



The Knowledge Network

HEALTH & SAFETY

An Introductory Guide

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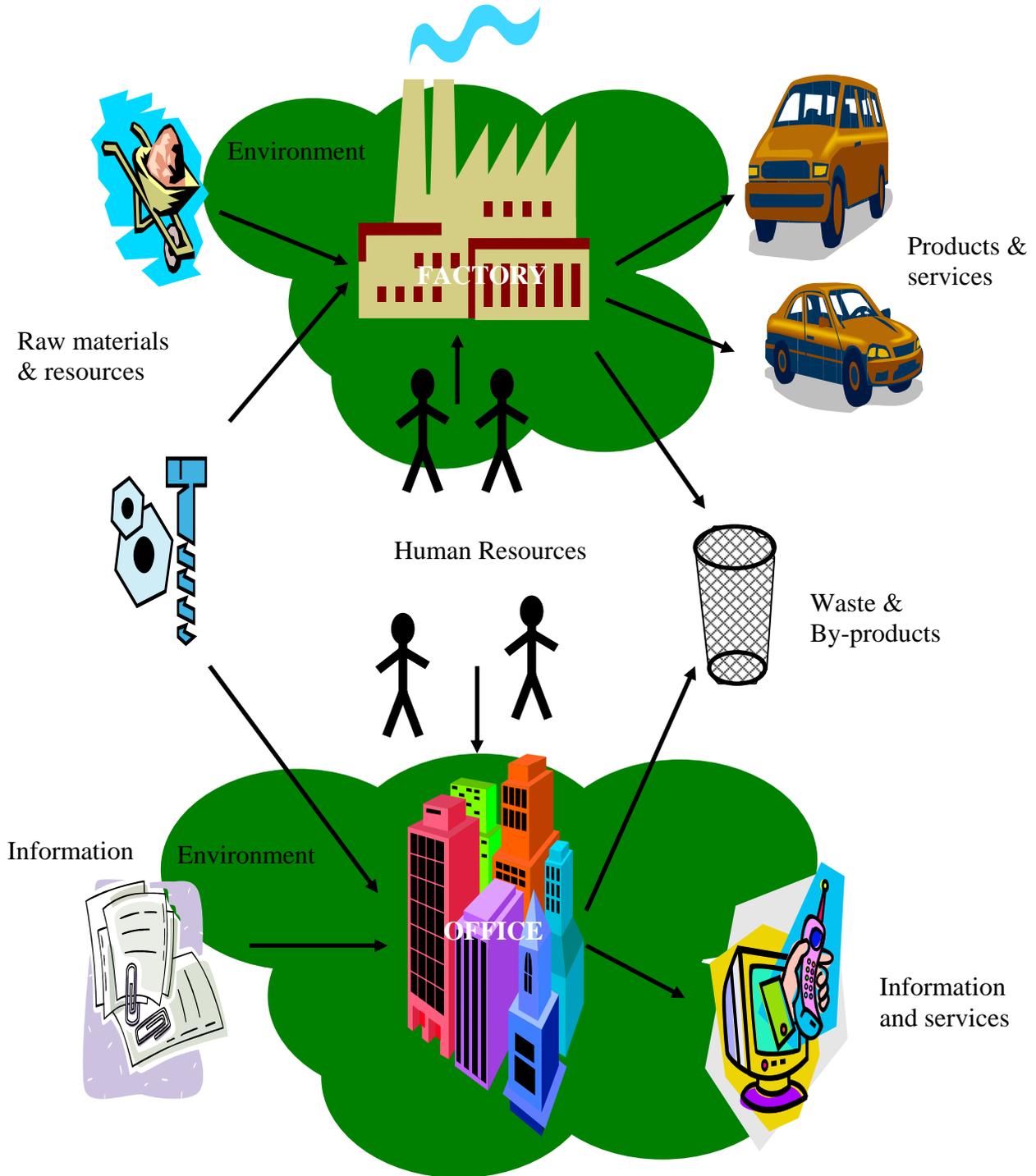
*This guide is provided for general information purposes only, and should not be relied upon as legal advice. The IET has tried to make the guide accurate and informative, but it has not been prepared by a lawyer and may not constitute an up-to-date summary of the law. The IET accepts no liability for your use of this guide. Further details and information on Health & Safety issues can be obtained from the UK Government's **Health and Safety Executive**. Legal advice should be obtained on any specific issues.*

The IET publishes a range of health and safety briefings on the Internet that expand on some of the issues covered in this guide. The Briefings can be found at <http://www.theiet.org/publicaffairs/health/index.cfm>.

The IET would like to thank the IET's Health and Safety Policy Advisory Group for their assistance in producing this guide.

