Integrated Pollution Prevention and Control Practical Guidance. 4th edition, DEFRA 2005.

Waste Management Paper 4. Licensing of Waste Management Facilities, ISBN 9780-11-752727-0.

DOE Circular 11/94 Environmental Protection Act 1990: Part II Waste Management Licensing. The Framework Directive on Waste (Welsh Office Circular 26/94, Scottish Office Environment Department Circular 10/94), ISBN 9780-11-752975-3.

A Guide to the Hazardous Waste Management Regulations and the List of Waste Regulations in England and Wales. Environment Agency HWR01. Environmental Permitting DEFRA website: http://www.defra.gov.uk/environment/epp/.

21.6 New Roads and Street Works Act 1991

21.6.1 *Introduction*

The prevailing legislation surrounding streetworks is primarily enshrined in The New Roads and Street Works Act 1991 (NRSWA). This is a detailed Act with 171 sections but it is Part III which applies to street works in England and Wales and Part IV which applies to road works in Scotland that most concern health and safety. A summary of the general requirements only is given.

Prior to this legislation, the Public Utilities and Street Works Act 1950 (PUSWA) gave public utilities the right to dig up roads without needing to obtain prior permission, while local authorities were generally responsible for carrying out the permanent reinstatements. As this was widely believed to be unnecessarily bureaucratic, there was a groundswell in favour of deregulation to create more favourable operating conditions for the private sector. However, the deregulation of streetworks coincided with the liberalization of the telecommunications industry, which meant that when the Act came into effect the conditions which had originally spawned it had radically altered and there was soon a plethora of companies empowered to dig up the road. In 1987 there were only two telecommunications companies licensed to dig up the road – there are now nationally over 120 and the scale of co-ordination required is daunting.

Under the terms of this Act, statutory undertakers (in general, companies or public bodies supplying gas, water, electricity and telecommunications, as well as bodies such as London Underground) have the legal right to dig up roads to either maintain or repair their existing pipes and cables or in order to install additional ones to provide service to new customers.

21.6.2 *Application of the Act to Street works/ Road works (Scotland) – Part III Section 48 and Part IV Section 107*

A street means:

- any highway, road, lane, footway, alley or passage,
- any square or court, and
- any land laid out as a way whether it is for the time being formed as a way or not.

Where a street passes over a bridge or through a tunnel, references in this Part to the street include that bridge or tunnel.

In section 107 the definition of 'road' is similar but here it means any way whether or not there is a public right of passage.

Street works or Road works (in Scotland) means works for any purpose (other than works for road purposes) executed in a street or road in pursuance of a statutory right or a street license (permission granted under section 109 in Scotland). They cover works of any of the following kinds:

- placing apparatus or
- inspecting, maintaining, adjusting, repairing, altering or renewing apparatus, changing the position of apparatus or removing it, or

- works required for or incidental to any such works (including, in particular, breaking up or opening the street, or any sewer, drain or tunnel under it, or tunnelling or boring under the street).

21.6.3 *General requirements*

The statutory undertakers are obliged to inform local authorities of the work but the notice required varies dramatically, depending on the nature of the work. The categories laid down in the Act are as follows in Table 21.2.

The Act requires local authorities to co-ordinate the works while obliging undertakers to co-operate with local authorities in the interests of safety, minimizing inconvenience to persons using the street and protecting the structure of the street and the integrity of the apparatus within it.

The sheer volume of streetworks is colossal – with the vast majority giving less than 7 days' notice. Clearly it would be unrealistic and unwieldy to expect local authorities to inform residents and businesses about every last piece of activity.

Table 21.2 Minimum notice periods

Categories of works	Non-traffic sensitive situations	Traffic sensitive situations
Emergency (including remedial – dangerous)	Within 2 hours of work starting	
Urgent	Within 2 hours of work starting	2 hours' notice in advance
Special cases of urgent	Within 2 hours of work starting (where immediate start is justified)	
Minor works (without excavation)	Notice not required	3 days' notice
Minor works (with excavation)	Notify by daily whereabouts	1 month advance notice and 7 days' notice of start date
Remedial works (non-dangerous)	Notify by daily whereabouts	3 days' notice
Standard works	7 days notice	1 month advance notice and 7 days' notice of start date
Major projects	1 month advance notice and 7 days' notice of start date	

There is in theory a vested interest for local authorities and statutory undertakers to notify the public in advance (through either mail-drops or signage), especially when large-scale works are carried out, yet there is no legal compulsion to do so.

Other complications are caused by the fact that the records detailing what is located underground are not always 100% accurate. Underground work can pre-date the First World War and unsurprisingly details can be patchy, or non-existent. While sophisticated equipment is available to gauge what might be lurking underground, this is not infallible either.

The introduction of the 'electronic transfer of notices' (ETON) in 1999 established a standard mechanism for undertakers to use to send their notices to highway authorities.

This promised to be far more efficient than previous paper-based systems, as well as dramatically speeding up communication between the undertakers and highway authorities.

While councils have a duty to co-ordinate the work of statutory undertakers, enforcing this is another matter. Formal co-ordination meetings are generally held on a regular basis, attended by representatives of the council, the statutory undertakers and the police. However, in central London in particular, the companies carrying out this sort of work are operating in a highly competitive environment and are therefore reluctant to disclose details of their plans to their rivals, beyond their legal obligation to give 1 month's notice of substantial works.

Although councils can try to persuade companies to work together (by laying several cables in one trench or timetabling planned work in close sequence) in order to minimize disruption, they have no authority to do anything more than encouraging them to co-ordinate their activities.

21.6.4 *Code of practice under regulations 65 and 124*

This Code of Practice is issued by the Secretary of State for Transport, the Scottish Executive and the National Assembly for Wales under sections 65 and 124 of the NRSWA, and by the Department for Regional Development (Northern Ireland) under article 25 of the Street Works (Northern Ireland) Order 1995. The legislation requires an undertaker, and those working on its behalf, carrying out work under the Act or the Order to do so in a safe manner as regards the signing, lighting and guarding of works.

Failure to comply with this requirement is a criminal offence. Compliance with the Code will be taken as compliance with the legal requirements to which it relates.

Highway authorities in England and Wales and roads authorities in Scotland should comply with this Code for their own works, as recommended by the respective national administrations. The Northern Ireland road authority is legally required to comply with the Code. In the application of this Code to Scotland, all references in the text to highway authorities are to be read as references to roads authorities.

Everyone on site has a personal responsibility to behave safely, to the best of their ability. Under the Health and Safety at Work etc Act 1974, employers have duties to protect their employees from dangers to their health and safety and to protect others who might be affected by the work activity (e.g. passing pedestrians and motorists). These include proper arrangements for design (including planning and risk assessment) and management (including supervision) of the works. Supervisors qualified under the NRSWA or the Order will know what to do in most situations about which they have to be consulted, and will be able to find out quickly what to do about the others. It is the employer's responsibility to ensure that these arrangements are properly carried out.

This Code applies to all highways and roads except motorways and dual carriageways with hard shoulders. More detailed advice, and advice on some situations not covered by this Code, can be found in Chapter 8 of the Traffic Signs Manual published by the Department for Transport, Local Government and the Regions in conjunction with the Scottish, Welsh and Northern Ireland administrations. This gives authoritative advice, but it does not have the status of a Code of Practice under the Act. In Northern Ireland the use of Chapter 8 is mandatory for undertakers' works on motorways or dual carriageways with hard shoulders, and elsewhere in the United Kingdom undertakers should comply with Chapter 8 when carrying out such works. On all other roads they meet their obligations under section 65 or 124 of the Act, or under article 25 of the Northern Ireland Order, if they comply with this Code, even though further relevant advice may be available in Chapter 8 and other relevant documents.

21.6.5 *Changes to legislation*

Prolonged occupation

As a result of the widespread perception that streetworks are often unnecessarily protracted, the government held consultations before activating section 74 of the NRSWA under The Street Works (Charges for Unreasonably Prolonged Occupation of the Highway) (England) Regulations 2001.

This provides powers for highway authorities to charge undertakers a daily fee if they fail to complete works by an agreed deadline. The Regulations define a 'prescribed' period for work (i.e. one prescribed in Regulations) and a 'reasonable' period (i.e. the period that the undertaker estimates that the work will take, if not challenged by the highway authority, or if not agreed, the period determined by arbitration). If the duration of a work exceeds both of these periods, a highway authority may levy a charge. Highway authorities have the power to waive or reduce the level of charges when they believe that circumstances warrant this.

The Government has commissioned a report from Halcrow into the effects of the scheme, which is currently awaited.

Lane rental

At the time section 74 was passed, the Government made it clear that if the legislation failed to lead to a sufficient reduction in disruption, then it would be prepared to consider making lane rental charging powers available to local authorities. The Government decided to undertake a localized test of the proposed new powers, and following the London Borough of Camden's successful application to the Secretary of State to operate a lane rental pilot scheme, this was passed under section 74A of the NRSWA as The Street Works (Charges for Occupation of the Highway) (London Borough of Camden) Order 2002. The pilot scheme was launched in March 2002 and will run until March 2004 with a similar one running in Middlesborough. Section 74 will not apply in Camden while section 74A is operational.

Under the lane rental scheme, streets in Camden are divided into 'premium routes' and 'ordinary routes' with the following charges applying per working day from the commencement of works (see Table 21.3).

The charges for premium routes and ordinary routes differ, depending on whether the jobs are works or remedial works – works in this context consist of the work originally scheduled while remedial works are streetworks which have been necessary because the local authority was dissatisfied, for instance, with the quality of reinstatement.

21.6.6 *References*

Crossing High-Speed Roads on Foot During Temporary Traffic Management Works. Construction Information Sheet No. 53, 2000, HSE.

New Roads and Street Works Act 1991. Chapter 22, London, The Stationery Office.

Safety at Street Works and Road Works Code of Practice. London, The Stationery Office.

The Traffic Signs Manual. Chapter 8: The traffic safety measures and signs for roadworks and temporary situations, Department for Transport.

Table 21.3 Lane rental – daily changes for workers day

Categories of work	Premium route charges		Ordinary route charges	
	Works	Remedial works	Works	Remedial works
Standard works	£500	£650	£100	£200
Minor works	£0	£650	£0	£200
Urgent works	£500	£650	£100	£200
Emergency works	£300	£650	£0	£200
Non-excavatory works	£0	£0	£0	£0

21.7 Control of Asbestos Regulations 2006 CAR 2006

21.7.1 *Introduction*

These Regulations implement an amendment to the Asbestos Worker Protection Directive (2003/18/EC). This Directive is designed to ensure the protection of those workers who are now considered to be most at risk from exposure to asbestos (i.e. building and maintenance workers).

Many of the requirements introduced by the amending Directive were already contained within the existing Asbestos Regulations or in the associated ACOP. However, there still remained the need to introduce a number of significant changes that include:

- a single lower 'Control Limit' of 0.1 fibres/cm^3 of air
- a new concept of sporadic and low intensity exposure to asbestos, where such work is exempt from notifying HSE and worker medical surveillance
- a new World Health Organisation (WHO) asbestos fibre counting method.

The Control of Asbestos Regulations 2006 came into force on 13 November 2006 (Asbestos Regulations – SI 2006/2739).

These Regulations bring together the three previous sets of Regulations covering the prohibition of asbestos, the control of asbestos at work and asbestos licensing.

The Regulations prohibit the importation, supply and use of all forms of asbestos. They continue the ban introduced for blue and brown asbestos in 1985 and for white asbestos in 1999. They also continue the ban on the second-hand use of asbestos products such as asbestos cement sheets and asbestos boards and tiles, including panels which have been covered with paint or textured plaster containing asbestos.

The ban applies to new uses of asbestos. If existing asbestos-containing materials (ACMs) are in good condition, they may be left in place, their condition monitored and managed to ensure they are not disturbed.

The Asbestos Regulations also include the 'duty to manage asbestos' in non-domestic premises. Guidance on the duty to manage asbestos can be found in the 'Approved Code of Practice. The Management of Asbestos in Non-Domestic Premises', L127, HSE Books, ISBN 9780 7176 2382 3. Domestic premises are covered by the Defective Premises Act 1972 or the Civic Government (Scotland) Act.

The Regulations require mandatory training for anyone liable to be exposed to asbestos fibres at work (see regulation 10). This includes maintenance workers and others who may come into contact with or who may disturb asbestos (e.g. cable installers) as well as those involved in asbestos removal work.

When work with asbestos or which may disturb asbestos is being carried out, the CAR 2006 require employers and the self-employed to prevent exposure to asbestos fibres. Where this is not reasonably practicable, they must make sure that exposure is kept as low as reasonably practicable by measures other than the use of respiratory protective equipment (RPE). The spread of asbestos must be prevented. The Regulations specify the work methods and controls that should be used to prevent exposure and spread.

Worker exposure must be below the airborne exposure limit (Control Limit). The CAR 2006 have a single Control Limit for all types of asbestos of 0.1 fibres/cm^3. A Control Limit is a maximum concentration of asbestos fibres in the air (averaged over any continuous 4-hour period) that must not be exceeded.

In addition, short-term exposures must be strictly controlled and worker exposure should not exceed 0.6 fibres/cm^3 of air averaged over any continuous 10-minute period using RPE if exposure cannot be reduced sufficiently using other means.

RPE is an important part of the control regime but it must not be the sole measure used to reduce exposure and should only be used to supplement other measures. Work methods that control the release of fibres such as those detailed in the *Asbestos Essentials task sheets* for non-licensed work should be used. RPE must be suitable, must fit properly and must ensure that worker exposure is reduced as low as is reasonably practicable.

Most asbestos removal work must be undertaken by a licensed contractor but any decision on whether particular work is licensable is based on the risk. Work is only exempt from licensing if:

- the exposure of employees to asbestos fibres is sporadic and of low intensity (but exposure cannot be considered to be sporadic and of low intensity if the concentration of asbestos in the air is liable to exceed 0.6 fibres/cm^3 measured over 10 minutes) and
- it is clear from the risk assessment that the exposure of any employee to asbestos will not exceed the control limit and
- the work involves:
  - short, non-continuous maintenance activities. Work can only be considered as short, non-continuous maintenance activities if any one person carries out work with these materials for less than 1 hour in a 7-day period. The total time spent by all workers on the work should not exceed a total of 2 hours.
  - removal of materials in which the asbestos fibres are firmly linked in a matrix, Such materials include: asbestos cement; textured decorative coatings and paints which contain asbestos; articles of bitumen, plastic, resin or rubber which contain asbestos where their thermal or acoustic properties are incidental to their main purpose (e.g. vinyl floor tiles, electric cables, roofing felt); and other insulation products which may be used at high temperatures but have no insulation purposes (e.g. gaskets, washers, ropes and seals).
  - encapsulation or sealing of ACMs which are in good condition or
  - air monitoring and control, and the collection and analysis of samples to find out if a specific material contains asbestos.

Under the CAR 2006, anyone carrying out work on asbestos insulation, asbestos coating or asbestos-insulating board (AIB) needs a licence issued by the HSE unless they meet one of the exemptions above.

Although work may not need a licence to carry out a particular job, there is still a need to comply with the rest of the requirements of the CAR 2006.

If the work is licensable there are a number of additional duties. Duty holders need to:

- notify the enforcing authority responsible for the site where they are working (for example HSE or the local authority)
- designate the work area (see Regulation 18 for details)
- prepare specific asbestos emergency procedures and
- pay for their employees to undergo medical surveillance.

The CAR 2006 require any analysis of the concentration of asbestos in the air to be measured in accordance with the 1997 WHO recommended method.

From 6 April 2007, a clearance certificate for re-occupation may only be issued by a body accredited to do so. At the moment, such accreditation can only be provided by the United Kingdom Accreditation Service (UKAS).

21.7.2 *Application regulation 3 and general note*

The Regulations and ACOP apply to all work with asbestos. They apply in particular to work on or which disturbs building materials containing asbestos, asbestos sampling and laboratory analysis with the exception of clearing asbestos-contaminated land which is not specifically covered by this ACOP. An additional ACOP entitled 'The Management of Asbestos in Non-domestic Premises' is aimed at those who have repair and maintenance responsibilities for non-domestic premises.

Most of the duties in the CAR 2006 are placed upon 'an employer', that is, the person who employs the workers who are liable to be exposed to asbestos in the course of their work. Although the Regulations always refer to an employer, regulation 3 (1) makes it clear that self-employed people have the same duties towards themselves and others as an employer has towards his or her employees and others.

There is an exemption from certain regulatory requirements for particular, specified types of work with asbestos where any worker exposure will only be sporadic and of low intensity and the exposure level is below the control limit (regulation 3 (2)). Such work will not require a licence. All other work with asbestos will require a licence (regulation 8); must be notified to the relevant enforcing authority (regulation 9); must have emergency arrangements in place (regulation 15 (1)); must have designated asbestos areas (regulation 18); and those working with the asbestos must be subject to medical surveillance and have health records (regulation 22). Some of the guidance in the ACOP is specifically aimed at this more hazardous work and, for convenience, this

work has been referred to as licensable work throughout the ACOP.

If the control limit for asbestos is exceeded in the working area, this triggers particular requirements including:

(a) immediately informing employees and their representatives (regulation 11 (5) (b) (i))
(b) identification of the reasons for the control limit being exceeded and the introduction of appropriate measures to prevent it being exceeded again (regulation 11 (5) (b) (ii))
(c) stop work until adequate measures have been taken to reduce employees' exposure to below the control limit (regulation 11 (5) (b) (iii))
(d) a check of the effectiveness of the measures taken to reduce the levels of asbestos in the air by carrying out immediate air monitoring (regulation 11 (5) (b) (iv))
(e) the designation of respirator zones and
(f) the mandatory provision of RPE (regulation 11 (3)), although such equipment should always be provided if it is reasonably practicable to do so (regulation 11 (2)).

Where work with asbestos forms part of a larger project there will be a particular need to co-operate with other employers, and there may be other Regulations which must be taken into account. However, the responsibility to ensure compliance with the provisions of the Asbestos Regulations remains with the employer or self-employed person.

There are exceptions from some requirements.

Where regulation 3 (2) applies (i.e. non-licensable work):

(a) the work will not need to be notified to the relevant Enforcing Authority
(b) the work will not need to be carried out by holders of a licence to work with asbestos
(c) the workers will not need to have a current medical and a current health record
(d) the employer will not need to prepare specific asbestos emergency procedures
(e) the area around work does not need to be identified as an asbestos area.

Work with the following materials is likely only to produce sporadic and low-intensity worker exposure and can be categorized as complying with regulation 3 (2) as long as 3 (2) (b) is fulfilled, that is it is clear from the risk assessment that the control limit will not be exceeded:

(a) asbestos cement
(b) textured decorative coating which contains asbestos
(c) any article of bitumen, plastic, resin or rubber which contains asbestos where its thermal or acoustic properties are incidental to its main purpose (e.g. vinyl floor tiles, electric cables, roofing felt) and
(d) asbestos materials such as paper linings, cardboards, felt, textiles, gaskets, washers, and rope where the products have no insulation purposes.

21.7.3 *Work with asbestos*

'Work with asbestos' includes:

(a) work which consists of the removal, repair or disturbance of asbestos
(b) work which is ancillary to such work (ancillary work) and
(c) supervising work referred to in sub-paragraphs (a) or (b) above (supervisory work).

'Ancillary work' means work associated with the main work of repair, removal or disturbance of asbestos. Work carried out in an ancillary capacity requires a licence unless the main work (i.e. the removal, repair, disturbance activity) would result in worker exposure which fulfils the conditions for regulation 3 (2) to apply.

'Supervisory work' means work involving direct supervisory control over those removing, repairing or disturbing asbestos. Work carried out in a supervisory capacity requires a licence to work with asbestos unless the work being supervised would result in worker exposure which fulfils the conditions for regulation 3 (2) to apply.

Therefore, compliance with regulations 8 (licence), 9 (notification), 15 (1) (emergency arrangements), 18 (1) (a) (designated areas) and 22 (health records and medical surveillance) are not required in such circumstance. Those other Regulations which apply to all work with asbestos must be observed.

21.7.4 *Duty to manage and identify asbestos in non-domestic premises – regulations 4 and 5*

Owners and occupiers of premises, who have maintenance and repair responsibilities for those premises, have a duty to assess them for the presence of asbestos and the condition of that asbestos. Where asbestos is present the duty holder must ensure that the risk from the asbestos is assessed, that a written plan identifying where that asbestos is located is prepared and that measures to manage the risk from the asbestos are set out in that plan and are implemented. Other parties have a legal duty to co-operate with the duty holder.

As part of the management plan required by regulation 4 of the Asbestos Regulations, occupiers or owners

of premises have an obligation to inform any person liable to disturb ACMs, including maintenance workers, about the presence and condition of such materials.

If work to be carried out is part of a larger project which attracts the requirements of the Construction (Design and Management) Regulations (CDM) 1994 (Note: The 94 CDM Regulations are being revised), the health and safety plan prepared by the planning supervisor should contain information on whether the materials contain asbestos and what type they are.

The employer should not rely on the information of the other duty holders if they cannot produce reasonable evidence regarding the nature of suspect material (e.g. survey details or analytical reports).

21.7.5 *Assessment of work – regulation 6*

If work which is liable to expose employees to asbestos is unavoidable, then before starting the work, employers must make a suitable and sufficient assessment of the risk created by the likely exposure to asbestos of employees and others who may be affected by the work and identify the steps required to be taken by the Asbestos Regulations.

For non-licensable work it is not always necessary to make an assessment before each individual job. Where an employer carries out work which involves very similar jobs on a number of sites on the same type of asbestos material, for example, electrical and plumbing jobs, only one assessment for that work may be needed, although the plan of work should always be job specific.

However, for licensable work or where the degree and nature of the work varies significantly from site to site, for example in demolition or refurbishment, or where the type of asbestos material varies, a new assessment and plan of work (see regulation 7) will be necessary.

21.7.6 *Plan of work – regulation 7*

For any work involving asbestos, including maintenance work that may disturb it, the employer of the workers involved must draw up a written plan of how the work is to be carried out before work starts. Employers must make sure that their employees follow the plan of work (sometimes called a method statement) so far as it is reasonably practicable to do so. Where unacceptable risks to health and/or safety are discovered while work is in progress, for example disturbance of hidden, missed or incorrectly identified ACMs, any work affecting the asbestos should be stopped except for that necessary to render suitable control and prevent further spread. Where there is extensive damage to ACMs which causes contamination of the premises, or part of the premises, then the area should be immediately evacuated. Work should not restart until a new plan of work is drawn up or until the existing plan is amended. Some measures, for example, should only be carried out by licensed contractors.

For licensable work in particular, the plan of work should identify procedures to adopt in emergencies and indicate clearly what remedial measures can be undertaken by staff.

21.7.7 *Licensing of work with asbestos – regulation 8*

This regulation means that an employer must not carry out work with asbestos (other than that fulfilling the conditions for regulation 3 (2) to apply), including supervisory and ancillary work and work with asbestos in their own premises with their own employees, unless the employer holds a licence issued under this regulation and complies with its terms and conditions. This includes work with asbestos insulation, asbestos coatings (excluding asbestos-containing textured decorative coatings) and AIB.

For supervisory work a licence is needed when directly supervising licensable work but not when the person concerned is:

(a) the client who has engaged a licensed contractor to do the licensable work
(b) the principal or main contractor on a construction or demolition site if the licensable work is being done by a subcontractor holding an **asbestos licence**
(c) an analyst checking that the area is clear of asbestos at the end of a job
(d) carrying out quality control work such as:
  (i) atmospheric monitoring outside enclosures while asbestos removal work is in progress or
  (ii) checking that work has been carried out to a standard which meets the terms of the contract
(e) a consultant or other preparing the method statement and
(f) a consultant or other reviewing tender submissions on behalf of the client.

For ancillary work, a licence is needed for:

(a) setting up and taking down enclosures for the asbestos work
(b) putting up and taking down scaffolding to provide access for licensable work where it is foreseeable that the scaffolding activity is likely to disturb the asbestos
(c) maintaining negative pressure units
(d) work done within an asbestos enclosure, such as sealing an electric motor in polythene and installing ducting to the motor to provide cooling air from outside the enclosure and
(e) cleaning the structure, plant and equipment inside the enclosure.

A licence holder is required to:

(a) notify the work to the appropriate enforcing authority (regulation 9)
(b) ensure medical surveillance is carried out for their employees and themselves (regulation 22)
(c) maintain health records for employees and themselves (regulation 22)
(d) prepare procedures in case of emergencies (regulation 15 (1)) and
(e) demarcate the work areas appropriately (regulation 18 (1) (a)).

All licences issued for work with asbestos are granted by HSE under the terms of this regulation. Fees are payable for issuing licences, reassessments and changes to licences. These fees are periodically updated by the Health and Safety (Fees) Regulations.

21.7.8 *Notification of work with asbestos – regulation 9*

If licensable work is undertaken notification has to be given to the appropriate enforcing authority with details of the proposed work. This gives the enforcing authorities the opportunity to assess your proposals for carrying out work with asbestos and to inspect the site either before or during the work.

Notification will normally be required 14 days before work begins, but the enforcing authority may allow a shorter period, for example in an emergency where there is a serious risk to the health and safety of any person. This shorter period is known as a 'waiver' or dispensation. Each individual job must normally be notified to the enforcing authority.

Form FOD ASB5 can be used for notification, available from the HSE website, local HSE offices or the Asbestos Licensing Unit.

21.7.9 *Information instruction and training – regulation 10*

There are three main types of information, instruction and training (simply referred to as training from now on). These are:

1. Asbestos awareness training. This is for those persons who are liable to be exposed to asbestos while carrying out their normal everyday work.
2. Training for non-licensable asbestos work. This is for those who undertake work with asbestos which is not licensable such as a roofer removing a whole asbestos cement sheet in good condition.
3. Training for licensable work with asbestos – for those working with asbestos which is licensable, such as removing asbestos lagging or insulating board.

Employers have a duty under regulation 3 (3) (a) of the Asbestos Regulations to ensure, SFARP, that adequate information, instruction and training are given to non-employees who are on the premises and could be affected by the work, as well as to their own employees.

21.7.10 *Prevention or reduction of exposure to asbestos – regulation 11*

Work which disturbs ACMs should only be carried out when there is no other reasonably practicable way of doing the work or the alternative method creates a more significant risk. Employers must therefore first decide whether they can prevent the exposure to asbestos SFARP, before considering how they will reduce the exposure to as low as reasonably practicable.

Where it is not reasonably practicable to prevent exposure, it must first be reduced to the lowest level reasonably practicable by means other than the use of RPE.

Airborne levels should be reduced to as low a level as reasonably practicable and exposure should be controlled so that any peak exposure is less than 0.6 fibre/cm^3 averaged over a maximum continuous period of 10 minutes by the use of appropriate RPE if exposure cannot be reduced sufficiently by other means.

Employers must ensure that the numbers of employees exposed to asbestos is kept as low as reasonably practicable. All unnecessary personnel should be excluded from the working areas if asbestos is being disturbed.

The provision of a sufficient number of suitable viewing panels in enclosures will allow managers to monitor the work of their employees without being unnecessarily exposed.

When it is not reasonably practicable to prevent exposure to asbestos the employer must choose the most effective method or combination of methods which minimizes fibre release and thereby reduces the exposure to the lowest levels reasonably practicable and document this in the written risk assessment/plan of work.

21.7.11 *Use of control measures – regulation 12*

Employers should have procedures in place to make sure that control measures are properly used or applied and are not made less effective by other work practices or other machinery.

These procedures should include:

(a) checks at the start of every shift and at the end of each day and
(b) prompt action when a problem is identified.

Within the general duties imposed by regulation 12 (2), employees should, in particular:

(a) use any control measures, including RPE, and protective clothing properly and keep it in the places provided
(b) follow carefully all the procedures set out in the employer's assessment and plan of work, including those for changing and decontamination, and comply with the use of control measures
(c) keep the workplace clean
(d) eat, drink and smoke only in the places provided and
(e) report any defects concerning control measures to their supervisor/manager immediately.

21.7.12 *Maintenance of control measures – regulation 13*

When working with asbestos, employers should make sure that maintenance procedures are drawn up for all control measures and for PPE. These should include the equipment used for cleaning, washing and changing facilities, and the controls to prevent the spread of contamination. The procedures should make clear:

(a) which control measures require maintenance
(b) when and how the maintenance is to be carried out and
(c) who is responsible for maintenance and for making good any defects.

21.7.13 *Provision and cleaning of protective clothing*

As part of the assessment, the employer must decide whether or not protective clothing is required for work with asbestos. The assessment should start from the assumption that protective clothing will be necessary unless exposures are extremely slight and infrequent. For work which requires a licence exposure will potentially be significant and employers will always need to provide a full set of PPE.

The protective clothing must be adequate and suitable and include footwear, whenever employees are liable to be exposed to a significant amount of asbestos debris or fibres. It should be appropriate and suitable for the job and must protect the parts of the body likely to be affected. If the assessment has concluded that a risk of contamination exists, disposable overalls (of a suitable standard fitted with a hood) and boots without laces will be required.

To be adequate and suitable and depending on the circumstances, the protective clothing must:

(a) fit the wearer
(b) be of sufficient size to avoid straining and ripping the joints
(c) be comfortable and, where appropriate, to allow for the effects of physical strain
(d) be suitable for cold environments
(e) prevent penetration by asbestos fibres
(f) be elasticated at the cuffs and ankles and on the hoods of overalls and designed to ensure a close fit at the wrists, ankles, face and neck
(g) not have pockets or other attachments which could attract and trap asbestos dust and
(h) be easily decontaminated or disposable.

Where disposable overalls are used, these should be of a suitable standard.

Non-disposable protective clothing and towels must be effectively washed after every shift. If the employer does not have the facilities and expertise for laundering asbestos-contaminated clothing, it must be sent to a specialist laundry.

Where disposable overalls are used they should be treated as asbestos waste and properly disposed of after every shift.

This may not be necessary for overalls used for occasional sampling where there is a low risk of contamination.

When working in enclosures, clothing for washing should be collected from the airlock and hygiene facility as soon as it has been discarded.

21.7.14 *Accidents incidents and emergencies – regulation 15*

Employers of people removing or repairing ACMs must have prepared procedures which can be put into effect should an accident, incident or emergency occur which could put people at risk because of the presence of asbestos unless, because of the quantity or the condition of the asbestos present at the workplace, there is only a slight risk to the health of employees.

Sufficient information should be made available to the emergency services (e.g. fire and rescue and paramedics), so that when they are attending a relevant incident they can properly protect themselves against the risks from the asbestos.

In any circumstance where there is an accidental uncontrolled release of asbestos into the workplace then measures, including emergency procedures, should be in place to limit exposure and the risks to health. Such procedures should include means to raise the alarm and procedures for evacuation, which should be tested and practised at regular intervals. The cause of the uncontrolled release should be identified, and adequate control regained as soon as possible.

Any people in the work area affected who are not wearing PPE including RPE must leave that area. Where such people have been contaminated with dust or debris

then arrangements should be made to decontaminate those affected. Any clothing or PPE should be decontaminated or disposed of as contaminated waste.

21.7.15 *Duty to prevent or reduce the spread of asbestos – regulation 16*

Any plant or equipment which has been contaminated with asbestos should be thoroughly decontaminated before it is moved for use in other premises or for disposal. The basic decontamination procedures must be followed every time a person leaves the work area.

Asbestos materials should never be left loose or in a state where they can be trampled, tracked over by plant and machinery or otherwise spread. All asbestos-contaminated waste should be removed at regular intervals in appropriate waste containers.

For non-licensable work where a risk of significant contamination exists, the work area should be enclosed. A full enclosure will be expected where there is large-scale work, e.g. asbestos-containing textured decorative coating removal. A 'mini-enclosure' should be used where the work is minor.

It should be assumed that for most of the work which requires a licence, which is not external/remote, a full enclosure will normally be required.

21.7.16 *Cleanliness of premises and plant – regulation 17*

When work with asbestos comes to an end, the work area should be thoroughly cleaned before being handed over for reoccupation or for demolition. All visible traces of asbestos dust and debris should be removed and a thorough visual inspection should be carried out. Where the work is licensable then the 4-stage clearance procedure (which includes air sampling) should be carried out and a certificate of reoccupation issued. Where licensed work is performed out of doors (e.g. soffit removal), then air sampling will not be required. In this situation, the certificate of reoccupation should still be completed but without stage 3 (air monitoring). More information on clearance procedures for non-licensed work is given in Asbestos Essentials.

To aid the process of cleaning and to prevent the spread of asbestos, employers must choose work methods and equipment to prevent the build-up of asbestos waste on floors and surfaces in the working area. Wherever practicable, waste should be transferred direct into waste bags as workers remove the asbestos materials. Employers must make sure that any asbestos dust and debris is cleaned up and removed regularly to prevent it accumulating (and drying out where wet removal techniques have been used), and at least at the end of each shift.

Procedures will need to take account of the necessity for cleaning following an accidental and uncontrolled release of asbestos.

Procedures will need to be set up for cleaning:

(a) working areas including transit and waste routes
(b) plant and equipment and
(c) hygiene facilities.

Dustless methods of cleaning should be used including, wherever practicable, a type 'H' (BS 5415: 1986) vacuum cleaner with appropriate tools. Procedures for cleaning should make clear:

(a) the items and areas to be cleaned
(b) how often they need to be cleaned
(c) the cleaning methods, which should not create dust and
(d) any special precautions which need to be taken during cleaning, including the low-dust technique to be used, and the measures to be taken to reduce the spread of dust. Dry manual brushing, or sweeping or compressed air, must not be used to remove asbestos dust.

Once removal of the asbestos has been completed, the premises must be assessed to determine whether they are thoroughly clean and hence fit to be returned to the client. It is important that this includes the premises, any plant or equipment or parts of the premises where work with asbestos has taken place and the surrounding areas which may have been contaminated. The areas requiring assessment for site clearance certification for reoccupation include:

(a) the enclosed area including airlocks or the delineated work area where an enclosure has not been used
(b) the immediate surrounding area (for enclosures this will include the outside of walls and underneath polythene floors; for delineated areas this will include surfaces nearby either where asbestos may have been spread or where the pre-cleaning was not done properly)
(c) the transit route if one has been used and
(d) the waste route and area around the waste skip.

21.7.17 *Designated areas – regulation 18*

All areas where licensable work is being undertaken should be demarcated and identified by suitable warning notices as asbestos areas.

Any area, where an employee may be exposed to asbestos to a level which may exceed a control limit, must be designated as a respirator zone. Respirator zones, whether enclosed or not, must be demarcated and identified by suitable warning notices. Notices that RPE must be worn are also necessary.

Only employees who need to do so for their work can enter and remain in asbestos areas and respirator zones.

Only employees who are competent may enter respirator zones or supervise people working in respirator zones. To enter a respirator area, the employee must have received adequate information, instruction and training in accordance with regulation 10.

Employers should ensure the provision of suitable facilities for employees to eat and drink outside the working area and where appropriate as close as is reasonably practicable to the hygiene facilities. No one should eat, drink or smoke in the enclosure or work area, in the hygiene facilities or in any areas which have been marked as asbestos areas or respirator zones.

Employers should also ensure that toilet facilities are provided, if they are not provided elsewhere on the site.

Where hygiene facilities are not being used, personnel should wash and decontaminate themselves whenever they leave an asbestos area or respirator zone.

21.7.18 *Air monitoring – regulation 19*

Air monitoring may be required to protect the health of employees by determining or checking the concentrations of airborne asbestos to which they are exposed and to establish employee exposure records. This should be done at regular intervals for a representative range of jobs and work methods.

Air monitoring should always be done when there are any doubts about the effectiveness of the measures taken to reduce the concentration of asbestos in air (e.g. that engineering controls are working as they should to their design specification and do not need repair), and, in particular, measures taken to reduce that concentration below the control limit or below a peak level measured over 10 minutes of 0.6 fibre/cm^3. Monitoring will also be necessary to confirm that the RPE chosen will provide the appropriate degree of protection where the level of asbestos fibres in air exceeds, or is liable to exceed, the control limit or a peak level measured over 10 minutes of 0.6 fibre/cm^3.

Air monitoring will be appropriate unless:

(a) exposures are known to be low and not likely to approach the control limit or a 10 minute peak of 0.6 f/m^3
(b) the work is such that it complies with regulation 3 (2) and adequate information is available to enable the appropriate protective equipment to be provided or
(c) the protective equipment provided is of such a standard that no foreseeable measurement could indicate a need for equipment of a higher standard.

If the employer decides that monitoring is not necessary then he or she should use other sources of information about the likely concentrations of asbestos in air, for instance the guidance issued by HSE in the Licensed Contactors Guide or exposure data from previous similar work.

Monitoring of employee exposure should be by personal sampling. Static sampling can be used to check that control measures are effective. Analysis must be undertaken using the 1997 WHO recommended method.

21.7.19 *Standards for air testing, site clearance certification and analysis – regulations 20 and 21*

Those engaged to carry out air measurements and employee exposure monitoring must demonstrate that they conform with specified requirements in ISO 17025 through accreditation with a recognized accreditation body.

Employers carrying out their own air measurements or employee exposure monitoring should make sure that employees carrying out this work receive similar standards of training, supervision and quality control to those required by ISO 17025.

Those engaged to carry out site clearance certification for reoccupation must demonstrate that they conform with specified requirements in ISO 17020 and ISO 17025 through accreditation with a recognized accreditation body.

Those engaged to analyse samples of material to determine whether or not they contain asbestos must demonstrate that they conform with ISO 17025 by accreditation with a recognized accreditation body.

Employers carrying out their own analysis of samples should make sure that employees carrying out this work receive similar standards of training, supervision and quality control to those required by ISO 17025.

The UKAS is currently the sole recognized accreditation body in Great Britain.

21.7.20 *Health records and medical surveillance – regulation 22*

The employer must keep a health record for any employee who undertakes licensable work. The health record must be kept for 40 years in a safe place and should contain at least the following information:

(a) the individual's surname, forenames, sex, date of birth, permanent address, postcode and National Insurance number
(b) a record of the types of work carried out with asbestos and, where relevant, its location, with start and

end dates, with the average duration of exposure in hours per week, exposure levels and details of any RPE used

(c) a record of any work with asbestos prior to this employment of which the employer has been informed and

(d) dates of the medical examinations.

Anyone who undertakes licensable work must have been medically examined within the previous 2 years. Employers will need to obtain certificates of examination for any employees who state that they have been examined under these Regulations within the previous 2 years and keep them for 4 years from the date of issue. Employers should check with the previous employer or with the examining doctor that the certificates are genuine.

Medical examinations should take place during the employee's normal working hours and be paid for by the employer. Employees should co-operate with their employer regarding attendance for medical examinations.

Where an employee is diagnosed with a condition related to exposure to asbestos then the employer must review the health of all other current employees similarly exposed, as well as reviewing his assessments and methods of work.

If the examination reveals the presence of any potentially limiting health conditions then a decision should be reached on whether a general fitness assessment is required in addition to the asbestos medical examination.

21.7.21 *Washing and changing facilities – regulation 23*

The type and extent of washing and changing facilities provided should be determined by the type and amount of exposure as indicated by the risk assessment.

If the work is licensable, separate facilities should be provided for the workers working with asbestos. Employers must ensure that adequate changing and showering facilities are provided so that employees can clean and decontaminate themselves completely each time they leave the work area. This includes providing shampoo, soap or gel and towels. The provision of suitable hygiene facilities (also known as a decontamination unit, DCU), should be on site and fully operational before any work (including ancillary work) commences. Maintenance records for DCUs (or copies of them) should be kept on site. The hygiene facility should not leave the site until the job is complete and the certificate of reoccupation has been issued.