Work activities

Diagram 1. Any activity can have an impact on the environment and the health and safety of staff, contractors and the public. This diagram illustrates the impacts that activities in a factory or office may have



1. INTRODUCTION

- 1.1 This Guide to Health and Safety at work has been compiled by the Health and Safety Policy Advisory Group of the IET to assist IET Members in promoting safe and healthy workplaces. It primarily refers to the health and safety requirements of UK and European legislation.
- 1.2 IET Members work in a wide range of industry sectors and it is not possible, or desirable, to try to identify how effective health and safety performance is to be achieved in a particular sector or workplace. For example, some legislation which is specific to one industry sector will not be applicable to others. Nevertheless, issues such as the general legal framework in the UK or the safety culture of an organisation and concepts such as risk assessment are generally applicable across all sectors and workplaces and this Guide sets out such general issues and concepts.
- 1.3 It must be emphasised that the achievement of good health and safety performance in a particular workplace is the responsibility of line management in that workplace and **this guide is not a substitute for such effective management** and the establishment of relevant risk reduction measures specific to that workplace. Rather, it is intended to assist IET Members and others at all levels in the line management chain to contribute more effectively to health and safety performance at the workplace.
- 1.4 Part 1 of this Guide (Sections 1 to 7) is concerned with general issues - for example the general legal framework and penalties, the costs of safety (and, in particular the costs of getting it wrong), the importance of the safety culture within an organisation, the fundamental importance of the statement of safety policy and the concept of risk assessment. Part 2 of this Guide lists the legislation which is most likely to be relevant to any organisation together with references to source documentation. This is not an exhaustive list of what is required to achieve good health and safety performance at the workplace. The Health and Safety Executive publishes a vast array of excellent guidance on both general and specific topics and the IET itself produces Health and Safety Briefings (see <http://www.theiet.org/publicaffairs/health/index.cfm>) on a selection of topics that are thought to be most useful for IET Members.

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2. GENERAL LEGAL FRAMEWORK AND PENALTIES

Occupational health and safety in the UK is governed by Acts of Parliament and Regulations, known as statutes.

In the occupational health and safety context, the statutes are generally augmented up by the Approved Codes of Practice, Codes of Practice, and Guidance. The following terms should be noted:

Act An Act is a body of law laid down by Parliament. It imposes duties upon defined duty holders e.g. companies, individuals, etc. and is known as primary legislation. Failure to comply with an Act is a criminal offence subject to fines and/or imprisonment and sometimes other sanctions. Failure to comply with the Health and Safety at Work Act 1974 (HSWA) is thus a breach of criminal law.

Regulations The Health and Safety at Work Act 1974 is “enabling legislation”, which means that the Secretary of State or Minister may make regulations which are then put before Parliament.

The Regulations have the full force of the law, and for practical purposes are the same as an Act; Regulations are known as “delegated legislation”.

Approved Code of Practice (ACOP) This has special legal status. Although non-compliance with an ACOP does not constitute a breach of an Act or Regulation, if a contravention of Act or Regulations is alleged, the fact that the code was not followed will be accepted in court as evidence of failure to do all that was reasonably practicable (see below) unless it can be shown that the law has been complied with in some other way.

Code of Practice (COP) A body of rules for guidance, not having the force of law, e.g. the Highway Code. Generally failure to comply with a Code of Practice does not automatically expose the party in breach to prosecution. However, it can be used in evidence to show that a statutory requirement has not been fulfilled.

Guidance Guidance is issued by the Health and Safety Executive (HSE) in various forms. The guidance provides advice on ways to comply with the regulations.

British Standards Some are advisory and some are Codes of Practice. They are not enforceable by law and compliance does not guarantee that legal obligations have been met, but they could be used as evidence of reasonable behaviour.

Acts of Parliament and Regulations are statute law, enforced by criminal sanctions. Failure to comply with statute law, Approved Codes of Practice, Codes of Practice, Guidance, British Standards, etc. may be used as evidence of negligence in an action for damages under civil law.

For many decades, health, safety and welfare in the workplace was regulated by the Factories Acts and the Offices, Shops & Railway Premises Act. Both of these Acts applied only to certain defined types of premises as against all places of work. This legislation was prescriptive and by the 1970s had become very complex. What was needed was a single, simpler Act applying to **all** workplaces and interpreted/ augmented by regulations, Approved Codes of Practice, and Guidance which told the duty holder how to meet their obligations in respect of particular workplace, process, etc.

The Health & Safety at Work Act 1974 was made to meet this need and introduced the principle of “goal setting” legislation. For example, HSWA required the employer to provide a safe place of work, instead of imposing strict duties such as ‘to paint the walls of a factory to a height of 20 feet, every 14 months’ - regardless of whether or not they were actually dirty!

The Act also focused on management by creating a statutory duty to organise Health and Safety at work and, amongst other things, to provide safe systems of work, training and supervision.

These principles have been continued in more recent regulations such as the:

- Noise at Work Regulations 1989
- Control of Substances Hazardous to Health Regulations 2002
- Control of Lead at Work Regulations 1998

In 1992 the so-called “Six Pack” of safety regulations were introduced and brought progressively into effect from January 1st 1993 to implement in the UK an EU framework directive and its various daughter directives.

Much of UK Health and Safety regulation requires the duty holder to reduce risk “as far as reasonably practicable” (AFAIRP) – sometimes referred to as “as low as reasonably practicable (ALARP). The approach to this has been established by case law and is an important concept.

Regulation and Inspection.

The HSE and Local Authorities are responsible for enforcing health and safety regulations through inspections. The HSE covers factories, building sites, mines and quarries, fairgrounds, railways, chemical plant, offshore and nuclear installations, schools and hospitals, through a network of regional inspectors (see the HSE website for the address of your local office).

Local Authority enforcement officers cover retailing, some warehouses, most offices, hotels and catering, sports, leisure and consumer services.

Local fire brigades deal with regulations about fire safety. Local authorities cover other regulations in workplaces such as food safety and trading standards.

Penalties for Health and Safety Offences

Section 33 of the Health and Safety at Work Act 1974 defines the offences and penalties applicable to the Act. Some offences can only be dealt with summarily in lower courts whilst other offences may be dealt with in lower courts or sent to higher courts.

Lower Courts

- For failure to comply with an improvement or prohibition notice, or court remedy order: a fine of up to £20,000, or 6 months imprisonment, or both.
- For breaches of Sections 2-6 of the Health and Safety at Work Act 1974: a fine of up to £20,000.
- For other breaches of the Health and Safety at Work Act not specified above, or of relevant statutory provisions under the Act: e.g. Control Of Substances Hazardous to Health or Noise at Work Regulations: a fine of up to £5,000.
- On conviction of directors for indictable offences in connection with the management of a company the court may also disqualify directors for up to 5 years.

Higher Courts:

- For failure to comply with an improvement or prohibition notice, or a court remedy order: 2 years imprisonment, or an unlimited fine, or both.
- For contravening licence requirements or provisions relating to explosives: 2 years imprisonment, or an unlimited fine, or both.
- For breaches of the Health and Safety at Work Act. 1974, or of relevant statutory provisions under the Act: e.g. COSHH, Noise at Work Regulations: unlimited fines.
- On conviction of directors for indictable offences in connection with the management of a company the court may also disqualify directors for up to 15 years.

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3. COST OF SAFETY

In addition to the legal requirements, there are other important reasons why it is vital to satisfactorily address health and safety in the workplace. Most importantly, everyone seeks to avoid accidents at work to avoid the suffering that can result from even quite minor accidents. Most people also realise that accidents can lead to substantial losses to the organisation. However it sometimes comes as a shock to realise just how much money is lost from causes which are almost entirely avoidable.



Diagram 2 The Accident Triangle

An accident can be defined as an unplanned event that results in injury or ill health to people, damage or loss to property or the environment, or a loss of business opportunity. The relationship between the numbers of such accidents leading to various outcomes is often represented by the so-called accident triangle shown in diagram 2. Studies have shown that for every serious accident resulting in absence from work for more than three days, there may typically be ten times as many minor injury accidents, (requiring first aid only) and several hundred non injury accidents, which could for example, involve substantial property damage. Furthermore, the cause of a minor accident may in other circumstances have led to much more serious results. Each such near miss is a 'free lesson' that, if learnt, may not only reduce loss but also prevent more serious outcomes. For example, a leak of oil from a machine can cause anything from a minor to a fatal injury, but more frequently will lead to damage to the plant if it is not noticed and rectified in time.

The Health and Safety Executive (HSE) carried out studies with five organisations in an attempt to calculate the true costs of accidents in the UK. The results were surprising. One organisation - a transport company - found that accidents amounted to 37% of its annualised profits. In another example - a construction site - costs amounted to 9.5% of the tender price of the project being undertaken, and in a third organisation, accident losses amounted to 5% of running costs. The HSE believed that a similar picture would emerge for other industries. It was also noted that during the period of the study, there were no fatal injuries, prosecutions or significant civil claims to the participating organisations. Any major occurrence of this kind would, of course, have increased substantially the losses calculated. Nonetheless, it was estimated that nearly 10% of the accidents recorded had the potential for serious consequences such as fatalities, multiple injuries or catastrophic loss.

The HSE has estimated that over 30 million working days are lost in the UK due to workplace accidents, and that when all the costs are properly taken into account, the total cost to society as

a whole of work accidents and work related ill-health, is likely to be between £10 billion and £15 billion a year - equivalent to between 1.75% and 2.75% of UK Gross Domestic Product.

It is important to note that the cost of accidental loss must be deducted entirely from potential profit. It is sobering to consider the extent to which turnover would need to be increased to replace that lost profit.

The HSE study shows there is a need to act on even relatively minor accidents. Reducing the number of accidents at work will not only reduce the human suffering involved and any negative publicity which may arise, but can play a significant part in the continuing search for means of reducing costs in industry.

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To comply with the law and to go beyond minimum requirements requires several important commitments from an organisation. Firstly, it is vital that the vision and intent for good H&S performance is clearly spelt out. The first step is to produce a Policy Statement.

4. SAFETY POLICY STATEMENT

Every employer with five or more staff must have a written safety policy. This policy must be brought to the attention of all employees and updated when appropriate. Failure to do so is a breach of the Health and Safety at Work, etc. Act 1974, and liable to prosecution and a fine.

The Health and Safety Commission has produced guidance outlining the health and safety responsibilities of company directors (INDG343 available free from the HSE website).

Writing a Health and Safety Policy Statement

The purpose of the document is to demonstrate that the management is committed to the health and safety of all its employees. It must contain three main elements:

- Policy
- Organisation
- Arrangements

The importance of the policy is not that it is written down, but that the hazards and safety needs of the workplace have been thought through, and arrangements have been worked out to achieve the policy.

Policy

The general statement of policy is a declaration of intent on the part of the management - it should contain a commitment to the health and safety of all employees, and reflect the requirements of the Health and Safety at Work Act. The commitment should be demonstrated by actions and provisions specific to the organisation, for example:

- Resources - sufficient to provide and maintain safe and healthy working conditions
- Training - in health and safety, emergency procedures and first aid
- Publicity - on availability of training

- Data collection - collecting and analysing data on accidents, sickness and injury
- Promotion - of consultation and participation between all employees
- Development of safety awareness

The policy should also quote the name and designation of the person responsible for overall implementation. This person should be a senior executive of the company.