The hygiene facility enables the employer to further comply with their duties to prevent the spread of asbestos and reduce the potential exposure of employees and other people to as low as reasonably practicable. The facilities will need to:

(a) have separate changing rooms for dirty, contaminated work clothing and for clean or personal clothing known as 'dirty' and 'clean' areas respectively. The showers should be located between the two changing rooms so that it is necessary to pass through them when going from one changing facility to the other. All doors between each room and those leading to the outside from the 'dirty end' should be self-closing and provide an airtight seal. The 'clean' and 'dirty' ends should be fitted with adequate seating and be of sufficient size for changing purposes

(b) be designed so that they can be cleaned easily

(c) be fitted with air extraction equipment which keeps a flow of air from the clean to the dirty areas. The extracted air should be discharged through a HEPA filter

(d) be adequately heated, lit (i.e. light switches at both the 'clean' and 'dirty' ends) and have internal vents so that air can pass through the unit

(e) be of sufficient size, including allowance for sufficient and separate storage for personal clothing and protective clothing and equipment in the 'clean' end and sufficient receptacles for contaminated clothing, towels, filters and so on in the 'dirty' end and shower area

(f) have an adequate supply of clean running hot and cold or warm water, at a suitable pressure, in the showers, and soap or gel, shampoo, nailbrushes and individual dry towels. If gas heating is provided and the heater is mounted inside the unit, it must be a room-sealed type, and not open-flued. Waste water should be filtered before being discharged to the drains. All filters should be treated as asbestos waste

(g) the shower areas should be of sufficient size to allow thorough decontamination and to have means to support the power pack of a full face respirator while it is still required to be worn (the power pack support should be out of the direct line of the shower to avoid contact with water and prevent damage to the batteries)

(h) have a wall-mounted mirror in the clean end of the unit and

(i) have the electricity supply enter it via a 30 mA residual current circuit breaker fitted at the point of entry into the unit, and the unit must be effectively earthed when in use.

21.7.22 *Storage, distribution and labelling of raw asbestos and asbestos waste – regulation 24*

Waste should be placed in suitable, labelled containers as it is produced. Where practicable, containers

should be sealed and the outside should be cleaned before removal from enclosures or the work area, and they should be taken to a suitable and clearly identified secure storage area if they are not being disposed of at once.

Any friable waste should be placed in UN-approved packaging (available in up to 2 tonnes capacity). The Licensed Contractors' Guide provides further advice.

Containers must be designed, constructed and maintained to prevent any of the contents escaping during normal handling. For most waste, double plastic sacks are suitable provided they will not split during normal use. It is important that the inner bag is not overfilled, especially when the debris is wet, and each bag should be capable of being securely tied or sealed. Air should be excluded from the bag as far as possible before sealing. Precautions will need to be taken as the exhaust air may be contaminated. Stronger packages are necessary if the waste contains sharp metal fragments or other materials liable to puncture plastic sacks.

Bags containing asbestos waste should be appropriately labelled and transported to a licensed disposal site in an enclosed vehicle, skip or freight container. The specific requirements of various Hazardous Waste Regulations in England and Wales and the Special Waste Regulations in Scotland should be adhered to, as appropriate.

Asbestos waste must be labelled:

(a) in accordance with the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2004 where those Regulations apply
(b) where the Regulations in (a) do not apply, in accordance with schedule 2 of the Asbestos Regulations 2006.

The Licensed Contractors' Guide contains more detailed advice on waste handling.

21.7.23 *Prohibitions regulations 25, 26, 27, 28, 29*

Regulations 25 to 29 deal with the prohibitions of certain exposure to asbestos, supply and use of asbestos or any product containing asbestos. For details see the Regulations and ACOP.

21.7.24 *References*

- *Approved Code of Practice Work with Materials containing Asbestos.* L143, ISBN 9780 7176 6206 3.
- *Asbestos Essentials*. HSG 210, ISBN 9780 71761887 0 (Asbestos Essentials task sheets are available on the Asbestos Essentials area of the HSE website).
- *Asbestos Essentials Task Manual: Task Guidance Sheets for the Building Maintenance and Allied Trades.* HSG 210, HSE Books 2001, ISBN 9780 7176 1887 0.
- *Asbestos: The Analysts' Guide for Sampling, Analysis and Clearance Procedures*. HSG 248, ISBN 9780 7176 2875 2.
- *Asbestos: The Licensed Contractors Guide.* HSG 247, ISBN 9780 7176 2874 4.
- *The Management of Asbestos in Non-domestic Premises.* Approved Code of Practice and Guidance, L127, HSE Books 2006, ISBN 9780 7176 6209 8.

21.8 Chemicals (Hazard Information and Packaging for Supply) Regulations 2002

21.8.1 *Introduction*

CHIP is the Chemicals (Hazard Information and Packaging for Supply) Regulations 2002. The aim of CHIP is to ensure that people who are supplied with chemicals receive the information they need to protect themselves, others and the environment.

To achieve this CHIP obliges suppliers of chemicals to identify their hazards (e.g. flammability, toxicity) and to pass on this information together with advice on safe use to the people they supply the chemicals to. This is usually done by means of package labels and safety data sheets (SDSs).

CHIP applies to most chemicals but not all. The exceptions (which generally have Regulations of their own) are set out in regulation 3 of CHIP and include cosmetic products, medicinal products, foods, etc. CHIP 3, a new set of Regulations which consolidates and extends the previous ones, came into force on 24 July 2003.

CHIP is intended to protect people and the environment from the harmful effects of dangerous chemicals by making sure that users are supplied with information about the dangers. Many chemicals such as cosmetics and medicines are outside the scope of CHIP and have their own specific regulatory regimes. However, biocides and plant protection products, which have their own specific laws, have to be classified and labelled according to CHIP.

CHIP requires the supplier of a dangerous chemical to:

- **identify the hazards (dangers)** of the chemical (this is known as 'classification')
- **package the chemical safely** and

- **give information about the hazards** to their customers (usually by means of information on the package (e.g. a label) and, if supplied for use at work, an SDS).

These are known as supply requirements. 'Supply' is defined as making a chemical available to another person. Manufacturers, importers, distributors, wholesalers and retailers are examples of suppliers.

The Chemicals (Hazard Information and Packaging for Supply) (Amendment) Regulations 2005, entered into force on 31 October 2005. The regulations are known as CHIP 3.1. The Regulations bring into legal effect all the new entries, revisions, deletions and amendments to the classification and labelling requirements of hazardous substances set out in the 29th Adaptation to Technical Progress (29th ATP) to the Dangerous Substances Directive (European Commission Directive 2004/73/2004).

Table 21.4 outlines a description of commonly used terms. Figure 21.1 shows a summary of what needs to be done to comply.

21.8.2 *Classification – regulation 4*

The basic requirement for CHIP is for the supplier to decide whether the chemical is hazardous. CHIP with its Approved Classification and Labelling Guide (ACLG), sets out the rules for this. They tell the supplier how to:

- decide what kind of hazard the chemical has and
- explain the hazard by assigning a simple sentence that describes it (known as a 'risk phrase' or R–phrase). This is known as classification. Many commonly used substances have already been classified. They are contained in the CHIP Approved Supply List (ASL) which must be used.

21.8.3 *Information and labelling – regulations 5, 6, 8–10*

Information has to be supplied for the customers by a data sheet and a label on the package (unless the substance is provided in bulk such as a tanker or by pipeline). If the chemical is supplied for use at work an SDS must be provided. CHIP gives 16 headings for the SDS to set a standard for their quality.

Chip specifies what has to go on to the label including where it must be displayed, the size of the label, name and address of supplier, name of the substance, risk and safety phrases and indications of danger with symbols.

Table 21.4 Definitions of Commonly used terms in CHIP.

Category of danger	A description of hazard type
Classification	Precise identification of the hazard of a chemical by assigning a category of danger and a risk phrase using set criteria
Risk phrase (R-phrase)	A standard phrase which gives simple information about the hazards of a chemical in normal use
Safety phrase (S-phrase)	A standard phrase which gives advice on safety precautions which may be appropriate when using a chemical
Substance	A chemical element or one of its compounds, including any impurities
Preparation	A mixture of substances
Chemical	A generic term for substances and preparations
Tactile warning devices (TWDs)	A small raised triangle applied to a package intended to alert the blind and visually impaired to the fact that they are handling a container of a dangerous chemical
Child resistant fastenings (CRFs)	A closure which meets certain standards intended to protect young children from accessing the hazardous contents of a package
Chain of supply	The successive ownership of a chemical as it passes from manufacturer to its ultimate user

21.8.4 *Packaging of dangerous substance – regulation 7*

Packaging used for a chemical must be suitable. That means:

(a) the receptacle containing the dangerous substance or dangerous preparation is designed and constructed so that its contents cannot escape
(b) the materials constituting the packaging and fastenings are not susceptible to adverse attack by the contents or liable to form dangerous compounds with the contents

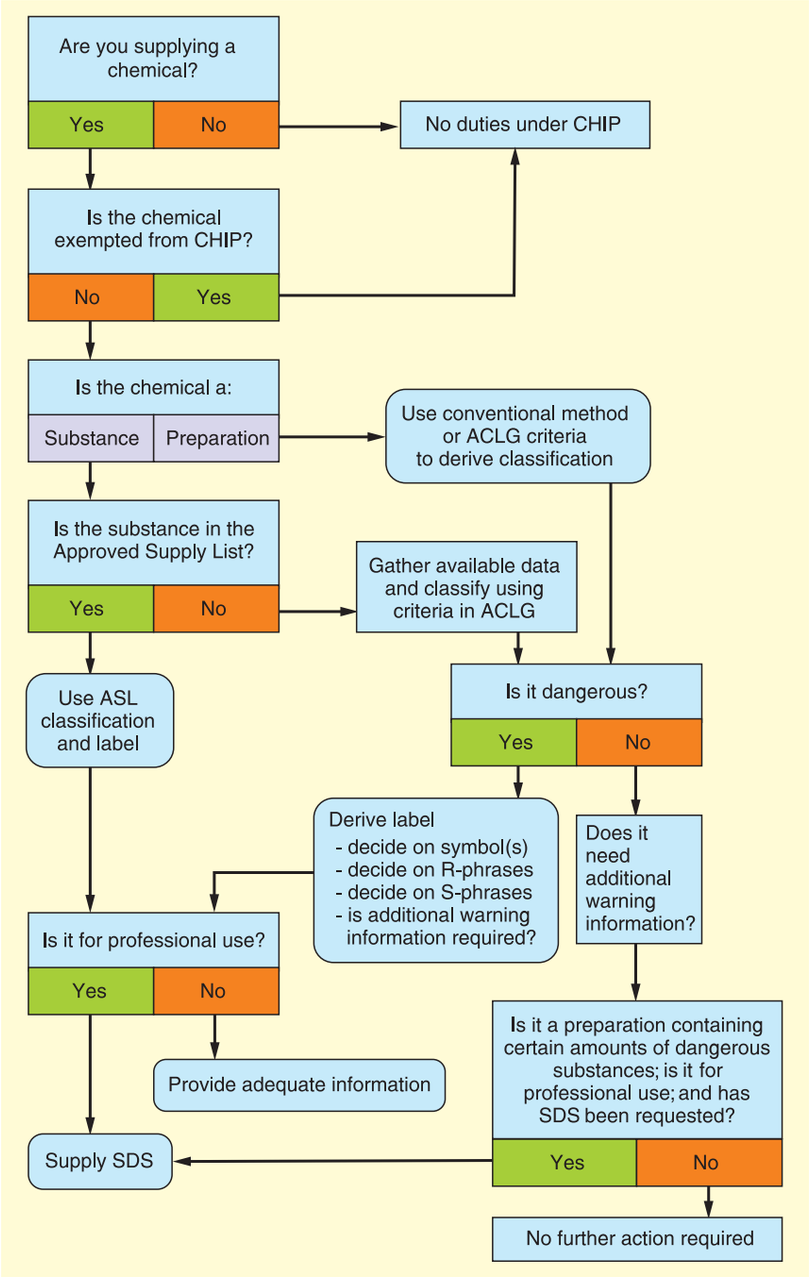

Figure 21.1 CHIP 3 summary of what needs to be done to comply.

(c) the packaging and fastenings are strong and solid throughout to ensure that they will not loosen and will meet the normal stresses and strains of handling and

(d) any replaceable fastening fitted to the receptacle containing the dangerous substance or dangerous preparation is designed so that the receptacle can be repeatedly refastened without the contents of the receptacle escaping.

21.8.5 *Child-resistant fastenings, tactile warnings and other consumer protection measures – regulation 11*

CHIP sets out special requirements for chemicals that are sold to the public.

Some have to be fitted with a child-resistant closure to a lay-down standard to prevent young children opening containers and swallowing the contents.

Some must have a tactile danger warning to alert the blind and partially sighted to the danger. This often a raised triangle.

21.8.6 *Retention of data – regulation 12*

Data used for classification, labelling, child-resistant fastners, and for preparing the SDS must be kept for at least 3 years after the dangerous chemical is supplied for the last time.

21.8.7 *REACH*

What is REACH?
REACH is a new EC regulation concerning the Registration, Evaluation, Authorization and restriction of CHemicals. It came into force on 1 June 2007 and replaces a patchwork of European Directives and Regulations with a single system.

DEFRA is responsible for implementing this European Regulation in the United Kingdom.

Competent Authority
Many European regulatory systems are operated at the national ('Member State') level by a Competent Authority in each Member State. In October 2006, DEFRA nominated HSE to be the **UK Competent Authority** for REACH, working closely with the Environment Agency, and other partners to manage certain key aspects of the REACH system in the UK.

The Competent Authority's responsibilities under REACH will be to:

- provide advice to manufacturers, importers, downstream users and other interested parties on their respective responsibilities and obligations under REACH (Competent Authorities' help desks)
- conduct substance evaluation of prioritized substances and prepare draft decisions
- propose harmonized Classification and Labelling for CMRs and respiratory sensitizers
- identify substances of very high concern for authorization
- propose restrictions
- nominate candidates to membership of ECA committees on Risk Assessment and Socio-economic Analysis
- appoint members for the Member State Committee to resolve differences of opinion on evaluation decisions
- appoint a member to the Forum for Information Exchange and meet to discuss enforcement matters
- provide adequate scientific and technical resources to the members of the Committees that they have nominated
- work closely with the European Chemical Agency in Helsinki.

Aims
REACH has several aims:

- to provide a high level of protection of human health and the environment from the use of chemicals
- to allow the free movement of **substances** on the EU market
- to make the people who place chemicals on the market (**manufacturers** and **importers**) responsible for understanding and managing the risks associated with their use
- to promote the use of alternative methods for the assessment of the hazardous properties of substances
- to enhance innovation in and the competitiveness of the EU chemicals industry.

No data, no market
A major part of REACH is the requirement for manufacturers or importers of substances to register them with a central **European Chemicals Agency** (ECHA). A registration package will be supported by a standard set of data on that substance. The amount of data required is proportionate to the amount of substance manufactured or supplied.

If you do not register your substances, then the data on them will not be available and as a result, you will no longer be able to manufacture or supply them legally (i.e. no data, no market)!

Scope and exemptions
REACH applies to substances manufactured or imported into the EU in quantities of 1 tonne per year or more. Generally, it applies to all individual chemical substances on their own, in preparations or in articles (if the substance is intended to be released during normal and reasonably foreseeable conditions of use from an article).

Some substances are specifically excluded:

- radioactive substances
- substances under customs supervision
- substances being transported
- non-isolated intermediates
- waste
- some naturally occurring low-hazard substances.

Some substances, covered by more specific legislation, have tailored provisions, including:

- human and veterinary medicines
- food and foodstuff additives
- plant protection products and biocides
- isolated intermediates
- substances used for research and development.

Pre-registration

It is estimated that there are around 30,000 substances on the European Market in quantities of 1 tonne or more per year. Registering all of these at once would be a huge task for both industry and regulators. To overcome this, the registration of those substances already being manufactured or supplied is to take place in three phases. These phases are spread over 11 years. To benefit from these provisions manufacturers or suppliers should pre-register their substances between 1 June and 30 November 2008.

Once pre-registered the ECHA will identify who is intending to register the same substance and put them in contact with each other. The potential registrants can then come together and form a 'Substance Information Exchange Forum' (SIEF) where they can negotiate sharing their available data and the costs of generating any new data.

One Substance, One Registration

This is the principle that for any one substance, a single set of data is produced that is shared by all those companies that manufacture or supply that substance. The details of how this sharing is arranged (costs, etc.) and business specific (e.g. company name) and business sensitive (e.g. how it is used) information is submitted separately by each company.

Registration

Registration is a requirement on industry (manufacturers/suppliers/importers) to collect and collate specified sets of information on the properties of those substances they manufacture or supply. This information is used to perform an assessment of the hazards and risks that a substance may pose and how those risks can be controlled. This information and its assessment is submitted to the ECHA in Helsinki.

Chemicals already existing (those on EINECS or manufactured in the EU prior to entry into force of REACH) are known as 'phase-in' substances under REACH. These will be registered in three phases according to their tonnage and/or hazardous properties.

- Phase 1 – substances supplied at ⩾1,000 tonnes per year; substances classified under CHIP as very toxic to aquatic organisms supplied at ⩾100 tonnes per year; substances classified under CHIP as Category 1 or 2 carcinogens, mutagens or reproductive toxicants supplied at ⩾1 tonne per year; substances classified as very toxic to aquatic organisms must be registered in the first 3 years (by 1 December 2010).
- Phase 2 – substances supplied at ⩾100 tonnes per year must be registered in the first 6 years (by 1 June 2013).
- Phase 3 – substances supplied at ⩾1 tonne per year must be registered in the first 11 years (by 1 June 2018).

A substance can be registered at any time prior to these deadlines.

Non-phase-in substances (i.e. those not on EINECS, those which have never been manufactured previously or not pre-registered) will be subject to registration 1 June 2008. Until then, the current Notification of New Substances (NONS) Regulations continue to apply. For further details on registration please see the specific ECHA webpage or detailed guidance document.

Evaluation

Registration packages (dossiers) submitted under REACH can be evaluated for:

- **Compliance Check:** A quality/accuracy check of the information submitted by the industry.
- **Dossier Evaluation:** A check that an appropriate testing plan has been proposed for substances registered at the higher tonnage levels (⩾100 tonnes/annum)
- **Substance evaluation:** An evaluation of all the available data on a substance, from all registration dossiers. This is done by national Competent Authorities on substances that have been prioritized for potential regulatory action because of concerns about their properties or uses.

Substances of Very High Concern

Some substances have hazards that have serious consequences, e.g. they cause cancer, or they have other harmful properties and remain in the environment for a long time and gradually build up in animals. These are 'substances of high concern'. One of the aims of REACH is to control the use of such substances.

Authorization

Authorization is a feature of REACH that is new to the area of general chemicals management. As REACH progresses, a list of 'substances of very high concern'

will be created. Substances on this list cannot be supplied or used unless an authorization has been granted. A company wishing to market or use such a substance must apply to the ECHA in Helsinki for an authorization, which may be granted or refused.

Restrictions

Any substance that poses a particular threat can be restricted. Restrictions take many forms, for example, from a total ban to not being allowed to supply it to the general public. Restrictions can be applied to any substance, including those that do not require registration. This part of REACH takes over the provisions of the Marketing and use Directive.

Classification and labelling

An important part of chemical safety is clear information about any hazardous properties a chemical has. The classification of different chemicals according to their characteristics (for example, those that are corrosive, or toxic to fish) currently follows an established system, which is reflected in REACH. Over the next few years, work will be underway to establish in the EU a classification and labelling system based on the United Nations Globally Harmonized System, or GHS. REACH has been written with GHS in mind.

Information in the supply chain

The passage of information up and down the supply chain is a key feature of REACH. Users should be able to understand what manufacturers and importers know about the dangers involved in using chemicals and how to control risks. However, in order for suppliers to be able to assess these risks they need information from the downstream users about how these chemicals are used. REACH provides a framework in which information can be passed both up and down supply chains.

REACH adopts and builds on the previous system for passing information – the SDS. This should accompany materials down through the supply chain, providing the information users need to ensure that chemicals are safely managed. In time these SDSs will include information on safe handling and use.

More detailed information about REACH can be found at the *DEFRA REACH website*, and HSE website, including impact assessment work at the national and Community levels, and consultations. A wide range of industry and commercial sources also offers commentary and advice regarding REACH.

Enforcement

Enforcing this very wide-ranging new system presents new challenges to regulators across Europe. REACH places new duties on a range of different businesses. Mostly, the new duties will be on manufacturers and importers of chemicals, but there are also requirements for downstream users of chemicals to share information with their suppliers. Although HSE will play a key role in enforcing REACH, both as the UK Competent Authority and more generally as the UK occupational health and safety regulator, enforcing REACH will fall to a number of regulatory bodies. HSE are working closely with other regulators to support DEFRA in setting up the framework for enforcing REACH in the United Kingdom.

21.8.8 *References*

Approved Classification and Labelling Guide. 5th edition, L131, HSE Books 2002, ISBN 9780 7176 2369 6.

Approved Supply List. Information Approved for the Classification and Labelling of Dangerous Substances and Preparations for Supply. 8th edition, L142, HSE Books 2005, ISBN 9780 7176 6138 5.

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Chip for Everyone. HSG 228, HSE Books 2002, ISBN 9780 7176 2370 X.

Read the Label. INDG 352, HSE Books 2002, ISBN 9780 7176 2366 1.

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The Idiot's Guide to CHIP. INDG 350, HSE Books 2002, ISBN 9780 7176 2333 5.

Why Do I Need a Safety Data Sheet? INDG 353, HSE Books 2002, ISBN 9780 7176 2367 X.

a. ECHA website: http://reach.jrc.it/navigator_en.htm.

b. HSE's CHIP website: http://www.hse.gov.uk/chip.

c. HSE's REACH website: http://www.hse.gov.uk/reach.

21.9 Confined Spaces Regulations 1997

21.9.1 *Introduction*

These Regulations concern any work which is carried on in a place which is substantially (but not always entirely) enclosed, where there is a reasonably foreseeable risk of serious injury from conditions and/or hazardous substances in the space or nearby. Every year about 15 people are killed and a number seriously injured across a wide range of industries ranging from simple open top pits to complex chemical plants. Rescuers without proper training and equipment, often become the victims.

21.9.2 *Definitions*

Confined space – means any place, including any chamber, tank, vat, silo, pit, trench, pipe, sewer, flue, well or similar space in which, by virtue of its enclosed nature, there arises a reasonably foreseeable specified risk.

Specified risk – means a risk to any person at work of:

- serious injury arising from a fire or explosion
- loss of consciousness arising from an increase in body temperature
- loss of consciousness or asphyxiation arising from gas, fume, vapour or the lack of oxygen
- drowning arising from an increase in the level of liquid
- asphyxiation arising from a free-flowing solid or because of entrapment by it.

21.9.3 *Employers' duties – regulation 3*

Duties are placed on employers to:

- comply regarding any work carried out by employees and
- ensure, SFARP, that other persons (e.g. use competent contractors) comply regarding work in the employer's control.

The self-employed also have duties to comply.

21.9.4 *Work in confined space – regulation 4*

1. No person at work shall enter a confined space for any purpose unless it is not reasonably practicable to achieve that purpose without such entry
2. Other than in an emergency, no person shall enter, carry out work or leave a confined space otherwise than in accordance with a safe system of work, relevant to the specified risks.

21.9.5 *Risk assessment*

Risk assessment is an essential part of complying with these Regulations and must be done (under the Management of Health and Safety at Work Regulations 1999) to determine a safe system of work. The risk assessment needs to follow a hierarchy of controls to comply. This should start with the measures, both in design and procedures, that can be adopted to enable any work to be carried out outside the confined space.

The assessment must be done by a competent person and will form the basis of a safe system of work. This will normally be formalized into a specific permit-to-work, applicable to a particular task. The assessment will involve:

(a) The general conditions to assess what may or may not be present. Consider:
- what have been the previous contents of the space
- residues that have been left in the space, for example, sludge, rust, scale and what may be given off if they are disturbed
- contamination which may arise from adjacent plant, processes, services, pipes or surrounding land, soil or strata
- oxygen deficiency and enrichment – there are very high risks if the oxygen content differs significantly from the normal level of 20.8%. If it is above this level increased flammability exists; if it is below then impaired mental ability occurs, with loss of consciousness under 16%
- that physical dimensions and layout of the space can affect air quality.

(b) Hazards arising directly from the work being undertaken. Consider:
- the use of cleaning chemicals and their direct effect or interaction with other substances
- sources of ignition for flammable dusts, gases, vapours, plastics and the like
- the need to isolate the confined space from outside services or from substances held inside such as liquids, gases, steam, water, fire extinguishing media, exhaust gases, raw materials and energy sources
- the requirement for emergency rescue arrangements including trained people and equipment.

21.9.6 *Safe system of work*

The detailed precautions required will depend on the nature of the confined space and the actual work being carried out. The main elements of a safe system of work which may form the basis of a 'permit-to-work' are:

- the type and extent of supervision
- competence and training of people doing the work
- communications between people inside, from inside to outside and to summon help
- testing and monitoring the atmosphere for hazardous gas, fume, vapour, dust, etc. and for concentration of oxygen
- gas purging of toxic or flammable substances with air or inert gas, such as nitrogen
- good ventilation, sometimes by mechanical means
- careful removal of residues using equipment which does not cause additional hazards

- effective isolation from gases, liquids and other flowing materials by removal of pieces of pipe, blanked off pipes, locked off valves
- effective isolation from electrical and mechanical equipment to ensure complete isolation with lock off and a tag system with key security. Need to secure against stored energy or gravity fall of heavy presses, etc.
- if it is not possible to make the confined space safe, the provision of PPE and RPE
- supply of gas via pipes and hoses – should be carefully controlled
- access and egress to give quick unobstructed and ready access and escape
- fire prevention
- lighting, including emergency lighting
- prohibition of smoking
- emergencies and rescue
- limiting of working periods and the suitability of individuals.

21.9.7 *Emergency arrangements – regulation 5*

Before people enter a confined space, suitable and sufficient rescue arrangements must be set up. These must:

- reduce the risks to rescuers SFARP
- include the provision and maintenance of suitable resuscitation equipment designed to meet the specified risks.

To be suitable and sufficient, arrangements will need to cover:

- rescue and resuscitation equipment
- raising the alarm, alerting rescue and watch keeping
- safeguarding the rescuers
- fire safety precautions and procedures
- control of adjacent plant
- first aid arrangements
- notification and consultation with emergency services
- training of rescuers and simulations of emergencies
- size of access openings to permit rescue with full breathing apparatus, harnesses, fall arrest gear and lifelines, which is the normal suitable respiratory protection and rescue equipment for confined spaces.

21.9.8 *Training*

Specific, detailed and frequent training is necessary for all people concerned with dealing with confined spaces, whether they are acting as rescuers or watchers or those carrying out the actual work inside the confined space. The training will need to cover all procedures and the use of equipment under realistic simulated conditions.

21.9.9 *References*

Safe Work in Confined Spaces. Approved Code of Practice, Regulations and Guidance. L101, HSE Books 1997, ISBN 9780 7176 1405 0.

The Selection, Use and Maintenance of Respiratory Protective Equipment: A Practical Guide. HSG 53, HSE Books 2004, ISBN 9780 7176 2904 X.

21.10 Construction (Design and Management) (CDM) Regulations 2007

21.10.1 *Background and introduction*

The following is extracted from the new ACOP.

The revised Construction (Design and Management) Regulations 2007 (CDM 2007) came into force on 6 April 2007. They replace the Construction (design and Management) Regulations 1994 (CDM 94) and the Construction (Health, Safety and Welfare) Regulations 1996 (CHSW). The new ACOP replaces the ACOP under CDM 94.

The key aim of CDM 2007 is to integrate health and safety into the management of the project and to encourage everyone involved to work together to:

- improve the planning and management of projects from the very start
- identify risks early on so they can be eliminated or reduced at the design or planning stage and the remaining risks can be properly managed
- target effort where it can do the most good in terms of health and safety
- discourage unnecessary bureaucracy.

The Regulations are intended to focus attention on planning and management throughout construction projects, from design concepts onwards. The aim is for health and safety considerations to be treated as an essential, but normal part of a project's development – not an afterthought or bolt-on extra.

The effort devoted to planning and managing health and safety should be in proportion to the risks and complexity associated with the project. The focus should always be on action necessary to reduce and manage risks. Any paperwork produced should help with communication and risk management. Paperwork which adds little to the management of risk is a waste of effort,

and can be a dangerous distraction from the real business of risk reduction and management.

Time and thought invested at the start of the project will pay dividends not only in improved health and safety, but also in:

- reductions in the overall cost of ownership, because the structure is designed for safe and easy maintenance and cleaning work, and because key information is available in the health and safety file
- reduced delays
- more reliable costings and completion dates
- improved communication and co-operation between key parties and
- improved quality of the finished product.

Note

Typical operating and owning cost of a building are in the ratio:

- 1 for construction costs
- 5 for maintenance and building operating costs
- 200 for business operating costs.

21.10.2 *Outline of Regulations, Application and Notification*

The Regulations are divided into 5 parts. Part 1 of the Regulations deals with matters of interpretation and application. The Regulations apply to all construction work in Great Britain and its territorial waters, and apply to both employers and self-employed without distinction.

Part 2 covers general management duties which apply to all construction projects, including those which are non-notifiable.

Part 3 sets out additional management duties which apply to projects above the notification threshold (projects lasting more than 3 days, or involving more than 500 person-days of construction work). These additional duties require particular appointments or particular documents which will assist with the management of health and safety from concept to completion.

Part 4 of the Regulations apply to all construction work carried out on construction sites, and covers physical safeguards which need to be provided to prevent danger. Duties to achieve these standards are held by contractors who actually carry out the work, irrespective of whether they are employers or are self-employed. Duties are also held by those who do not engage in construction work themselves, but control the way in which the work is done. In each case, the extent of the duty is in proportion to the degree of control which the individual or organization has over the work in question.

This does not mean that everyone involved with design, planning or management of the project legally must ensure that all the specific requirements in Part 4 are complied with. They only have duties if, in practice, they exercise sufficient control over the actual working methods, safeguards and site conditions. If for example a client specifies that a particular job is done in a particular way then the client will have a duty to make sure that their instructions comply with the requirements.

Contractors must not allow work to start or continue unless the necessary safeguards are in place. Whether he is providing the safeguards or using something, for example a scaffold, supplied by someone else.

Part 5 of the Regulations covers issues of civil liability; transitional provisions which will apply during the period when the Regulations come into force; and amendments and revocations of other legislation.

The distinction in the CDM94 Regulations between their application and notification of projects was confusing. For the purposes of CDM 2007 Regulations, there should only be two types of construction projects: notifiable and non-notifiable. All of the requirements apply to notifiable projects, but the requirements relating to appointments, plans and other paperwork would not apply to non-notifiable projects.

Except where the project is for domestic clients, the HSE must be notified of projects if the construction phase is likely to involve more than (a) 30 days, or (b) 500 person-days, of construction work. An F10 (rev) may be used and is available from local HSE offices or can be completed on line. This form does not have to be used as long as all the particulars shown in schedule 1 (see Table 21.5) are provided.

21.10.3 *Definition of Construction – regulation 2*

Regulation 2 defines construction work as the following; 'construction work' means the carrying out of any building, civil engineering or engineering construction work and includes:

(a) the construction, alteration, conversion, fitting out, commissioning, renovation, repair, upkeep, redecoration or other maintenance (including cleaning which involves the use of water or an abrasive at high pressure or the use of corrosive or toxic substances), decommissioning, demolition or dismantling of a structure
(b) the preparation for an intended structure, including site clearance, exploration, investigation (but not site survey) and excavation, and the clearance or preparation of the site or structure for use or occupation at its conclusion

Table 21.5 Schedule 1 of CDM 2007 Particulars to be Notified to the HSE

SCHEDULE 1
Particulars to be notified to the executive
1. Date of forwarding.
2. Exact address of the construction site.
3. The name of the local authority where the site is located.
4. A brief description of the project and the construction work which it includes.
5. Contact details of the client (name, address, telephone number and any e-mail address).
6. Contact details of the CDM co-ordinator (name, address, telephone number and any e-mail address).
7. Contact details of the principal contractor (name, address, telephone number and any e-mail address).
8. Date planned for the start of the construction phase.
9. The time allowed by the client to the principal contractor referred to in regulation 15(b) for planning and preparation for construction work.
10. Planned duration of the construction phase.
11. Estimated maximum number of people at work on the construction site.
12. Planned number of contractors on the construction site.
13. Name and address of any contractor already appointed.
14. Name and address of any designer already engaged.
15. A declaration signed by or on behalf of the client that he is aware of his duties under these Regulations.

(c) the assembly on site of prefabricated elements to form a structure or the disassembly on site of prefabricated elements which, immediately before such disassembly, formed a structure
(d) the removal of a structure or of any product or waste resulting from demolition or dismantling of a structure or from disassembly of prefabricated elements which immediately before such disassembly formed such a structure and
(e) the installation, commissioning, maintenance, repair or removal of mechanical, electrical, gas, compressed air, hydraulic, telecommunications, computer or similar services which are normally fixed within or to a structure.

This means that there are some things which may take place on a construction site like tree planting and horticulture work, putting up marquees, positioning lightweight panels in an open plan office and surveying which are not construction work.

Domestic clients are people who have work done on their own home or the home of a family member, that does not relate to a trade or business whether for profit or not. Where an insurance company arranges construction work to be done on a domestic dwelling the insurance company becomes the client for the purposes of CDM. If however the insured arranges the work and is reimbursed by the insurance company then the insured is the client.

As with all projects, designers and contractors working for domestic clients will have to be competent and take reasonable steps to ensure that anyone they arrange for, or instruct, to manage design or construction work is also competent. They will also have to co-operate with others involved in the project to safeguard the health and safety of everyone involved. When preparing or modifying a design, designers will have to avoid risks to the health and safety of anyone constructing, maintaining, using or demolishing the structures concerned, by removing the hazards (and reducing the risks arising from any that remain). Contractors will have to plan, manage and monitor their own work; and ensure that there are suitable welfare facilities.

21.10.4 *General Duties of Clients, CDM Co-ordinators, Principal Contractors and Contractors – Part 2*

The Regulations require that appointees are competent and state that:

No person on whom these Regulations place a duty shall:

(a) appoint or engage a CDM co-ordinator, designer, principal contractor or contractor unless he has taken reasonable steps to ensure that the person to be appointed or engaged is competent
(b) accept such an appointment or engagement unless he is competent
(c) arrange for or instruct a worker to carry out or manage design or construction work unless the worker is:
  (i) competent or
  (ii) under the supervision of a competent person.

The ACOP goes into considerable detail about the assessment of organizational and individual competence. In both cases it lays down a two stage approach.

- Stage 1 – assessing a company's organization and arrangements for health and safety and an individual's task knowledge to assess whether they appreciate the risks
- Stage 2 – assessing the company's and individual's experience and track record to see if they are capable of doing the work involved.

To be competent, an organization or individual must have:

- sufficient knowledge of the specific tasks to be undertaken and the risks which the work will entail
- sufficient experience and ability to carry out their duties in relation to the project; to recognize their limitations and take appropriate action in order to prevent harm to those carrying out construction work, or those affected by the work.

The Regulations require all duty holders to co-operate and co-ordinate their work with one another to enable people to carry out their duties effectively.

Duties are placed on a number of people, which is summarized in Table 9.9 and set out as follows.

All projects require:

- non-domestic clients to check the competence of all their appointees; ensure that there are suitable management arrangements for the project; allow sufficient time and resources for all stages; provide pre-construction information to designers and contractors
- designers to eliminate hazards and reduce risks during design; and provide information about remaining risks
- contractors to plan, manage and monitor their own work and that of workers; check the competence of all their appointees and workers; train their own employees; provide information to their workers; comply with the requirements for health and safety on site detailed in Part 4 of the Regulations and other Regulations such as the Work at Height Regulations; and ensure that there are adequate welfare facilities for their workers
- everyone to assure their own competence; co-operate with others and co-ordinate work so as to ensure the health and safety of construction workers and others who may be affected by the work; report obvious risks; take account of the general principles of prevention in planning or carrying out construction work; and comply with the requirements in schedule 3, Part 4 of CDM 2007 and other Regulations for any work under their control.

To ensure the revised Regulations are proportionate to risk and the needs of small businesses, and to minimize bureaucracy, the CDM94 requirement for appointment of a Planning Supervisor and Principal Contractor and written plans for projects involving five or more workers has been withdrawn. This does not mean any lessening in the health and safety standards required by the CDM 2007 Regulations, as they have strengthened or introduced other requirements. These place the emphasis on risk management, while avoiding disproportionate bureaucracy for smaller projects.

21.10.5 *Additional duties where the project is notifiable*

As well as the above requirements under 20.10.4, a notifiable project requires:

- non-domestic clients to appoint a CDM co-ordinator; appoint a Principal Contractor; provide pre-construction information to CDM co-ordinator
- check (before construction work starts) that there is a construction phase plan and suitable welfare facilities; and retain and provide access to the health and safety file
- CDM co-ordinators to advise and assist clients with their duties; notify HSE; co-ordinate health and safety aspects of design work; provide pre-construction information to designers and contractors; facilitate good communications between client, designers and contractors; liaise with the Principal Contractor on ongoing design issues; prepare and update the health and safety file
- designers to check, before they start work, that clients are aware of their duties and a CDM co-ordinator has been appointed; check HSE has been notified; and provide any information needed for the health and safety file
- PCs to plan, manage and monitor the construction phase in liaison with contractors; prepare, develop and implement a written plan (the initial plan to be completed before the construction phase begins); give contractors relevant parts of the plan; make sure suitable welfare facilities are provided from the start and maintained throughout the construction phase; check the competence of all their appointees; provide site inductions; consult with the workers; liaise with the CDM co-ordinator on ongoing design issues; and secure the site
- contractors to confirm clients are aware of their duties and a CDM co-ordinator has been appointed; co-operate with the Principal Contractor in planning and managing work; check HSE has been notified; and provide any information needed for the health and safety file; inform Principal Contractor of problems with plan; inform Principal Contractor of any reportable accidents, diseases and dangerous occurrences.

21.10.6 *Roles of duty holders under CDM 2007*

Client's

The role of clients is one of the most difficult areas to cover in law, because of the vast range of interest and

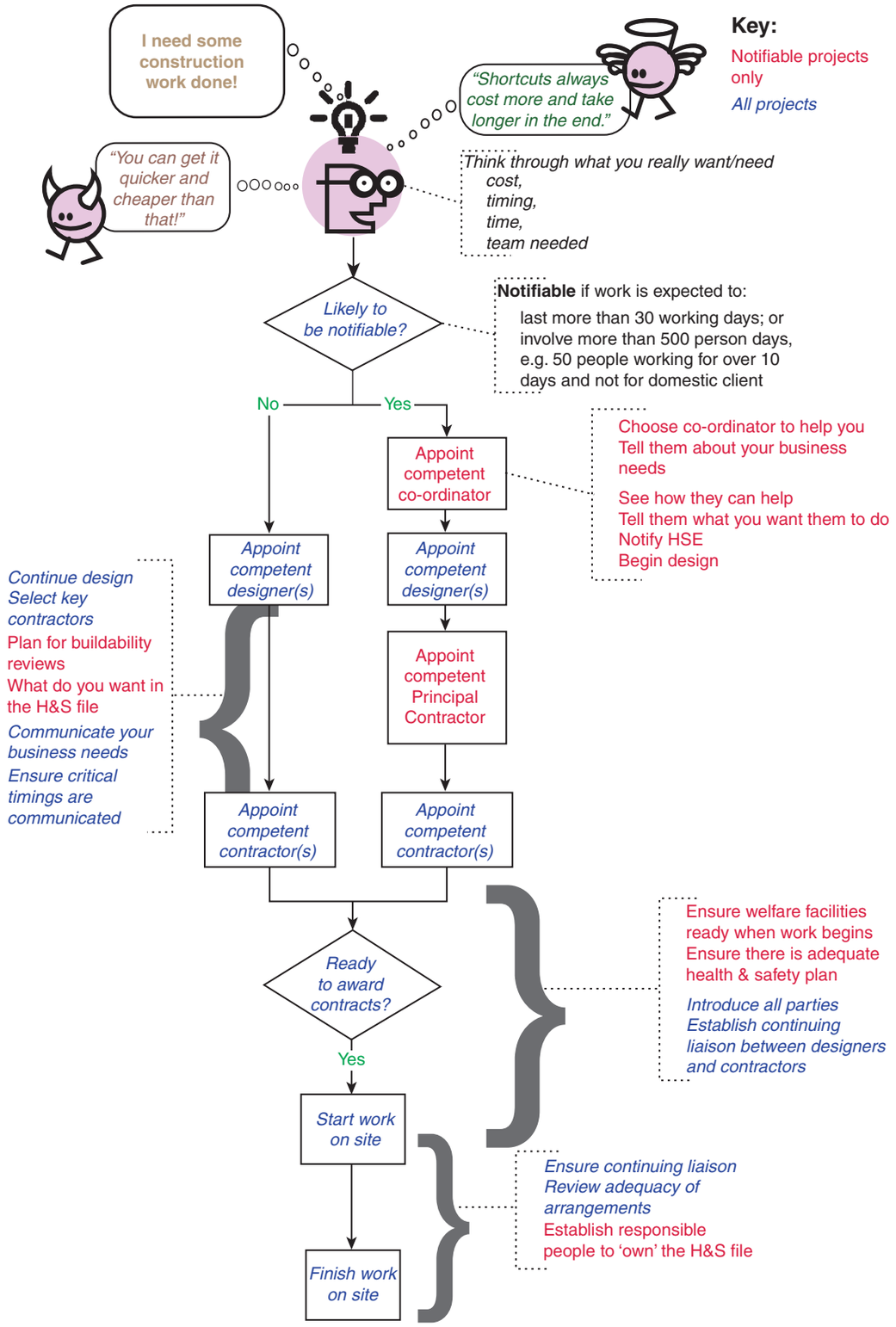

Figure 21.2 Draft summary application and notification of CDM 2007.

expertise in construction, and clients have real questions as to why they should be involved. The HSC are very conscious of the substantial influence and control that clients exert over construction projects in practice. For example they:

- set the tone for projects
- control contractual arrangements
- make crucial decisions (e.g. budget, time, suitability of designs); select procurement method and construction team/supply chain
- may have essential information about site/building.

There is a new duty on clients to ensure that suitable project management arrangements for health and safety are in place.

Clients are not expected to develop these arrangements themselves and few have the expertise to do so. They should be able to rely on the advice and support of their construction team and, in particular, the CDM co-ordinator. What the HSC expect is for them to exercise their influence and control responsibly and with due regard for those who will construct, maintain and demolish the structure.

CDM Co-ordinator

There is widespread agreement that the role of Planning Supervisor, as developed under CDM94, has not proved as effective as intended. However, views on this tend to be highly polarized. The main problems are that Planning Supervisers:

- are not seen as a natural part of the construction team. To be effective they need to be better integrated with the rest of the design and construction team
- are often appointed too late in the project so that they cannot do their job
- frequently have to operate at a disadvantage, due to insufficient allocation of resources by the client, in terms both of money and time
- have no authority to carry out their duties unless the client effectively empowers them and others co-operate and
- have, fairly or not, become the scapegoat for the bureaucracy linked to CDM.

To address these points CDM 2007:

- creates a new function – the CDM co-ordinator – to advise and assist the client
- places responsibility on clients to ensure that the co-ordinator's duties are carried out – only they have the information and authority to empower the CDM co-ordinator
- explicitly requires the CDM co-ordinator to be appointed before design work starts, with corresponding duties on designers and contractors not to begin work unless a CDM co-ordinator has been appointed and
- requires the client to ensure that the arrangements for managing projects include the allocation of adequate resources (including time).

Designers

The HSC fully recognize that, as well as health and safety considerations, designers need to take into account issues such as aesthetics, buildability, and cost. The challenge is to ensure that health and safety considerations are not outweighed by aesthetic and commercial priorities and, conversely, that health and safety does not inhibit aesthetics. However, it is a truth, almost universally acknowledged, that designers have considerable potential to eliminate hazards and reduce risks associated with construction work, as well as those associated with building use, maintenance, cleaning, and eventual demolition.

As part of balancing their design priorities, designers must take positive steps to use that potential and pay sufficient regard to health and safety in their designs to ensure that in the construction, use, maintenance and demolition of the resulting structures, hazards are removed **where possible** and any remaining risks reduced. Although this is already stated in the draft guidance, the HSC have explicitly acknowledged the need for such balanced decisions in CDM 2007.

The HSC also want the designers to focus on how their decisions are likely to affect those constructing, maintaining, using or demolishing the structures that they have designed and what they can do, **in the design**, to remove the hazards, for example by not specifying hazardous materials and avoiding the need for processes that create hazardous fumes, vapours, dust, noise or vibration, and reduce the resulting risks where the hazard cannot be removed. The ACOP under CDM 94 and guidance already sets out most of this and there is no plan to change these standards.

CDM 2007 is intended to require designers to eliminate hazards where they can, and then reduce those risks which remain. It does not ask designers to minimize all risks, as the HSC do not expect structures to be restricted to a height of 1 m! There are also often too many variables and no obvious *safest* design.

The duty regarding maintenance is limited in CDM94 to structural matters, but it is important that designers also consider safety during routine maintenance that is affected by their designs (e.g. how are high-level lights and ventilation systems to be maintained?).

Designers had no duty under CDM94 to ensure that their designs are safe to use. However, occupiers

of workplaces have to ensure that the finished structure complies with other health and safety law, particularly the Workplace Regulations (Health, Safety and Welfare) 1992. To ensure that these issues are addressed at the design stage the CDM 2007 extends designers' duties for fixed workplaces (e.g. offices, shops, schools, hospitals and factories) to cover safe use. Com-petent designers should be doing this already – so this is likely to require minimal additional work in practice.

Principal Contractor

The role of Principal Contractor, introduced when CDM94 came into force, was built on the longstanding role of main or managing contractor and did not, therefore, require any substantial changes in industry practice. Because of this, as a role, it has worked fairly well since CDM94 came into force, and has not changed significantly in CDM 2007.

The only substantial change is to make explicit, in the Regulations, the Principal Contractor's key role in managing the construction phase, to ensure that it is carried out, SFARP, safely and without risk to health. This does not mean that the Principal Contractor has to manage the work of contractors in detail – that is the contractor's own responsibility. They do have to make sure that they themselves are competent to address the health and safety issues likely to be involved in the management of the construction phase; satisfy themselves that the designers and contractors that they engage are competent and adequately resourced; and ensure that the construction phase is properly planned, managed and monitored, with adequately resourced, competent site management appropriate to the risk and activity.

The HSC did not feel that it was necessary, legally or otherwise, to specify in CDM 2007 that the Principal Contractor must be a contractor. In over 90% of projects, contractors discharge the role of Principal Contractor and those with contractors' experience and expertise are most likely to have the competence and resources to manage the work. The HSC believed that few clients have the competence or resources to manage significant construction work and do not want to encourage them to do so, although there is nothing to prevent this if they are competent – which is most likely in simple, low-risk projects.

Contractors

The only substantive change regarding contractors, is to make explicit their own duty to plan, manage and monitor their own work. The intention is that the management duties on PCs and contractors should complement one another, with the contractor's duty focusing on their own work and the Principal Contractor's on the co-ordination of the work of the various contractors.

21.10.7 *Health and Safety File*

Under the CDM94 a separate Health and Safety File was required for each project. The HSC believed that it would be more useful to have one file for each site, structure or, occasionally, group of structures – e.g. bridges along a road. The file can then be developed over time as information is added from different projects. The CDM co-ordinator therefore has the responsibility to prepare a suitable health and safety file or update it if one already exists.

There are also opportunities to link the health and safety file with other documents such as the Buildings Regulations Log Book. The potential practical value of the information contained in the file is also likely to increase as more clients make use of the Internet to share this information with designers and contractors. (For example, maintenance contractors could check what access equipment and parts they are likely to need to repair a fault before leaving for the site, saving them and their clients inconvenience, time and money.)

The contents of the Health and Safety File are given in the ACOP as follows:

- a brief description of the work carried out
- any residual hazards which remain and how they have been dealt with (e.g. surveys or other information concerning asbestos; contaminated land; water bearing strata; buried services)
- key structural principles (e.g. bracing, sources of substantial stored energy – including pre- or post-tensioned members) and safe working loads (SWL) for floors and roofs, particularly where these may preclude placing scaffolding or heavy machinery there
- hazardous material used (e.g. lead paint, pesticides, special coatings which should not be burnt off)
- information regarding the removal or dismantling of installed plant and equipment (e.g. any special arrangements for lifting, order or other special instructions for dismantling)
- health and safety information about equipment provided for cleaning or maintaining the structure
- the nature, location and markings of significant services, including underground cables; gas supply equipment; firefighting services
- information and built drawings of the structure, its plant and equipment (e.g. the means of safe access to and from service voids, fire doors and compartmentalization).

21.10.8 *Part 4 – Health and Safety on Construction Sites*

The Constructional (Health, Safety and Welfare) 1996 have been revoked by CDM 2007. Their requirements,

without the work at height provisions (regulations 6, 7 and 8), form the basis of Part 4 and schedule 2 (Welfare facilities) of the CDM 2007 Regulations. The revision is mainly intended to simplify and clarify the wording of the Regulations, without making substantive changes to what is expected in practice. One substantive change, however, has been to broaden the duty regarding explosives to cover the important issues of security and safety of storage and transport, as well as safety in use.

However, some issues already covered by the Workplace Regulations (Health,Safety and Welfare) 1992 are particularly important in construction. These include traffic management and lighting. Because these are so important CDM 2007 duplicate aspects of the Workplace Regulations (Health,Safety and Welfare) 1992 requirements, although this was not legally necessary.

The issues covered by Part 4 apply to all construction projects and are as follows.

General – regulation 25

Duties to comply with this part are placed on contractors or other person who control the way in which construction work is carried on.

Duty placed on workers to report any defect they are aware of may endanger the health and safety of themselves or another person.

Safe place of Work – regulation 26

This regulation requires SFARP:

- safe access and egress to places of work
- maintenance of access and egress
- that people are prevented from gaining access to unsafe access or workplaces
- provision of safe places of work with adequate space and suitable for workers.

Good order and site security – regulation 27

- requires that all parts of a construction be kept, SFARP, in good order and in a reasonable state of cleanliness
- requires that where necessary in the interests of health and safety the site's perimeter should be identified, signed and fenced off
- requires that no timber or other materials with projecting nails or similar sharp objects shall be used or allowed to remain if they could be a source of danger.

Stability of structures – regulation 28

All practical steps must be taken to ensure that:

- any new or existing structure which may be or become weak does not collapse accidentally
- temporary supporting structures are designed, installed and maintained so as to withstand all foreseeable loads
- a structure is not overloaded so as to be a source of danger.

Demolition or dismantling – regulation 29

- demolition or dismantling must be planned and carried out so as to prevent danger or reduce it to as lower a level as is reasonably possible
- arrangements must be recorded before the work takes place.

Explosives – regulation 30

- explosives, SFARP, shall be stored, transported and used safely and securely
- explosives may only be fired if suitable and sufficient steps have been taken to ensure no one is exposed to risk of injury.

Excavations – regulation 31

All practicable steps shall be taken to prevent danger to people, including where necessary supports or battering to:

- prevent excavations from collapsing accidentally
- prevent material from side, roof or adjacent area being dislodged or falling
- prevent a person from being buried or trapped by a fall of material
- prevent persons, work equipment or any accumulation of material falling into the excavation
- prevent any part of an excavation or ground adjacent being overloaded by work equipment or material.

No construction work may be carried out in an excavation where any supports or battering have been provided unless:

- it has been inspected by a competent person:
  - at the start of the shift (only one report required every 7 days)
  - after any event likely to affect the strength or stability of the excavation
  - after any material accidentally falls or is dislodged
- the person inspecting is satisfied that it is safe.

When the person who carries out the inspection has so informed the person on whose behalf he carried out the inspection that it is not safe, work must cease until the relevant matters have been corrected.

Cofferdams and caissons – regulation 32

All cofferdams or caissons must be:

- suitably designed and constructed
- appropriately equipped so that people can gain shelter or escape if water or material enters
- properly maintained.

A cofferdam or caisson may be used to carry out construction only if:

- it and any work equipment and materials which affect its safety have been inspected by a competent person:
  - at the start of the shift (only one report required every 7 days)
  - after any event likely to affect its strength or stability
- the person inspecting is satisfied that it is safe.

When the person who carries out the inspection has so informed the person on whose behalf he carried out the inspection, work must cease until the relevant matters have been corrected.

Reports of Inspection – regulation 33

Before the end of the shift in which the report was completed the person who carries out the inspection under regulations 31 or 32 must:

- where he is not satisfied that construction work can be carried out safely, inform the person for whom he carried out the inspection
- prepare a report with the particulars set out in schedule 3 to the Regulations as shown in Table 21.6.

A copy of the report must be provided within 24 hours of the relevant inspection. If the inspector is an employee or works under someone else's control, that person must ensure that these duties are performed.

Records must be kept at the site where the inspection was carried out until the work is complete and then for 3 months. Extracts must be provided for an inspector as they require.

Energy distribution installations – regulation 34

Energy distribution installations must be suitably located, checked and clearly indicated.

Where there is a risk from electric power cables they should be:

- routed away from the risk areas or
- the power shall be cut off.

Table 21.6 Particulars for inspection report

SCHEDULE 3 Regulation 33 (1)(b)
Particulars to be included in a report of inspection
1. Name and address of the person on whose behalf the inspection was carried out.
2. Location of the place of work inspected.
3. Description of the place of work or part of that place inspected (including any work equipment and materials).
4. Date and time of the inspection.
5. Details of any matter identified that could give rise to a risk to the health or safety of any person.
6. Details of any action taken as a result of any matter identified in paragraph 5 above.
7. Details of any further action considered necessary.
8. Name and position of the person making the report.

If these safety measures are not reasonably practicable with suitable warning notices, barriers to exclude work equipment and suspended protections where vehicles have to pass underneath need to be put into place.

No construction work which is liable to create a risk to health or safety from an underground service, or from damage to or disturbance of it, shall be carried out unless suitable and sufficient steps have been taken to prevent such risk, SFARP.

Prevention of drowning – regulation 35

Where persons could fall into water or other liquid, steps must be taken to:

- prevent, SFARP, people from falling
- minimize the risk of drowning if people fall
- provide, use and maintain suitable rescue equipment to ensure prompt rescue.

Transport to work by water must be suitable and sufficient and any vessel used must not be overcrowded or overloaded.

Traffic routes – regulation 36

Every construction site shall be organized in such a way that, SFARP, pedestrians and vehicles can move safely.

Traffic routes shall be suitable for the persons or vehicles using them, sufficient in number, in suitable positions and of sufficient size.

Steps must be taken to ensure that:

- pedestrians or vehicles may use a traffic roote without causing danger to the health or safety of persons near it
- any door or gate for pedestrians which leads onto a traffic route is sufficiently separated from it to enable them from a place of safety to see any approaching vehicle
- there is sufficient separation between vehicles and pedestrians to ensure safety or, where this is not reasonably practicable:
  (i) there are provided other means for the protection of pedestrians and
  (ii) there are effective arrangements for warning any person liable to be crushed or trapped by any vehicle of its approach
- any loading bay has at least one exit point for the exclusive use of pedestrians and
- where it is unsafe for pedestrians to use a gate intended primarily for vehicles, one or more doors for pedestrians is provided in the immediate vicinity of the gate, is clearly marked and is kept free from obstruction.

Every traffic route shall be:

- indicated by suitable signs
- regularly checked and
- properly maintained.

No vehicle shall be driven on a traffic route unless, SFARP, that traffic route is free from obstruction and permits sufficient clearance.

Vehicles – regulation 37

The unintended movement of any vehicle must be prevented or controlled.

Suitable and sufficient steps shall be taken to ensure that, where a person may be endangered by the movement of any vehicle, the person having effective control of the vehicle shall give suitable and sufficient warning.

Any vehicle being used for the purposes of construction work shall, when being driven, operated or towed:

- be driven, operated or towed in a safe manner and
- be loaded so that it can be driven, operated or towed safely.

No person shall ride on any vehicle being used for the purposes of construction work except in a safe place provided.

No person shall remain on any vehicle during the loading or unloading of any loose material unless a safe place of work is provided and maintained.

Suitable measures must be taken to prevent any vehicle from falling into any excavation or pit, or into water, or overrunning the edge of any embankment or earthwork.

Prevention of risk from fire – regulation 38

Steps must be taken to prevent injury arising from:

- fires or explosions
- flooding or
- substances liable to cause asphyxiation.

Emergency procedures – regulation 39

Where necessary, emergency procedures must be prepared and, where necessary, implemented to deal with any foreseeable emergency. They must include procedures for any necessary evacuation of the site or any part thereof.

The arrangements must take account of:

(a) the type of work for which the construction site is being used
(b) the characteristics and size of the construction site and the number and location of places of work on that site
(c) the work equipment being used
(d) the number of persons likely to be present on the site at any one time and
(e) the physical and chemical properties of any substances or materials on or likely to be on the site.

Steps must be taken to make people on site familiar with the procedures and test the procedures at suitable intervals.

Emergency routes and exits – regulation 40

A sufficient number of suitable emergency routes and exits shall be provided to enable any person to reach a place of safety quickly in the event of danger.

An emergency route or exit (or as appropriate traffic route) provided must:

- lead as directly as possible to an identified safe area
- be kept clear and free from obstruction and, where necessary, provided with emergency lighting so that such emergency route or exit may be used at any time
- be indicated by suitable signs.

Fire detection and firefighting – regulation 41
Where necessary, duty holders must provide suitable and sufficient:

- firefighting equipment and
- fire detection and alarm systems, which shall be suitably located.

The equipment must be examined and tested at suitable intervals, properly maintained and suitably indicated by signs. If non-automatic it must be easily accessible.

Every person at work on a construction site shall, SFARP, be instructed in the correct use of any firefighting equipment which it may be necessary for him to use. Where a work activity may give rise to a particular risk of fire, a person shall not carry out such work unless he is suitably instructed.

Fresh air – regulation 42
Steps must be taken to ensure, SFARP, that every place of work or approach has sufficient fresh or purified air to ensure that the place or approach is safe and without risks to health. Any plant used for the provision of such air, must include, where necessary, an effective device to give visible or audible warning of any failure of the plant.

Temperature and weather protection – regulation 43
Steps must be taken to ensure, SFARP, that during working hours the temperature at any place of work indoors is reasonable having regard to its purpose.

Every place of work outdoors must, where necessary, SFARP and having regard to the purpose for which that place is used and any protective clothing or work equipment provided, be so arranged that it provides protection from adverse weather.

Lighting – regulation 44
Every place of work and approach thereto and every traffic route shall be provided with suitable and sufficient lighting, which shall be, SFARP, by natural light.

The colour of any artificial lighting provided shall not adversely affect or change the perception of any sign or signal provided for the purposes of health and safety.

Suitable and sufficient secondary lighting shall be provided in any place where there would be a risk to the health or safety of any person in the event of failure of primary artificial lighting.

21.10.9 *Welfare facilities – schedule 2*

Sanitary conveniences

1. Suitable and sufficient sanitary conveniences shall be provided or made available at readily accessible places. SFARP, rooms containing sanitary conveniences shall be adequately ventilated and lit.
2. SFARP, sanitary conveniences and the rooms containing them shall be kept in a clean and orderly condition.
3. Separate rooms containing sanitary conveniences shall be provided for men and women, except where and so far as each convenience is in a separate room the door of which is capable of being secured from the inside.

Washing facilities

4. Suitable and sufficient washing facilities, including showers if required by the nature of the work or for health reasons, shall SFARP be provided or made available at readily accessible places.
5. Washing facilities shall be provided:
   (a) in the immediate vicinity of every sanitary convenience, whether or not provided elsewhere and
   (b) in the vicinity of any changing rooms required by paragraph 15 whether or not provided elsewhere.
6. Washing facilities shall include:
   (a) a supply of clean hot and cold, or warm, water (which shall be running water SFARP)
   (b) soap or other suitable means of cleaning
   (c) towels or other suitable means of drying.
7. Rooms containing washing facilities shall be sufficiently ventilated and lit.
8. Washing facilities and the rooms containing them shall be kept in a clean and orderly condition.
9. Subject to paragraph 10 below, separate washing facilities shall be provided for men and women, except where and so far as they are provided in a room the door of which is capable of being secured from inside and the facilities in each such room are intended to be used by only one person at a time.
10. Paragraph 9 above shall not apply to facilities which are provided for washing hands, forearms and face only.

Drinking water

11. An adequate supply of wholesome drinking water shall be provided or made available at readily accessible and suitable places.
12. Every supply of drinking water shall be conspicuously marked by an appropriate sign where necessary for reasons of health and safety.
13. Where a supply of drinking water is provided, there shall also be provided a sufficient number of suitable cups or other drinking vessels unless the supply of drinking water is in a jet from which persons can drink easily.

Changing rooms and lockers

14. (1) Suitable and sufficient changing rooms shall be provided or made available at readily accessible places if:

(a) a worker has to wear special clothing for the purposes of his work

(b) a worker cannot, for reasons of health or propriety, be expected to change elsewhere

being separate rooms for, or separate use of rooms by, men and women where necessary for reasons of propriety.

(2) Changing rooms shall:

(a) be provided with seating

(b) include, where necessary, facilities to enable a person to dry any such special clothing and his own clothing and personal effects.

(3) Suitable and sufficient facilities shall, where necessary, be provided or made available at readily accessible places to enable persons to lock away:

(a) any such special clothing which is not taken home

(b) their own clothing which is not worn during working hours

(c) their personal effects.

Facilities for rest

15. (1) Suitable and sufficient rest rooms or rest areas shall be provided or made available at readily accessible places.

(2) Rest rooms and rest areas shall:

(a) include suitable arrangements to protect non-smokers from discomfort caused by tobacco smoke

(b) be equipped with an adequate number of tables and adequate seating with backs for the number of persons at work likely to use them at any one time

(c) where necessary, include suitable facilities to enable any person at work who is a pregnant woman or nursing mother to rest lying down

(d) include suitable arrangements to ensure that meals can be prepared and eaten

(e) include the means for boiling water

(f) be maintained at an appropriate temperature.

21.10.10 *Civil liability – regulation 45*

The Management Regulations (Management of Health and Safety at Work Regulations 1999) were amended in 2003 to provide employees with a right of action in civil proceedings, in relation to breach of duties by their employer. To maintain consistency CDM 2007 carries forward, with three small exceptions, the rights of civil action in CDM and CHSW, and also allows employees to take action in the civil courts for injuries resulting from a failure to comply with duties under these Regulations.

21.10.11 *Enforcement*

General

The enforcement demarcation between HSE and Local Authorities (LAs) in respect of construction work was set out in the Health and Safety (Enforcing Authority) Regulations 1998, and in regulations 3 (4) and 22 of CDM94. Interpretation of these requirements was not straightforward, but the practical effect is that LAs were prevented from enforcing CDM.

The HSC wished to simplify this by omitting regulations 3 (4) and 22 from CDM 2007.

The effect of this is that, under CDM 2007, HSE are the enforcing authority for:

- all notifiable construction work, except that undertaken by people in LA-enforced premises who normally work on the premises
- work done to the exterior of the premises and
- work done in segregated areas.

Enforcement in respect of fire – regulation 46

This Regulation of CDM 2007 is given in full:

46. (1) Subject to paragraphs (2) and (3):

(a) in England and Wales the enforcing authority within the meaning of article 25 of the Regulatory Reform (Fire Safety) Order 2005 or

(b) in Scotland the enforcing authority within the meaning of section 61 of the Fire (Scotland) Act 2005

shall be the enforcing authority in respect of a construction site which is contained within, or forms part of, premises which are occupied by persons other than those carrying out the construction work or any activity arising from such work as regards regulations 39 and 40, in so far as those regulations relate to fire, and regulation 41.

(2) In England and Wales paragraph (1) only applies in respect of premises to which the Regulatory Reform (Fire Safety) Order 2005 applies.

(3) In Scotland paragraph (1) only applies in respect of premises to which Part 3 of the Fire (Scotland) Act 2005 applies.

21.10.12 *References*

Backs for the Future, HSG 149, HSE Books, ISBN 9780-7176-1122-1.

Construction (Design and Management) Regulations 2007. Approved Code of Practice, L144, 2007 HSE Books, ISBN 9780 7176 62234.

Controlling Exposure to Stonemasonry Dust: Guidance for Employers. 2001 HSE Books, ISBN 9780-7176-1760-2.

Electrical Safety on Construction Sites. HSG 141, 1995 HSE Books, ISBN 9780-7176-1000-4.

Fire Safety in Construction Work, HSG 168, 1997 HSE Books, ISBN 9780-7176-1332-1.

Health and Safety in Construction. HSG 150 (rev3), 2006 HSE Books, ISBN 9780-7176-6182-2.

Health and Safety in Excavations. HSG 185, 1999 HSE Books, ISBN 9780-7176-1563-4.

Health and Safety in Roof Work, Revised. HSG 33, 1998 HSE Books, ISBN 9780-7176-1425-5.

Managing Health and safety in Construction, Guidance. HSG 224, 2007 HSE Books, ISBN 9780-7176-21391.

Safe Use of Vehicles on Construction Sites. HSG 144, 1998 HSE Books, ISBN 9780-7176-1610-X.

Want Construction Work Done Safely: A Guide for Clients on the CDM 2007 Regulations. INDG 411, ISBN 9780-7176-6246-3.

21.11 Construction (Head Protection) Regulations 1989

21.11.1 *Application*

These Regulations apply to 'building operations' and 'works of engineering construction' as defined originally by the Factories Act 1961.

21.11.2 *Provision and maintenance*

Every employer must provide suitable head protection for each employee and shall maintain it and replace it whenever necessary. A similar duty is placed on self-employed people. The employer must make an assessment and review it as necessary, to determine whether the head protection is suitable. Accommodation must be provided for head protection when it is not in use.

21.11.3 *Ensuring that head protection is worn – regulation 4*

Every employer shall ensure, SFARP, that each employee (and any other person over whom they have control) at work wears suitable head protection, unless there is no foreseeable risk of injury to their head other than through falling.

21.11.4 *Rules and directions – regulation 5*

The person in control of a site **may** make rules regulating the wearing of suitable head protection. These must be in writing. An employer may give directions requiring their employees to wear head protection.

21.11.5 *Wearing of suitable head protection, reporting loss – regulations 6–9*

Every employee who has been provided with suitable head protection shall wear it when required to do so by rules made or directions given under regulation 5 of these Regulations. They must make full and proper use of it and return it to the accommodation.

Employees must take reasonable care of head protection, and report any loss or obvious defect.

Exemption certificates, issued by the HSE, are allowed.

21.11.6 *References*

A guide to the Construction (Head Protection) Regulations L 102 (revised). HSE Books 1998, ISBN 9780-7176-1478-6.

Head Protection for Sikhs Wearing Turbans, INDG262.

21.12 Health and Safety (Consultation with Employees) Regulations 1996

21.12.1 *Application*

These Regulations apply to all employers and employees in Great Britain except:

- where employees are covered by safety representatives appointed by recognized trade unions under the Safety Representatives and Safety Committees Regulations 1977
- domestic staff employed in private households
- crew of a ship under the direction of the master.

21.12.2 *Employer's duty to consult – regulation 3*

The employer must consult relevant employees in good time with regard to:

- the introduction of any measure which may substantially affect their health and safety
- the employer's arrangements for appointing or nominating competent persons under the Management of Health and Safety at Work Regulations 1999

- any information required to be provided by legislation
- the planning and organization of any health and safety training required by legislation
- the health and safety consequences to employees of the introduction of new technologies into the workplace.

The guidance emphasizes the difference between informing and consulting. Consultation involves listening to employees' views and taking account of what they say before any decision is taken.

21.12.3 *Persons to be consulted – regulation 4*

Employers must consult with either:

- the employees directly or
- one or more persons from a group of employees, who were elected by employees in that group to represent them under these regulations. They are known as 'Representatives of Employee Safety' (ROES).

Where ROES are consulted, all employees represented must be informed of:

- the names of ROES
- the group of employees represented.

Employers shall not consult a ROES if:

- the ROES does not wish to represent the group
- the ROES has ceased to be employed in that group
- the election period has expired
- the ROES has become incapacitated from carrying out their functions.

If an employer decides to consult directly with employees he must inform them and ROES of that fact. Where no ROES are elected employers will have to consult directly.

21.12.4 *Duty to provide information – regulation 5*

Employers must provide enough information to enable ROES to participate fully and carry out their functions. This will include:

- what the likely risks and hazards arising from their work may be
- reported accidents and diseases, etc. under Reporting of Injuries Diseases and Dangerous Occurrences Regulation (RIDDOR) 1995
- the measures in place, or which will be introduced, to eliminate or reduce the risks
- what employees ought to do when encountering risks and hazards.

An employer need not disclose information which:

- could endanger national security
- violates a legal prohibition
- relates specifically to an individual without their consent
- could substantially hurt the employers undertaking or infringe commercial security
- was obtained in connection with legal proceedings.

21.12.5 *Functions of ROES – regulation 6*

ROES have the following functions (but no legal duties):

- to make representations to the employer on potential hazards and dangerous occurrences related to the group of employees represented
- to make representations to the employer on matters affecting the general health and safety of relevant employees
- to represent the group of employees for which they are the ROES in consultation with inspectors.

21.12.6 *Training, time off and facilities – regulation 7*

Where an employer consults ROES, he must:

- ensure that each ROES receives reasonable training at the employer's expense
- allow time off with pay during the ROES working hours to perform the duties of a ROES and while a candidate for election
- provide such other facilities and assistance that ROES may reasonably require.

21.12.7 *Civil liability and complaints – regulation 9 and schedule 2*

Breach of these Regulations does not confer any right of action in civil proceedings subject to regulation 7 (3) and schedule 2 relating to complaints to employment tribunals.

A ROES can complain to an industrial tribunal that:

- their employer has failed to permit time off for training or to be a candidate for election
- their employer has failed to pay them as set out in schedule 1 to the Regulations.

21.16.8 *Elections*

The guidance lays down some ideas for the elections, although there are no strict rules.

ROES do not need to be confined to consultation related to these Regulations. Some employers have ROES sitting on safety committees and taking part in accident investigations similarly to union Safety Representatives.

21.12.9 *References*

A guide to the Health and Safety (Consultation with Employees) Regulations 1996. L95, HSE Books, ISBN 9780-7176-1234-1.

21.13 Control of Substances Hazardous to Health Regulations (COSHH) 2002 as amendmented

21.13.1 *Introduction*

The 2002 COSHH Regulations: have updated the 1999 Regulations with a few changes which include additional definitions like 'inhalable dust' and 'health surveillance'; clarify and extend the steps required under risk assessment; introduce a duty to deal with accidents and emergencies.

The 2004 Amendment Regulations replace regulation 7 (7) and (8) by substituting new requirements to observe principles of good practice for the control of exposure to substances hazardous to health introduced by schedule 2A, to ensure that workplace exposure limits are not exceeded, and to ensure in respect of carcinogens and asthmagens that exposure is reduced to as low a level as is reasonably practicable. They also introduce a single new Workplace Exposure Limit for substances hazardous to health which replaces occupational exposure standards and maximum exposure limits. The Amendment Regulations introduce a duty to review control measures other than the provision of plant and equipment, including systems of work and supervision, at suitable intervals.

COSHH covers most substances hazardous to health found in workplaces of all types. The substances covered by COSHH include:

- substances used directly in work activities (e.g. solvents, paints, adhesives, cleaners)
- substances generated during processes or work activities (e.g. dust from sanding, fumes from welding)
- naturally occurring substances (e.g. grain dust).

But COSHH does **not** include:

- asbestos and lead, which have specific regulations
- substances which are hazardous only because they are:
  - radioactive
  - simple asphyxiants
  - at high pressure
  - at extreme temperatures
  - have explosive or flammable properties (separate Dangerous Substances Regulations cover these)
  - biological agents if they are not directly connected with work and are not in the employer's control, such as catching flu from a workmate.

21.13.2 *Definition of substance hazardous to health – regulation 2*

The range of substances regarded as hazardous under COSHH are:

- substances or mixtures of substances classified as dangerous to health under the Chemicals (Hazard, Information and Packaging for Supply) Regulations 2002 (CHIP). These have COSHH warning labels and manufacturers must supply data sheets. They cover substances that are: very toxic, toxic, harmful, corrosive or irritant under CHIP
- substances with workplace exposure limits as listed in EH40 published by the HSE
- biological agents (bacteria and other microorganisms) if they are directly connected with the work
- any kind of dust in a concentration specified in the regulations, that is:
  - 10 mg/m^3, as a time-weighted average over an 8-hour period, of total inhalable dust
  - 4 mg/m^3, as a time-weighted average over an 8-hour period, of respirable dust
- any other substance which has comparable hazards to people's health but which, for technical reasons, is not covered by CHIP.

21.13.3 *Duties under COSHH – regulation 3*

The duties placed on employers under these Regulations are extended to (except for health surveillance, monitoring and information and training) persons who may be on the premises but not employed whether they are at work or not, for example, visitors and contractors.

21.13.4 *General requirements*

There are eight basic steps to comply with COSHH; they are to:

1. assess the risks to health
2. decide what precautions are needed

3. prevent or adequately control exposure
4. ensure that control measures are used and maintained
5. monitor the exposure of employees to hazardous substances
6. carry out appropriate health surveillance where necessary
7. prepare plans and procedures to deal with accidents, incidents and emergencies
8. ensure employees are properly informed, trained and supervised.

21.13.5 *Steps 1 and 2 – assessment of health risk – regulation 6*

No work may be carried out where employees are liable to be exposed to substances hazardous to health unless:

- a suitable and sufficient risk assessment, including the steps need to meet COSHH, has been made.

The assessment must be reviewed and changes made regularly and immediately if:

- if it is suspected that it is no longer valid
- there has been a significant change in the work to which it relates
- the results of any monitoring carried out in accordance with regulation 10 show it to be necessary.

The assessment involves identifying the substance present in the workplace; assessing the risk it presents in the way it is used; and deciding what precautions (and health surveillance) are needed. Where more than four employees are employed the significant findings must be recorded and the steps taken to comply with regulation 7.

21.13.6 *Step 3 – prevention or control of exposure – regulation 7*

Every employer must ensure that exposure to substances hazardous to health is either:

- prevented or, where this is not reasonably practicable
- adequately controlled.

Preference must be given to substituting with a safer substance. Where it is not reasonably practicable to prevent exposure, protection measures must be adopted in the following order of priority:

- the design and use of appropriate work processes, systems and engineering controls and the provision and use of suitable work equipment
- the control of exposure at source, including adequate ventilation systems and appropriate organizational measures and
- where adequate control of exposure cannot be achieved by other means, the additional provision of suitable PPE.

The measures must include:

- safe handling, storage and transport (plus waste)
- reducing to a minimum required for the work the number of employees exposed, the level and duration of exposure, and the quantity of substance present at the workplace
- the control of the working environment including general ventilation
- appropriate hygiene measures.

Control of exposure shall only be treated as adequate if:

- the principles of good practice as set out in schedule 2A are applied
- any workplace exposure limit approved for that substance is not exceeded and
- for a carcinogen (in schedule 1 or with risk phrase R45, R46 or R49) or sensitizer (Risk phrases R42 or R42/43) or asthmagen (section C of HSE publication on Asthmagens (ISBN 9780-7176-1465-4)) exposure is reduced to as low a level as is reasonably practicable.

Box 21.8

Principles of Good Practice for the Control of Exposure to Substances Hazardous to Health (schedule 2A).

- Design and operate processes and activities to minimize emission, release and spread of substances hazardous to health.
- Take into account all relevant routes of exposure – inhalation, skin absorption and ingestion – when developing control measures.
- Control exposure by measures that are proportionate to the health risk.
- Choose the most effective and reliable control options which minimize the escape and spread of substances hazardous to health.

- Where adequate control of exposure cannot be achieved by other means, provide, in combination with other control measures, suitable PPE.
- Check and review regularly all elements of control measures for their continuing effectiveness.
- Inform and train all employees on the hazards and risks from the substances with which they work and the use of control measures developed to minimize the risks.
- Ensure that the introduction of control measures does not increase the overall risk to health and safety.

PPE must conform to the Personal Protective Equipment (EC Directive) Regulations 2002.

Additionally RPE must be:

- suitable for the purpose
- comply with the EC Directive Regulations or
- if there is no requirement imposed by these Regulations, be of a type or shall conform to a standard approved by the HSE.

Where exposure to a Carcinogen or Biological Agent is involved, additional precautions are laid down in regulation 7.

21.13.7 *Step 4 – use, maintenance, examination and test of control measures – regulations 8 and 9*

- Every employer must take all reasonable steps to ensure that control measures, PPE or anything else provided under COSHH, are properly used or applied.
- Employees must make full and proper use of control measures, PPE or anything else provided; employees must as far as is reasonable return items to accommodation and report defects immediately.

Employers shall also:

- properly maintain controls and, in the case of PPE, keep them clean
- carry out thorough examination and tests on engineering controls:
  - in the case of local exhaust ventilation (LEV) at least once every 14 months (except those in schedule 4, which covers blasting of castings – monthly; dry grinding, polishing or abrading of metal for more than 12 hours per week – 6 months; and jute manufacture – 6 months)
  - in any other case, at suitable intervals
- carry out thorough examination and tests where appropriate (except on disposable items) on RPE at suitable intervals
- keep a record of examination and tests for at least 5 years.

21.13.8 *Step 5 – monitoring exposure – regulation 10*

Employers must monitor exposure:

- where this is necessary to ensure maintenance of control measures or the protection of health
- specifically for vinyl chloride monomer or chromium plating as required by schedule 5 and
- keep a record of identifiable personal exposures for 40 years and any other exposures for 5 years.

21.13.9 *Step 6 – health surveillance – regulation 11*

Employers must ensure employees, where appropriate, who are exposed or liable to be exposed are under health surveillance. It is considered appropriate when:

- an employee is exposed (if significant) to substances or processes in schedule 6
- an identifiable disease or adverse health effect may be related to the exposure, and there is a reasonable likelihood that disease may occur and there are valid disease indication or effect detection methods.

Records of health surveillance containing approved particulars must be kept for 40 years or offered to HSE if trading ceases. If a person is exposed to a substance and/or process in schedule 6, the health surveillance shall include medical surveillance by an employment medical adviser or appointed doctor at intervals not exceeding 12 months.

If a medical adviser certifies that a person should not be engaged in particular work they must not be permitted to carry out that work except under specified conditions. Health records must be available for the individual employee to see after reasonable notice.

Employees must present themselves, during working hours at the employer's expense, for appropriate health surveillance.

An employment medical adviser or appointed doctor has the power to inspect the workplace or look at records for the purpose of carrying out functions under COSHH.

21.13.10 *Steps 7 and 8 – information, instruction and training and emergencies – regulations 12 and 13*

Where employees are likely to be exposed to substances hazardous to health employers must provide:

- information, instruction and training on the risks to health and the precautions which should be taken (this duty is extended to anyone who may be affected)
- information on any monitoring of exposure (particularly if there is a maximum exposure limit where the employee or their representative must be informed immediately)
- information on collective results of health surveillance (designed so that individuals cannot be identified)
- procedures for accidents and emergencies including the provision of appropriate first aid facilities and relevant safety drills. Information on emergency arrangements and suitable warning and other communications must all be established to ensure suitable response and rescue operations.

21.13.11 *Defence – regulation 16*

It is a defence under these Regulations for a person to show that they have taken all reasonable precautions and exercised all due diligence to avoid the commission of an offence.

21.13.12 *References*

CHIP for Everyone. HSG 228, 2002, HSE Books, ISBN 9780-7176-2370-X.

Control of Substances Hazardous to Health Regulations 2002, SI 2002, 2677, 2002 Stationery Office, ISBN 9780-11-042919-2.

Control of Substances Hazardous to Health Approved Code of Practice and Guidance. L5, 5th edition, 2005 HSE Books, ISBN 9780-7176-2981-3.

COSHH: A Brief Guide to the Regulations. INDG136 rev3, 2005 HSE Books, ISBN 9780-7176-2982-1.