Organisation

The organisation for health and safety should reflect the organisational structure and method of working of the company. The responsibility for health and safety should be clear at successive levels of management, from the top to individual supervisors. Responsibilities should be clearly defined, and preferably included in job descriptions, to prevent overlaps and omissions.

Particular clarity is required where the health and safety organisation cuts across the company organisation lines. The input required from functional management e.g. works engineer, chemist, safety advisor, should also be described, as well as the organisation for consultation between safety representatives and safety committees.

Arrangements

These are the broad headings describing the implementation of the policy (normally built around the Health and Safety at Work. Act or management regulations), typically:

- housekeeping
- protective clothing
- emergency procedures
- consultation procedures
- statutory examination procedures
- collecting and analysis of information
- maintenance of plant and machinery
- control of radiation, noise, dust, fumes
- new articles, substances and products
- safe plant and equipment
- training, instruction and information on hazards
- written procedures for routinely hazardous jobs
- information, instruction and training
- safe access and egress
- safe handling, storage and transport
- welfare
- risk assessment

Monitoring

A system for monitoring the effectiveness of the arrangements and for reviewing safety performance as a whole. One of the five action points listed in the draft code of practice requires company directors to appoint a 'Health and Safety Director', whose functions will include regular reviewing of the health and safety policy to ensure it is up to date.

Competence.

When assessing the competence of individuals or potential contractors, it is necessary to satisfy the duty holder that workers are capable of completing the tasks safely and as required. To do this, evidence has to be collected. This could include qualifications, training records or examples of experience and successful work. Personal recommendation may also be important from a respected source. Membership of appropriate bodies may also be an indication of competence.

Organisations must provide appropriate supervision and support for workers to ensure competence. Workers should be given sufficient information and instruction about their work. If

necessary they should follow Approved Codes of Practice (ACOP), possibly being formally authorised for their work. All work should be carried out safely, with the workers knowing their limitations. If they are asked to exceed their limitations, workers should challenge those responsible for the management of the work. Organisations should monitor and review their performance.

To achieve the commitment given in the policy statement requires management systems and processes that will deliver the desired outcomes. These have been described and discussed in various documents including the HSE's booklet "Successful Health and Safety Management" (HS(G)65). This documents shows how the Policy needs to be part of a system that includes a suitable organisational structure to plan and implement the work and then to measure, review and audit the system. This is outlined in diagram 3.