COSHH Essentials: Easy Steps to Control Chemicals. HSG 193, 2nd edition, 2003 HSE Books, ISBN 9780-7176-2737-3. COPSHH Essentials website: http://www.coshh-essentials.org.uk/.

COSHH HSE Micro website: http://www.hse.gov.uk/coshh/index.htm.

Seven Steps to Successful Substitution of Hazardous Substances. HSG 110, 1994 HSE Books, ISBN 9780-7176-0695-3.

The Idiot's Guide to CHIP3. Chemicals (Hazard Information and Packaging for Supply) Regulations, INDG350, 2003 HSE Books, ISBN 9780-7176-2333-5.

Why Do I Need a Safety Data Sheet? INDG353, 2002, HSE Books, ISBN 9780-7176-2367-X.

Workplace Exposure Limits EH40. 2005 HSE Books, ISBN 9780-7176-2083-2 (revised annually).

21.14 Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) 2002

21.14.1 *Introduction*

These Regulations are designed to implement the safety requirements of the EU Chemical Agents and Explosive Atmospheres Directives. DSEAR deals with the prevention of fires, explosions and similar energy releasing events arising from dangerous substances. Following the introduction of DSEAR the opportunity will also be taken to modernize all the existing laws on the use and storage of petrol.

In Summary the DSEAR Regulations require employers and the self-employed to:

- carry out an assessment of the fire and explosion risks of any work activities involving dangerous substances
- provide measures to eliminate, or reduce SFARP, the identified fire and explosion risks
- apply measures, SFARP, to control risks and to mitigate the detrimental effects of a fire or explosion
- provide equipment and procedures to deal with accidents and emergencies and
- provide employees with information and precautionary training.

Where explosive atmospheres may occur:

- the workplaces should be classified into hazardous and non-hazardous places; and any hazardous places classified into zones on the basis of the frequency and duration of an explosive atmosphere, and where necessary marked with a sign
- equipment in classified zones should be safe so as to satisfy the requirements of the Equipment and

Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 1996 and
- the workplaces should be verified by a competent person, as meeting the requirements of DSEAR.

21.14.2 *Scope of regulations*

Dangerous Substance
The regulations give a detailed interpretation of *dangerous substance*, which should be consulted. In summary it means that:

- a substance or preparation that because of its chemical and sometimes physical properties and the way it is present and/or used at work, creates a fire or explosion risk to people; for example substances like petrol, liquefied petroleum gas (LPG), paints, cleaners, solvents and flammable gases
- any dusts which could form an explosive mixture in air (not included in a substance or preparation); for example many dusts from grinding, milling or sanding.

Explosive Atmosphere
The Regulations give the definition as:

> *a mixture under atmospheric conditions, of air and one or more dangerous substances in the form of gases, vapours, mists or dusts, in which, after ignition has occurred, combustion spreads to the entire unburned mixture.*

21.14.3 *Application*

The Regulations do not in general apply to:

- ships under the control of a master
- areas used for medical treatment of patients
- many gas appliances used for cooking, heating, hot water, refrigeration, etc. (except an appliance specifically designed for an industrial process), gas fittings
- manufacture, use, transport of explosives or chemically unstable substances
- mine, quarry or borehole activities
- activity at an offshore installation
- the use of means of transport (but the Regulations do cover means of transport intended for use in a potentially explosive atmosphere).

21.14.4 *Risk assessment – regulation 5*

The risk assessment required by regulation 5 must include:

- the hazardous properties of the dangerous substance
- supplier's information and SDS
- the circumstances of the work including:
  - work processes and substances used and their possible interactions
  - the amount of substance involved
  - risks of substances in combination
  - arrangements for safe handling, storage and transport and any waste which might contain dangerous substances
- high risk maintenance activities
- likelihood of an explosive atmosphere
- likelihood of ignition sources, including electrostatic discharges being present
- scale of any possible fire or explosion
- any places connected by openings to areas where there could be an explosive atmosphere
- any additional information which may be needed.

21.14.5 *Elimination or reduction of risks – regulation 6*

Regulation 6 concerns the reduction of risks and tracks the normal hierarchy as follows:

- substitution of a dangerous substance by a substance or process which eliminates or reduces the risk, for example the use of water-based paints, or using a totally enclosed continuous process
- reducing the quantity of dangerous substance to a minimum, for example only a half-day supply in the workroom
- avoiding releasing of dangerous substance or minimizing releases, for example keeping them in special closed containers
- controlling releases at source
- preventing the formation of explosive atmospheres, including the provision of sufficient ventilation
- ensuring that any releases are suitably collected, contained and removed; suitable LEV in a paint spray booth is an example
- avoiding ignition sources and adverse conditions, for example keeping electrical equipment outside the area
- segregating incompatible dangerous substances, for example oxidizing substances and other flammable substances.

Steps must also be taken to mitigate the detrimental effects of a fire or explosion by:

- keeping the number of people exposed to a minimum
- avoidance of fire and explosion propagation
- provision of explosion relief systems
- provision of explosion suppression equipment

- provision of very strong plant which can withstand an explosion
- the provision of suitable PPE.

21.14.6 *Classification of workplaces – schedule 2*

Where an explosive atmosphere may occur workplaces must be classified into hazardous and non-hazardous places. The following zones are specified by schedule 2 of the Regulations (Table 21.7).

Table 21.7 Classification Zones

Zone 0	A place in which an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapour or mist is present continuously or for long periods.
Zone 1	A place in which an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapour or mist is likely to occur in normal operation occasionally.
Zone 2	A place in which an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapour or mist is not likely to occur in normal operation but, if it does, will persist for a short period only.
Zone 20	A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is present continuously, or for long periods.
Zone 21	A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is likely to occur in normal operation occasionally.
Zone 22	A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is not likely to occur in normal operation but, if it does occur, will persist for a short period only.

21.14.7 *Accidents, incidents and emergencies – regulation 8*

In addition to any normal fire prevention requirements employers must under these Regulations:

- ensure that procedures and first aid are in place with tested relevant safety drills
- provide information on emergency arrangements including work hazards and those that are likely to arise at the time of an accident
- provide suitable warning and other communications systems to enable an appropriate response, remedial actions and rescue operations to be made
- where necessary, before any explosion condition is reached provide visual or audible warnings and withdraw employees
- provide escape facilities where the risk assessment indicates it is necessary.

In the event of an accident immediate steps must be taken to:

- mitigate the effects of the event
- restore the situation to normal and
- inform employees who may be affected.

Only essential persons may be permitted in the affected area. They must be provided with PPE, protective clothing and any necessary specialized safety equipment and plant.

21.14.8 *Information instruction and training – regulation 9*

Under regulation 9, where a dangerous substance is present an employer must provide:

- suitable and sufficient information, instruction and training on the appropriate precautions and actions
- plus details of the substances any relevant data sheets and legal provisions
- plus the significant findings of the risk assessment.

21.14.9 *Contents of containers and pipes – regulation 10*

Regulation 10 requires that for containers and pipes (except where they are marked under legislation contained in schedule 5 to the Regulations) the content and the nature of those contents and any associated hazards be clearly identified.

21.14.10 *References*

Control and Mitigation Measures. L136, Dangerous Substances and Explosive Atmospheres Regulations 2002, Approved Code of Practice and guidance, 2003, HSE Books,ISBN 0-7176-2201-0.

Dangerous Substances and Explosive Atmosphere Regulations 2002. SI 2002 No. 2776, ISBN 9780-11-042957-5.

Dangerous Substances and Explosive Atmospheres. L138, Dangerous Substances and Explosive Atmospheres Regulations 2002, Approved Code of Practice, 2003, HSE Books, ISBN 9780-7176-2203-7.

Fire and Explosions How Safe is Your Workshop. A Short Guide to DSEAR, HSE INDG370, 2002 HSE Books, ISBN 9780-7176-2589-3.

Safe Handling of Combustible Dusts; Precautions against Explosion. HSG 103, HSE Books 2003, ISBN 9780-7176-2726-8.

Safe Maintenance, Repair and Cleaning Procedures. L137, Dangerous Substances and Explosive Atmospheres Regulations 2002, Approved Code of Practice and guidance, 2003, HSE Books, ISBN 9780-7176-2202-9.

Safe Use and Handling of Flammable Liquids. HSG 140, HSE Books, ISBN 9780-7176-0967-7.

Storage of Dangerous Substances. L135, Dangerous Substances and Explosive Atmospheres Regulations 2002, Approved Code of Practice and guidance, 2003 HSE Books, ISBN 9789780-7176-2200-2.

21.15 Health and Safety (Display Screen Equipment) Regulations 1992

21.15.1 *General*

These Regulations cover the minimum health and safety requirements for the use of display screen equipment (DSE) and are accompanied by a guidance note. They typically apply to computer equipment with either a cathode ray tube or liquid crystal monitors. But any type of display is covered with some exceptions, for example, on board a means of transport, or where the main purpose is for screening a film or use for a television. Multimedia equipment would generally be covered.

Equipment not specifically covered by these Regulations or where it is not being used by a defined 'user' is, nevertheless, covered by other requirements under the Management of Health and Safety at Work Regulations and the Provision and Use of Work Equipment Regulations (PUWER).

21.15.2 *Definitions – regulation 1*

(a) *Display screen equipment* (DSE) refers to any alphanumeric or graphic display screen, regardless of the display process involved

(b) A *user* is an employee and an *operator* is a self-employed person, both of whom habitually use DSE as a significant part of their normal work. Both would be someone to whom most or all of the following apply, i.e. a person:
- who depends on the DSE to do their job
- who has no discretion as to use or non-use
- who needs particular training and/or skills in the use of DSE to do their job
- who uses DSE for continuous spells of an hour or more at a time
- who does so on a more or less daily basis
- for whom fast transfer of data is important for the job
- of whom a high level of attention and concentration is required, in particular to prevent critical errors.

(c) A *workstation* is an assembly comprising:
- DSE with or without a keyboard, software or input device
- optional accessories
- disk drive, telephone, modem, printer, document holder, chair, desk, work surface, etc.
- the immediate working environment.

21.15.3 *Exemptions – regulation 1 (4)*

Exemptions include DSE used in connection with:

- drivers' cabs or control cabs for vehicles or machinery
- being on board a means of transport
- being mainly intended for public operation
- portable systems not in prolonged use
- calculators, cash registers and small displays related to the direct use of this type of equipment
- window typewriters.

21.15.4 *Assessment of risk – regulation 2*

Possible hazards associated with DSE are physical (musculoskeletal) problems, visual fatigue and mental stress. They are not unique to display screen work for an inevitable consequence of it, and indeed research shows that the risk to the individual from typical display screen work is low. However, as in other types of work, ill-health can result from poor work organization, working environment, job design and posture, and from inappropriate working methods.

Employers must carry out a suitable and sufficient analysis of users' and operators' workstations in order to assess the risks to health and safety. The guidance gives detailed information on workstation minimum standards and possible effects on health.

The assessment should be reviewed when major changes are made to software, hardware, furniture, environment or work requirements.

21.15.5 *Workstations – regulation 3*

All workstations must meet the requirements laid down in the schedule to the Regulations. This schedule lays

down minimum requirements for display screen workstations, covering the equipment, the working environment, and the interface between computer and user/operator.

21.15.6 *Daily work routine of users – regulation 4*

The activities of users should be organized so that their daily work on DSE is periodically interrupted by breaks or changes of activity that reduce their workload at the equipment.

In most tasks, natural breaks or pauses occur from time to time during the day. If such breaks do not occur, deliberate breaks or pauses must be introduced. The guidance requires that breaks should be taken before the onset of fatigue and must be included in the working time. Short breaks are better than occasional long ones; for example, a 5–10 minute break after 50–60 minutes continuous screen and/or keyboard work is likely to be better than a 15-minute break every 2 hours. If possible, breaks should be taken **away** from the screen. Informal breaks, with time on other tasks, appear to be more effective in relieving visual fatigue than do formal rest breaks.

21.15.7 *Eyes and eyesight – regulation 5*

Initially on request, employees have the right to a free eye and eyesight test conducted by a competent person where they:

- are already users or
- before becoming a user.

The employer must provide a further eye and eyesight test at regular intervals thereafter or when a user is experiencing visual difficulties which could be caused by working with DSE.

There is no reliable evidence that work with DSE causes any permanent damage to eyes or eyesight, but it may make users with pre-existing vision defects more aware of them.

An *eye and eyesight test* means a *sight test* as defined in the Opticians Act 1989. This should be carried out by a registered ophthalmic optician or medical practitioner (normally only those with an ophthalmic qualification do so).

Employers shall provide special corrective appliances to users where:

- normal corrective appliances cannot be used
- the result of the eye and eyesight test shows that such provision is necessary.

The guidance indicates that the liability of the employer extends only to the provision of corrective appliances, which are of a style and quality adequate for their function. If an employee chooses a more expensive design or multi-function correction appliance, the employer needs to pay only a proportion of the cost.

Employers are free to specify that users' eye and eyesight tests and correction appliances are provided by a nominated company or optician.

The confidential clinical information from the tests can only be supplied to the employer with the employee's consent.

Vision screen tests can be used to identify people with defects but they are not a substitute for the full eyesight test and employees have the right to opt for the full test from the outset.

21.15.8 *Training – regulation 6*

Employers shall ensure that adequate health and safety training is provided to users and potential users in the use of any workstation and refresh the training following any reorganization. The guidance suggests a range of topics to be covered in the training. In summary these involve:

- the recognition of hazards and risks, including the absence of desirable features and the presence of undesirable ones
- causes of risk and how harm may occur
- what the user can do to correct them
- how problems can be communicated to management
- information on the regulations
- the user's contribution to assessments.

21.15.9 *Information – regulation 7*

Operators and users shall be provided with adequate information on all aspects of health and safety relating to their workstation and what steps the employer has taken to comply with the Regulations (insofar as the action taken relates to that operator or user and their work). Under regulation 7 specific information should be provided as outlined in Table 21.8.

21.15.10 *References*

The Law on VDUs: An Easy Guide to the Regulations. HS (G) 90, 2003 HSE Books, ISBN 9780-7176-2602-4.

VDU Workstation Checklist, 2003 HSE Books, ISBN 9780-7176-2617-2.

Work with Display Screen Equipment, Guidance on Regulations, Health and Safety (Display Screen Equipment) Regulations 1992 as amended in 2002. L26, HSE Books, ISBN 9780-7176-2582-6.

Working with VDU's INDG36 (rev3). 2006 HSE Books, ISBN 9780-7176-6222-5.

Table 21.8 Provision of information under regulation 7

		Information on:					
		Risks from DSE and workstation	**Risk assessment and measures to reduce the risks (Regulations 2 and 3)**	**Breaks and activity changes (Regulation 4)**	**Eye and eyesight tests (Regulation 5)**	**Initial training (Regulation 6(1))**	**Training when workstation modified (Regulation 6(2))**
Does employer have to provide information to display screen workers who are:	users employed by the undertaking	Yes	Yes	Yes	Yes	Yes	Yes
	users employed by other employer	Yes	Yes	Yes	No	No	Yes
	operators in the undertaking	Yes	Yes	No	No	No	No

Source: HSE.

21.16 Electricity at Work Regulations 1989

The purpose of these Regulations is to require precautions to be taken against the risk of death or personal injury from electricity in work activities. The Regulations impose duties on persons ('duty holders') in respect of systems, electrical equipment and conductors and in respect of work activities on or near electrical equipment. They apply to almost all places of work and electrical systems at all voltages.

Guidance on the Regulations is contained in the *Memorandum of guidance on the Electricity at Work Regulations 1989*, published by the HSE.

21.16.1 *Definitions*

(a) **Electrical equipment** – includes anything used to generate, provide, transmit, rectify, convert, conduct, distribute, control, store, measure or use electrical energy.

(b) **Conductor** – means a conductor of electrical energy. It means any material (solid, liquid or gas), capable of conducting electricity.

(c) **System** – means an electrical system in which all the electrical equipment is, or may be, electrically connected to a common source of electrical energy, and includes the source and equipment. It also includes portable generators and systems on vehicles.

(d) **Circuit conductor** – term used in regulations 8 and 9 only, meaning a conductor in a system which is intended to carry electric current in normal conditions. It would include a combined neutral and earth conductor, but does not include a conductor provided solely to perform a protective connection to earth or other reference point and energized only during abnormal conditions.

(e) **Danger** – in the context of these Regulations, means a risk of injury from any electrical hazard.

Every year about 30 people die from electric shock or electric burns at work. Each year several hundred serious burns are caused by arcing when the heat generated can be very intense. In addition, intense ultraviolet radiation from an electric arc can cause damage to the eyes – known as arc-eye. These hazards are all included in the definition of **Danger**.

21.16.2 *Duties – regulation 3*

Duties are imposed on employers, self-employed and employees. The particular duties on employees are intended to emphasize the level of responsibility which many employees in the electrical trades and professions are expected to take on as part of their job. They are:

- to co-operate with their employer so far as is necessary to enable any duty placed on the employer to be complied with (this reiterates section 7(b) of the HSW Act)
- to comply with the provisions of these Regulations in so far as they relate to matters which are within their control. (This is equivalent to duties placed on employers and self-employed where these matters are within their control.)

21.16.3 *Systems, work activities and protective equipment – regulation*

Systems must, at all times, be of such construction as to prevent danger. Construction covers the physical condition, arrangement of components and design of the system and equipment.

All systems must be maintained so as to prevent danger.

Every work activity, including operation, use and maintenance or work near a system shall be carried out in a way which prevents danger.

Protective equipment shall be suitable, suitably maintained and used properly.

21.16.4 *Strength and capability of equipment – regulation 5*

No electrical equipment may be put into use where its strength and capability may be exceeded in such a way as may give rise to danger, in normal transient or fault conditions.

21.16.5 *Adverse or hazardous environments – regulation 6*

Electrical equipment which may be exposed to:

- mechanical damage
- the effects of weather, natural hazards, temperature or pressure
- the effects of wet, dirty, dusty or corrosive conditions
- any flammable or explosive substances including dusts, vapours or gases

shall be so constructed and protected that it prevents danger.

21.16.6 *Insulation, protection and placing of conductors – regulation 7*

All conductors in a system which may give rise to danger shall either be suitably covered with insulating material and further protected as necessary, for example, against mechanical damage, using trunking or sheathing; or have precautions taken that will prevent danger, for example, being suitably placed like overhead electric power cables, or by having strictly controlled working practices.

21.16.7 *Earthing, integrity and other suitable precautions – regulation 9*

Precautions shall be taken, either by earthing or by other suitable means, for example, double insulation, use of safe voltages and earth-free non-conducting environments, where a conductor, other than a circuit conductor, could become charged as a result of either the use of, or a fault in, a system.

An earth conductor shall be of sufficient strength and capability to discharge electrical energy to earth. The conductive part of equipment, which is not normally live but energized in a fault condition, could become a conductor.

If a circuit conductor is connected to earth or to any other reference point nothing which could break electrical continuity or introduce high impedance, for example, fuse, thyristor or transistor, is allowed in the conductor unless suitable precautions are taken. Permitted devices would include a joint or bolted link, but not a removable link or manually operated knife switch without bonding of all exposed metal work and multiple earthing.

21.16.8 *Connections – regulation 10*

Every joint and connection in a system shall be mechanically and electrically suitable for its use. This includes terminals, plugs and sockets.

21.16.9 *Excess current protection – regulation 11*

Every part of a system shall be protected from excess current, for example, short circuit or overload, by a suitably located efficient means such as a fuse or circuit breaker.

21.16.10 *Cutting off supply and isolation – regulation 12*

There should be suitably located and identified means of cutting off (switch) the supply of electricity to any electrical equipment and also isolating any electrical

equipment. Although these are separate requirements, they could be effected by a single means. The isolator should be capable of being locked off to allow maintenance to be done safely.

Sources of electrical energy (accumulators, capacitors and generators) are exempt from this requirement, but precautions must be taken to prevent danger.

21.16.11 *Work on equipment made dead – regulation 13*

Adequate precautions shall be taken to prevent electrical equipment that has been made dead from becoming live while work is carried out on or near the equipment. This will include means of locking off isolators, tagging equipment, permits to work and removing fuses.

21.16.12 *Work on or near live conductors – regulation 14*

No person shall work near a live conductor, except if it is insulated, unless:

- it is unreasonable in all the circumstances for it to be dead
- it is reasonable in all the circumstances for them to be at work on or near it while it is live
- suitable precautions (including where necessary the provision of suitable protective equipment) are taken to prevent injury.

21.16.13 *Working space access and lighting – regulation 15*

Adequate working space, means of access and lighting shall be provided for all electrical equipment at which or near which work is being done in circumstances which may give rise to danger. This covers work of any kind. However, when the work is on live conductors the access space must be sufficient for a person to fall back out of danger and, if needed, for persons to pass one another with ease and without hazard.

21.16.14 *Competence – regulation 16*

Where technical knowledge or experience is necessary to prevent danger, all persons must possess such knowledge or experience or be under appropriate supervision.

21.16.15 *References*

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21.17 Employers' Liability (Compulsory Insurance) Act 1969 and Regulations 1998 amended in 2004

21.17.1 *Introduction*

Employers are responsible for the health and safety of employees while they are at work. Employees may be injured at work, or they or former employees may become ill as a result of their work while employed. They may try to claim compensation from the employer if they believe them to be responsible. The Employers' Liability Compulsory Insurance Act 1969 ensures that an employer has at least a minimum level of insurance cover against any such claims.

Employers' liability insurance will enable employers to meet the cost of compensation for employees' injuries or illnesses whether they are caused on or off site. However, any injuries or illnesses relating to motor accidents that occur while employees are working for them, may be covered separately by motor insurance.

Public liability insurance is different. It covers for claims made against a person/company by members of the public or other businesses, but not for claims made

by employees. While public liability insurance is generally voluntary, employers' liability insurance is compulsory. Employers can be fined if they do not hold a current employers' liability insurance policy which complies with the law.

21.17.2 *Application*

An employer needs employers' liability insurance unless they are exempt from the Employers' Liability Compulsory Insurance Act. The following employers are exempt:

- most public organizations including government departments and agencies, local authorities, police authorities and nationalized industries
- health service bodies, including National Health Service trusts, health authorities, Family Health Services Authorities and Scottish Health Boards and State Hospital Management Committees
- some other organizations which are financed through public funds, such as passenger transport executives and magistrates' courts committees
- family businesses, that is if employees are closely related to the employer (as husband, wife, father, mother, grandfather, grandmother, stepfather, stepmother, son, daughter, grandson, granddaughter, stepson, stepdaughter, brother, sister, half-brother or half-sister). However, this exemption does not apply to family businesses that are incorporated as limited companies except any employer which is a company that has only one employee who owns 50% or more of the share capital.

A full list of employers who are exempt from the need to have employers' liability insurance is shown at schedule 2 of the Employers' Liability (Compulsory Insurance) Regulations 1998.

21.17.3 *Coverage*

Employers are only required by law to have employers' liability insurance for people whom they employ. However, people who are normally thought of as self-employed may be considered to be employees for the purposes of employers' liability insurance.

Whether or not an employer needs employers' liability insurance for someone who works for them depends on the terms of the contract. This contract can be spoken, written or implied. It does not matter whether someone is usually called an employee or self-employed or what their tax status is. Whether the contract is called a contract of employment or a contract for services is largely irrelevant. What matters is the real nature of the employer/employee relationship and the degree of control the employer has over the work they do.

There are no hard and fast rules about who counts as employee for the purposes of Employers' liability insurance. The following paragraphs may help to give some indication.

In general, employers' liability insurance may be needed for a worker if:

- national insurance and income tax is deducted from the money paid to them
- the employer has the right to control where and when they work and how they do it
- most materials and equipment are supplied by the employer
- the employer has a right to any profit workers make even though the employer may choose to share this with them through commission, performance pay or shares in the company. Similarly, the employer will be responsible for any losses
- that person is required to deliver the service personally and they cannot employ a substitute if they are unable to do the work
- they are treated in the same way as other employees, for example, if they do the same work under the same conditions as some other employee.

In most cases employers' liability insurance is needed for volunteers. Although in general, the law may not require an employer to have insurance for:

- students who work unpaid
- people who are not employed but are taking part in youth or adult training programmes
- schoolchildren on work experience programmes.

However, in certain cases, these groups might be classed as employees. In practice, many insurance companies will provide cover for people in these situations.

One difficult area is domestic help. In general, an employer will probably not need employers' liability insurance for people such as cleaners or gardeners if they work for more than one person. However, if they only work for one employer, that employer may be required to take out insurance to protect them.

21.17.4 *Display of certificate*

Under the Regulations, employers must display in a suitable convenient location, a current copy of the certificate of insurance at each place of business where they employ relevant people.

21.17.5 *Retention of certificates*

An employer must retain for at least 40 years copies of certificates of insurance which have expired. This is

because claims for diseases can be made many years after the disease is caused. Copies can be kept electronically if this is more convenient than paper. An employer must make these available to health and safety inspectors on request.

These requirements do not apply to policies which expired before 1 January 1999. However, it is still very important to keep full records of previous insurance policies for the employer's own protection.

21.17.6 *Penalties*

The HSE enforces the law on employers' liability insurance and HSE inspectors will check that employers have employers' liability insurance with an approved insurer for at least £5 million. They will ask to see the certificate of insurance and other insurance details.

Employers can be fined up to £2,500 for any day they are without suitable insurance. If they do not display the certificate of insurance or refuse to make it available to HSE inspectors when they ask, employers can be fined up to £1,000.

21.18 Fire Precautions Regulatory Reform (Fire Safety) Order 2005

21.18.1 *Introduction*

This order, made under the Regulatory Reform Act 2001, reforms the law relating to fire safety in non-domestic premises. It replaces fire certification under the Fire Precautions Act 1971 (which it repeals) with a general duty to ensure, SFARP, the safety of employees, a general duty, in relation to non-employees to take such fire precautions as may reasonably be required in the circumstances to ensure that premises are safe and a duty to carry out a risk assessment.

The Fire Certificate (Special premises) Regulations 1976, The Fire Precautions (Workplace) Regulations 1997 and amendment Regulations 1999 are all revoked.

The Fire Safety Order is the responsibility of the Department for Communities and Local Government. It is enforced by the fire and rescue authorities with some exceptions, which include:

- the HSE for:
  - nuclear Installations
  - ships in construction or repair and
  - construction sites other than a construction site which is contained within, or forms part of, premises which are occupied by persons other than those carrying out the construction work or any activity arising from such work
- in Crown occupied and Crown owned buildings enforcement is carried out by the Fire Services Inspectorates appointed under the Fire Services Act 1947
- Local Authorities for Certificated Sports Grounds.

The order came into force on 1 October 2006 with a number of guides covering a wide range of premises. They are available on http://www.communities.gov.uk/fire/firesafety/firesafetylaw/.

Scotland

In Scotland the Fire Safety legislation is enacted through the Fire (Scotland) Act 2005, which in brief, covers the following.

The Fire (Scotland) Act 2005 received Royal Assent on 1 April 2005. Parts 1, 2, 4 and 5 of the Act commenced in August 2005. Part 3 introduces a new fire safety regime for non-domestic premises and came into force on 1 October 2006 and will replace the Fire Precautions Act 1971 and the Fire Precautions (Workplace) Regulations 1997, as amended. Fire certificates will no longer be required after 1 October 2006 and the new fire safety regime will be based on the principle of risk assessment (similar to the Fire Precautions (Workplace) Regulations).

Fire safety Regulations in Scotland have been prepared which contain detailed provisions in respect of fire safety risk assessments and fire safety measures. These Regulations came into force on 1 October 2006.

Ten guidance documents to complement the new legislation and help those with fire safety responsibilities to understand their duties is available under the Scottish law. A guidance booklet which is applicable to all premises, regardless of the size and activities undertaken on the premises, is available, free of charge, from Blackwell's Bookshop, 53 South Bridge, Edinburgh, EHI IYS. Local fire and rescue authorities also have a supply of the booklets and may be able to assist with any requests for additional copies (check the phonebook for contact details).

The guidance booklet is available for downloading from a new website dedicated to the new fire safety regime, which can be accessed at http://www.infoscotland.com/firelaw. The website includes a facility for signing up to receive email updates on progress with the new legislation and the availability of guidance documents.

If there are any queries about the new fire safety legislation, publicity campaign or guidance documents, contact the Justice Department Fire Branch on 0131 244 5338 or 0131 244 2784. Alternatively send an email to FireScotlandAct@scotland.gsi.gov.uk.

21.18.2 *Process fire risks*

HSE is mainly concerned with process fire precautions. These are the special fire precautions requireda in any

workplace in connection with the work process that is being carried out there (including the storage of articles, substances and materials relating to that work process). They are to prevent or reduce the likelihood of a fire breaking out and if a fire does occur, to reduce its spread and intensity. Some examples of process fire precautions are:

- storage of flammable liquids in process areas, workrooms, laboratories and similar working areas
- ventilation systems to dilute or remove flammable gas or vapour
- selecting equipment that will not be a source of ignition
- extraction systems to remove combustible materials such as wood dust.

Process fire precautions are enforced by HSE or the local authority, under the Health and Safety at Work etc Act 1974 (HSW Act); the Management of Health and Safety at Work Regulations 1999 (MHSWR); and more specific health and safety legislation such as the DSEAR.

Part 1 General

21.18.3 *Interpretation – articles 1–7*

Here are a few of the more important definitions from the articles. For a full list consult the Order directly.

(a) 'Premises' includes any place and, in particular, includes:
- any workplace
- any vehicle, vessel, aircraft or hovercraft
- any installation on land (including the foreshore and other land intermittently covered by water), and any other installation (whether floating, or resting on the seabed or the subsoil thereof, or resting on other land covered with water or the subsoil thereof) and
- any tent or movable structure

(b) 'risk' means the risks to the safety of persons from fire

(c) 'safety' means the safety of persons in the event of fire

(d) 'workplace' means any premises or parts of premises, not being domestic premises, used for the purposes of an employer's undertaking and which are made available to an employee of the employer as a place of work and includes:
- any place within the premises to which such employee has access while at work and
- any room, lobby, corridor, staircase, road, or other place:
  - used as a means of access to or egress from that place of work or
  - where facilities are provided for use in connection with that place of work, other than a public road.

(e) 'responsible person' means
- in relation to a workplace, the employer, if the workplace is to any extent under their control
- in relation to any premise not falling within paragraph (a):
  - the person who has control of the premises (as occupier or otherwise) in connection with the carrying on by them of a trade, business or other undertaking (for profit or not) or
  - the owner, where the person in control of the premises does not have control in connection with the carrying on by that person of a trade, business or other undertaking.

(f) 'general fire precautions' in relation to premises means
- measures to reduce the risk of fire and the risk of the spread of fire
- the means of escape from the premises
- measures for securing that, at all material times, the means of escape can be safely and effectively used
- measures in relation to fighting fires
- means for detecting fires and giving warning in case of fire
- action to be taken in the event of fire, including:
  - instruction and training of employees
  - measures to mitigate the effects of the fire.

These issues do not cover process-related fire risks including:

- the use of plant or machinery or
- the use or storage of any dangerous substance.

Duties are placed on responsible persons in a workplace and in premises which are not workplaces to the extent that they have control over the premises.

The order does not apply (article 8) to:

- domestic premises
- an offshore installation
- a ship, in respect of the normal ship-board activities of a ship's crew which are carried out solely by the crew under the direction of the master
- fields, woods or other land forming part of an agricultural or forestry undertaking but which is not inside a building and is situated away from the undertaking's main buildings
- an aircraft, locomotive or rolling stock, trailer or semi-trailer used as a means of transport or a vehicle

- a mine other than any building on the surface at a mine
- a borehole site.

In addition certain provisions of the Order do not apply to groups of workers such as:

- occasional work which is not harmful to young people in a family undertaking
- armed forces
- members of police forces
- emergency services.

Part 2 Fire safety duties

21.18.4 *Duty to take general fire precautions – article 8*

The responsible person must:

(a) take such general fire precautions as will ensure, SFARP, the safety of any of his employees and
(b) in relation to relevant persons who are not his employees, take such general fire precautions as may reasonably be required in the circumstances of the case to ensure that the premises are safe.

21.18.5 *Risk assessment and fire safety arrangements – articles 9 and 11*

The responsible person must make a suitable and sufficient assessment of the risks to identify the general fire precautions he needs to take.

Where a dangerous substance is or is liable to be present in or on the premises, the risk assessment must include consideration of the matters set out in Part 1 of schedule 1 reproduced in Table 21.9.

Risk assessments must be reviewed by the responsible person regularly and if they are no longer valid or there has been significant changes. The responsible person must not employ a young person unless risks to young persons have been considered in an assessment covering the following, which is Part 2 of schedule 1.

Matters to be taken into particular account in risk assessment in respect of young persons

The matters are:

(a) the inexperience, lack of awareness of risks and immaturity of young persons
(b) the fitting-out and layout of the premises
(c) the nature, degree and duration of exposure to physical and chemical agents
(d) the form, range, and use of work equipment and the way in which it is handled
(e) the organization of processes and activities

Table 21.9 Matters to be considered in risk assessment in respect of dangerous substances

The matters are:
(a) the hazardous properties of the substance
(b) information on safety provided by the including supplier, information contained in any relevant safety data sheet
(c) the circumstances of the work including
(i) the special, technical and organizational measures and the substances used and their possible interactions
(ii) the amount of the substance involved
(iii) where the work will involve more than one dangerous substance, the risk presented by such substances in combination and
(iv) the arrangements for the safe handling, storage and transport of dangerous substances and of waste containing dangerous substances
(d) activities, such as maintenance, where there is the potential for a high level of risk
(e) the effect of measures which have been or will be taken pursuant to this Order
(f) the likelihood that an explosive atmosphere will occur and its persistence
(g) the likelihood that ignition sources, including electrostatic discharges, will be present and become active and effective
(h) the scale of the anticipated effects
(i) any places which are, or can be connected via openings to, places in which explosive atmospheres may occur and
(j) such additional safety information as the responsible person may need in order to complete the assessment.

(f) the extent of the safety training provided or to be provided to young persons and
(g) risks from agents, processes and work listed in the Annex to Council Directive 94/33/EC (**a**) on the protection of young people at work.

As soon as practicable after the assessment is made or reviewed, the responsible person must record the information prescribed where:

(a) he employs five or more employees
(b) a licence under an enactment is in force in relation to the premises or
(c) an **Alterations Notice** requiring this is in force in relation to the premises.

The prescribed information is:

(a) the significant findings of the assessment, including the measures which have been or will be taken by the responsible person and
(b) any group of persons identified by the assessment as being especially at risk.

The responsible person must make and record (as per risk assessments) arrangements as are appropriate, for the effective planning, organization, control, monitoring and review of the preventive and protective measures.

21.18.6 *Principles of prevention to be applied and fire safety arrangements – article 10*

Preventive and protective measures must be implemented on the basis of the principles specified in Part 3 of schedule 1 as follows, which are broadly the same as those in the Management Regulations:

Principles of prevention
The principles are:

(a) avoiding risks
(b) evaluating the risks which cannot be avoided
(c) combating the risks at source
(d) adapting to technical progress
(e) replacing the dangerous by the non-dangerous or less dangerous
(f) developing a coherent overall prevention policy which covers technology, organization of work and the influence of factors relating to the working environment
(g) giving collective protective measures priority over individual protective measures and
(h) giving appropriate instructions to employees.

Fire Safety arrangements must be made and put into effect by the responsible person where more than four are employed, there is a licence for the premises or an Alterations Notice requires them to be recorded. The arrangements must cover effective planning, organization, control, monitoring and review of the preventative and protective measures.

21.18.7 *Elimination or reduction of risks from dangerous substances – article 12*

Where a dangerous substance is present in or on the premises, the responsible person must ensure that risk of the substance is either eliminated or reduced SFARP, by firstly replacing the dangerous substance with a safer alternative.

Where it is not reasonably practicable to eliminate risk the responsible person must, SFARP, apply measures including the measures specified in Part 4 of schedule 1 to the Order (see Table 21.10).

The responsible person must:

(a) arrange for the safe handling, storage and transport of dangerous substances and waste containing dangerous substances and
(b) ensure that any conditions necessary for ensuring the elimination or reduction of risk are maintained.

21.18.8 *Firefighting and fire detection – article 13*

The premises must be equipped with appropriate firefighting equipment and with fire detectors and alarms; any non-automatic firefighting equipment provided must be easily accessible, simple to use and indicated by signs.

Appropriate measures must be taken for firefighting in the premises; nominate and train competent persons to implement the measures; arrange any necessary contacts with external emergency services.

A person is to be regarded as competent where they have sufficient training and experience or knowledge and other qualities to enable them to properly implement the measures referred to.

21.18.9 *Emergency routes and exits – article 14*

Where necessary, routes to emergency exits from premises and the exits themselves must be kept clear at all times.s

The following requirements must be complied with:

(a) Emergency routes and exits must lead as directly as possible to a place of safety.
(b) In the event of danger, it must be possible for persons to evacuate the premises as quickly and as safely as possible.
(c) The number, distribution and dimensions of emergency routes and exits must be adequate having regard to the use, equipment and dimensions of the premises and the maximum number of persons who may be present there at any one time.
(d) Emergency doors must open in the direction of escape.
(e) Sliding or revolving doors must not be used for exits specifically intended as emergency exits.
(f) Emergency doors must not be so locked or fastened that they cannot be easily and immediately opened by any person who may require to use them in an emergency.
(g) Emergency routes and exits must be indicated by signs and.
(h) Emergency routes and exits requiring illumination must be provided with emergency lighting of adequate intensity in the case of failure of their normal lighting.

Table 21.10 Measures to be taken in respect of dangerous substances

1. In applying measures to control risks the responsible person must, in order of priority:
(a) reduce the quantity of dangerous substances to a minimum
(b) avoid or minimize the release of a dangerous substance
(c) control the release of a dangerous substance at source
(d) prevent the formation of an explosive atmosphere, including the application of appropriate ventilation
(e) ensure that any release of a dangerous substance which may give rise to risk is suitably collected, safely contained, removed to a safe place, or otherwise rendered safe, as appropriate
(f) avoid:
(i) ignition sources including electrostatic discharges and
(ii) such other adverse conditions as could result in harmful physical effects from a dangerous substance.
(g) segregate incompatible dangerous substances.
2. The responsible person must ensure that mitigation measures applied in accordance with article 12 (3) (b) include:
(a) reducing to a minimum the number of persons exposed
(b) measures to avoid the propagation of fires or explosions
(c) providing explosion pressure relief arrangements
(d) providing explosion suppression equipment
(e) providing plant which is constructed so as to withstand the pressure likely to be produced by an explosion and
(f) providing suitable personal protective equipment.
3. The responsible person must:
(a) ensure that the premises are designed, constructed and maintained so as to reduce risk
(b) ensure that suitable special, technical and organizational measures are designed, constructed, assembled, installed, provided and used so as to reduce risk
(c) ensure that special, technical and organizational measures are maintained in an efficient state, in efficient working order and in good repair
(d) ensure that equipment and protective systems meet the following requirements:
(i) Where power failure can give rise to the spread of additional risk, equipment and protective systems must be able to be maintained in a safe state of operation independently of the rest of the plant in the event of power failure.
(ii) Means for manual override must be possible, operated by employees competent to do so, for shutting down equipment and protective systems incorporated within automatic processes which deviate from the intended operating conditions, provided that the provision or use of such means does not compromise safety.
(iii) On operation of emergency shutdown, accumulated energy must be dissipated as quickly and as safely as possible or isolated so that it no longer constitutes a hazard.
(iv) Necessary measures must be taken to prevent confusion between connecting devices.
(e) where the work is carried out in hazardous places or involves hazardous activities, ensure that appropriate systems of work are applied including:
(i) the issuing of written instructions for the carrying out of work and
(ii) a system of permits to work, such permits being issued by a person with responsibility for this function prior to the commencement of the work concerned.

21.18.10 *Procedures for serious and imminent danger and for danger areas – article 15*

The responsible person must:

(a) establish appropriate procedures, including safety drills
(b) nominate a sufficient number of competent persons to implement evacuation procedures
(c) provide adequate safety instruction for restricted areas.

Persons who are exposed to serious and imminent danger must be informed of the nature of the hazard and of the steps taken or to be taken to protect them from it; they must be able to stop work and immediately proceed to a place of safety in the event of their being exposed to serious, imminent and unavoidable danger; and procedures must require the persons concerned to be prevented from resuming work in any situation where there is still a serious and imminent danger.

21.18.11 *Additional emergency measures in respect of dangerous substances – article 16*

In order to safeguard persons from an accident, incident or emergency related to the presence of a dangerous substance the responsible person must (unless the risk assessment shows it is unnecessary) ensure that:

(a) information on emergency arrangements is available, including:
  (i) details of relevant work hazards and hazard identification arrangements and
  (ii) specific hazards likely to arise at the time of an accident, incident or emergency.
(b) suitable warning and other communication systems are established to enable an appropriate response, including remedial actions and rescue operations, to be made immediately when such an event occurs
(c) where necessary, before any explosion conditions are reached, visual or audible warnings are given and relevant persons withdrawn and
(d) where the risk assessment indicates it is necessary, escape facilities are provided and maintained to ensure that, in the event of danger, persons can leave endangered places promptly and safely.

The information required must be:

(a) made available to accident and emergency services and
(b) displayed at the premises, unless the results of the risk assessment make this unnecessary.

In the event of a fire arising from an accident, incident or emergency related to the presence of a dangerous substance in or on the premises, the responsible person must ensure that:

(a) immediate steps are taken to:
  (i) mitigate the effects of the fire
  (ii) restore the situation to normal and
  (iii) inform those persons who may be affected.
(b) only those persons who are essential for the carrying out of repairs and other necessary work are permitted in the affected area and they are provided with:
  (i) appropriate PPE and protective clothing and
  (ii) any necessary specialized safety equipment and plant,

which must be used until the situation is restored to normal.

21.18.12 *Maintenance – article 17*

Any facilities, equipment and devices provided must be subject to a suitable system of maintenance and maintained in an efficient state, in efficient working order and in good repair.

21.18.13 *Safety assistance – article 18*

The responsible person must (except a competent self-employed person) appoint one or more competent persons to assist them in undertaking the preventive and protective measures. If more than one person is appointed, the responsible person and the appointed competent persons must make arrangements for ensuring adequate co-operation between them.

The number of persons appointed, the time available for them to fulfil their functions and the means at their disposal must be adequate having regard to the size of the premises, the risks to which relevant persons are exposed and the distribution of those risks throughout the premises.

21.18.14 *Provision of information to employees and others – articles 19 and 20*

The responsible person must provide the employees with comprehensible and relevant information on:

- the risks to them identified by the risk assessment
- the preventive and protective measures
- the procedures for fire drills
- the identities of persons nominated for firefighting or fire drills
- the risks notified to him regarding shared premises.

Before employing a child, a parent (or guardian) of the child must be provided with comprehensible and relevant information on the risks to that child as identified by

the risk assessment; the preventive and protective measures; and the risks notified to the parent (or guardian) regarding shared premises.

Where a dangerous substance is present in or on the premises, additional information must be provided for employees as follows:

(a) the details of any such substance including:
  (i) the name of the substance and the risk which it presents
  (ii) access to any relevant SDS and
  (iii) legislative provisions which apply to the substance
(b) the significant findings of the risk assessment.

The responsible person must ensure that the employer of any employees from an outside undertaking who are working in or on the premises is provided with comprehensible and relevant information on:

(a) the risks to those employees and
(b) the preventive and protective measures taken by the responsible person.

The responsible person must ensure that any person working in his undertaking who is not his employee is provided with appropriate instructions and comprehensible and relevant information regarding any risks to that person.

21.18.15 *Capabilities and training – article 21*

The responsible person must ensure that his employees are provided with adequate safety training:

(a) at the time when they are first employed and
(b) on their being exposed to new or increased risks because of:
  (i) their being transferred or given a change of responsibilities
  (ii) the introduction of new work equipment into, or a change respecting work equipment already in use
  (iii) the introduction of new technology or
  (iv) the introduction of a new system of work, or a change respecting a system of work already in use.

The training must:

(a) include suitable and sufficient instruction and training on the appropriate precautions and actions to be taken by the employee
(b) be repeated periodically where appropriate
(c) be adapted to take account of any new or changed risks to the safety of the employees concerned
(d) be provided in a manner appropriate to the risk identified by the risk assessment and
(e) take place during working hours.

21.18.16 *Co-operation and co-ordination – article 22*

- Where two or more responsible persons share, or have duties in respect of, premises (whether on a temporary or a permanent basis), each such person must co-operate with, co-ordinate safety measures and inform the other responsible person concerned so far as is necessary to enable them to comply with the requirements and prohibitions imposed on them.
- Where two or more responsible persons share premises (whether on a temporary or a permanent basis) where an explosive atmosphere may occur, the responsible person who has overall responsibility for the premises must co-ordinate the implementation of all the measures required.

21.18.17 *General duties of employees at work – article 23*

Every employee must, while at work:

(a) take reasonable care for the safety of himself and of other relevant persons who may be affected by his acts or omissions at work
(b) as regards any duty or requirement imposed on his employer by or under any provision of this Order, co-operate with him so far as is necessary to enable that duty or requirement to be performed or complied with and
(c) inform his employer or any other employee with specific responsibility for the safety of his fellow employees:
  (i) of any work situation which a person with the first-mentioned employee's training and instruction would reasonably consider represented a serious and immediate danger to safety and
  (ii) of any matter which a person with the first-mentioned employee's training and instruction would reasonably consider represented a shortcoming in the employer's protection arrangements for safety.

Part 3

21.18.18 *Enforcement – articles 25–31*

Part 3 of the order is about enforcement and penalties. An enforcing authority may be the fire and rescue authority

of the area (most cases), the HSE (nuclear sites, ships and construction sites without other operations) and Fire Inspectors maintained by the Secretary of State (armed forces, UK Atomic Energy Authority and Crown premises).

Fire Inspectors or an officer of the fire brigade maintained by the fire and rescue authority, have similar powers (articles 27 and 28) to inspectors under the HSW Act.

There are differences between the HSW Act and the Fire order in the notices which can be issued. Appeals can be made against these notices within 21 days and the notices are suspended until the appeal is heard. However, a Prohibition notice stands until confirmed or altered by the court. Fire Inspectors can issue the following notices.

Alterations Notices – Article 29

These may be issued where the premises concerned constitute a serious risk to relevant people or may constitute a serious risk if any change is made to the premises or their use.

Where an Alterations Notice has been served the responsible person must notify the enforcing authority before making any specified changes, which are as follows:

- a change to the premises
- a change to the services, fittings or equipment in or on the premises
- an increase in the quantities of dangerous substances which are present in or on the premises
- a change in the use of the premises.

In addition, the Alterations Notice may also include the requirement for the responsible person to:

- record the significant findings of the risk assessment as per articles 9 (7) and 9 (6)
- record the fire safety arrangements as per articles 11 (1) and 11 (2)
- before making the above changes to send to the enforcing authority a copy of the risk assessment and a summary of the proposed changes to the general fire precautions.

Enforcement Notices – Article 30

Where the enforcing authority is of the opinion that the responsible person has failed to comply with the requirements of this Order or any regulations made under it they can issue an Enforcement Notice which must:

- state that the enforcing authority is of this opinion
- specify the provisions which have not been complied with; require that person to take steps to remedy the failure within a period (not less than 28 days) from the date of service of the notice.

An Enforcement Notice may include directions on the measures needed to remedy the failures. Choices of remedial action must be left open.

Before issuing an Enforcement Notice the enforcing authority must consult the relevant enforcing authorities including those under HSW Act and the Building Regulations.

Prohibition Notices – Article 31

If the enforcing authority is of the opinion that the risks, relating to escape from the premises, are so serious that the use of the premises ought to be prohibited or restricted, they may issue a Prohibition Notice. The notice must:

- state that the enforcing authority is of this opinion
- specify the provisions which give or may give rise to that risk and
- direct that the use to which the notice relates is prohibited or restricted as may be specified until the specified matters have been remedied.

A Prohibition Notice may include directions on the measures needed to remedy the failures. Choices of remedial action must be left open.

A Prohibition Notice takes effect immediately it is served.

Part 4

21.18.19 *Offences and appeals – articles 32–36*

Cases can be tried in a magistrates' court or on indictment in the Crown Court.

The responsible person can be liable for conviction or indictment to a fine (not limited), or to imprisonment for a term not exceeding 2 years, or both.

Any person can be liable to:

- on conviction or indictment to a fine (not limited) for an offence where that failure places one or more relevant people at risk of death or serious injury in case of fire.
- on summary conviction to a fine at standard level 3 or 5 depending on the particular offence.

In general where an offence committed by a body corporate is proved to have been committed with the consent or connivance of any director, manager, secretary or other similar officer of the body corporate they as well as the body corporate are guilty of that offence (article 32 (9)).

21.18.20 *References*

Construction Site Fire Prevention Checklist. 2007, Fire Protection Association, www.thefpa.co.uk.
Fire Precautions on Construction Sites. 6th edition, Fire Protection Association, http://www.thefpa.co.uk.
Fire Safety, An Employers Guide. HMSO, 1999 HSE Books, ISBN 9780-11-341229-0.
Fire Safety in Construction Work. HSG 168, 1997, 9780-7176-1332-1.
Regulatory Reform, England and Wales. *The Regulatory Reform (Fire Safety) Order 2005*, SI 2005 No. 1541.
There are a Total of Eleven Official Guides Produced by *The Department for Communities and Local Government*, see their website: http://www.communities.gov.uk/fire/firesafety/firesafetylaw/aboutguides/.
The guides covering the following subjects are:

- Educational Premises ISBN 978-1-85112-819-8
- Factories and Warehouses ISBN 978-1-85112-816-7
- Healthcare Premises ISBN 978-1-85112-824-2
- Large Places of Assembly ISBN 978-1-85112-821-1
- Offices and Shops ISBN 978-1-85112-8150
- Open Air Events and Venues ISBN 978-1-85112-823-5
- Residential Care Premises ISBN 978-1-85112-818-1
- Sleeping Accommodation ISBN 978-1-85112-817-4
- Small and Medium Places of Assembly ISBN 13: 978-1-85112-820-4
- Theatres, Cinemas and Similar Places ISBN 978-1-85112-822-8
- Transport Premises and Facilities ISBN 978-1-85112-825-9.

21.19 Health and Safety (First Aid) Regulations 1981 as amended in 2002

21.19.1 *Introduction*

These Regulations set out employers' duties to provide adequate first-aid facilities. They define first aid as:

- treatment for the purposes of preserving life and minimizing the consequences of injury and illness until medical help is obtained
- treatment of minor injuries which would otherwise receive no treatment or which do not need treatment by a medical practitioner or nurse.

21.19.2 *Duty of the employer – regulation 3*

An employer shall provide or ensure that they are provided with:

- adequate and appropriate facilities and equipment
- qualified first aiders to render first aid
- an appointed person, being someone to take charge of situations as well as first-aid equipment and facilities, where medical aid needs to be summoned. An appointed person will suffice where:
  - the nature of the work is such that there are no specific serious hazards (offices, libraries, etc.), the workforce is small, the location makes further provision unnecessary
  - there is temporary (not planned holidays) or exceptional absence of the first aider.

There must always be at least an appointed person in every workplace during working hours.

Employers must make an assessment of the first-aid requirements that are appropriate for each workplace.

Any first-aid room provided under this regulation must be easily accessible to stretchers and to any other equipment needed to convey patients to and from the room. They must be signposted according the safety signs and signals Regulations.

21.19.3 *Employees information – regulation 4*

Employees must be informed of the arrangements for first aid, including the location of facilities, equipment and people.

21.19.4 *Self-employed – regulation 5*

The self-employed shall provide such first-aid equipment as is appropriate to render first aid to themselves.

21.19.5 *References*

Basic Advice on First Aid at Work. INDG347 (revised), 2006, ISBN 9780-7176-6193-8.
First Aid at Work. INDG214, HSE Books 1997, ISBN 9780-7176-1074-8.
First Aid at Work. Health and Safety (First Aid) Regulations 1981. Approved code of practice and guidance, L74, HSE Books 1997, ISBN 9780-7176-1050-0.
HSE First Aid Micro Site for General Information, http://www.hse.gov.uk/firstaid/index.htm.
The Training of First Aid at Work. HSG 212, HSE Books 2000, ISBN 9780-7176-1896-X.

21.20 Health and Safety (Information for Employees) Regulations 1989

21.20.1 *General requirements*

These Regulations require that the Approved Poster entitled *Health and safety – what you should know*, is displayed or the Approved Leaflet is distributed.

This information tells employees in general terms about the requirements of health and safety law.

Employers must also inform employees of the local address of the enforcing authority (either the HSE or the local authority) and the Employment Medical Advisory Service. This should be marked on the poster or supplied with the leaflet.

From 1 July 2000 the latest version of the poster must be displayed or distributed.

References to obsolete legal requirements are removed and the revised text focuses on the modern framework of general duties, supplemented by the basics of health and safety management and risk assessment. It includes two additional boxes: one for details of trade union or other safety representatives and one for competent persons appointed to assist with health and safety and their responsibilities.

21.20.2 *References*

Health and Safety (Information for Employees) Regulations 1989. SI No. 682.

Health and Safety Information for Employees (Modifications and Repeals) Regulations 1995. Poster: ISBN 9780-7176-2493-5, Leaflet: ISBN 9780-7176-1702-5. The leaflet is available in a number of languages.

21.21 Hazardous Waste (England and Wales) Regulations 2005

21.21.1 *Introduction*

The Hazardous Waste (England and Wales) Regulations 2005 were implemented on 16 July 2005. These are made under the Environmental Protection Act 1990. There were many changes to the previous Special Waste Regulations, but the two key ones are that Hazardous waste producers are now required to pre-register before any Hazardous waste can be collected from their premises and the Regulations apply the European Waste Catalogue codes of Hazardous wastes that will affect a much wider range of producers.

21.21.2 *Summary*

The list below is not exhaustive, but summarizes the main requirements. There is also a range of web links that will help to obtain more detail.

- From 16 July 2005, it is an offence for hazardous waste to be collected from a site that has not been registered or is exempt.
- All non-exempt sites that produce hazardous waste must be registered even if they are unlikely to have that waste collected for some time. Recent EA Guidance has clarified that it is an offence to produce hazardous waste on site and not be registered.
- The Regulations implement, through the List of Wastes (England) Regulations 2005, the European Waste Catalogue list of Hazardous wastes for the purposes of collection. This can be found at http://www.hmso.gov.uk and will mean that things like Principal Contractor monitors, Principal Contractor base units, fridges, TVs, oily rags and separately collected fluorescent tubes require collection under the new hazardous waste notification and documentation procedures.
- The EA will accept postal registrations, and registrations can be made on line through the website http://www.environment-agency.gov.uk.
- Each site producing hazardous waste has to have a separate registration although multiple sites can be registered on the same notification. Therefore, a head office could register all its sites centrally, but each site would have a separate unique registration number and require a separate fee.
- Some sites are exempt if they expect to produce less that 200 kg of hazardous waste a year – although they would then have to register if, part way through the year, they went over the threshold. These include agricultural premises, office premises, shops, premises where waste electrical and electronic equipment (WEEE) is collected, dental, veterinary and medical practices and ships. The EA indicate that 200 kg is approximately 10 small TVs, 500 fluorescent tubes or 5 small domestic fridges.
- Domestic waste is excluded from the Hazardous Waste Regulations on collection from the domestic property, but is then subject to the Regulations if it is separately collected or if it consists of asbestos. This includes Prescription Only Medicines (other than cytotoxic and cytostatic medicines) which will be hazardous waste.
- The Regulations require a new consignment note to be used from 16 July 2005 in place of the former section 62. Each consignment will require a fee to be paid to the EA by the consignee with their quarterly returns to the Agency. Clearly, this will be charged back to the collector, but a consignment might well attract more than one consignment fee if, for instance, it goes through a transfer station and the collector would have to ensure that this was considered in the price.
- Collection rounds will be possible but again, each site where the waste is collected would have to be left a copy of the consignment note, so the process of tracking and the paper trail will get quite complex

especially as each collection will count as a consignment from the fee point of view.

- The Regulations ban the mixing of Hazardous waste and state that it must be stored separately on site. However, clarification on the interpretation of this is still awaited from the EA as it would, for instance, preclude the collection of computer systems that included a base unit and screen.
- Registration as a Hazardous Waste producer places a statutory duty on the EA to inspect the site where the hazardous waste arises.

21.21.3 *References*

A Guide to the Hazardous Waste Regulations and the List of Waste Regulations in England and Wales, Environment Agency. HWR01, see: http://www.environment-agency.gov.uk.

21.22 Ionising Radiation Regulations 1999

21.22.1 *Introduction*

The Ionising Radiations Regulations 1999 (IRR99) implement the majority of the Basic Safety Standards Directive 96129/Euratom (BSS Directive). From 1 January 2000, they replaced the Ionising Radiations Regulations 1985 (IRR85) (except for regulation 26 (special hazard assessments)).

The main aim of the Regulations and the supporting ACOP is to establish a framework for ensuring that exposure to ionizing radiation arising from work activities, whether from man-made or natural radiation and from external radiation (e.g. X-ray set) or internal radiation (e.g. inhalation of a radioactive substance), is kept as low as reasonably practicable and does not exceed dose limits specified for individuals. IRR99 also:

(a) replaces the Ionising Radiations (Outside Workers) Regulations 1993 (OWR93), which were made to implement the Outside Workers Directive 90/641/Euratom and
(b) implements a part of the Medical Exposures Directive 97143/Euratom in relation to equipment used in connection with medical exposures.

The guidance which accompanies the Regulations and ACOP gives detailed advice about the scope and duties of the requirements imposed by IRR99. It is aimed at employers with duties under the Regulations but should also be useful to others, such as radiation protection advisers, health and safety officers, radiation protection supervisors and safety representatives.

21.22.2 *Essentially, work with ionizing radiation means*

(a) a practice, which involves the production, processing, handling, use, holding, storage, transport or disposal of artificial radioactive substances and some naturally occurring sources, or the use of electrical equipment emitting ionizing radiation at more than 5 kV (see definition of practice in regulation 2 (1))
(b) work in places where the radon gas concentration exceeds the values in regulation 3 (1) (b) or
(c) work with radioactive substances containing naturally occurring radionuclides not covered by the definition of a practice.

21.22.3 *Radiation employers*

Radiation employers are essentially those employers who work with ionizing radiation, i.e. they carry out:

(a) a practice (see definition in regulation 2 (1)) or
(b) work in places where the radon gas concentration exceeds the values in regulation 3 (1) (b); or
(c) work with radioactive substances containing naturally occurring radionuclides not covered by the definition of a practice.

21.22.4 *Duties of self-employed people*

A self-employed person who works with ionizing radiation will simultaneously have certain duties under these Regulations, both as an employer and as an employee.

For example, self-employed persons may need to take such steps as:

- carrying out assessments under regulation 7
- providing control measures under regulation 8 to restrict exposure
- designating themselves as classified persons under regulation 20
- making suitable arrangements under regulation 21 with one or more approved dosimetry services (ADS) for assessment and recording of doses they receive
- obtaining a radiation passbook and keeping it up to date in accordance with regulation 21
- if they carry out services as an outside worker, making arrangements for their own training as required by regulation 14
- ensuring they use properly any dose meters provided by an ADS as required by regulation.

21.22.5 *General requirements*

Some of the major considerations are:

- notification to HSE of specific work unless specified in schedule 1 to the Regulations (regulation 6)

- carrying out prior risk assessment by a radiation employer before commencing a new activity (regulation 7)
- use of PPE (regulation 9)
- maintenance and examination of engineering controls and PPE (regulation 10)
- dose limitations (regulation 11)
- contingency plans for emergencies (regulation 12)
- radiation protection adviser appointment (regulation 13)
- information instruction and training (regulation 14).

21.22.6 Prior risk assessment

Where a radiation employer is required to undertake a prior risk assessment, the following matters need to be considered, where they are relevant:

- the nature of the sources of ionizing radiation to be used, or likely to be present, including accumulation of radon in the working environment
- estimated radiation dose rates to which anyone can be exposed
- the likelihood of contamination arising and being spread
- the results of any previous personal dosimetry or area monitoring relevant to the proposed work
- advice from the manufacturer or supplier of equipment about its safe use and maintenance
- engineering control measures and design features already in place or planned
- any planned systems of work; estimated levels of airborne and surface contamination likely to be encountered
- the effectiveness and the suitability of PPE to be provided
- the extent of unrestricted access to working areas where dose rates or contamination levels are likely to be significant; possible accident situations, their likelihood and potential severity
- the consequences of possible failures of control measures – such as electrical interlocks, ventilation systems and warning devices – or systems of work; steps to prevent identified accident situations, or limit their consequences.

This prior risk assessment should enable the employer to determine:

- what action is needed to ensure that the radiation exposure of all persons is kept as low as reasonably practicable (regulation 8 (1))
- what steps are necessary to achieve this control of exposure by the use of engineering controls, design features, safety devices and warning devices (regulation 8 (2) (a)) and, in addition, by the development of systems of work (regulation 8 (2) (b))
- whether it is appropriate to provide PPE and if so what type would be adequate and suitable (regulation 8 (2) (c))
- whether it is appropriate to establish any dose constraints for planning or design purposes, and if so what values should be used (regulation 8 (3))
- the need to alter the working conditions of any female employee who declares she is pregnant or is breastfeeding (regulation 8 (5))
- an appropriate investigation level to check that exposures are being restricted as far as reasonably practicable (regulation 8 (7))
- what maintenance and testing schedules are required for the control measures selected (regulation 10)
- what contingency plans are necessary to address reasonably foreseeable accidents (regulation 12)
- the training needs of classified and non-classified employees (regulation 14)
- the need to designate specific areas as controlled or supervised areas and to specify local rules (regulations 16 and 17)
- the actions needed to ensure restriction of access and other specific measures in controlled or supervised areas (regulation 18)
- the need to designate certain employees as classified persons (regulation 20)
- the content of a suitable programme of dose assessment for employees designated as classified persons and for others who enter controlled areas (regulations 18 and 21)
- the responsibilities of managers for ensuring compliance with these Regulations
- an appropriate programme of monitoring or auditing of arrangements to check that the requirements of these Regulations are being met.

21.22.7 *References*

Work with Ionising Radiation, Ionising Radiations Regulations, Approved Code of Practice and Guidance. HSC, L121, 2000 HSE Books, ISBN 9780-7176-1746-7.

This is a large document and need only be studied by those with a specific need to control IR. The HSE have also produced a number of information sheets which are available free on the Internet at their website.

Protection of Outsider Workers against Radiation. IRIS4, 2000 HSE Books, website: http://www.hsebooks.co.uk.

Industrial Radiography Managing radiation risk. IRIS1, 2000 HSE Books, website: htt[://www.hsebooks.co.uk.

Control of Radioactive Substances. IRIS8, HSE Books 2001, HSE Books website: www.hsebooks.co.uk.

HSE Radiation Micro Site: http://www.hse.gov.uk/radiation/index.htm.

21.23 Control of Lead at Work Regulations 2002

21.23.1 *Introduction*

These Regulations came into force in November 2002 and impose requirements for the protection of employees who might be exposed to lead at work and others who might be affected by the work. The Regulations:

- require occupational exposure levels for lead and lead alkyls
- require blood-lead action and suspension levels for women of reproductive capacity and others
- re-impose a prohibition for women of reproductive capacity and young persons in specified activities
- require an employer to carry out a risk assessment
- require employers to restrict areas where exposures are likely to be significant if there is a failure of control measures
- impose requirements for the examination and testing of engineering controls and RPE and the keeping of PPE
- impose new sampling procedures for air monitoring
- impose requirements in relation to medical surveillance
- require information to be given to employees
- require the keeping of records and identification of containers and pipes.

21.23.2 *Interpretations – regulation 2*

In these Regulations 'lead' means lead (including lead alkyls, lead alloys, any compounds of lead and lead as a constituent of any substance or material) which is liable to be inhaled, ingested or otherwise absorbed by persons except where it is given off from the exhaust of a vehicle on a road within the meaning of section 192 of the Road Traffic Act 1988.

'Occupational (workplace) exposure limit for lead' means in relation to:

- lead other than lead alkyls, a concentration of lead in the atmosphere to which any employee is exposed of 0.15 mg/m^3 (8-hour time-weighed average, TWA) and
- lead alkyls, a concentration of lead contained in lead alkyls in the atmosphere to which any employee is exposed of 0.10 mg/m^3 (8-hour TWA).

Suspension levels for both blood-lead concentrations and urinary-lead concentrations are defined in the Regulations.

21.23.3 *Prohibitions – regulation 4*

There are prohibitions on the use of glazes containing lead in the manufacture of pottery, and employing a young person or a women of reproductive capacity in any activity contained in schedule 1 in lead smelting and refining or in many processes in lead acid battery manufacture.

21.23.4 *Assessment of risk to health – regulation 5*

A suitable and sufficient risk assessment must be made and the findings implemented prior to any work which may expose people to lead. The risk assessments must include:

- hazardous properties of lead
- information on health effects from the supplier
- level, type and duration of exposure
- the circumstances of the work
- activities such as maintenance, where there is the potential for high exposures
- relevant occupational exposure levels
- the effect of preventative and control measures
- results of relevant medical surveillance
- results of monitoring exposure under regulation 9
- exposure where there are combined risks from lead and other substances
- whether exposure to lead is likely to be significant
- any other information needed to complete the risk assessment.

The risk assessment must be fully reviewed if exposure information shows it to be necessary, there are significant changes to the work, or medical surveillance shows blood-lead concentrations are exceeded.

Where there are more than four employees the employer must record the significant findings and the steps taken to meet the requirements of regulation 6.

21.23.5 *Prevention or control of exposure to lead – regulation 6*

Exposure must be prevented or where this is not reasonably practicable adequately controlled.

A hierarchy of controls must be considered starting with substitution with a safer alternative. Other protection measures in order of priority are:

- the design and use of appropriate work processes, systems and engineering controls and the provision and use of suitable work equipment and materials
- the control of exposure at source, including adequate ventilation systems and appropriate organizational measures and

- where adequate control of exposure cannot be achieved by other means, the provision of suitable PPE in addition to the measures required by (a) and (b).

The measures shall include:

- arrangements for the safe handling, storage and transport of lead and waste containing lead
- the adoption of suitable maintenance procedures
- reducing to the minimum required for the work concerned:
  - the numbers of employees subject to exposure
  - the level and duration of exposure
  - the quantity of lead present at the workplace
- the control of the working environment, including appropriate general ventilation and
- appropriate hygiene measures including washing facilities.

Control will only be considered adequate if:

- the workplace exposure limit is not exceeded or
- if exceeded, the employer identifies the reasons and takes immediate steps to remedy the situation.

PPE must be provided in compliance with the PPE Regulations 2002 and with respiratory equipment where it is not covered with a type approved by the HSE.

Employers must take reasonable steps to make sure that control measures and facilities provided is properly used or applied.

Employees shall make full and proper use of any control measures or facility provided and report any defects discovered.

21.23.6 *Eating, drinking and smoking – regulation 7*

Eating, drinking and smoking in an area liable to be contaminated by lead is not allowed. Drinking facilities may be provided, if required for employees' welfare, and used as long as they are not liable to be contaminated by lead.

21.23.7 *Maintenance, examination and testing of control measures – regulation 8*

All control measures must be maintained by the employer in an efficient state, in efficient working order, in good repair and in a clean condition.

Engineering controls must have a thorough examination and testing at suitable intervals (at least every 14 months for exhaust ventilation plant).

Respiratory equipment must have a thorough examination and where appropriate testing at suitable intervals.

Suitable records must be kept, for at least 5 years, of the examinations and tests and of any repairs carried out.

PPE must be properly stored, checked at suitable intervals and when defective repaired or replaced. Contaminated PPE must be separated and decontaminated or destroyed.

21.23.8 *Air monitoring – regulation 9*

Where significant exposure is liable to happen the concentration of lead in air must be measured in accordance with a suitable procedure.

The monitoring must be repeated every 3 months but on complying with certain conditions can be extended to 12 months (except lead alkyls). The conditions are:

- no material changes have taken place in the work or conditions of exposure
- the lead in air concentrations for each group of employees or work area has not exceeded 0.10 mg/m^3 on the two previous occasions on which monitoring was carried out.

Records must be kept for minimum of 5 years unless medical surveillance is being carried out (then 40 years).

Employees have a right to see personal monitoring record on giving reasonable notice to the employer.

21.23.9 *Medical surveillance – regulation 10*

Every employee who is liable to be exposed to lead must be under suitable medical surveillance where exposure is liable to be significant; specified blood-lead concentrations or urinary-lead concentrations are equalled or exceeded; and a relevant doctor certifies that the employee should be under such medical surveillance:

- The technique of investigation should be of low risk to the employees.
- Medical surveillance must commence before or at least within 14 days of an employee being exposed and thereafter at 12 months or as the relevant doctor prescribes.
- Biological monitoring must be carried out at least every 6 months except for young persons and women of reproductive capacity, when it must be done every 3 months.
- Records must be made and retained for at least 40 years.
- Access to personal health records is permitted on reasonable notice from the employee concerned.

The employer must take steps to determine the reason for blood levels having been exceeded and take steps to

reduce the levels. When the blood-lead levels or urinary-lead levels reach the appropriate suspension levels a relevant doctor must certify whether the person should be suspended from this type of work; or if no suspension is certified reasons must be given.

Employers must provide suitable facilities when examinations are carried out on the premises and employees must make themselves available for examination.

21.23.10 *Information, instruction and training – regulation 11*

Employees must be provided with suitable information, instruction and training to include:

- details of the form of lead, risks to health, exposure limits, action level and suspension level
- access to relevant SDS
- the significant findings of the risk assessment
- appropriate precautions and actions to be taken
- results of any monitoring of exposure
- collective results of any medical surveillance in a form calculated to prevent individuals being identified.

These duties extend to any person whether or not they are employees who carry out work in connection with the employer's duties under these Regulations.

Where containers and pipes are not marked by any relevant legislation (given in schedule 2), the employer shall make sure they are marked with the nature of the contents and any associated hazards.

21.23.11 *References*

Control of Lead at Work Regulations 2002. SI No. 2676, Office of Public Sector Information website: http://www.opsi.gov.uk/si/si2002/uksi_20022676_en.pdf.

The Control of Lead at Work Approved Code of Practice. L132, 2002 HSE Books, ISBN 9780-7176-2565-6.

Lead and You. INDG305, 1998 HSE Books, ISBN 9780-7176-1523-3.

21.24 Lifting Operations and Lifting Equipment Regulations 1998

21.24.1 *Introduction*

This summary gives information about the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) which came into force on 5 December 1998.

In the main, LOLER replaced existing legal requirements relating to the use of lifting equipment, for example the Construction (Lifting Operations) Regulations 1961, the Docks Regulations 1988 and the Lifting Plant and Equipment (Records of Test and Examination, etc.) Regulations 1992.

The Regulations aim to reduce risks to people's health and safety from lifting equipment provided for use at work. In addition to the requirements of LOLER, lifting equipment is also subject to the requirements of the PUWER 98.

Generally, the Regulations require that lifting equipment provided for use at work is:

- strong and stable enough for the particular use and marked to indicate SWL
- positioned and installed to minimize any risks
- used safely, that is the work is planned, organized and performed by competent people
- subject to ongoing thorough examination and, where appropriate, inspection by competent people.

21.24.2 *Definition*

Lifting equipment includes **any equipment used at work for lifting or lowering loads**, including attachments used for anchoring, fixing or supporting it. The Regulations cover a wide range of equipment including cranes, forklift trucks, lifts, hoists, mobile elevating work platforms, and vehicle inspection platform hoists. The definition also includes lifting accessories such as chains, slings and eyebolts. LOLER **does not** apply to escalators; these are covered by more specific legislation (i.e. the Workplace (Health, Safety and Welfare) Regulations 1992).

If employees are allowed to provide their own lifting equipment, then this too is covered by the Regulations.

21.24.3 *Application*

The Regulations apply to an employer or self-employed person providing lifting equipment for use at work, or who has control of the use of lifting equipment. They do not apply to equipment to be used primarily by members of the public, for example, lifts in a shopping centre. However, such circumstances are covered by the HSW Act 1974.

LOLER applies to the way lifting equipment is used in industry and commerce. LOLER applies only to work activities, for example:

- a crane on hire to a construction site
- a contract lift
- a passenger lift provided for use of workers in an office block
- refuse collecting vehicles lifting on a public road
- patient hoist
- forklift truck.

These Regulations add to the requirements of PUWER 98 and should be interpreted with them. For example, when selecting lifting equipment, PUWER regulation 4, regarding suitability, should be considered in connection with:

- ergonomics
- the conditions in which the equipment is to be used
- safe access and egress
- preventing slips, trips and falls
- protecting the operator.

While employees do not have duties under LOLER, they do have general duties under the HSW Act and the Management of Health and Safety at Work Regulations 1992 (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 Regulations cover places where the HSW Act applies – these include factories, offshore installations, agricultural premises, offices, shops, hospitals, hotels, places of entertainment, etc.

21.24.4 *Strength and stability – regulation 4*

Lifting equipment shall be of adequate strength and stability for each load, having regard in particular to the stress induced at its mounting or fixing point.

Every part of a load and anything attached to it and used in lifting it shall be of adequate strength.

Account must be taken of the combination of forces to which the lifting equipment will be subjected, as well as the weight of any lifting accessories. The equipment should include an appropriate factor of safety against failure.

Stability needs to take into account the nature, load-bearing strength, stability, adjacent excavations and slope of the surface. For mobile equipment, keeping rails free of obstruction and tyres correctly inflated must be considered.

21.24.5 *Lifting equipment for lifting persons – regulation 5*

To ensure safety of people being lifted, there are additional requirements for such equipment. The use of equipment not specifically designed for raising and lowering people should only be used in exceptional circumstances.

The regulation applies to all lifting equipment used for raising and lowering people and requires that lifting equipment for lifting persons shall:

- prevent a person using it from being crushed, trapped or struck, or falling from the carrier
- prevent, SFARP, persons using it while carrying out work from the carrier being crushed, trapped or struck or falling from the carrier
- have suitable devices to prevent the risk of the carrier falling. If a device cannot be fitted, the carrier must have:
  - an enhanced safety coefficient suspension rope or chain
  - the rope or chain inspected every working day by a competent person
  - be such that a person trapped in any carrier is not thereby exposed to any danger and can be freed.

21.24.6 *Positioning and installation – regulation 6*

Lifting equipment must be positioned and installed so as to reduce the risks, SFARP, from:

- equipment or a load striking another person
- a load drifting, falling freely or being released unintentionally

and it is otherwise safe.

Lifting equipment should be positioned and installed to minimize the need to lift loads over people and to prevent crushing in extreme positions. It should be designed to stop safely in the event of a power failure and not release its load. Lifting equipment, which follows a fixed path, should be enclosed with suitable and substantial interlocked gates and any necessary protection in the event of power failure.

21.24.7 *Marking of lifting equipment – regulation 7*

Machinery and accessories for lifting loads shall be clearly marked to indicate their SWL, and:

- where the SWL depends on the configuration of the lifting equipment:
  - the machinery should be clearly marked to indicate its SWL for each configuration
  - information which clearly indicates its SWL for each configuration should be kept with the machinery
- accessories for lifting (e.g. hooks, slings) are also marked in such a way that it is possible to identify the characteristics necessary for their safe use (e.g. if they are part of an assembly)
- lifting equipment which is designed for lifting people is appropriately and clearly marked
- lifting equipment not designed for lifting people, but which might be used in error, should be clearly marked to show it is not for lifting people.

21.24.8 *Organization of lifting operations – regulation 8*

Every lifting operation, that is lifting or lowering of a load, shall be:

- properly planned by a competent person
- appropriately supervised
- carried out in a safe manner.

The person planning the operation should have adequate practical and theoretical knowledge and experience of planning lifting operations. The plan will need to address the risks identified by the risk assessment and identify the resources, the procedures and the responsibilities required so that any lifting operation is carried out safely. For routine simple lifts a plan will normally be left to the people using the lifting equipment. For complex lifting operations, for example where two cranes are used to lift one load, a written plan may need to be produced each time.

The planning should take account of avoiding suspending loads over occupied areas, visibility, attaching/detaching and securing loads, the environment, location, overturning, proximity to other objects, lifting of people and pre-use checks of the equipment.

21.24.9 *Thorough examination and inspection – regulation 9*

Before using lifting equipment for the first time by an employer, it must be thoroughly examined for any defect unless:

- the lifting equipment has not been used before
- an EC declaration of conformity (where one should have been drawn up) has been received or made not more than 12 months before the lifting equipment is put into service
- if it is obtained from another undertaking, it is accompanied by physical evidence of an examination.

A copy of this thorough examination report shall be kept for as long as the lifting equipment is used (or, for a lifting accessory, 2 years after the report is made) (regulation 11).

Where safety depends on the installation conditions, it shall be thoroughly examined:

- after installation and before being put into service
- after assembly and before being put into service at a new site or in new location

to ensure that it has been installed correctly and is safe to operate.

A copy of the thorough examination report shall be kept for as long as the lifting equipment is used at the place in which it was installed or assembled (regulation 11).

Lifting equipment which is exposed to conditions causing deterioration that which may result in dangerous situations, shall be:

- thoroughly examined at least every 6 months (for lifting equipment for lifting persons, or a lifting accessory); at least every 12 months (for other lifting equipment); or in accordance with an examination scheme; and each time that exceptional circumstances, liable to jeopardize the safety of the lifting equipment, have occurred, a copy of the report is kept until the next report is made, or for 2 years (whichever is longer)
- inspected, if appropriate, by a competent person at suitable intervals between 'thorough examinations' (and a copy of the record kept until the next record is made).

All lifting equipment shall be accompanied by physical evidence that the last 'thorough examination' has been carried out before it leaves an employer's undertaking (or before it is used after leaving another undertaking).

The user, owner, manufacturer or some other independent party may draw up examination schemes provided they have the necessary competence. Schemes should specify the intervals at which lifting equipment should be thoroughly examined and, where appropriate, those parts that need to be tested. The scheme should take account, for example, of its condition, the environment in which it is used, the number of lifting operations and the loads lifted.

The 'competent person' carrying out a thorough examination should have appropriate practical and theoretical knowledge and experience of the lifting equipment to be examined to enable them to detect defects or weaknesses and to assess their importance in relation to the safety and continued use of the lifting equipment. They should also determine whether a test is necessary and the most appropriate method for carrying it out.

21.24.10 *Reports and defects – regulation 10*

The person making a 'thorough examination' of lifting equipment shall:

- notify the employer forthwith of any defect which, in their opinion, is or could become, dangerous
- as soon as is practicable (within 28 days) write an authenticated report to:
  - the employer
  - any person who hired or leased the lifting equipment, containing the information specified in schedule 1

- send a copy (as soon as is practicable) to the relevant enforcing authority when there is, in their opinion, a defect with an existing or imminent risk of serious personal injury (this will always be HSE if the lifting equipment has been hired or leased).

Every employer notified of a defect following a 'thorough examination' of lifting equipment should ensure that it is not used:

- before the defect is rectified
- after a time specified in the schedule accompanying the report.

The person making an 'inspection' shall also notify the employer when, in his opinion, a defect is, or could become, dangerous and, as soon as is practicable, make a record of the inspection in writing.

21.24.11 *Reports – schedule 1*

Schedule 1 lists the information to be contained in a report of a thorough examination, for example name and address; identity of equipment; date of last through examination; SWL; appropriate interval; any dangerous or potentially dangerous defects; repairs required; date of next examination and test; details of the competent person.

21.24.12 *References*

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21.25 Management of Health and Safety at work Regulations 1999 as amended in 2003 and 2006

21.25.1 *General*

These Regulations give effect to the European Framework Directive on health and safety. They supplement the requirements of the Health and Safety at Work Act etc 1974 and specify a range of management issues, most of which must be carried out in all workplaces. The aim is to map out the organization of precautionary measures in a systematic way, and to make sure that all staff are familiar with the measures and their own responsibilities.