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5. RISK ASSESSMENT

Legal Position

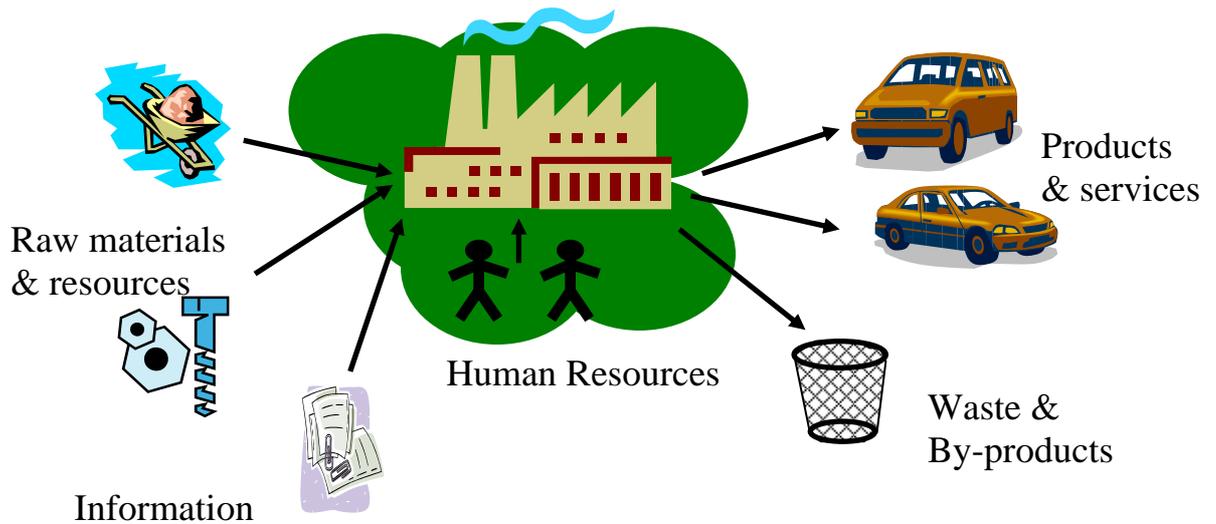
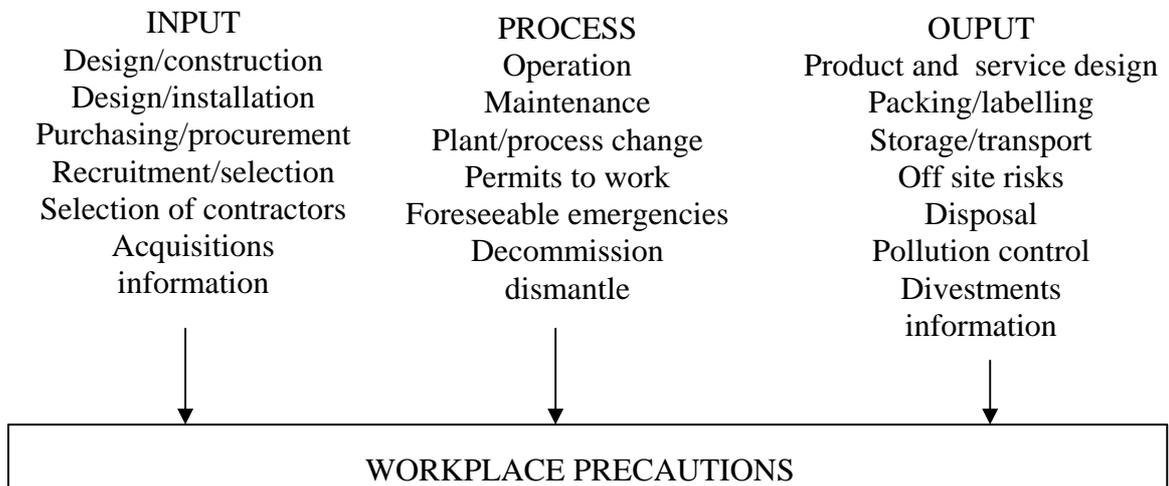
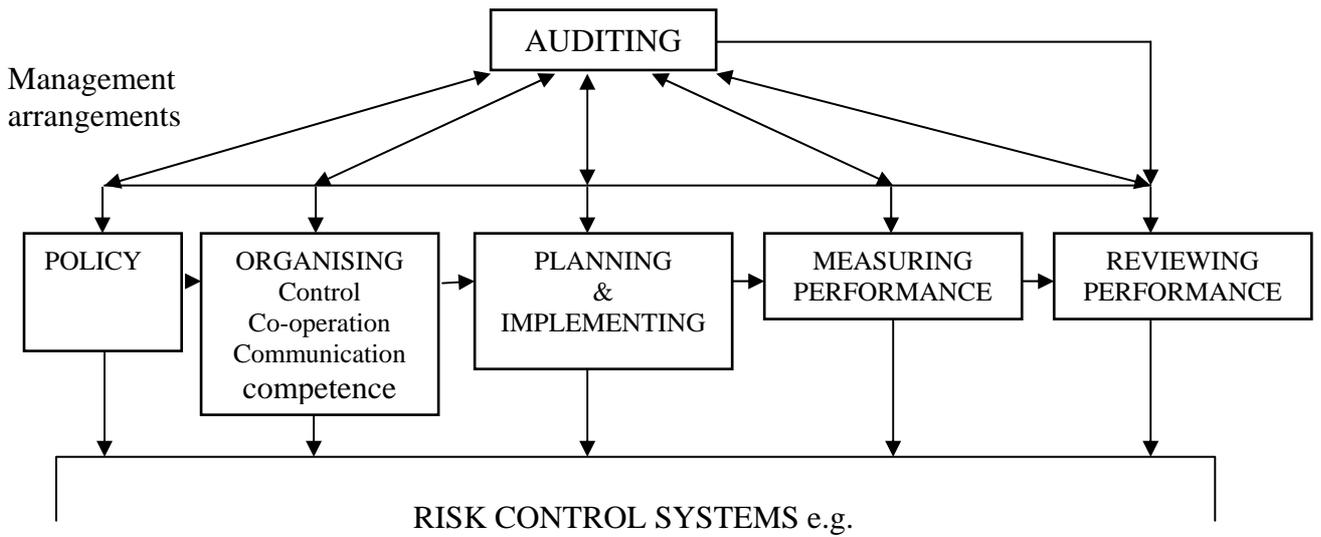
There are a number of regulations that require common risks to be assessed (very specialised risks such as major hazards, ionising radiation, genetic manipulation, etc. are outside the scope of this document). These include:

- Manual Handling Operations Regulations 1992
- Personal Protective Equipment at Work Regulations 1992 (Amended 1996)
- Health and Safety (Display Screen Equipment) Regulations 1992
- Noise at Work Regulations 1989
- Control of Substances Hazardous to Health Regulations 2002
- Control of Asbestos at Work Regulations 2002
- Dangerous Substances and Explosive Atmospheres regulations 2002
- Control of Lead at Work Regulations 2002
- Management of Health and Safety at Work Regulations 1999

The majority of the above regulations require employers and the self-employed to assess certain risks to identify what has to be done to protect people from harm. However, in the case of the Management of Health and Safety at Work Regulations 1999, they are required under Regulation 3 to make a suitable and sufficient assessment of the risks created by their undertaking for the purpose of identifying the measures they need to have in place to comply with their duties under health and safety legislation. It is important to note that the assessment provisions of these regulations are superimposed over all other workplace health and safety law, including the general duties in the Health and Safety at Work. Act 1974. The risk assessment guides the judgement of employers as to measures they should take to fulfil their statutory obligations.

Regulation 3 also requires employers who employ more than five employees to record significant findings of the assessment and any identified group of employees assessed as being especially at risk. The assessment is also required to be reviewed if there is reason to suspect it is no longer valid or there has been significant change in the matters to which it relates.

Diagram 3. HEALTH & SAFETY MANAGEMENT



Interpretation

The Approved Code of Practice (ACOP) accompanying the Management of Health and Safety at Work Regulations 1999 defines risk assessment as “identifying the hazards present in any undertaking and then evaluating the extent of the risks involved, taking into account whatever precautions are already being taken”. It further defines hazard as “something with the potential to cause harm”, risk as “expresses the likelihood that the harm from a particular hazard is realised” and extent of risk as “covers the population which might be affected by a risk; i.e. the number of people who might be exposed and the consequences for them”.