21.25.2 *Risk assessment – regulation 3*

Every employer is required to make a 'suitable and sufficient' assessment of risks to employees, and risks to other people who might be affected by the organization, such as visiting contractors and members of the public. A systematic investigation of risks involved in all areas and operations is required, together with identification of the persons affected, a description of the controls in place and any further action required to reduce risks.

The risk assessments must take into account risks to new and expectant mothers and young people.

Significant findings from the assessments must be written down (or recorded by other means, such as on a computer) when there are five or more employees. The assessments need to be reviewed regularly and, if necessary, when there have been significant changes, they should be modified.

21.25.3 *Principles of prevention – regulation 4*

The following principles must be adopted when implementing any preventative and protective measures:

- avoiding risks
- evaluating the risks which cannot be avoided
- combating the risks at source
- adapting the work to the individual, especially as regards the design of workplaces, the choice of work equipment and the choice of working and production methods, with a view, in particular, to alleviating monotonous work and work at a predetermined work rate and to reducing their effect on health
- adapting to technical progress
- replacing the dangerous by the non-dangerous or the less dangerous

- developing a coherent overall prevention policy which covers technology, organization of work, working conditions, social relationships and the influence of factors relating to the working environment
- giving collective protective measures priority over individual protective measures
- giving appropriate instruction to employees.

21.25.4 *Effective arrangements for health and safety – regulation 5*

Formal arrangements must be devised (and recorded) for effective planning, organization, control, monitoring and review of safety measures. This will involve an effective health and safety management system to implement the policy. Where there are five or more employees the arrangements should be recorded.

Planning involves a systematic approach to risk assessment, the selection of appropriate risk controls and establishing priorities with performance standards.

Organization involves consultation and communication with employees; employee involvement in risk assessment; the provision of information; and securing competence with suitable instruction and training. Control involves clarifying responsibilities and making sure people adequately fulfil their responsibilities. It involves adequate and appropriate supervision.

Monitoring should include the measurement of how well the policy is being implemented and whether hazards are being controlled properly. It covers inspections of the workplace and management systems and the investigation of incidents and accidents to ascertain the underlying causes and effect a remedy.

Review is essential to look at the whole of the health and safety management system to ensure that it is effective and achieving the correct standard of risk control.

21.25.5 *Health surveillance – regulation 6*

In appropriate circumstances health surveillance of staff may be required – the ACOP describes more fully when this duty will arise. Health surveillance is considered relevant when there is an identifiable disease or poor health condition; there are techniques to detect the disease; there is a reasonable likelihood that the disease will occur; and surveillance is likely to enhance the protection of the workers concerned. A competent person, who will range from a manager, in some cases, to a fully qualified occupational medical practitioner in others, should assess the extent of the surveillance.

21.25.6 *Competent assistance – regulation 7*

Every employer is obliged to appoint one or more 'competent person(s)' to advise and assist in undertaking the necessary measures to comply with the relevant statutory requirements. They may be employees or outside consultants. The purpose is to make sure that all employers have access to health and safety expertise. Preference should be given to an in-house appointee, who may be backed up by external expertise.

The competence of the person(s) appointed is to be judged in terms of their training, knowledge and experience of the work involved; it is not necessarily dependent upon particular qualifications. In simple situations, it may involve knowledge of relevant best practice, knowing one's limitations and taking external advice when necessary. In more complex situations or risks, fully qualified and appropriately experienced practitioners will be required.

Appointed competent persons must be provided with adequate information, time and resources to do their job.

21.25.7 *Procedures for serious and imminent danger and contact with external services – regulations 8 and 9*

Procedures must be established for dealing with serious and imminent dangers, including fire evacuation plans and arrangements for other emergencies. A sufficient number of competent persons must be appointed to evacuate the premises in the event of an emergency. The procedures should allow for persons at risk to be informed of the hazards and how and when to evacuate to avoid danger. In shared workplaces employers must co-operate. Access to dangerous areas should be restricted to authorized and properly trained staff. Any necessary contact arrangements with external services for first aid, emergency medical care and rescue work must be set up.

21.25.8 *Information for employees – regulation 10*

Information must be provided to staff on the risk assessment, risk controls, emergency procedures, the identity of the people appointed to assist on health and safety matters and risks notified by others.

The information provided must take into account the level of training, knowledge and experience of the employees. It must take account of language difficulties and be provided in a form that can be understood by everyone. The use of translations, symbols and diagrams should be considered. Where children under school leaving age are at work, information on the risk assessments and control measures must be provided to the child's parent or guardians of children at work before the child starts work. It can be provided verbally or directly to the parent, guardians or school.

21.25.9 *Co-operation and co-ordination – regulations 11, 12 and 15*

Where two or more employers share a workplace, the following applies:

- Each must co-operate with other employers in health and safety matters.
- Each must take reasonable steps to co-ordinate their safety precautions.
- Each must inform the other employers of the risks to their employees (i.e. risks to neighbours' employees).
- Where people from outside organizations are present to do work they, and their employers, have to be provided with appropriate information on risks, health and the necessary precautions to be taken.
- Temporary staff and staff with fixed-term contracts as well as permanent employees must be supplied with health and safety information before starting work (regulations 12 and 15).
- Regulation 11 does not apply to multi-occupied premises or sites where each unit, under the control of an individual tenant employer or self-employed person, is regarded as a separate workplace. In other cases, common areas may be shared workplaces, such as a reception area or canteen or they may be under the control of a person to whom section 4 of HSW Act applies. Suitable arrangements may need to be put in place for these areas.

21.25.10 *Capabilities and training – regulation 13*

When giving tasks to employees, their capabilities with regard to health and safety must be taken into account.

Employees must be provided with adequate health and safety training:

- on recruitment
- on being exposed to new or increased risks
- on the introduction of new procedures, systems or technology; training must be repeated periodically and take place in working hours (or while being paid).

21.25.11 *Duties on employees – regulation 14*

Equipment and materials must be used properly in accordance with instructions and training. Obligations on employees are extended to include certain requirements to report serious and immediate dangers and any shortcomings in the employer's protection arrangements.

21.25.12 *New or expectant mothers – regulations 16–18*

Where work is of a kind that could present a risk to new or expectant mothers working there or their babies, the risk assessments must include an assessment of such risks. When the risks cannot be avoided the employer must alter a woman's working conditions or hours to avoid the risks; offer suitable alternative work; or suspend from work on full pay. The woman must notify the employer in writing of her pregnancy that she has given birth within the last 6 months or she is breastfeeding.

21.25.13 *Young persons – regulation 19*

Employers must protect young persons at work from risks to their health and safety which are the result of lack of experience, or absence of awareness of existing or potential risks or because they have not yet fully matured. Young persons may not be employed in a variety of situations enumerated in the Regulations that pose a significant risk to their health and safety. The exception to this is young persons over school leaving age:

- where the work is necessary for their training
- where they will be supervised by a competent person
- where the risk will be reduced to the lowest level that is reasonably practicable.

21.25.14 *Provisions as to liability – regulation 21*

A new provision has been added to prevent a defence for an employer by reason of any act or default by an employee or a competent person appointed under regulation 7.

21.25.15 *Restriction of civil liability for breach of statutory duty – regulation 22*

The Management of Health and Safety at Work Regulations 1999 were amended in 2003, by the 2003 Amendment Regulations (SI 2003 No. 2457), to enable employees to claim damages from their employer in a civil action where they suffered injury or illness as a result of the employer being in breach of those Regulations. They were also intended to enable civil claims to be brought against employees for a breach of their duties under those Regulations that resulted in injury or illness. Employees have duties under those Regulations to use any equipment, dangerous substance, etc. in accordance with any training and instruction provided by the employer. Employees are also required to alert their employer of serious and imminent danger in the workplace or any shortcomings in the health and safety arrangements.

In April 2006 the Regulations were further amended by the Management of Health and Safety at Work (Amendment) Regulations 2006.

The amendment changes the civil liability provisions in the Regulations so as to exclude the right of third parties to take legal action against employees for

contraventions of their duties under these Regulations. This extends to employees the same protection against third party action as that provided for employers.

The amendment neither creates any new duties nor removes any. The practical effect will be to reduce the likelihood of claims against employees by third parties. Therefore, it is expected that there will be no additional burdens on businesses.

The wording of the 2003 amendment produced the unintended consequence of allowing claims to be brought against employees by third parties who were affected by their work activity, e.g. members of the public. This had not been the intention. One concerned group raised this unintended consequence of the 2003 amendment. HSE sought independent advice, which also concluded that there was potential for third parties to make claims against employees.

21.25.16 *References*

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21.26 Manual Handling Operations (MHO) Regulations 1992 as amended in 2002

21.26.1 *General*

The Regulations apply to the manual handling (any transporting or supporting) of loads, i.e. by human effort, as opposed to mechanical handling by forklift truck, crane, etc. Manual handling includes lifting, putting down, pushing, pulling, carrying or moving. The human effort may be applied directly to the load, or indirectly by pulling on a rope, chain or lever. Introducing mechanical assistance, like a hoist or sack truck, may reduce but not eliminate manual handling, since human effort is still required to move, steady or position the load.

The application of human effort for purposes other than transporting or supporting a load, for example pulling on a rope to lash down a load or moving a machine control, is not a manual handling operation. A load is a discrete movable object, but it does not include an implement, tool or machine while being used.

Injury in the context of these Regulations means to any part of the body. It should take account of the physical features of the load which might affect grip or cause direct injury, for example slipperiness, sharp edges, and extremes of temperature. It does not include injury caused by any toxic or corrosive substance which has leaked from a load, is on its surface or is part of the load.

21.26.2 *Duties of employers – avoidance of manual handling – regulation 4 (1) (a)*

Employers should take steps to avoid the need for employees to carry out MHO which involves a risk of their being injured.

The guidance suggests that a preliminary assessment should be carried out when making a general risk assessment under the Management of Health and Safety at Work Regulations 1999. Employers should consider whether the operation can be eliminated, automated or mechanized.

21.26.3 *Duties of employers – assessment of risk – regulation 4 (1) (b) (i)*

Where it is not reasonably practicable to avoid MHO, employers must make a suitable and sufficient risk assessment of all such MHO in accordance with the requirements of schedule 1 to the Regulations (shown later). This duty to assess the risk takes into account the **task**, the **load**, the **working environment** and **individual capability**.

21.26.4 *Duties of employers – reducing the risk of injury – regulation 4 (1) (b) (ii)*

Where it is not reasonably practicable to avoid the MHO at which there is a risk of injury, employers must take steps to reduce the risk of injury to the lowest level reasonably practicable.

The structured approach (considering the task, the load, the working environment and the individual capability) is recommended in the guidance. The steps taken will involve ergonomics, changing the load, mechanical assistance, task layout, work routines, PPE, team working and training.

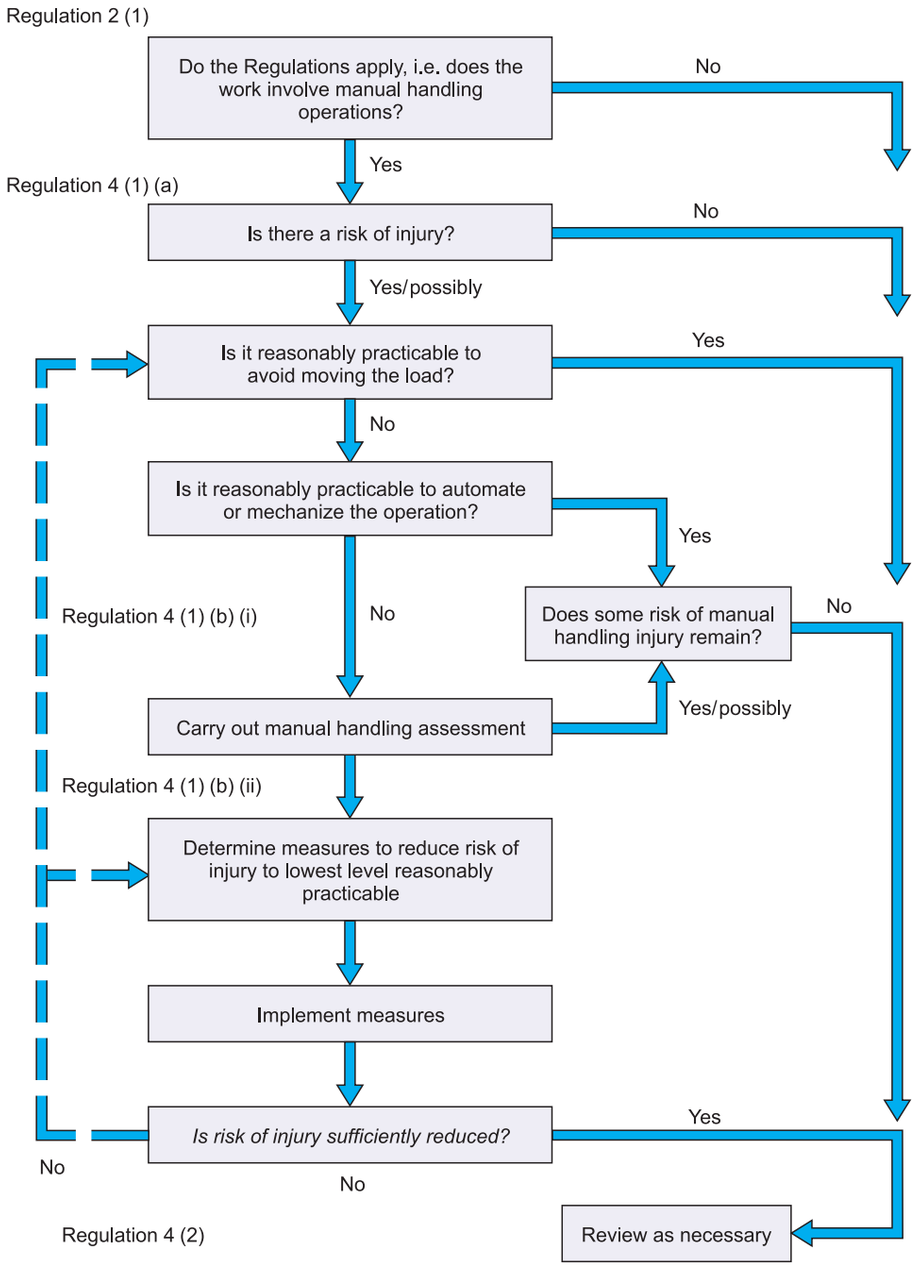

Figure 21.3 Manual Handling Operations Regulations – flow chart.

21.26.5 *Duties of employers – additional information on the load – regulation 4 (1) (b) (iii)*

Employers must take appropriate steps where manual handling cannot be avoided to provide general indications and, where practicable precise information on:

- the weight of each load
- the heaviest side of any load which does not have a central centre of gravity.

The information is probably best marked on the load. Sections 3 and 6 of the HSW Act may place duties on originators of loads, like manufacturers or packers.

21.26.6 *Duties of employers – reviewing assessment – regulation 4 (2)*

The assessment should be reviewed if there is reason to suspect that it is no longer valid or there have been significant changes in the particular MHO.

Table 21.11 Schedule 1 to the Manual Handling Operations Regulations

Factors to which the employer must have regard and questions they must consider when making an assessment of manual handling operations	
Factors	**Questions**
1. The tasks	Do they involve: ➤ holding or manipulating loads at distance from trunk? Is there unsatisfactory bodily movement or posture, especially: ➤ twisting the trunk? ➤ stooping? ➤ reaching upwards? Is there excessive movement of loads, especially: ➤ excessive lifting or lowering distances? ➤ excessive carrying distances? ➤ excessive pulling or pushing of loads? ➤ risk of sudden movement of loads? ➤ frequent or prolonged physical effort? ➤ insufficient rest or recovery periods? ➤ a rate of work imposed by a process?
2. The loads	Are they: ➤ heavy? ➤ bulky or unwieldy? ➤ difficult to grasp? ➤ unstable, or with contents likely to shift? ➤ sharp, hot or otherwise potentially damaging?
3. The working environment	Are there: ➤ space constraints preventing good posture? ➤ uneven, slippery or unstable floors? ➤ variations in level of floors or work surfaces? ➤ extremes of temperature or humidity? ➤ conditions causing ventilation problems or gusts of wind? ➤ poor lighting conditions?
4. Individual capability	Does the job: ➤ require unusual strength, height, etc.? ➤ vreate a hazard to those who might reasonably be considered to be pregnant or have a health problem? ➤ require special information or training for its safe performance?
5. Other factors	Is movement or posture hindered by personal protective equipment or by clothing?

21.26.7 *Individual capability – regulation 4 (3) (a)–(f)*

A new requirement was added in 2002 by Amendment Regulations concerning the individual capabilities of people undertaking manual handling. Regard must be had in particular to:

(a) the physical suitability of the employee to carry out the operation
(b) the clothing, footwear or other personal effects they are wearing
(c) their knowledge and training
(d) results of any relevant risk assessments carried out under regulation 3 of the Management Regulations; 1999
(e) whether the employee is within a group of employees identified by that assessment as being especially at risk and
(f) the results of any health surveillance provided pursuant to regulation 6 of the Management Regulations 1999.

21.26.8 *Duty of employees – regulation 5*

Each employee, while at work, has to make proper use of any system of work provided for their use. This is in addition to other responsibilities under the HSW Act and the Management of Health and Safety at Work Regulations.

The provisions do not include well intentioned improvization in an emergency, for example, rescuing a casualty or fighting a fire (see Figure 21.3 and Table 21.11).

21.26.9 *References*

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21.27 Control of Noise at Work Regulations 2005

21.27.1 *Introduction*

The Control of Noise at Work Regulations 2005 require employers to prevent or reduce risks to health and safety from exposure to noise at work. Employees also have duties under the Regulations.

The Regulations require employers to:

- assess the risks to their employees from noise at work
- take action to reduce the noise exposure that produces those risks
- provide their employees with hearing protection if they cannot reduce the noise exposure enough by using other methods
- make sure the legal limits on noise exposure are not exceeded
- provide their employees with information, instruction and training
- carry out health surveillance where there is a risk to health.

The Regulations do not apply to:

- members of the public exposed to noise from their non-work activities, or making an informed choice to go to noisy places
- low-level noise which is a nuisance but causes no risk of hearing damage.

Employers in the music and entertainment sectors have until 6 April 2008 to comply with the Noise Regulations 2005. Meanwhile they must continue to comply with the Noise at Work Regulations 1989, which the 2005 Regulations replace for all other workplaces.

21.27.2 *Exposure limit values and action levels – regulation 4*

The Regulations require employers to take specific action at certain action values. These relate to:

- the levels of exposure to noise of their employees averaged over a working day or week; and
- the maximum noise (peak sound pressure) to which employees are exposed in a working day.

The values are:

- lower exposure action values:
  - daily or weekly exposure of 80 dB (A-weighted)
  - peak sound pressure of 135 dB (C-weighted)
- upper exposure action values:
  - daily or weekly exposure of 85 dB (A-weighted)
  - peak sound pressure of 137 dB (C-weighted).

Figure 21.4 helps to decide what needs to be done.

There are also levels of noise exposure which must not be exceeded:

- exposure limit values:
  - daily or weekly exposure of 87 dB (A-weighted)
  - peak sound pressure of 140 dB (C-weighted).

These exposure limit values take account of any reduction in exposure provided by hearing protection.

21.27.3 *Risk assessment – regulation 5*

If employees are likely to be exposed to noise at or above the lower exposure value a suitable and sufficient assessment of the risks must be made. Employers need to decide whether any further action is needed, and plan how to do it.

The risk assessment should:

- identify where there may be a risk from noise and who is likely to be affected
- contain a reliable estimate of employees' exposures, and compare the exposure reading with the exposure action values and limit values

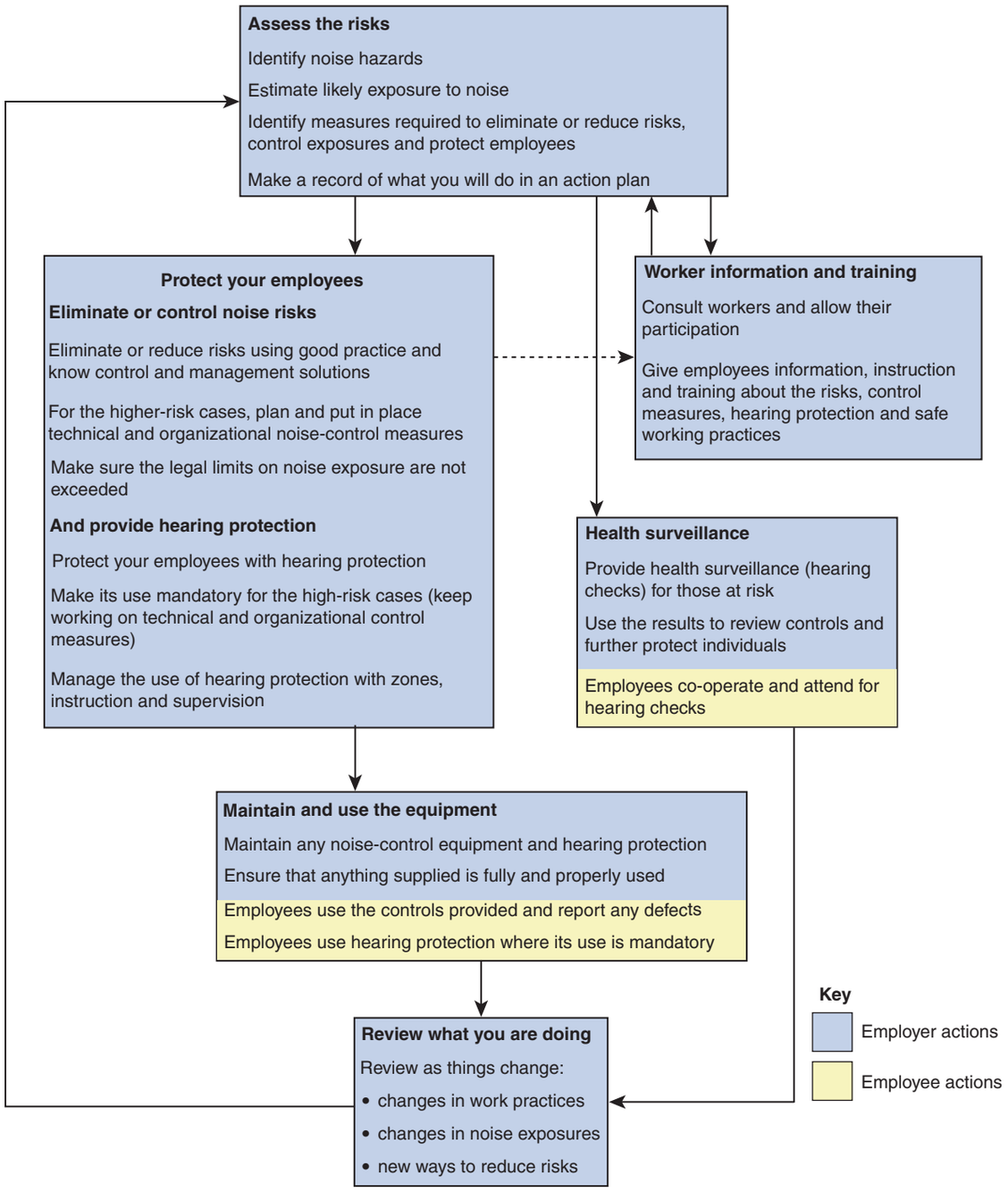

Figure 21.4 What needs to be done under the Control of Noise at Work Regulations 2005.

- identify what needs to be done to comply with the law, e.g. whether noise-control measures or hearing protection are needed, and, if so, where and what type and
- identify any employees who need to be provided with health surveillance and whether any are at particular risk.

The risk assessment should include consideration of:

- the level, type and duration of exposure, including any exposure to peak sound pressure
- the effects of exposure to noise on employees or groups of employees whose health is at particular risk

- SFARP any effects on the health and safety of employees resulting from the interaction, for example, between noise and vibration
- any indirect effects from the interaction between noise and audible warnings
- manufacturer's information
- availability of alternative equipment designed to reduce noise emissions
- any extension to noise exposure due to extended hours or in supervised rest facilities
- information following health surveillance
- availability of personal hearing protectors with adequate attenuation characteristics.

It is essential that employers can show that their estimate of employees' exposure is representative of the work that they do. It needs to take account of:

- the work they do or are likely to do
- the ways in which they do the work and
- how it might vary from one day to the next.

The estimate must be based on reliable information, e.g. measurements in their own workplace, information from other similar workplaces, or data from suppliers of machinery.

Employers must record the significant findings of their risk assessment. They need to record in an action plan anything identified as being necessary to comply with the law, setting out what they have done and what they are going to do, with a timetable and saying who will be responsible for the work.

The risk assessment should be reviewed if circumstances in the workplace change and affect noise exposures. Also, it should be reviewed regularly to make sure that the employer continues to do all that is reasonably practicable to control the noise risks. Even if it appears that nothing has changed, employers should not leave it for more than about 2 years without checking whether a review is needed.

21.27.4 *Elimination or control of exposure – regulation 6*

The purpose of the Control of Noise at Work Regulations is to make sure that people do not suffer damage to their hearing – so controlling noise risks and noise exposure should be where efforts are concentrated.

Wherever there is noise at work employers should be looking for alternative processes, equipment and/or working methods which would make the work quieter or mean people are exposed for shorter times. They should also be keeping up with what is good practice or the standard for noise control within their industry.

Where there are things that can be done to reduce risks from noise that are reasonably practicable, they should be done. However, where noise exposures are below the lower exposure action values, risks are low and so employers would only be expected to take actions which are relatively inexpensive and simple to carry out.

Where the assessment shows that employees are likely to be exposed at or above the upper exposure action values, employers must put in place a planned programme of noise control.

The risk assessment will have produced information on the risks and an action plan for controlling noise. Employers should use this information to:

- tackle the immediate risk (e.g. by providing hearing protection)
- identify what is possible to control noise, how much reduction could be achieved and what is reasonably practicable
- establish priorities for action and a timetable (e.g. consider where there could be immediate benefits, what changes may need to be phased in over a longer period of time and the number of people exposed to the noise in each case)
- assign responsibilities to people to deliver the various parts of the plan
- ensure the work on noise control is carried out
- check that what has been done has worked.

Actions taken should be based on the general principles set out in the Management Regulations and should include consideration of:

- other working methods
- choice of appropriate work equipment emitting the least possible noise
- the design and layout of workplaces, work stations and rest facilities
- suitable and sufficient information and training
- reduction of noise by technical means
- appropriate maintenance programmes
- limitation of the duration and intensity of exposure and
- appropriate work schedules with adequate rest periods.

21.27.5 *Hearing protection – regulation 7*

Hearing protection should be issued to employees:

- where extra protection is needed above what can been achieved using noise control
- as a short-term measure while other methods of controlling noise are being developed.

Hearing protection should not be used as an alternative to controlling noise by technical and organizational means. Employers should consult with their employees or their representatives on the type of hearing protection to be used.

Employers are required to:

- provide employees with hearing protectors if they ask for it and their noise exposure is between the lower and upper exposure action values
- provide employees with hearing protectors and make sure they use them properly when their noise exposure exceeds the upper exposure action values
- identify hearing protection zones, that is areas where the use of hearing protection is compulsory, and mark them with signs if possible; restrict access to hearing protection zones where this is practicable and the noise exposures justifies it
- provide employees with training and information on how to use and care for the hearing protectors
- ensure that the hearing protectors are properly used and maintained.

21.27.6 *Maintenance and use of equipment – regulation 8*

Employers need to make sure that hearing protection works effectively and to:

- check that all equipment provided in compliance with the regulations remains in good, clean condition and that there are no unofficial modifications
- check that hearing protection is fully and properly used (except where it is provided for employees who are exposed at or above the lower exposure but below the upper exposure level), which is likely to mean that an employer needs to:
  - put someone in authority in overall charge of issuing the protection required and making sure replacements are readily available
  - carry out spot checks to see that the rules are being followed and that hearing protection is being used properly
  - ensure all managers and supervisors set a good example and wear hearing protection at all times when in hearing protection zones
  - ensure only people who need to be there enter hearing protection zones and do not stay longer than they need to.

21.27.7 *Health surveillance – regulation 9*

Employers must provide health surveillance (hearing checks) for all their employees who are likely to be regularly exposed above the upper exposure action values, or are at risk for any reason, e.g. they already suffer from hearing loss or are particularly sensitive to damage.

The purpose of health surveillance is to:

- warn when employees might be suffering from early signs of hearing damage
- give employers an opportunity to do something to prevent the damage getting worse
- check that control measures are working.

Trade union safety representatives, or employee representatives and the employees concerned should be consulted before introducing health surveillance. It is important that employees understand that the aim of health surveillance is to protect their hearing. Employers will need their understanding and co-operation if health surveillance is to be effective.

Health surveillance for hearing damage usually means:

- regular hearing checks in controlled conditions
- telling employees about the results of their hearing checks (required after reasonable notice by employee)
- keeping health records
- ensuring employees are examined by a doctor where hearing damage is identified.

If the doctor considers the hearing damage is likely to be the result of exposure, the employer must:

- ensure that the employee is informed by a suitably qualified person
- review the risk assessment and control measures
- consider assigning employee to alternative work
- ensure continued surveillance.

21.27.8 *Information, instruction and training – regulation 10*

Where employees are exposed to noise which is likely to be at or above the lower exposure level, suitable and sufficient information, instruction and training must be provided and kept up to date. This includes the nature of the risks, compliance action taken, significant findings of the risk assessment, hearing protection, how to detect and report signs of hearing damage, entitlement to health surveillance, safe working practices and collective results of health surveillance.

21.27.9 *References*

Control of Noise at Work Regulations 2005 (SI No. 1643) http://www.opsi.gov.uk/si/si2005/uksi_20051643_en.pdf

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Sound Solutions Techniques to Reduce Noise at Work. HSG 138, 1995 HSE Books, ISBN 9780-7176-0791-7.

21.28 Personal Protective Equipment at Work Regulations 1992 as amended in 2002

21.28.1 *Introduction*

The effect of the Personal Protective Equipment (PPE) at Work Regulations is to ensure that certain basic duties governing the provision and use of PPE apply to all situations where PPE is required. The Regulations follow sound principles for the effective and economical use of PPE, which all employers should follow.

PPE, as defined, includes all equipment (including clothing affording protection against the weather) which is intended to be worn or held by a person at work and which protects them against one or more risks to their health and safety. Waterproof, weatherproof or insulated clothing is covered only if its use is necessary to protect against adverse climatic conditions.

Ordinary working clothes and uniforms, which do not specifically protect against risks to health and safety, and protective equipment worn in sports competitions, are not covered.

Where there is overlap in the duties in these Regulations and those covering lead, ionizing radiations, asbestos, hazardous substances (COSHH), noise, and construction head protection, then the specific legislative requirements should prevail.

21.28.2 *Provision of PPE – regulation 4*

Every employer shall ensure that suitable PPE is provided to their employees who may be exposed to risks to their health and safety except where it has been adequately or more effectively controlled by other means. (Management Regulations require PPE to be the last choice in the principles of protection.)

PPE shall not be suitable unless:

- it is appropriate for the risks and the conditions of use
- it takes account of ergonomic requirements, the state of health of the wearer and the characteristics of each workstation
- it is capable of fitting the wearer correctly, by adjustments if necessary
- it is, so far as is practicable, able to combat the risks without increasing overall risks
- it complies with UK legislation on design or manufacture, i.e. it has a CE marking.

Where it is necessary that PPE is hygienic and otherwise free of risk to health, PPE must be provided to a person solely for their individual use.

21.28.3 *Compatibility – regulation 5*

Where more than one health and safety risk necessitates the wearing of multiple items of PPE simultaneously then they shall be compatible and remain effective.

21.28.4 *Assessment – regulation 6*

Before choosing any PPE, employers must ensure that an assessment is made to determine whether the PPE is suitable.

The assessment shall include:

- assessing risks which have not been avoided by other means
- a definition of the characteristics that PPE must have to be effective, taking into account any risks created by the PPE itself
- a comparison of available PPE with the required characteristics
- information on whether the PPE is compatible with any other PPE which is in use, and which an employee should be required to wear simultaneously.

The assessment should be reviewed if it is no longer valid or there have been significant changes. In simple cases it will not be necessary to record the assessment but, in more complex cases, written records should be made and kept readily available for future reference.

21.28.5 *Maintenance – regulation 7*

Every employer (and self-employed person) shall ensure that any PPE provided is maintained, including replaced and cleaned, in an efficient state, in efficient working order and in good repair.

The guide emphasizes the need to set up an effective system of maintenance for PPE. This should be proportionate to the risks and appropriate to the particular PPE. It could include, where appropriate, cleaning, disinfection, examination, replacement, repair and testing.

For example, mechanical fall arrestor equipment or sub-aqua breathing apparatus will require planned preventative maintenance with examination, testing and overhaul. Records should be kept of the maintenance work. Gloves may only require periodic inspection by the user as necessary, depending on their use.

Spare parts must be compatible and be the proper part suitably CE marked where applicable. Manufacturers' maintenance schedules and instructions should be followed unless alternative schemes are agreed with the manufacturer or agent.

In some cases these requirements can be fulfilled by using disposable PPE which can be discarded after use or when their life has expired. Users should know when to discard and replace disposable PPE.

21.28.6 *Accommodation – regulation 8*

When an employer or self-employed person has to provide PPE they must ensure that appropriate accommodation is provided to store it when not in use.

The type of accommodation will vary and may simply be suitable hooks for special clothing and small portable cases for goggles. It should be separate from normal outer clothing storage arrangements and protect the PPE from contamination or deterioration.

21.28.7 *Information, instruction and training – regulation 9*

Employers shall provide employees with adequate and appropriate information, instruction and training on:

- the risks which the PPE will avoid or limit
- the purpose for which and the manner in which PPE should be used
- any action required of the employee to maintain the PPE.

employers are required to provide demonstrations of PPE where appropriate.

The guidance suggests the training should include:

- an explanation of the risks and why PPE is needed
- the operation, performance and limitations of the equipment
- instructions on the selection, use and storage of PPE
- problems that can affect PPE relating to other equipment, working conditions, defective equipment, hygiene factors and poor fit
- the recognition of defects and how to report problems with PPE
- practice in putting on, wearing and removing PPE
- practice in user cleaning and maintenance
- how to store safely.

21.28.8 *Use and reporting of loss or defects – regulations 10 and 11*

Every employer shall take all reasonable steps to ensure that PPE is properly used.

Every employee shall:

- use PPE provided in accordance with training and instructions
- return it to the accommodation provided after use
- report any loss or obvious defect.

21.28.9 *References*

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Keep Your Top on Health Risks from Working in the Sun. INDG147, 1998 HSE Books, ISBN 9780-7176-1578-2.

Personal Protective Equipment (EC Directive) Regulations 1992. SI 1992 No. 3139, http://www.opsi.gov.uk/si/si1992/Uksi_19922966_en_6.htm.

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21.29 Provision and Use of Work Equipment Regulations 1998 (except Part IV) as amended in 2002

21.29.1 *Introduction*

The Provision and Use of Work Equipment Regulations 1998 (PUWER) are made under the HSW Act and their primary aim is to ensure that work equipment is used without risks to health and safety, regardless of its age, condition or origin. The requirements of PUWER that are relevant to woodworking machinery are set out in the *Safe use of woodworking machinery Approved Code of Practice*. PUWER has specific requirements for risk

assessment which are covered under the Health and Safety Management Regulations 1999.

Part IV of PUWER is concerned with power presses and is not part of the Certificate syllabus, and is therefore not covered in this summary.

21.29.2 *Definitions*

Work equipment means any machinery, appliance, apparatus, tool or installation for use at work.

Use in relation to work equipment means any activity involving work equipment and includes starting, stopping, programming, setting, transporting, repairing, modifying, maintaining, servicing and cleaning.

21.29.3 *Duty holders – regulation 3*

Under PUWER the following groups of people have duties placed on them:

- employers
- the self-employed
- people who have control of work equipment, for example plant hire companies.

In addition to all places of work the Regulations apply to common parts of shared buildings, industrial estates and business parks; to temporary works sites including construction; to home working (but not to domestic work in a private household); to hotels, hostels and sheltered accommodation.

21.29.4 *Suitability of work equipment – regulation 4*

Work equipment:

- has to be constructed or adapted so that it is suitable for its purpose
- has to be selected with the conditions of use and the users' health and safety in mind
- may only be used for operations for which, and under conditions for which, it is suitable.

This covers all types of use and conditions and must be considered for each particular use or condition. For example: scissors may be safer than knives with unprotected blades and should therefore be used for cutting operations where practicable; risks imposed by wet, hot or cold conditions must be considered.

21.29.5 *Maintenance – regulation 5*

The regulation sets out the general requirement to keep work equipment maintained in:

- an efficient state
- efficient working order
- good repair.

Compliance involves all three criteria. In addition, where there are maintenance logs for machinery, they must be kept up to date.

In many cases this will require routine and planned preventive maintenance of work equipment. When checks are made priority must be given to:

- safety
- operating efficiency and performance
- the equipment's general condition.

21.29.6 *Inspection – regulation 6*

Where the safety of work equipment depends on the installation conditions, it must be inspected:

- after installation and before being put into service for the first time
- after assembly at a new site or in a new location to ensure that it has been installed correctly and is safe to operate.

Where work equipment is exposed to conditions causing deterioration which is liable to result in dangerous situations it must be inspected:

- at suitable intervals
- when exceptional circumstances occur.

Inspections must be determined and carried out by competent persons. An inspection will vary from a simple visual external inspection to a detailed comprehensive inspection which may include some dismantling and/or testing. However, the level of inspection would normally be less than that required for a thorough examination under, for example, LOLER for certain items of lifting equipment.

Records of inspections must be kept with sufficient information to properly identify the equipment, its normal location, dates, faults found, action taken, to whom faults were reported, who carried out the inspection, when repairs were made, date of the next inspection.

When equipment leaves an employer's undertaking it must be accompanied by physical evidence that the last inspection has been carried out.

21.29.7 *Specific risks – regulation 7*

Where the use of work equipment involves specific hazards, its use must be restricted to those persons given the specific task of using it and repairs, etc. must be restricted to designated persons.

Designated persons must be properly trained to fulfil their designated task.

Hazards must be controlled using a hierarchy of control measures, starting with elimination where this is possible, then considering hardware measures such as physical barriers and, lastly, software measures such as a safe system of work.

21.29.8 *Information, instruction and training – regulations 8 and 9*

Persons who use work equipment must have adequate:

- health and safety information
- where appropriate, written instructions about the use of the equipment
- training for health and safety in methods which should be adopted when using the equipment, and any hazards and precautions which should be taken to reduce risks.

Any persons who supervise the use of work equipment should also receive information, instruction and training. The training of young persons is especially important with the need for special risk assessments under the Management Regulations.

Health and safety training should take place within working hours.

21.29.9 *Conformity with community requirements – regulation 10*

The intention of this regulation is to require that employers ensure that equipment, provided for use after 31 December 1992, complies with the relevant essential requirements in various European Directives made under article 95 of the EC Treaty (formerly 100A of the Treaty of Rome). The requirements of PUWER 98 regulations 11 to 19 and 22 to 29 only apply if the essential requirements do not apply to a particular piece of equipment.

However, PUWER regulations 11–19 and 22–29 will apply if:

- they include requirements which were not included in the relevant product legislation
- the relevant product legislation has not been complied with (e.g. the guards fitted on a machine when supplied were not adequate).

Employers using work equipment need to check that any new equipment has been made to the requirements of the relevant Directive, and has a CE marking, suitable instructions and a Certificate of Conformity.

The Machinery Directive was brought into UK law by the Supply of Machinery (Safety) Regulations 1992 as amended, which duplicate PUWER regulations 11–19 and 22–29.

The employer still retains the duty to ensure that the equipment is safe to use.

21.29.10 *Dangerous parts of machinery – regulation 11*

Measures have to be taken which:

- prevent access to any dangerous part of machinery or to any rotating stock-bar
- stop the movement of any dangerous part of machinery or rotating stock-bar before any part of a person enters a danger zone.