The above ACOP also describes the term a suitable and sufficient risk assessment as meaning one that:

- Identifies significant risks arising out of work
- Enables the employer to identify and prioritise the measures that need to be taken to comply with relevant statutory provision
- Is appropriate to the nature of the work
- Remains valid for a reasonable period of time.

Practical Application in the Workplace

Under the Management of Health and Safety at Work Regulations 1999, employers and the self-employed are required to assess the risks created by their undertaking for the purpose of identifying the measures they need to have in place to comply with their duties under health and safety legislation. Risk control systems need to be put in place to cover the input, process and output phases. Typical activities for each phase are listed in diagram 3. Employers can delegate assessments to competent employees or persons, safety representatives or safety officers, but the legal duty remains with the employer.

Risk assessment for a small company with few or simple hazards, should be a straightforward task based on sound judgement. On the other hand, a large complex chemical process plant will need to expand the assessment into a safety case, often incorporating Quantified Risk Assessment (QRA) and other risk assessment techniques.

There are a number of practical steps to follow when carrying out risk assessments:

- i. Identify the hazards
- ii. Decide on who might be harmed and how
- iii. Evaluate the risks arising from the hazard
- iv. Record findings
- v. Review the assessment

First - identify the hazards

Observe what actually happens in the workplace and then identify the hazards by considering what could happen. Attention should be directed to hazards that can result in serious harm or affect a number of people. Employees or their representatives may be aware of hazards, which may not be immediately obvious to the assessor, and they should be asked for their views. Regulations specific to certain industries may be helpful in identifying hazards.

Second - identify who can be harmed by hazards

All employees and groups of employees, should be taken into consideration by the assessment, including people who may not be present in the work area all the time, such as cleaners, visitors, contractors, maintenance personnel, etc. Members of the public should be included if there is a chance they may be injured in workplace activities. Workers who may be particularly at risk should also be identified, such as newcomers to the company, young, inexperienced people and disabled staff.

Third - evaluate the risks arising from the hazards and decide if the precautions already in place are adequate

The intention here is to assess chance that harm from a particular hazard may happen, taking into account the precautions already in place. The risk may vary from very low with no need to consider any precautions, to high such as hand feeding a power press where substantial precautions are required by The Power Press Regulations 1965. In this example, the hazard is closing tools, which may trap the operator hands. The risk is high, because of frequency of access (say 400 times per hour) and the potential for severe injury i.e. amputation of fingers or hands.

If the evaluation reveals that existing precautions are inadequate, consider whether the hazard can be eliminated. If this is not possible, decide how the risks can be controlled so that the possibility of harm being done to people is minimised. The intention is to reduce risks to a low level by adding to the precautions already in place. Begin by checking that all statutory obligations are met, for instance that guards are fitted to machines to prevent access to dangerous moving parts of machinery. Then check that the published guidance on industry practice is being followed - membership of a relevant trade association normally gives access to this type of information. Finally, implement all reasonably practicable precautions to keep the workplace safe.

Fourth - record significant findings

If five or more employees are employed, significant findings of the assessment must be recorded. Details on how the assessment was made are unnecessary, provided it can be shown that a proper assessment was carried out, all the significant hazards and groups of people identified as being affected by these hazards were taken into account and any residual risk was low. In simple terms, demonstrate that a proper check was made and that any precautions are reasonable.

Records should be kept for future reference as they may help to demonstrate that legal obligations have been met.

Fifth - review assessment and revise if necessary

New processes or procedures introduced into the workplace may lead to new hazards and significant changes in workplace activities need to be included in a revised assessment. In any case, a review of all assessments should be carried out at intervals to keep them up to date with current practice.

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Good organisational arrangements and excellent systems of work will go a long way towards minimising health and safety risks in the workplace. It is now becoming widely appreciated that to be successful and to maintain and improve on that success, organisations have to work to develop a good safety culture. Key aspects of this will now be discussed.

6. SAFETY CULTURE

In recent times it has become fashionable to talk about safety culture, but it is not always clear what is meant by the term. The immediate causes of accidents are often identified as human error or technical failure but the investigation and analysis of the circumstances surrounding major accidents such as Three Mile Island and Chernobyl nuclear accidents, the Space Shuttle disasters, Kings Cross fire, the sinking of the Herald of Free Enterprise and the Clapham, Southall and Hatfield rail crashes, have revealed issues beyond the immediate causes. These issues relate to wider considerations of the organisation as a whole. Two quotations from different enquiry reports, illustrate the point:

“....their belief in safety was a mirage, their systems inadequate, and operator errors commonplace...”

“From the top to the bottom, the body corporate was infected with the disease of sloppiness.”

It has become clear that basic faults in organisational structure, climate and procedures may predispose an organisation to an accident. This background environment is being increasingly described in terms of safety culture where culture comprises the attitudes, beliefs and behaviours that are generally shared within the organisation. The term safety culture was first introduced by the International Nuclear Safety Advisory Group following the Chernobyl nuclear accident.

Various definitions have been used for safety culture but it perhaps most succinctly expressed by the CBI as *“the way we do things round here”*. It is important to understand that safety culture is a part of the overall culture of the organisation. It follows that the safety performance of organisations is greatly influenced by aspects of management that have not traditionally been seen as ‘part of safety’.

The definition of safety culture suggested by the Health and Safety Commission is:

“The safety culture of an organisation is the product of the individual and group values, attitudes, competencies and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organisation’s health and safety programmes. Organisations with a positive safety culture are characterised by communications founded on mutual trust, by shared perceptions of the importance of safety, and by confidence in the efficacy of preventative measures.”

A positive safety culture implies that the whole is more than the sum of the parts. The different aspects interact to give added effect in a collective commitment. In a negative safety culture the opposite is the case, with the commitment of some individuals strangled by the cynicism of others.

From various studies it is clear that certain factors appear to characterise organisations with a positive safety culture. These factors include:

- The importance of leadership and the commitment of the chief executive
- Clear executive safety accountabilities and role for line management
- The involvement of all employees
- Effective communications and commonly understood and agreed goals
- Good organisational learning

- Responsiveness to the impact of any organisational as well as technical change
- Manifest attention to workplace safety and health e.g. through simple “owned” processes, procedures and risk assessments.
- A questioning attitude and a rigorous and prudent approach by all individuals

Improving safety culture is something which should be seen as a long term and systematic process, based on an initial assessment of the existing safety culture, determining priorities for change, the actions necessary to effect the change and then going on to review progress before repeating the process to continue to gain improvement.

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7. OCCUPATIONAL HEALTH

Over the last decade, workplace safety has improved dramatically in many sectors of UK industry. However, although the words *Health* and *Safety* are invariably quoted together, *Health* issues are often neglected compared to *Safety*. The following discussion seeks to redress the balance.

Definition

The World Health Organisation definition of health is a state of physical, social and psychological well-being, not merely the absence of disease, and includes safe working. Occupational health concerns both potential effects on **health caused by work** and also the effect of **health problems on the ability to work**.

Examples of Work Affecting Health

- Noise induced deafness is still a common problem and a common reason for paying industrial injury benefit and personal injury claims.
- Vibration white finger is associated with degenerative disorders of the nerves and circulation in the hand. Health and Safety Executive estimate approximately 250,000 people per week are exposed to hand arm vibration through vibrating power tools and new legislation requires health surveillance of exposed workers.
- Different wavelengths of the Electromagnetic spectrum can result in different health effects, for example radiation burns and radiation sickness, cataract from infrared radiation, skin cancer from ultraviolet exposure. Most important exposure from outdoor workers exposed to the sun with an increased risk of skin cancer.
- Exposure to chemicals could result in acute poisoning, for example exposure to solvents causing symptoms similar to drunkenness progressing to coma and even death.
- Alternatively, exposure to lower levels over a prolonged period of time could result in disease e.g. prolonged exposure to benzene can cause leukaemia.

- Dust disease is still an important cause of illness and death. Due to a 25 year latency period, deaths from asbestos related cancer are currently running at around 3000 per year, approximately 10 times the number killed per year in accidents in the UK.
- Back pain, work-related upper limb disorder and other musculoskeletal problems associated with poor posture or manual handling problems are not only common, but increasingly important causes of morbidity, poor productivity and early retirement in an increasingly service driven economy.
- Changes in shift working patterns affect the body's normal bio-rhythms. This can cause discomfort, minor symptoms and lower productivity but in some cases is associated with duodenal ulcer, depression and possibly heart disease.
- Similar changes to the body's bio-rhythms can occur where time zones are changed. Dehydration and an increased risk of pulmonary embolus can be associated with long-haul travel, particularly where there is a poor ergonomic fit with the seat or a lack of opportunity to move around.
- Mortality from road traffic accidents associated with work is currently estimated at around three times the mortality from accidents at work. Fatigue and other safety-related human factors can be associated with increased incidence of accidents at work and on the way to work, particularly if travelling time is not taken into account in the normal working day.
- There is an increasing body of evidence, particularly from the Whitehall Studies [Marmot et al. *Low job control and risk of coronary heart disease in Whitehall II (prospective cohort) study. BMJ 1997;Volume 314:558-65.*], that shows that prolonged pressure at work can result in increased rates of mental ill health, but also an increased rate of physical disease such as heart attack. Health and Safety Executive, relying on this and other research evidence, have instituted guidelines for managers in late 2004. (See guidance on stress)
- In more extreme cases, assault at work or witnessing such assaults can be associated with an increased risk of post traumatic stress disorder, anxiety and depression. Bullying or oppressive styles of management are also associated with increased risk of common mental disorders such as depression and anxiety.

Effect of Health on Ability to Work

- Every week in the UK one million people will take sick leave. Three thousand will still be sick in six months time and of those 85% will not work again in the next five years, regardless of diagnosis.
- The vast majority of short term illness is either ill defined or associated with upper respiratory tract and other short-term infections.
- The majority of longer term illness, lasting three weeks or more, will be due to musculoskeletal and common mental disorders such as depression and anxiety.
- Government estimates of the cost of disability related payments to the UK economy are around £35 billion per year. Common mental disorders such as anxiety and

depression have now exceeded back pain as the commonest cause of medical certification from work.

- If one were to apply the normal rules of risk management, then a substantially larger proportion of the 28 million workers in the UK will be at work, but relatively unproductive due to symptoms of ill-health. Depression and anxiety are the most important cause of lost productivity.
- There are other groups of common illnesses than affect productivity, which people may not necessarily consider serious, but are nevertheless debilitating at work e.g. diabetes, asthma, migraine, and hay fever. These illnesses may qualify under the Disability if Discrimination Act 1995.
- The cost to business of absence, ill-health retirement, insurance and other direct and indirect costs are estimated to be at least £11 billion per year to UK business and probably much higher.
- Estimates the health risk cost to most medium sized to large enterprises as around 10 to 15% of their payroll costs per year.
- Increasing attention has been focused on human factors in safety management. Any illness that produces reduction in function has a potential effect on productivity and safety, particularly where the worker is on medication with potential side-effects. For example, asthma causing night time cough and disturbed sleep leading to reduced concentration, reduced productivity and increased error rate.