The measures required follow the normal hierarchy and consist of:

- the provision of fixed guards enclosing every dangerous part of machinery or rotating stock-bar where and to the extent it is practicable, but where it is not
- the provision of other guards or protection devices, where and to the extent it is practicable, but where it is not
- the provision of jigs, holders, push-sticks or similar protection appliances used in conjunction with the machinery where and to the extent it is practicable
- provision of information, instruction, training and supervision as is necessary.

All guards and protection devices shall:

- be suitable for its 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 give rise to increased risks to health and safety
- not be easily bypassed or disabled
- be situated at sufficient distance from the danger zone
- not unduly restrict the view of the operating cycle of the machine where this is relevant
- be so constructed or adapted that they allow operations necessary to fit or replace parts and for maintenance work, if possible without having to dismantle the guard or protection device.

21.29.11 *Protection against specified hazards – regulation 12*

Exposure to health and safety risks from the following hazards must be prevented or adequately controlled:

- any article falling or being ejected from work equipment

- rupture or disintegration of work equipment
- work equipment catching fire or overheating
- the unintended or premature discharge of any article, or of any gas, dust, liquid, vapour or other substance which is produced, used or stored in the work equipment
- the unintended or premature explosion of the work equipment or any article or substance produced, used or stored in it.

21.29.12 *High or very low temperature – regulation 13*

Work equipment and any article or substance produced, used or stored in work equipment which is at a high or very low temperature must have protection to prevent injury by burn, scald or sear.

This does not cover risks such as from radiant heat or glare.

Engineering methods of control such as insulation, doors, temperature control and guards, should be used where practicable but, there are some cases, for example cooker hot plates, where this is not possible.

21.29.13 *Controls – regulations 14 to 18*

Where work equipment is provided with (regulation 14):

- starting controls (including restarting after a stoppage)
- controls which change speed, pressure or other operating condition which would affect health and safety

it should not be possible to perform any operation except by a deliberate action on the control. This does not apply to the normal operating cycle of an automatic device.

Where appropriate, one or more readily accessible **stop controls** shall be provided to bring the work equipment to a safe condition in a safe manner (regulation 15). They must:

- bring the work equipment to a complete stop where necessary
- if necessary switch off all sources of energy after stopping the functioning of the equipment
- operate in priority to starting or operating controls.

Where appropriate one or more readily accessible **emergency stop controls** (regulation 16) must be provided unless it is not necessary:

- by the nature of the hazard
- by reason of the time taken for the stop controls to bring the equipment to a complete stop.

Emergency stop controls must have priority over stop controls. They should be provided where other safeguards are not adequate to prevent risk when something irregular happens. They should not be used as a substitute for safeguards or the normal method of stopping the equipment.

All **controls** for work equipment shall (regulation 17):

- be clearly visible and identifiable including appropriate marking where necessary
- not expose any person to a risk to their health and safety except where necessary.

Where appropriate, employers shall ensure that:

- controls are located in a safe place
- systems of work are effective in preventing any person being in a danger zone when equipment is started
- an audible, visible or other suitable warning is given whenever work equipment is about to start.

Persons in a danger zone as a result of starting or stopping equipment must have sufficient time and suitable means to avoid any risks.

Control systems (regulation 18) must be safe and chosen so as to allow for failures, faults and constraints. They must:

- not create any increased risk to health and safety
- not result in additional or increased risks when failure occurs
- not impede the operation of any stop or emergency stop controls.

21.29.14 *Isolation from sources of energy – regulation 19*

Work equipment must be provided with readily accessible and clearly identified means to isolate it from all sources of energy.

Re-connection must not expose any person using the equipment to any risks.

The main purpose is to allow equipment to be made safe under particular circumstances, such as maintenance, when unsafe conditions occur, or when adverse conditions such as electrical equipment in a flammable atmosphere or wet conditions, occur.

If isolation may cause a risk in itself, special precautions must be taken, for example a support for a hydraulic press tool which could fall under gravity if the system is isolated.

21.29.15 *Stability – regulation 20*

Work equipment must be stabilized by clamping or otherwise as necessary to ensure health and safety.

Most machines used in a fixed position should be bolted or fastened so that they do not move or rock in use.

21.29.16 *Lighting – regulation 21*

Suitable and sufficient lighting, taking account of the operations being carried out, must be provided where people use work equipment.

This will involve general lighting and in many cases local lighting, such as on a sewing machine. If access for maintenance is required regularly, permanent lighting should be provided.

21.29.17 *Maintenance operations – regulation 22*

SFARP work equipment should be constructed or adapted to allow maintenance operations to be:

- conducted while they are shut down
- undertaken without exposing people to risk
- carried out after appropriate protection measures have been taken.

21.29.18 *Markings and warnings – regulations 23 and 24*

Work equipment should have all appropriate **markings** for reasons of health and safety made in a clearly visible manner. For example, the maximum SWL, stop and start controls, or the maximum rotation speed of an abrasive wheel.

Work equipment must incorporate **warnings or warning devices** as appropriate, which are unambiguous, easily perceived and easily understood.

They may be incorporated in systems of work, a notice, a flashing light or an audible warning. They are an active instruction or warning to take specific precautions or actions when a hazard exists.

21.29.19 *Mobile work equipment – regulations 25–30*

The main purpose of this section is to require additional precautions relating to work equipment while it is travelling from one location to another or where it does work while moving. If the equipment is designed primarily for travel on public roads the Road Vehicles (Construction and Use) Regulations 1986 will normally be sufficient to comply with PUWER 98.

Mobile equipment would normally move on wheels, tracks, rollers, skids, etc. Mobile equipment may be self-propelled, towed or remote controlled and may incorporate attachments. Pedestrian controlled work equipment such as lawn mowers is not covered by Part III.

21.29.20 *Employees carried on mobile work equipment – regulation 25*

No employee may be carried on mobile work equipment unless:

- it is suitable for carrying persons
- it incorporates features to reduce risks as low as is reasonably practicable, including risks from wheels and tracks.

21.29.21 *Rolling over of mobile work equipment and forklift trucks – regulations 26 and 27*

Where there is a risk of overturning it must be minimized by:

- stabilizing the equipment
- fitting a structure so that it only falls on its side (ROPS, roll over protection structure)
- fitting a structure which gives sufficient clearance for anyone being carried if it turns over further (ROPS)
- a device giving comparable protection
- fitting a suitable restraining system for people if there is a risk of being crushed by rolling over.

This regulation does not apply:

- to a fork truck fitted with ROPS
- where it would increase the overall risks
- where it would not be reasonably practicable to operate equipment
- to any equipment provided for use before 5 December 1998 where it would not be reasonably practicable.

21.29.22 *Overturning of forklift trucks – regulation 27*

Forklift trucks, which carry an employee, must be adapted or equipped to reduce the risk to safety from overturning to as low as is reasonably practicable.

21.29.23 *Self-propelled work equipment – regulation 28*

Where self-propelled work equipment may involve risks while in motion it shall have:

- facilities to prevent unauthorized starting
- (with multiple rail-mounted equipment) facilities to minimize the consequences of collision
- a device for braking and stopping
- (where safety constraints so require) emergency facilities for braking and stopping, in the event of

failure of the main facility, which have readily accessible or automatic controls
- (where the driver's vision is inadequate) devices fitted to improve vision
- (if used at night or in dark places) appropriate lighting fitted or otherwise it shall be made sufficiently safe for its use
- (if there is anything carried or towed that constitutes a fire hazard liable to endanger employees (particularly if escape is difficult such as from a tower crane)) appropriate firefighting equipment carried, unless it is sufficiently close by.

21.29.24 *Remote-controlled self-propelled work equipment – regulation 29*

Where remote-controlled self-propelled work equipment involves a risk while in motion it shall:

- stop automatically once it leaves its control range
- have features or devices to guard against the risk of crushing or impact.

21.29.25 *Drive shafts – regulation 30*

Where seizure of the drive shaft between mobile work equipment and its accessories or anything towed is likely to involve a risk to safety:

- the equipment must have means to prevent a seizure
- where it cannot be avoided, every possible measures should be taken to avoid risks
- the shaft should be safeguarded from contacting the ground and becoming soiled or damaged.

21.29.26 *Part IV – power presses*

Regulations 31–35 relate to power presses and are not included here as they are excluded from the NEBOSH Certificate syllabus. Details can be found in the Power Press ACOP.

21.29.27 *References*

Buying New Machinery. A Short Guide to the Law. INDG271, 1998 HSE Books, ISBN 9780-7176-1559-6.
Circular Saw Benches. WIS16, 1999 HSE Books.
Hiring and Leasing Out of Plant: Application of PUWER 98, Regulations 26 and 27. HSE MISC156, 1998 HSE Books.
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Using Work Equipment Safely. INDG229, 2002 HSE Books, ISBN 9780-7176-2389-0.

21.30 The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995

21.30.1 *Introduction*

These Regulations require the reporting of specified accidents, ill-health and dangerous occurrences to the enforcing authorities. The events all arise out of or in connection with work activities covered by the HSW Act. They include death, major injury and more than 3-day lost-time accidents. Schedules to the Regulations specify the details of cases of ill-health and dangerous occurrences.

For most businesses reportable events will be quite rare and so there is little for them to do under these Regulations apart from keeping the guidance and forms available and being aware of the general requirements.

21.30.2 *Definitions – regulation 2*

Accident includes an act of non-consensual physical violence done to a person at work.

This means that injuries through physical violence to people not at work are not reportable. Neither is any injury which occurs between workers over a personal matter or carried out by a visiting relative of a person at work to that person. However, if a member of the public caused injury to a person at work through physical violence, that is reportable.

Incidents involving acts of violence may well be reportable to the police, which is outside the requirements of these Regulations.

21.30.3 *Notification and reporting of major injuries and dangerous occurrences – regulation 3 (1), 4 and schedules 1 and 2*

The HSE or Local Authority shall be notified immediately by the quickest practicable means and sent a report form F2508 (or other approved means) within 10 days:

(a) following **death** of a person as a result of an accident arising out of or in connection with work. Also if death occurs within 1 year of an accident, the Authorities must be informed
(b) following **major Injury** to a person as a result of an accident arising out of or in connection with work
(c) where a person not at work suffers an injury as a result of or in connection with work, and that person is taken from the site to hospital for treatment
(d) where a person not at work suffers a major injury as a result of an accident arising out of or in connection with work at a hospital
(e) where there is a dangerous occurrence.

21.30.4 *Reporting of 3-day plus accidents – regulation 3 (2)*

Where a person at work is incapacitated for work of a kind which they might reasonably be expected to do, either under their own contract of employment or in the normal course of employment, for more than three consecutive days (excluding the day of the accident, but including any days which would not have been working days) because of an injury resulting from an accident at work, the responsible person shall within 10 days send a report on form F2508 or other approved form, unless it has been reported under regulation 3 (1) as a Major Injury, etc.

21.30.5 *Reporting of cases of disease – regulation 5*

Where a medical practitioner notifies the employer's responsible person that an employee suffers from a reportable work-related disease, a completed disease report form (F2508A) should be sent to the enforcing authority. The full list is contained in schedule 3 to the Regulations, which is summarized in this guide.

21.30.6 *Which enforcing authority?*

Local Authorities are responsible for retailing, some warehouses, most offices, hotels and catering, sports, leisure, consumer services, and places of worship.

The HSE are responsible for all other places of work.

21.30.7 *Records*

A record of each incident reported must be kept at the place of business for at least 3 years.

21.30.8 *Major injuries – schedule 1*

1. any fracture, other than to the fingers, thumbs or toes
2. any amputation
3. dislocation of the shoulder, hip, knee or spine
4. loss of sight (whether temporary or permanent)
5. a chemical or hot metal burn to the eye or any penetrating injury to the eye
6. any injury resulting from an electric shock or electrical burn (including any electrical burn caused by arcing or arcing products) leading to unconsciousness or requiring resuscitation or admittance to hospital for more than 24 hours
7. any other injury
   (a) leading to hypothermia, heat-induced illness or to unconsciousness
   (b) requiring resuscitation
   (c) requiring admittance to hospital for more than 24 hours
8. loss of consciousness caused by asphyxia or by exposure to a harmful substance or biological agent
9. either of the following conditions which result from the absorption of any substance by inhalation, ingestion or through the skin
   (a) acute illness requiring medical treatment
   (b) loss of consciousness
10. acute illness which requires medical treatment where there is reason to believe that this resulted from exposure to a biological agent or its toxins or infected material.

21.30.9 *Dangerous occurrences – schedule 2 summary*

Part I – General

1. **Lifting machinery, etc.**
   The collapse, overturning, or the failure of any load-bearing part of lifts and lifting equipment.

2. **Pressure systems**
   The failure of any closed vessel or of any associated pipe work, in which the internal pressure was above or below atmospheric pressure.
3. **Freight containers**
   The failure of any freight container in any of its load-bearing parts.
4. **Overhead electric lines**
   Any unintentional incident in which plant or equipment comes into contact with overhead power lines.
5. **Electrical short circuit**
   Electrical short circuit or overload attended by fire or explosion.
6. **Explosives**
   The unintentional explosion or ignition of explosives, misfire, the failure of the shots in any demolition operation to cause the intended extent of collapse, the projection of material beyond the boundary of the site, any injury to a person resulting from the explosion or discharge of any explosives or detonator.
7. **Biological agents**
   Any accident or incident which resulted or could have resulted in the release or escape of a biological agent likely to cause severe human infection or illness.
8. **Malfunction of radiation generators, etc.**
   Any incident in which the malfunction of a radiation generator or its ancillary equipment used in fixed or mobile industrial radiography, the irradiation of food or the processing of products by irradiation, causes it to fail to de-energize at the end of the intended exposure period; or to fail to return to its safe position at the end of the intended exposure period.
9. **Breathing apparatus**
   Any incident in which breathing apparatus malfunctions while in use, or during testing immediately prior to use.
10. **Diving operations**
    In relation to a diving project the failure or the endangering of diving equipment, the trapping of a diver, any explosion in the vicinity of a diver, any uncontrolled ascent or any omitted decompression.
11. **Collapse of scaffolding**
    The complete or partial collapse of any scaffold which is more than 5 m in height, erected over or adjacent to water, in circumstances such that there would be a risk of drowning to a person falling from the scaffold into the water; or the suspension arrangements of any slung or suspended scaffold which causes a working platform or cradle to fall.
12. **Train collisions**
    Any unintended collision of a train with any other train or vehicle.
13. **Wells**
    Any dangerous occurrence at a well other than a well sunk for the purpose of the abstraction of water.
14. **Pipelines or pipeline works**
    A dangerous occurrence in respect of a pipeline or pipeline works.
15. **Fairground equipment**
    The failure of any load-bearing part or the derailment or the unintended collision of cars or trains.
16. **Carriage of dangerous substances by road**
    Any incident involving a road tanker or tank container used for the carriage of dangerous goods in which the tanker overturns, is seriously damaged, there is an uncontrolled release or there is a fire.

Dangerous occurrences which are reportable except in relation to offshore workplaces

17. **Collapse of building or structure**
    Any unintended collapse or partial collapse of: any building or structure under construction, reconstruction, alteration or demolition which involves a fall of more than 5 tonnes of material; any floor or wall of any building; or any false-work.
18. **Explosion or fire**
    An explosion or fire occurring in any plant or premises which results in the suspension of normal work for more than 24 hours.
19. **Escape of flammable substances**
    The sudden, uncontrolled release inside a building:
    (i) of 100 kg or more of a flammable liquid
    (ii) of 10 kg or more of a flammable liquid above its boiling point
    (iii) of 10 kg or more of a flammable gas.
    500 kg or more of any of the substances, if released in the open air.
20. **Escape of substances**
    The accidental release or escape of any substance in a quantity sufficient to cause the death, major injury or any other damage to the health of any person.

21.30.10 *Reportable diseases – schedule 3 brief summary*

These include:

- certain poisonings
- some skin diseases such as occupational dermatitis, skin cancer, chrome ulcer, oil folliculitis/acne
- lung diseases, such as occupational asthma, farmer's lung, pneumoconiosis, asbestosis, mesothelioma
- infections such as leptospirosis, heptatitis, tuberculosis, anthrax, legionellosis and tetanus
- other conditions, such as occupational cancer, certain musculoskeletal disorders, decompression illness and hand–arm vibration (HAV) syndrome.

The details can be checked by consulting the guide, looking at the pad of report forms, checking the HSE's

website, or ringing the HSE's Infoline or the Incident Control Centre (ICC).

21.30.11 *References*

Accident Book. BI510, 2003 HSE Books, ISBN 9780-7176-2603-2.
A Guide to the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995. L73, 1999 HSE Books, ISBN 9780-7176-2431-5.
RIDDOR Explained. HSE31, 1999 HSE Books, ISBN 9780-7176-2441-2.
RIDDOR Information for Doctors. HSE32, 1996 HSE Books.
The Incident Contact Centre, MISC310, HSE.

21.31 Safety Representatives and Safety Committees Regulations 1977

These Regulations, made under the HSW ACT section 2(4), prescribe the cases in which recognized trade unions may appoint safety representatives, specify the functions of such representatives, and set out the obligations of employers towards them.

Employers' obligations to consult non-union employees are contained in the Health and Safety (Consultation with Employees) Regulations 1996.

21.31.1 *Appointment – regulation 3*

A recognized trade union may appoint safety representatives from among employees in all cases where one or more employees are employed. When the employer is notified in writing the safety representatives have the functions set out in regulation 4.

A person ceases to be a safety representative when:

- the appointment is terminated by the trade union
- they resign
- employment ceases.

A safety representative should have been with the employer for 2 years or have worked in similar employment for at least 2 years.

21.31.2 *Functions – regulation 4*

These are functions and not duties. They include:

- representing employees in consultation with the employer
- investigating potential hazards and dangerous occurrences
- investigating the causes of accidents
- investigating employee complaints relating to health, safety and welfare
- making representations to the employer on health, safety and welfare matters
- carrying out inspections
- representing employees at the workplace in consultation with enforcing inspectors
- receiving information
- attending safety committee meetings.

Safety representatives must be afforded time off with pay to fulfil these functions and to undergo training.

21.31.3 *Employers' duties – regulation 4a*

Every employer shall consult safety representatives in good time regarding:

- the introduction of any measure which may affect health and safety
- the arrangements for appointing or nominating competent person(s) under the Management Regulations
- any health and safety information required for employees
- the planning and organizing of any health and safety training for employees
- the health and safety consequences of introducing new technology.

Employers must provide such facilities and assistance as safety representatives may reasonably require to carry out their functions.

21.31.4 *Inspections – regulations 5 and 6*

Following reasonable notice in writing, safety representatives may inspect the workplace every quarter (or more frequently by agreement with the employer). They may inspect the workplace at any time, after consultation, when there have been substantial changes in the conditions of work or there is new information on workplace hazards published by the HSC or HSE.

Following an injury, disease or dangerous occurrence subject to RIDDOR, and after notifying the employer, where it is reasonably practicable to do so, safety representatives may inspect the workplace if it is safe.

Employers must provide reasonable assistance and facilities, including provision for independent investigation and private discussion with employees. The employer may be present in the workplace during inspections.

21.31.5 *Information – regulation 7*

Having given reasonable notice to the employer, safety representatives are entitled to inspect and take copies of any relevant statutory documents (except any health record of an identified person).

An exempt document is one:

- which could endanger national security
- which could cause substantial commercial injury to the employer
- which contravenes a prohibition
- that relates to an individual without their consent
- which has been obtained specifically for legal proceedings.

21.31.6 *Safety committees – regulation 9*

When at least two safety representatives have requested in writing that a safety committee is set up, the employer has 3 months to comply. The employer must consult with the safety representatives and post a notice stating its composition and the workplaces covered by it, in a place where it can be easily read by employees. The guidance gives details on the composition and running of safety committees.

21.31.7 *Complaints – regulation 11*

If the employer fails to permit safety representatives time off or fails to pay for time off, complaints can be made to an industrial tribunal within 3 months of the incident.

21.31.8 *References*

HSC, Safety Representatives and Safety Committees. (The Brown Book) Approved Code of Practice and Guidance on the Regulations, 3rd edition, L87, 1996 HSE Books, ISBN 9780-7176-1220-1.

21.32 Health and Safety (Safety Signs and Signals) Regulations 1996

21.32.1 *Introduction*

These Regulations came into force in April 1996, but if existing signs comply with BS 5378 and fire safety signs BS 5499 no changes are required. The results of the risk assessment made under the Management of Health and Safety At Work Regulations will have identified situations where there may be a residual risk when warnings or further information are necessary. If there is no significant risk there is no need to provide a sign.

21.32.2 *Definitions – regulation 2*

- 'Safety sign' means a sign referring to a specific object, activity or situation and providing information or instruction about health and safety at work by means of a signboard, a safety colour, an illuminated sign, an acoustic sign, a verbal communication or a hand signal.
- 'Signboard' means a sign which provides information or instructions by a combination of geometric shape, colour and a symbol or pictogram and which is rendered visible by lighting of sufficient intensity.
- 'Hand signal' means a movement or position of the arms or hands or a combination, in coded form, for guiding persons who are carrying out manoeuvres which create a risk to the health and safety of people at work.
- 'Acoustic signal' means a coded sound signal which is released and transmitted by a device designed for that purpose, without the use of a human or artificial voice.
- 'Verbal communication' means a predetermined spoken message communicated by a human or artificial voice.

21.32.3 *Provision and maintenance of safety signs – regulation 4*

The Regulations require employers to use and maintain a safety sign where there is a significant risk to health and safety that has not been avoided or controlled by other means, like engineering controls or safe systems of work, and where the use of a sign can help reduce the risk.

They apply to all workplaces and to all activities where people are employed, but exclude signs used in connection with transport or the supply and marketing of dangerous substances, products and equipment.

The Regulations require, where necessary, the use of road traffic signs in workplaces to regulate road traffic.

21.32.4 *Information, instruction and training – regulation 5*

Every employer shall ensure that:

- comprehensible and relevant information on the measures to be taken in connection with safety signs is provided to each employee
- each employee receives suitable and sufficient instruction and training in the meaning of safety signs.

21.32.5 *Functions of colours, shapes and symbols in safety signs*

Safety colours

Red

Red is a safety colour and must be used for any:

- prohibition sign concerning dangerous behaviour (e.g. the safety colour on a 'No Smoking' sign). Prohibition signs must be round, with a black pictogram on a white background with red edging and a red diagonal line (top left, bottom right). The red part must take up at least 35% of the area of the sign.
- danger alarm concerning stop, shutdown, emergency cut out devices, evacuate (e.g. the safety colour of an emergency stop button on equipment)
- firefighting equipment.

No fork-lift trucks

No smoking

Red and white alternating stripes may be used for marking surface areas to show obstacles or dangerous locations.

Yellow

Yellow (or amber) is a safety colour and must be used for any warning sign concerning the need to be careful, take precautions, examine or the like (e.g. the safety colour on hazard signs, such as for flammable material, electrical danger). Warning signs must be triangular, with a black pictogram on a yellow (or amber) background with black edging. The yellow (or amber) part must take up at least 50% of the area of the sign.

General danger

Explosive

Yellow and black alternating stripes may be used for marking surface areas to show obstacles or dangerous locations.

Yellow may be used in continuous lines showing traffic routes.

Blue

Blue is a safety colour and must be used for any mandatory sign requiring specific behaviour or action (e.g. the safety colour on a 'Safety Helmet Must Be Worn' sign or a 'Pedestrians Must Use This Route' sign). Mandatory signs must be round, with a white pictogram on a blue background. The blue part must take up at least 50% of the area of the sign.

Ear protection must be worn

Eye protection must be worn

Green

Green is a safety colour and must be used for: emergency escape signs (e.g. showing emergency doors, exits and routes) and first aid signs (e.g. showing location of first-aid equipment and facilities). Escape and first-aid signs must be rectangular or square, with a white pictogram on a green background. The green part must take up at least 50% of the area of the sign. So long as the green takes up at least 50% of the area, it is sometimes permitted to use a green pictogram on a white background, for example where there is a green wall and the reversal provides a more effective sign than one with a green background and white border; no danger.

Means of Escape

First Aid

Other colours

White

White is *not* a safety colour but is used: for pictograms or other symbols on blue and green signs; in alternating red and white stripes to show obstacles or dangerous locations; in continuous lines showing traffic routes.

Black

Black is *not* a safety colour but is used: for pictograms or other symbols on yellow (or amber) signs and, except

for fire signs, red signs; in alternating yellow and black stripes to show obstacles or dangerous locations.

Shapes

Round signs must be used for any prohibition (red) sign; mandatory (blue) sign.

Triangular signs must be used for any warning (yellow or amber) sign.

Square or rectangular signs must be used for any emergency escape sign and any first-aid sign.

Pictograms and other symbols

The meaning of a sign (other than verbal communication) must not rely on words. However, a sign may be supplemented with words to reinforce the message provided the words do not in fact distract from the message or create a danger.

A sign (other than verbal communication, acoustic signals or hand signals) should use a simple pictogram and/or other symbol (such as directional arrows, exclamation mark) to effectively communicate its message and so overcome language barriers.

Pictograms and symbols are included in the Regulations. Employee training is needed to understand the meaning of these since many are not inherently clear, some are meaningless to anyone who has not had their meaning explained and some can even be interpreted with their opposite meaning.

Pictograms and symbols included in the Regulations do not cover all situations for which graphic representation of a hazard or other detail may be needed. Any sign used for a situation not covered in the Regulations, should include:

- the international symbol for general danger (exclamation mark!) if the sign is a warning sign and tests show that the sign is effective
- in any other case a pictogram or symbol which has been tested and shown to be effective.

The text of any words used to supplement a sign must convey the same meaning. For example, a round blue sign with a pictogram showing the white outline of a face with a solid white helmet on the head means 'Safety Helmet Must Be Worn' and so any text used must maintain the obligatory nature of the message.

21.32.6 *References*

Health and Safety (Safety Signs and Signals) Regulations 1996. SI 1996/341, http://www.opsi.gov.uk/si/si1996/Uksi_19960341_en_2.htm#end.

Safety Signs and Signals Guidance on the Regulations. L64, 1996 HSE Books, ISBN 9780-7176-0870-0.

Signpost to the Health and Safety (Safety Signs and Signals) Regulations Guidance on the Regulations 1996. INDG 184, HSE Books, ISBN 9780-7176-1139-6.

21.33 Supply of Machinery (Safety) Regulations 1992

21.33.1 *Introduction*

The Supply of Machinery (Safety) Regulations 1992 entered into force on 1 January 1993, although there was a transitional period to 31 December 1994 during which the manufacturer or importer into the EC was able to choose between **either** the Community regime described below or complying with the health and safety legislation in force on 31 December 1992.

The Supply of Machinery (Safety) (Amendment) Regulations 1994 made a number of changes to the 1992 Regulations, in particular to widen the scope to include machinery for lifting persons and safety components for machinery. The main provisions of the amending Regulations entered into force on 1 January 1995.

Therefore from **1 January 1995**:

- most machinery supplied in the UK, including imports, must:
  - satisfy wide-ranging health and safety requirements, for example, on construction, moving parts and stability
  - in some cases, have been subjected to type examination by an approved body
  - carry CE marking and other information
- the manufacturer or the importer will generally have to be able to assemble a file containing technical information relating to the machine.

21.33.2 *Other relevant legislation to the supply of machinery*

The two sets of Regulations that will often apply are the:

- Electrical Equipment (Safety) Regulations 1994, which apply to most electrically powered machinery used in workplaces
- Electromagnetic Compatibility Regulations 1992, which cover equipment likely to cause electromagnetic disturbance, or whose performance is likely to be affected by electromagnetic disturbance.

In some cases, other laws may apply such as the Simple Pressure Vessels (Safety) Regulations 1991 or the Gas Appliances (Safety) Regulations 1995. All these Regulations implement European Directives and contain various requirements. The existence of CE marking on machinery should indicate that the manufacturer has met **all** of the requirements that are relevant.

Special transitional arrangements remain for products covered by existing Directives on roll-over and

falling-object protective structures and industrial trucks, and for safety components and machinery for lifting persons.

21.33.3 *Failure to comply with these requirements*

- will mean that the machinery cannot legally be supplied in the United Kingdom
- could result in prosecution and penalties, on conviction, of a fine up to £5,000 or, in some cases, of imprisonment for up to 3 months, or both.

The same rules apply everywhere in the European Economic Area (EEA), so machinery complying with the Community regime may be supplied in any EEA State.

21.33.4 *Coverage*

Machinery, described as:

- an assembly of linked parts or components, at least one of which moves, with the appropriate actuators, control and power circuits, joined together for a specific application, in particular for the processing, treatment, moving or packaging of a material
- an assembly of machines which, in order to achieve the same end, are arranged and controlled so that they function as an integral whole
- interchangeable equipment modifying the function of a machine which is supplied for the purpose of being assembled with a machine (or a series of different machines or with a tractor) by the operator himself in so far as this equipment is not a spare part or a tool.

Safety components for machinery, described as:

- components which are supplied separately to fulfil a safety function when in use and the failure or malfunctioning of which endangers the safety or health of exposed persons.

21.33.5 *Exceptions*

The Regulations do not apply to machinery or safety components:

- listed in Schedule 5 (see section 21.33.6)
- previously used in the EC or, since 1 January 1994 the EEA (e.g. second hand)
- for use outside the EEA which does not carry CE marking
- where the hazards are mainly of electrical origin (such machinery is covered by the Electrical Equipment (Safety) Regulations 1994)
- to the extent that the hazards are wholly or partly covered by other Directives, from the date those other Directives are implemented into UK law
- relating to machinery first supplied in the EC before 1 January 1993.
- to safety components or machinery for lifting persons first supplied in the EEA before 1 January 1995.

Such products first supplied on or after 1 January 1995 must comply **either** with the Supply of Machinery (Safety) Regulations or the UK health and safety legislation in force relating to these items on 14 June 1993. All such products first supplied after 1 January 1997 must comply with the Supply of Machinery (Safety) Regulations.

21.33.6 *Machinery excluded – Schedule 5 to the Regulations*

- machinery whose only power source is directly applied manual effort, unless it is a machine used for lifting or lowering loads
- machinery for medical use used in direct contact with patients
- special equipment for use in fairgrounds and/or amusement parks
- steam boilers, tanks and pressure vessels
- machinery specially designed or put into service for nuclear purposes, which, in the event of failure, may result in an emission of radioactivity
- radioactive sources forming part of a machine
- firearms
- storage tanks and pipelines for petrol, diesel fuel, highly flammable liquids and dangerous substances
- means of transport, that is vehicles and their trailers intended solely for transporting passengers by air or on road, rail or water networks. Also, transport, which is designed for transporting goods by air, on public road or rail networks or on water. Vehicles used in the mineral extraction industry are not excluded
- sea-going vessels and mobile offshore units together with equipment on board, such as vessels or units
- cableways, including funicular railways, for the public or private transportation of people
- agriculture and forestry tractors, as defined by certain European Directives
- machines specially designed and constructed for military or police purposes
- certain goods and passenger lifts

- means of transport of people using rack and pinion rail-mounted vehicles
- mine winding gear
- theatre elevators
- construction site hoists intended for lifting individuals or people and goods.

21.33.7 *General requirements*

Subject to the exceptions and transitional arrangements described above, the Regulations make it an offence for a 'responsible person' to supply machinery or a safety component unless:

- it satisfies the essential health and safety requirements
- the appropriate conformity assessment procedure has been carried out
- an EC declaration of conformity or declaration of incorporation has been issued
- CE marking has been properly affixed (unless a declaration of incorporation has been issued)
- it is, in fact, safe.

The Regulations also make it an offence for any supplier to supply machinery or a safety component **unless it is safe**.

21.33.8 *Essential health and safety requirements*

To comply with the Regulations, machinery and safety components must satisfy the essential health and safety requirements (set out in Schedule 3 to the Regulations), which apply to it. The requirements are wide ranging, and take into account potential dangers to operators and other exposed persons within a 'danger zone'. Aspects covered in Part 1 include: the materials used in the construction of the machinery; lighting; controls; stability; fire; noise; vibration; radiation; emission of dust, gases, etc.; and maintenance. Part 2 has additional requirements for agri-foodstuffs machinery, portable hand-held machinery, and machinery for working wood and analogous materials. Part 3 deals with particular hazards associated with mobility, Part 4 with those associated with lifting, Part 5 with those associated with underground working and Part 6 with those associated with the lifting or moving of persons. The requirements also comment on instructions (including translation requirements) and marking.

When applying the essential health and safety requirements, technical and economic limitations at the time of construction may be taken into account.

21.33.9 *Standards*

Machinery and safety components manufactured in conformity with specified, published European standards which have also been published as identically worded national standards (transposed harmonized standards), will be presumed to comply with the essential health and safety requirements covered by those standards.

The European Committee for Standardization (CEN) is working to produce a complex of European standards at three levels in support of the Machinery Directive. The first (A) level comprises general principles for the design of machinery. The second (B) level covers specific safety devices and ergonomic aspects. The third (C) level deals with specific classes of machinery by calling up the appropriate standards from the first two levels and addressing requirements specific to the class.

21.33.10 *Step 1 – conformity assessment (attestation)*

The Annexes refer to the Product Standards Machinery Guide URN 95/650. (See Reference 21. 33. 65).

The responsibility for demonstrating that the machinery or safety component satisfies the essential health and safety requirements rests on the 'responsible person'.

For most machinery or safety components (other than those listed in Annex D): the 'responsible person', must be able to assemble the technical file described in the Regulations.

For machinery or safety components listed in Annex D: the 'responsible person' must follow the special procedures described below.

21.33.11 *Step 2 – declaration procedure*

Declaration of conformity: the 'responsible person' must then draw up an EC declaration of conformity, described in Annex G, for each machine or safety component supplied. This declaration is intended to be issued with the machine or safety component and declares that it complies with the relevant essential health and safety requirements or with the example that underwent type-examination.

Declaration of incorporation: alternatively, where the machinery is intended for incorporation into other machinery or assembly with other machinery to constitute machinery covered by the Regulations, the 'responsible person' may draw up a declaration of incorporation, described in Annex H, for each machine.

21.33.12 *Step 3 – marking*

Once a declaration of conformity has been issued, the 'responsible person' must affix the CE marking to the machinery.

CE markings must be affixed in a distinct, visible, legible and indelible manner.

The CE marking should not be affixed to safety components or for machinery for which a declaration of incorporation has been issued.

The Regulations make it an offence to affix a mark to machinery that may be confused with CE marking.

21.33.13 *Enforcement*

In Great Britain, the HSE is responsible for enforcing the Regulations in relation to machinery and safety components for use at work. Local authority Trading Standards Officers are responsible for enforcement in relation to machinery and safety components for private use.

In Northern Ireland, the Department of Economic Development and the Department of Agriculture are responsible for enforcing the Regulations in relation to machinery and safety components for use at work. District councils are responsible for enforcement in relation to machinery and safety components for private use.

The enforcement authorities have available to them various powers under the Health and Safety at Work etc Act 1974, the Health and Safety at Work (Northern Ireland) Order 1978 and the Consumer Protection Act 1987, for example, relating to suspension, prohibition and prosecution.

Where machinery bearing the CE marking is safe, but there are breaches of other obligations, the 'responsible person' will be given the opportunity to correct the breach before further enforcement action is taken.

The Machinery Directive, as amended, requires Member States to inform the European Commission of any specific enforcement action taken. The Commission will consider whether the action is justified and advise the parties concerned accordingly.

21.33.14 *Penalties*

The maximum penalty for contravening the prohibition on supply of non-compliant machinery and safety components is imprisonment for up to 3 months or a fine of up to £5,000 or both. The penalty for other contraventions of the Regulations is a fine of up to the same amounts. It is for the courts to decide the penalty in any given case, taking into account the severity of the offence.

The Regulations provide a defence of due diligence. They also provide for proceedings to be taken against a person other than the principal offender, if it is the other person's fault, and against officers of a company or other body corporate.

21.33.15 *References*

Buying New Machinery: A Short Guide to the Law, INDG 271, 1998 HSE Books, ISBN 9780-7176-1559-6.

Supplying New Machinery Advice to Suppliers, INDG270, 1998 HSE Books, ISBN 9780-7176-1560-X.

Product Standard-Machinergy Guideline Noes on UK Regulation 1995 URN 95/650 www.Berr.gov.uk/files/file1127.pdf

21.34 Control of Vibration at Work Regulations 2005

21.34.1 *Introduction*

These Regulations implement European Directive Vibration Directive 2002/44/EC. They came into force in July 2005 with some transitional arrangements for the exposure limits until 2010 (2014 for WBV (whole-body vibration) exposure limit value for agriculture and forestry sectors).

The Regulations impose duties on employers to protect employees who may be exposed to risk from vibration at work, and other persons who may be affected by the work.

21.34.2 *Interpretation – regulation 2*

'Daily exposure' means the quantity of mechanical vibration to which a worker is exposed during a working day, normalized to an 8 hour reference period, which takes account of the magnitude and duration of the vibration.

'Hand–arm vibration' (HAV) means mechanical vibration which is transmitted into the hands and arms during a work activity.

'Whole-body vibration' (WBV) means mechanical vibration which is transmitted into the body when seated or standing through the supporting surfaces, during a work activity or as described in regulation 5 (3) (f).

21.34.3 *Application – regulation 3*

For work equipment first provided to employees for use prior to 6th July 2007 and where compliances with the exposure limit values is not possible, employers have until 2010 to comply and in the case of agriculture and forestry, 2014 (for WBV).

However, action must be taken to use the latest technical advances and the organizational measures in accordance with regulation 6 (2)

21.34.4 *Exposure limit values and action values – regulation 4*

HAV: (a) 8 hour daily exposure limit value is 5 m/s^2 A (8).
(b) 8 hour daily exposure action value is 2.5 m/s^2 A (8).
(c) Daily exposure is ascertained as set out in schedule 2 Part I.

WBV: (a) 8 hour daily exposure limit value is 1.15 m/s^2 A (8).
(b) 8 hour daily exposure action value is 0.5 m/s^2 A (8).
(c) Daily exposure is ascertained as set out in schedule 2 Part I.

21.34.5 *Assessment of risk to health created by vibration at the workplace – regulation 5*

A suitable and sufficient risk assessment must be made where work liable to expose employees is carried on. The risk assessment must identify the measures which need to be taken to comply with these Regulations.

Assessment of daily exposure should be by means of:

- observation of specific working practices
- reference to relevant work equipment vibration data
- if necessary, measurement of the magnitude of vibration to which employees are exposed and
- likelihood of exposure at or above an exposure action value or above an exposure limit value.

The risk assessment shall include consideration of:

- the magnitude, type and duration of exposure, including any exposure to intermittent vibration or repeated shocks
- the effects of exposure to vibration on employees whose health is at particular risk from such exposure
- any effects of vibration on the workplace and work equipment, including the proper handling of controls, the reading of indicators, the stability of structures and the security of joints
- any information provided by the manufacturers of work equipment
- the availability of replacement equipment designed to reduce exposure to vibration
- any extension of exposure at the workplace to whole-body vibration beyond normal working hours, including exposure in rest facilities supervised by the employer
- specific working conditions such as low temperatures and
- appropriate information obtained from health surveillance including, where possible, published information.

The risk assessment shall be reviewed regularly and forthwith if:

- there is reason to suspect that the risk assessment is no longer valid or
- there has been a significant change in the work to which the assessment relates,

and where, as a result of the review, changes to the risk assessment are required, those changes shall be made.

The employer shall record:

- the significant findings of the risk assessment as soon as is practicable after the risk assessment is made or changed and
- the measures which he has taken and which he intends to take to meet the requirements of regulation 6.

21.34.6 *Elimination or control of exposure to vibration at the workplace – regulation 6*

Following the general principles of prevention in the Management Regulations, the employer shall ensure that risk from the exposure of his employees to vibration is either eliminated at source or reduced to as low as reasonably practicable.

Where this is not reasonably practicable and the risk assessment indicates that an exposure action value is likely to be reached or exceeded, the employer shall reduce exposure to as low as reasonably practicable by establishing and implementing a programme of organizational and technical measures which is appropriate.

Consideration must be given to:

- other working methods which eliminate or reduce exposure to vibration
- a choice of work equipment of appropriate ergonomic design which, taking account of the work to be done, produces the least possible vibration
- the provision of auxiliary equipment which reduces the risk of injuries caused by vibration
- appropriate maintenance programmes for work equipment, the workplace and workplace systems
- the design and layout of workplaces, work stations, and rest facilities
- suitable and sufficient information and training for employees, such that work equipment may be used correctly and safely, in order to minimize their exposure to vibration
- limitation of the duration and intensity of exposure to vibration
- appropriate work schedules with adequate rest periods and
- the provision of clothing to protect employees from cold and damp.

Subject to implementation dates, the employer shall:

- ensure that his employees are not exposed to vibration above an exposure limit value or
- if an exposure limit value is exceeded, he shall forthwith:
  - take action to reduce exposure to vibration to below the limit value
  - identify the reason for that limit being exceeded and
  - modify the organizational and technical measures taken in accordance with paragraph (2) to prevent it being exceeded again.

This shall not apply where the exposure of an employee to vibration is usually below the exposure action value

but varies markedly from time to time and may occasionally exceed the exposure limit value, provided that:

- any exposure to vibration averaged over 1 week is less than the exposure limit value
- there is evidence to show that the risk from the actual pattern of exposure is less than the corresponding risk from constant exposure at the exposure limit value
- risk is reduced to as low as reasonably practicable, taking into account the special circumstances and
- the employees concerned are subject to increased health surveillance, where such surveillance is appropriate.

Account must be taken of any employee whose health is likely to be particularly at risk from vibration.

21.34.7 *Health surveillance – regulation 7*

If:

- the risk assessment indicates that there is a risk to the health of his employees who are, or are liable to be, exposed to vibration or
- employees are exposed to vibration at or above an exposure action value

the employer shall ensure that such employees are under suitable health surveillance. Records must be kept and employees given access to their own records and the enforcing authorities provided with copies, as may be required. A range of specified action is required if problems are found with the health surveillance results.

21.34.8 *Information, instruction and training – regulation 8*

If:

- the risk assessment indicates that there is a risk to the health of employees who are, or who are liable to be, exposed to vibration or
- employees are exposed to vibration at or above an exposure action value

the employer shall provide those employees and their representatives with suitable and sufficient information, instruction and training.

The information, instruction and training provided shall include:

- the organizational and technical measures taken in order to comply with the requirements of regulation 6
- the exposure limit values and action values
- the significant findings of the risk assessment, including any measurements taken
- why and how to detect and report signs of injury
- entitlement to appropriate health surveillance
- safe working practices to minimize exposure to vibration; and
- the collective results of any health surveillance undertaken in accordance with regulation 7 in a form calculated to prevent those results from being identified as relating to a particular person.

The information, instruction and training required must be adapted to take account of significant changes in the type of work carried out or methods of work used by the employer, and cover all persons who carry out work in connection with the employer's duties under these Regulations.

21.34.9 *References*

Control of Vibration at Work Regulations 2005. SI 2005 No. 1093.

Control Back-Pain Risks from Whole-Body Vibration Advice for Employers on the Control of Vibration at Work Regulations 2005. INDG242 (rev1), 2005 HSE Books, ISBN 9780-7176-6119-9.

Drive away Bad Backs Advice for Mobile Machine Operators and Drivers. INDG404, 2005 HSE Books, ISBN 9780-7176-6120-2.

Hand Arm Vibration: Guidance on the Control of Vibration at Work Regulations 2005, L140, 2005 HSE Books, ISBN 9780-7176-6125-3.

Hand–Arm Vibration Advice for Employees. INDG296 (rev1), 2005 HSE Books, ISBN 9780-7176-6118-0.

Health risks from hand–arm vibration, Advice for employers on the Control of Vibration at Work Regulations 2005. INDG 175 (rev2), 2005 HSE Books, ISBN 9780-7176-6117-2.

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Power Tools, How to Reduce Vibration Health Risks. INDG338, 2001 HSE Books, ISBN 9780-7176-2008-5.

Vibration Solutions Practical Way to Reduce the Risk of Hand–Arm Vibration. HSG 170, 1997 HSE Books, ISBN 9780-7176-0954-5.

Whole-Body Vibration: The Control of Vibration at Work Regulations 2005, Guidance on the Regulations. L141, 2005 HSE Books, ISBN 9780-7176-6126-1.

21.35 Workplace (Health, Safety and Welfare) Regulations 1992 as amended in 2002

21.35.1 *General*

These Regulations were made to implement the European Directive on the minimum safety and health requirements

for the workplace. A workplace for these purposes is defined very widely to include any part of non-domestic premises to which people have access while at work and any room, lobby, corridor, staircase or other means of access to or exit therefrom. The main exceptions to these rules are construction sites, means of transport, mines and quarries and other mineral extraction sites.

The main requirements are summarized below. They are expressed in very general terms, and in each case it will be necessary to turn to the ACOP associated with these Regulations for clarification of what is necessary to meet the objectives set. The requirements of people with a disability must now be taken into account following amendments in 2002.

21.35.2 *Health – the working environment – regulations 6–10*

Ventilation
Ventilation must be effective in enclosed areas, and any plant used for this purpose must incorporate warning devices to signal breakdowns which might endanger health or safety.

A reasonable temperature
A reasonable temperature must be maintained during working hours and sufficient thermometers must be provided to enable people at work to determine the temperature in any workroom. The temperature should be comfortable without the need for special clothing. Special guidance is available for areas like food processing where it could be very hot or very cold.

Temperature should be at least 16°C or, where strenuous effort is involved, 13°C. Workrooms should be adequately thermally insulated where necessary. The excessive effects of sunlight on temperature must be avoided.

Lighting
Lighting must be suitable and sufficient. This should be natural lighting SFARP.

Emergency lighting
Emergency lighting shall be provided where persons are particularly exposed to danger if artificial light fails. Lights should avoid glare and dazzle and should not themselves cause a hazard. They should not be obscured and should be properly maintained.

Workplaces, furniture and fittings
Workplaces, furniture and fittings should be kept sufficiently clean. Surfaces inside buildings shall be capable of being kept sufficiently clean.

Floors
Floors should not be slippery and wall surfaces should not increase fire risks.

Waste
Waste should not be allowed to accumulate, except in suitable receptacles and these receptades should be kept free from offensive waste products and discharges which should be dealt with in a specialist way.

Room dimensions
Room dimensions have to allow adequate unoccupied space to work in and to move freely. 11 m^3 minimum per person is required, excluding anything over 3 m high and furniture etc.

Workstations
Workstations shall be suitable for any persons in the workplace who are likely to work at those workstations and for any work that is likely to be done there.

Outside workstations
Outside workstations shall provide, SFARP, protection from adverse weather; and adequate means of escape in emergencies; and ensure that no person is likely to slip or fall.

Seating
Seating shall be provided where work can or must be done sitting and shall be suitable for the person as well as the work. A footrest shall be provided where necessary.

21.35.3 *Safety – accident prevention – regulations 5, 12–19*

Maintenance
The workplace and equipment, devices and systems shall be maintained (including being cleaned as appropriate) in an efficient state, efficient working order and in good repair, and where appropriate subjected to a system of maintenance. This generally means planned rather than breakdown maintenance. Systems including ventilation, emergency lighting, safety fences, window cleaning devices and moving walkways are all given as examples.

Floors and traffic routes
Floors and the surface of traffic routes shall be suitably constructed for their intended purpose and free of slope and holes (unless fenced). They should not be uneven or slippery. The traffic routes should be of adequate width and height to allow people and vehicles to circulate

safely with ease and they should be kept free of obstructions.

Additional precautions are necessary where pedestrians have to cross or share vehicle routes. Open sides of staircases should be fenced with an upper rail 900 mm or higher and a lower rail. Loading bays should have exits or refuges to avoid people getting crushed by vehicles.

Falls and falling objects
Now covered by the Work at Height Regulations 2005.

Tanks and pits
Where there is a risk of falling into a tank, pit or structure containing a dangerous substance that is likely to:

- scald or burn
- be poisonous or corrosive
- have an asphyxiating gas, fume or vapour or
- have any granular or free-flowing substance likely to cause harm

measures must be taken to securely fence or cover the tank, pit or structure.

Ladders and roofs
Now covered by the Work at Height Regulations 2005.

Glazing
Windows and transparent doors and partitions must be appropriately marked and protected against breakage.

Windows
Windows and skylights must open and close safely, and be arranged so that people may not fall out of them. They must be capable of being cleaned safely.

Traffic routes
Pedestrians and vehicles must be able to circulate safely. Separation should be provided between vehicle and people at doors, gateways and common routes. Workplaces should have protection from vehicles.

Doors and gates
Doors, gates and moving walkways have to be of sound construction and fitted with appropriate safety devices.

21.35.4 *Welfare – provision of facilities – regulations 20–25*

Sanitary conveniences and washing facilities
Suitable and sufficient sanitary conveniences and washing facilities should be provided at readily accessible places. The facilities must be kept clean, adequately ventilated and lit. Washing facilities should have running hot and cold or warm water, soap and clean towels or other method of cleaning or drying. If necessary, showers should be provided. Men and women should have separate facilities unless each facility is in a separate room with a lockable door and is for use by only one person at a time.

Drinking water
An adequate supply of wholesome drinking water, with an upward drinking jet or suitable cups, should be provided. Water should only be supplied in refillable enclosed containers where it cannot be obtained directly from a mains supply.

Accommodation for clothing and facilities for changing
Adequate, suitable and secure space should be provided to store workers' own clothing and special clothing. The facilities should allow for drying clothing. Changing facilities should also be provided for workers who change into special work clothing. They must be easily accessible, of sufficient capacity and provided with seating.

Facilities to rest and to eat meals
Suitable and sufficient, readily accessible, rest facilities should be provided. Arrangements should include suitable facilities to eat meals; adequate number of seats with backrests and tables to accommodate the number of persons likely to use them at any one time; means of heating food (unless hot food is available nearby) and making hot drinks; adequate and suitable seating for people employed with a disability.

Canteens or restaurants
Canteens and restaurants may be used as rest facilities provided there is no obligation to purchase food.

Suitable rest facilities
Suitable rest facilities should be provided for pregnant women and nursing mothers. They should be near sanitary facilities and where necessary, include the facility to lie down.

Non-smokers
This is now covered by the smoke-free legislation which bans smoking in largely enclosed or enclosed work and public premises.

21.35.5 *Accommodation for people with a disability*

In 2002 a new regulation 25a was added stating that where necessary, those parts of the workplace (including in particular doors, passageways, stairs, showers, wash-basins, lavatories and workstations) used or occupied directly by disabled persons at work shall be organized to take account of such persons.

21.35.6 *References*

General Ventilation in the Workplace: Guidance for employers. HSG 202, 2000 HSE Books, ISBN 9780-7176-1793-9.

How to Deal with Sick Building Syndrome: Guidance for Employers, Building Owners and Building Managers. HSG 132, 1995 HSE Books, ISBN 9780-7176-0861-1.

Lighting at Work. HSG 38, 1996 HSE Books, ISBN 9780-7176-1232-5.

Seating at Work. HSG 57, 1997 HSE Books, ISBN 9780-7176-1231-7.

Workplace (Health, Safety and Welfare) Regulations 1992. ISBN 9780-11-025804-5 OPSI: http://www.opsi.gov.uk/si/si1992/Uksi_19923004_en_1.htm.

Workplace Health, Safety and Welfare. Workplace (Health, Safety and Welfare) Regulations 1992 Approved Code of Practice and Guidance. L24, 1992 HSE Books, ISBN 9780-7176-0413-6.

Workplace Health, Safety and Welfare. A Short Guide, INDG244, 1997 HSE Books, ISBN 9780-7176-1328-3.

21.36 Work at Height Regulations 2005 as amended in 2007

21.36.1 *Introduction*

These Regulations bring together all current requirements on work at height into one goal-based set of Regulations. They implement the requirements of the 2nd Amending Directive (2001/45/EC) to the Use of Work Equipment Directive (89/955/EEC) which sets out requirements for work at height. The 2nd Amending Directive has become known as the Temporary Work at Height Directive.

The Work at Height (Amendment) Regulations 2007 which came into force on 6 April 2007 apply to those who work at height providing instruction or leadership to one or more people engaged in caving or climbing by way of sport, recreation, team building or similar activities in Great Britain.

The WAH Regulations require a risk assessment for all work conducted at height and arrangements to be put in place for:

- eliminating or minimizing risks from working at height
- safe systems of work for organizing and performing work at height
- safe systems for selecting suitable work equipment to perform work at height
- safe systems for protecting people from the consequences of work at height.

21.36.2 *Definitions – regulation 2*

'Work at height' means:

- work in any place, including a place at or below ground level
- obtaining access to or egress from such place while at work except by a staircase in a permanent workplace.

where, if measures required by these Regulations were not taken, a person could fall a distance liable to cause personal injury.

'Working platform':

- means any platform used as a place of work or as a means of access to or egress from a place of work
- includes any scaffold, suspended scaffold, cradle, mobile platform, trestle, gangway, gantry and stairway which is so used.

21.36.3 *Organization, planning and competence – regulations 4 and 5*

Work at height must be properly planned, appropriately supervised and carried out in a manner which is, SFARP, safe. The selection of appropriate work equipment is included in the planning. Work must not be carried out if the weather conditions would jeopardize safety or health (this does not apply where members of the police, fire, ambulance or other emergency services are acting in an emergency).

All people involved in work at height activity including planning, organizing and supervising must be competent for such work, or if being trained, under competent supervision.

21.36.4 *Avoidance of risk – regulation 6*

A risk assessment carried out under the Management Regulations must be taken into account when identifying

the measures required by these Regulations. Work at height should be avoided if there are reasonably practicable alternatives.

Where work at height is carried out employers must take suitable and sufficient measures to prevent persons falling a distance liable to cause personal injury. The measures include:

(a) ensuring work is carried out
- from an existing workplace
- using existing means of access and egress that comply with schedule 1 of the Regulations (assuming it is safe and ergonomic to do so)

(b) where this is not reasonably practicable, providing work equipment (SFARP) to prevent a fall occurring.

Employers must take steps to minimize the distance and the consequences of a fall, if it is not prevented. Where the distance cannot be minimized (SFARP) the consequence of a fall must be minimized and additional training, instruction and other additional suitable and sufficient measures must be adopted to prevent a person falling a distance liable to cause personal injury.

21.36.5 *General principles for selection of work equipment – regulation 7*

Collective protection measures must have priority over personal protection measures.

Employers must take account of:

- working conditions and the risks to the safety of persons at the place where the work equipment is to be used
- the distance to be negotiated for access and egress
- distance and consequences of a potential fall

Work at height flow chart

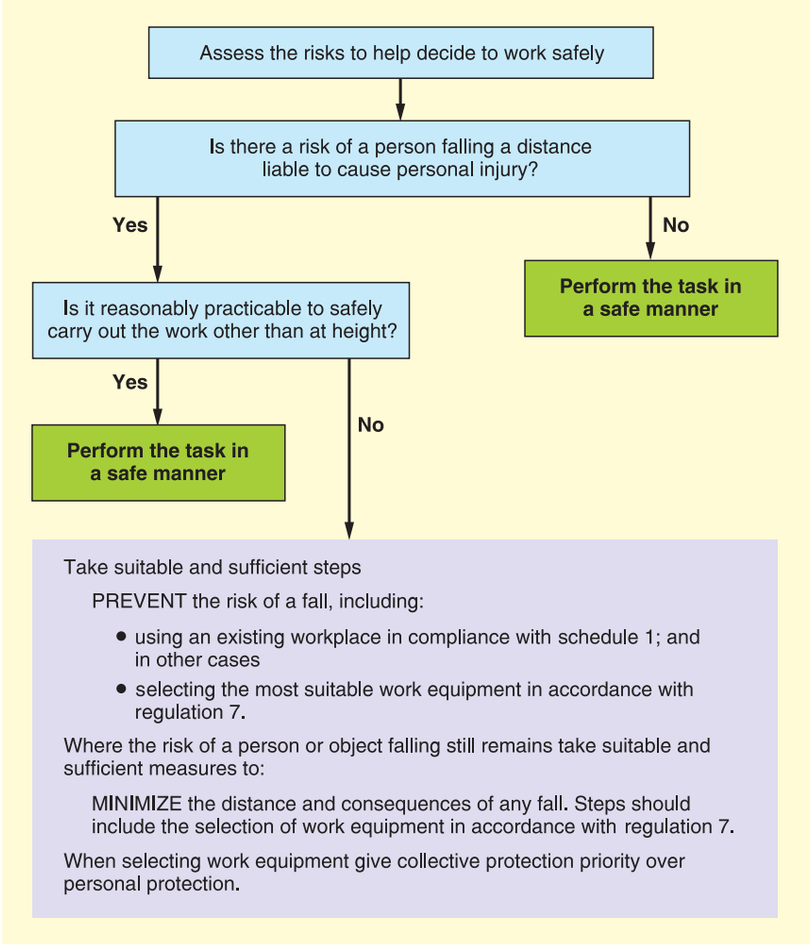

Figure 21.5 Work at height flow chart.

- duration and frequency of use
- need for evacuation and rescue in an emergency
- additional risks of using, installing and removing the work equipment used or evacuation and rescue from it
- other provisions of the Regulations.

Work equipment must:

- be appropriate for the nature of the work and the foreseeable loadings
- allow passage without risk
- be the most suitable work equipment having regard in particular to regulation 6.

21.36.6 *Requirements for particular work equipment – regulation 8*

Regulation 8 requires that various pieces of work equipment comply with the schedules to the Regulations as follows:

(a) A guard rail, toe-board, barrier or similar means of protection, must comply with schedule 2:

Schedule 2 in summary: the equipment

- must be suitable, of sufficient dimensions, of sufficient strength and rigidity
- must be so placed, secured and used to prevent accidental displacement
- must prevent fall of persons and materials
- must have supporting structure of sufficient strength and suitable for the purpose
- must have no lateral opening save at point of access to a ladder or stairway where an opening is necessary; and:
  - must be in place except for a time to gain access perform a particular task and then replaced
  - must have compensatory safety measures provided if protection removed temporarily.

(b) A working platform must comply with schedule 3 Part 1 and, in addition, where scaffolding is provided, schedule 3 Part 2.

Schedule 3 Part 1 in summary
Supporting structures must:

- be suitable, of sufficient strength and rigidity
- if wheeled, prevented, by appropriate device, from moving during work
- not slip and must have secure attachment
- be stable while being erected, used when modified, or dismantled.

Working platform to:

- be suitable and strong enough
- have no accidental displacement of components
- remain stable during dismantling
- be dismantled so as to prevent accidental displacement
- be of sufficient dimensions for safe passage and use
- have a suitable surface and be constructed to prevent people falling through
- have a suitable surface and be constructed to prevent material or objects falling through unless measures have been taken to protect other persons from falling objects
- be erected, used and maintained so that risk of slipping and tripping is prevented and no person can be caught between working platform and adjacent structure
- not be loaded so as to give risk of collapse or deformation.

Schedule 3 Part 2 additional for scaffolds:

- strength and stability calculations required unless they are available already or scaffold is assembled in conformity with a generally recognized standard configuration
- an assembly, use and dismantling plan to be be drawn up; could be standard plan with supplements
- copy of the plan and instructions to be available for persons doing the work
- dimensions, form and layout to be suitable
- when not available for use to be marked with warning signs and physical barrier preventing access
- must be assembled, dismantled or significantly altered under supervision of competent person.

(c) A net, airbag or other collective safeguard for arresting falls which is not part of a personal fall protection system, must comply with schedule 4.

(d) Any personal fall protection system to comply with Part 1 of schedule 5 and
- in the case of a work positioning system, comply with Part 2 of schedule 5
- in the case of rope access and positioning techniques, comply with Part 3 of schedule 5
- in the case of a fall arrest system, comply with Part 4 of schedule 5
- in the case of a work restraint system, comply with Part 5 of schedule 5.

(e) A ladder must comply with schedule 6.

Schedule 6 in summary:

- only to be used for work at height if the risk assessment demonstrates that the use of more suitable equipment is not justified because of the low risk and the short duration of use or existing features on site that cannot be altered
- surface on which ladder rests must be stable, firm, and of sufficient strength and suitable composition such that its rungs remain horizontal
- must be positioned to ensure stability
- suspended ladder attached firmly without swing (except flexible ladder)
- portable ladder to be prevented from slipping by securing the stiles near their upper and lower ends and using an anti-slip device or by any other equivalent measures
- when used for access must protrude above place of landing unless other firm handholds provided
- interlocking or extension pieces must not move, relative to each other, during use
- mobile ladder to be prevented from moving before being stepped on
- sufficient safe landings provided for vertical distances of 9 m or more above base
- must be used so that a secure foothold and handhold always available
- must be used so that user can maintain a secure handhold while carrying a load (exceptions for using stepladders for low risk, short duration work).

21.36.7 *Fragile surfaces – regulation 9*

Employers must take steps to prevent people falling through any fragile surface. Steps to be taken include:

- avoiding, SFARP, passing across or near, or working on or near, a fragile surface
- where this is not reasonably practicable:
  - providing suitable and sufficient platforms, covering, guard rails or other similar means of support or protection and using them
  - providing suitable and sufficient guard rails to prevent persons falling through fragile surfaces
  - where a risk of falling remains taking suitable and sufficient measures to minimize the distances and consequences of a fall.
- providing prominent warning signs at approach to the fragile surface, or if not reasonably practicable making people aware of the fragile surface
- where the risk of falling remains despite the precautions providing a suitable and sufficient fall arrest system.

21.36.8 *Falling objects and danger areas – regulations 10 and 11*

Suitable and sufficient steps must be taken to:

- prevent the fall of any material or object
- if not reasonably practicable, prevent the fall of any material or object, prevent persons being struck by falling objects or material (if liable to cause personal injury) by for example providing covered walkways or fan scaffolds
- prevent materials or objects being thrown or tipped from height where they are likely to cause injury
- store materials and objects in such a way as to prevent risk to any person arising from the collapse, overturning or unintended movement
- where danger of being struck exists, keeping unauthorized persons out of the area by suitable devices, the area being clearly indicated and
- store materials and objects so as to prevent them collapsing, overturning or moving in a way that could be a risk to people.

21.36.9 *Inspection of work equipment – regulation 12*

This regulation applies only to work equipment to which regulation 8 and schedules 2–6 apply. The requirements include the following:

- Where work equipment used for work at height depends for safety on how it is installed or assembled, the employer must ensure that it is not used after installation or assembly in any position unless it has been inspected in that place.
- Where work equipment is exposed to conditions causing deterioration which is liable to result in dangerous situations, it must also be inspected at suitable intervals and each time that exceptional circumstances which are liable to jeopardize the safety of the work equipment have occurred, for example a severe storm.
- In addition a working platform used for construction and from which a person could fall more than 2 m has to be inspected in that position (mobile equipment on the site) before use and within the previous 7 days; the particulars for this inspection are set out in schedule 7.
- No work equipment (lifting equipment is covered under LOLER) may either leave the undertaking or be obtained from another undertaking without evidence of in-date inspection.
- Results of inspections must be recorded and retained until the next due inspection is recorded; reports must be provided within 24 hours and kept at the site until

construction work is complete and there-after at the office for 3 months.

21.36.10 *Inspection of places of work at height – regulation 13*

The surface and every parapet, permanent rail or other such fall protection measure of every place of work at height must be checked on each occasion before the place is used.

21.36.11 *Duties of persons at work – regulation 12*

Every person must, where working under the control of another person, report to that person any activity or defect relating to work at height which they know is likely to endanger themselves or others.

Work equipment must be used in accordance with training and instructions.

21.36.12 *References*

A Head for Heights Guidance for Working at Height in Construction. Video, 2003 HSE Books, ISBN 9780-7176-2217-7.

A Tool Box Talk on Leaning Ladders and Stepladders Safety. INDG403, 2005 HSE Books, ISBN 9780-7176-6106-7.

General Access Scaffolds and Ladders. CIS49, 1997 HSE Books.

Health and Safety in Roof Work. HSG 33, 1998 HSE Books.

Height Safe Essential Health and Safety Information for People who Work at Height. HSE's website; http://www.hse.gov.uk, ISBN 9780-7176-1425-5.

Preventing Falls from Ladders and Stepladders: An Employer's Guide, INDG402 2005 HSE Books, ISBN 9780-7176-6105-9.

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Top Tips for Ladders and Stepladder Safety. INDG405, 2006 HSE Books, ISBN 9780-7176-6127-X.

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Work at Height Regulations 2005. SI 2005/735, OPSI: http://www.opsi.gov.uk/si/si2005/20050735.

Work at Height Regulations 2005 (as amended). A Brief Guide. INDG401 (rev1), 2007 HSE Books, ISBN 9780-7176-6231-9.

Working on Roofs. INDG284, 1999 HSE Books.

Useful website, HSE's Falls from Height: http://www.hse.gov.uk/falls.

21.37 Other relevant Regulations in brief

There are a number of other Regulations which do not form part of the NEBOSH General Certificate syllabus. Nevertheless, they are important to a wider understanding of health and safety legislation. Very brief summaries are covered here.

21.37.1 *Corporate Manslaughter and Corporate Homicide Act 2007*

The Act creates a new statutory offence of corporate manslaughter which will replace the common law offence of manslaughter by gross negligence where corporations and similar entities are concerned. In Scotland the new offence will be called 'corporate homicide'.

An organization will have committed the new offence if it:

- owes a duty of care to another person in defined circumstances and
- there is a management failure by its senior managers and
- it amounts to a gross breach of that duty resulting in a person's death.

On conviction the offence will be punishable by an unlimited fine and the courts will be able to make remedial orders requiring organizations to take steps to remedy the management failure concerned.

It is important to note that the Act does not create a new individual liability. Individuals may still be charged with the existing offence of manslaughter by gross negligence.

Crown immunity will not apply to the offence, although a number of public bodies and functions will be exempt from it (in defined circumstances).

The Act comes into force on 6 April 2008. Available at: http://www.opsi.gov.uk/acts/acts2007/pdf/ukpga_20070019_en.pdf.

21.37.2 *Disability Discrimination Act 1995 and 2005*

The Disability Discrimination Act 1995

The Disability Discrimination Act (DDA) 1995 aims to end the discrimination that many disabled people face. This Act gives disabled people rights in the areas of:

- employment
- education

- access to goods, facilities and services
- buying or renting land or property.

The Act also allows the Government to set minimum standards so that disabled people can use public transport easily.

From 1 October 2004, Part 3 of the DDA 1995 has required businesses and other organizations to take reasonable steps to tackle physical features that act as a barrier to disabled people who want to access their services.

This may mean to remove, alter or provide a reasonable means of avoiding physical features of a building which make access impossible or unreasonably difficult for disabled people. Examples include:

- putting in a ramp to replace steps
- providing larger, well defined signs for people with a visual impairment
- improving access to toilet or washing facilities.

Businesses and organizations are called 'service providers' and include shops, restaurants, leisure centres and places of worship.

Available at: http://www.opsi.gov.uk/acts/acts1995/1995050.htm.

The Disability Discrimination Act 2005

In April 2005 a new DDA was passed, which amends or extends existing provisions in the DDA 1995, including:

- making it unlawful for operators of transport vehicles to discriminate against disabled people
- making it easier for disabled people to rent property and for tenants to make disability-related adaptations
- making sure that private clubs with 25 or more members cannot keep disabled people out, just because they have a disability
- extending protection to cover people who have HIV, cancer and multiple sclerosis from the moment they are diagnosed
- ensuring that discrimination law covers all the activities of the public sector
- requiring public bodies to promote equality of opportunity for disabled people

Other changes will come into force in December 2006 – the Disability Rights Commission (DRC) website has more details on these.

Available at: http://www.opsi.gov.uk/acts/acts2005/ukpga_20050013_en_1.

21.37.3 *Electrical (safety) Regulations 1994*

These Regulations came into force in January 1995 and relate to the supply of electrical equipment with a working voltage between 50 and 1000 volts and are made under the Consumer Protection Act 1987. They apply to suppliers, which include both landlords and letting agents.

The Regulations apply to all mains voltage household electrical goods and require them to be safe so that there is no risk of injury or death to humans or pets, or risk of damage to property. They do not apply to fixed electrical wiring and built-in appliances like central heating systems. The Regulations also require that instructions be provided where safety depends on the user being aware of certain issues, and equipment should be labelled with the CE marking.

There are other electrical consumer Regulations, such as The Plugs and Sockets Regulations 1994 and the Low Voltage Electrical Equipment Regulations 1989.

Available at: http://www.opsi.gov.uk/si/si1994/Uksi_19943260_en_1.htm#tcon.

21.37.4 *Gas Appliances (Safety) Regulations 1992*

The Gas Appliance Regulations cover the safety standards on new gas appliances which have to:

- satisfy safety and efficiency standards
- undergo type examination and supervision during manufacture
- carry the CE mark and specified information
- be accompanied by instructions and warnings in the language of destination.

Available at: http://www.opsi.gov.uk/si/si1995/Uksi_19951629_en_1.htm.

21.37.5 *Gas Safety (Installation and Use) Regulations 1998*

The Installation and Use Regulations place duties on gas consumers, installers, suppliers and landlords to ensure that:

- only competent people work on gas installations (registered with CORGI, the Council for Registered Gas Installers)
- no one is permitted to use suspect gas appliances
- landlords are responsible, in certain cases, to make sure that fittings and flues are maintained
- with the exception of room-sealed appliances there are restrictions on gas appliances in sleeping accommodation
- instantaneous gas water heaters must be room-sealed or fitted with appropriate safety devices.

Available at: http://www.opsi.gov.uk/si/si1994/Uksi_19941886_en_1.htm.

21.37.6 *Occupiers Liability Acts 1957 and 1984 – Civil Law*

The 1957 Act concerns the duty that the occupier of premises has towards visitors in relation to the condition of the premises and to things which have or have not been done to them. The Act imposes:

- a duty to take reasonable care to see that a visitor is reasonably safe in using the premises for the purpose for which they were invited or permitted by the occupier to be there
- that the common duty of care will differ depending on the visitor, so a greater duty is owed to children
- that an occupier can expect that a person in the exercise of his trade or profession will appreciate and guard against normal risks, for example, a window cleaner
- that no duty of care is owed to someone exercising a public right of way.

The 1984 Act extends the duty of care to persons other than visitors (i.e. trespassers). The occupier has to take reasonable care in all the circumstances to see that non-visitors do not get hurt on the premises because of its condition or the things done or not done to it. The occupier must cover perceived dangers and must have reasonable grounds to know that the trespassers may be in the vicinity.

Available at: http://www.opsi.gov.uk/acts/acts1984/PDF/ukpga_19840003_en.pdf.

21.37.7 *Control of Pesticides Regulations 1986 and Amendments*

These Regulations made under the Food and Environment Protection Act 1985 all came into force by 1 January 1988. The Regulations apply to any pesticide or any substance used generally for plant control and protection against pests of all types, including antifouling paint used on boats. They do not apply to substances covered by other Acts like the Medicines Acts 1968 and the Food Safety Act 1990, those Acts used in laboratories and a number of other specific applications.

No person may advertise, sell, supply, store, or use a pesticide unless it has received ministerial approval and the conditions of the approval have been complied with. The approval may be experimental, provisional or full, and the Minister has powers to impose conditions.

The Regulations also cover the need for users to be competent and to have received adequate information and training. Certificates of competence (or working under the supervision of a person with a certificate) are required where pesticides approved for agricultural use are used commercially.

Update on future consolidation

DEFRA issued a consultation document in August 2007 which covers the update of these Regulations as follows:

- At present there are four Regulations (plus their amendments) to control and monitor marketing and use of pesticides in England and Wales.
  - The Control of Pesticides Regulations 1986 and its amendment in 1997
  - The Plant Protection Products Regulations 2005 and its amendment in 2006
  - The Plant Protection Products (Basic Conditions) Regulations 1997 and
  - The Plant Protection Products (Fees) Regulations 2007.
- DEFRA's proposal is to consolidate these four Regulations (plus amendments) into one Regulation by April 2008.

Available at: http://www.pesticides.gov.uk/approvals.asp?id=2182.

21.37.8 *The Manufacture and Storage of Explosives Regulations 2005*

The Regulations (SI Number 2005/1082) came into force on 26 April 2005.

These Regulations cover the manufacture, storage and handling of all explosives, including blasting explosives, propellants, detonators and detonating cord, fireworks and other pyrotechnic articles, ammunition, and other explosive articles such as airbags and seat belt pretensioners. The Regulations cover the manufacture of explosives and intermediate products for on-site mixing and storage, and also handling operations that are not in themselves considered to 'manufacture'. These include fusing fireworks, assembling fireworks displays from components, and filling shotgun cartridges and other cartridges for small arms. The main requirements of the Regulations are as follows:

- Anyone manufacturing or storing explosives must take appropriate measures to prevent fire or explosion; to limit the extent of any fire or explosion should one occur; and to protect persons in the event of a fire or explosion. These are the key requirements of the Regulations and are backed up by extensive guidance in the ACOP.
- In most cases a separation distance must be maintained between the explosives building and neighbouring inhabited buildings. This is intended to ensure that risks to those living or working in the area are kept to an acceptable level. If there is

development in this separation zone then the quantity that may be kept must be reduced.
- with certain exceptions a licence is required for the manufacture or storage of explosives. HSE licenses manufacturing activities because of the greater risks involved. HSE also licenses larger explosives storage facilities. In most cases, stores holding less than 2 tonnes of explosives are either licensed or registered by the local authority or the police.
- the HSE may not grant a licence for a manufacturing facility or, in most cases, store until the local authority has given its assent (normally following a public hearing). This is an important safeguard in the present system that is to be retained.

Available at: http://www.opsi.gov.uk/si/si2005/uksi_20051082_en.pdf.

And the amendment Regulations are available at: http://www.opsi.gov.uk/si/si2007/20072598.htm.

Also available: *The Approved Code of Practice and guidance to the Regulations* L139 2005 HSE Books, ISBN 9780-7176-2816-7.

21.37.9 *Pressure Systems Safety Regulations 2000 (PSSR)*

These Regulations came into effect in February 2000 and replace the Pressure Systems and Transportable Gas Containers Regulations 1989. Transportable gas containers are covered by the Use of Transportable Pressure Receptacles Regulations 1996 (SI 1996 No. 2092).

The aim of PSSR is to prevent serious injury from the hazard associated with stored energy as a result of a pressure system or one of its parts failing. The Regulations cover:

- steam at any pressure
- gases which exert a pressure in excess of 0.5 bar above atmospheric pressure
- fluids which may be mixtures of liquids, gases and vapours where the gas or vapour phase may exert a pressure in excess of 0.5 bar above atmospheric pressure.

With the exception of scalding from steam, the Regulations do not consider the effects of the hazardous contents being released following failure. The stored contents are of concern where they can accelerate wear and cause more rapid deterioration and an increased risk of failure.

Available at: http://www.opsi.gov.uk/si/si2000/uksi_20000128_en.pdf.

21.37.10 *Personal Protective Equipment Regulations 2002*

These Regulations relate to approximation of the laws of EU Member States. They place duties on persons who place PPE on the market to comply with certain standards. These requirements are that: PPE must satisfy the basic health and safety requirements which are applicable to that class or type of PPE; the appropriate conformity assessment procedures must be carried out; CE marking must be correctly affixed; and the PPE must not compromise the safety of individuals, domestic animals or property when properly maintained and used.

Available at: http://www.opsi.gov.uk/si/si2002/uksi_20021144_en.pdf

21.37.11 *Working Time Regulations 1998 as amended by 2003 and 2007 Regulations*

These Regulations came into force on October 1998 and, for specified workers, restrict the working week to 48 hours per 7-day period. Individuals can voluntarily agree to disapply the weekly working hours limit. Employers must keep a copy of all such individual agreements. Workers whose working time is not measured or predetermined, or who can themselves determine the duration of their working day are excepted from weekly working time, night work, rest periods and breaks.

The Regulations were amended, with effect from 1 August 2003, to extend working time measures in full to all non-mobile workers in road, sea, inland waterways and lake transport, to all workers in the railway and offshore sectors, and to all workers in aviation who are not covered by the sectoral Aviation Directive. The Regulations applied to junior doctors from 1 August 2004.

Mobile workers in road transport have more limited protections. Those subject to European Drivers' hours rules 3820/85 are entitled to 4 weeks' paid annual leave and health assessments if a night worker from 1 August 2003. Mobile workers not covered by European Drivers' hours rules will be entitled to an average 48 hours per week, 4 weeks' paid holiday, health assessments if a night worker and adequate rest.

The Regulations were previously amended, with effect from 6 April 2003, to provide enhanced rights for adolescent workers.

The basic rights and protections that the Regulations provide are:

- a limit of an average of 48 hours a week which a worker can be required to work (though workers can choose to work more if they want to)
- a limit of an average of 8 hours' work in 24 which nightworkers can be required to work

- a right for night workers to receive free health assessments
- a right to 11 hours' rest a day
- a right to a day off each week
- a right to an in-work rest break if the working day is longer than 6 hours
- a right to 4 weeks' paid leave per year; this is extended to 5.6 weeks with the 2007 amendment from 1 October 2007; the extended leave time is phased in over about 2 years.

1998 Regulations available at: http://www.opsi.gov.uk/si/si1998/19981833.htm.
2003 amendment available at: http://www.opsi.gov.uk/si/si2003/20031684.htm.
2007 amendment available at: http://www.opsi.gov.uk/si/si2007/20072079.htm.

21.38 Health and Safety Executive from 1st April 2008

News release from the Department for Work and Pensions - 01 April 2008 – Health and Safety Commission and Health and Safety Executive merge to form a single regulatory body: The Health and Safety Executive.

The Health and Safety Commission (HSC) and the Health and Safety Executive (HSE) today merged to form a single national regulatory body responsible for promoting the cause of better health and safety at work, announced Health and Safety Minister Lord McKenzie. The merged body will be called the Health and Safety Executive and will provide greater clarity and transparency whilst maintaining its public accountability.

The decision to merge the HSC and the HSE was reached after extensive consultation with stakeholders, and through the process determined by the Legislative and Regulaory Reform Act 2006.

Welcoming the merger, Health and Safety Minister Lord McKenzie said:

"The Health and Safety Commission and the Health and Safety Executive have done an excellent job over the last 30 years in bringing about significant improvements to health and safety at work. However, to face the challenges and demands of the changing world of work, now is the right time to merge the organizations into one which can provide a platform for further improvements to health and safely at work across Great Britain."

Judith Hackitt, Chair of the new Health and Safety Executive added:

"The new Health and Safety Executive will strengthen the importance of workplace health and safety in Great Britain. With a single regulatory body we will be able to strengthen the links between strategy and delivery in order to provide the accountability expected of a public body in today's workplace climate. The merger will not fundamentally change the day-to-day operations but will set the tone for closer working throughout the organization.

The HSE will build on the independence, good relationship with stakeholders and in particular our relationship with local authorities to develop a revised strategy for health and safety in Greath Britain."

The HSE will retain its independence, reflecting the interests of employers, employees and local authorities and is committed to maintaining its service delivery. The Board of the new Executive will assume responsibility for running all aspects of the orgnaization, including setting the overall strategic direction financal and performance management and prioritization of resources. The HSE will be revisting its strategy to develop a long term view for the next five years, which will be published towards the end of 2008.

The merger will mean:

- There will be a single national regulatory body responsible for promoting the cause of better health and safety at work.
- The current Chair of the Commission becomes Chair of the Board of the new Executive.
- Existing Commissioners are appointed as non-executive Directors of the new Executive for the remainder of their of office with the relevant responsibilities of the new roles secretary.
- The potential size of the Board of the new Executive will be no more than eleven members plus the Chair and members will continue to be appointed by the Secretary of State.
- All the fundamental contents of the Health & Safety at Work Act remain.
- None of the statuatory functions of the previous Commission and Executive will be removed.
- There is no change in health and safety requirements, how they are enforced or how stakeholders relate to the health and safety regulator – no health and safety protections will be removed.