Primary and Secondary Prevention

Occupational health is not merely a health and safety specialty. Trained occupational health practitioners should have the ability to assess the workplace for hazard and risk to health but many occupational health practitioners in the UK will be engaged through the human resources department to help manage the health risk and cost associated with absenteeism and poor performance i.e. secondary prevention. In many organisations the links between the safety function and human resources function may not be well developed enough for either to fully appreciate the occupational health input into the other's role.

Health Risk Management Example

For a worker aged around 40 with 20 years service earning £25,000 per year, who is off work for one year before retiring on ill health, the cost to the business could break down as follows:
(These estimated costs are clearly imprecise and indicative)

Direct cost sickness absence	£17,000
Indirect cost of covering sickness absence at agency rates	£30,000
Cost of ill-health retirement to the pension fund	£300,000
Direct business contribution to pension fund	£100,000
Cost of management time in dealing with the case	£15,000
Cost of losing unfair dismissal case at employment tribunal including legal fees	£50,000
Cost of losing Disability Discrimination Act claim at employment tribunal	£100,000+
If personal injury claim similar cost to DDA claims but higher legal costs (higher if dealt with in the High Court)	£35-50,000

Increased insurance premiums if experience rated. Potential risk exposure: between £250,000 and £350,000 not including damage to reputation, adverse publicity or exceptionally high damages. .

Of an apparently **healthy** workforce of 1000, approximately 35 to 50 will be absent, 150-200 will be suffering from a common mental disorder, up to 100 will have an alcohol or drug related problem, approximately 90 will suffer from migraine, 20 from diabetes and depending upon the age and sex of the workforce there may be other prevalent health problems. The potential risks for the business to manage should be obvious. These figures do not take into account the potential ill health effects that may arise specifically from work, as these would need to be risk assessed.

Contracting for Occupational Health Services

A risk management approach should be taken that enables the occupational health specialist to advise within the business structure and processes. The business should use the advice of occupational health, health and safety and HR to proactively manage risk arising from that particular business operation and the health of the working population. Good risk management processes are key to delivering value. Sophisticated businesses incorporate occupational health advice into the management of their human capital, with the aim of improving health and building long-term value into the business.

Links and Further Information

Faculty of Occupational Medicine -- <http://www.facocmed.ac.uk>

Society of Occupational Medicine -- www.som.org.uk/

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8. IMPORTANT LEGISLATION

This section summarises the legislation most likely to impact on employers.

8.1 The Health and Safety at Work Act 1974

The general duties of an employer toward his employees is prescribed in Section 2(1) of the Health and Safety at Work Act, and Section 2(2) sets out more detailed provisions. Further Sections of the Act prescribe other responsibilities.

Section 2(2) requires employers to:

- provide and maintain safe plant and systems of work
- ensure safety and absence of risks to health in connection with the use, handling, storage and transport of articles and substances
- provide information, instruction, training and supervision
- provide and maintain safe places of work, and provide and maintain safe means of access to and exit from them
- provide and maintain a safe working environment and adequate facilities and arrangements for employees' welfare

Section 2(3) obliges employers to provide, and revise as necessary, a written statement of their policy on health and safety.

Section 2(6) calls upon employers to consult with employees' representatives.

Sections 3 and 4 impose general duties with regard to the safety of persons other than employees upon employers and the self-employed and on persons having control of non-domestic premises.

Section 5 requires persons in control of certain premises to prevent the emission of harmful substances into the atmosphere.

Section 6 lays down specific duties on designers, manufacturers, importers and suppliers in relation to the safety of articles (including fairground equipment) and substances for use at work, as follows:

- ensure articles are designed and constructed such that they will be safe and without risks to health when they are being set, used, cleaned and maintained, and carry out such testing and examination necessary for the performance of this duty
- provide adequate information about the use for which articles are designed or have been tested and about any conditions necessary to ensure that they will be safe and without risks to health when used for the above purposes and when they are being dismantled or disposed of
- provide revised information when anything about articles give rise to a serious risk to health or safety
- carry out any necessary research to discover and eliminate or minimise any risks to health and safety to which the design or articles may give rise
- ensure that there is nothing about the way in which articles are erected or installed which makes them unsafe or a risk to health
- ensure substances will be safe and without risks to health at all times they are being used, handled, processed, stored or transported, and carry out such testing and examination necessary for the performance of this duty
- provide adequate information about any risks to health or safety to which the inherent properties of the substances may give rise, about the results of any relevant tests which have been carried out on or in connection with the substances and about any conditions necessary to ensure the substances will be safe and without risks to health when used for the above purposes and when they are being disposed of
- provide revised information when anything about substances give rise to a serious risk to health or safety
- carry out any necessary research to discover and eliminate or minimise any risks to health and safety to which substances may give rise

Sections 7 and 8 call upon employees to take reasonable care for the health and safety of themselves and others who may be affected by their acts or omissions.

Section 21 requires persons served with an improvement notice by HM inspectors of health and safety or environmental health officers to remedy the contravention of one or more of the relevant statutory provisions specified on the notice.

Section 22 requires persons served with a prohibition notice by HM inspectors of health and safety or environmental health officers, (when in the opinion of the inspector there is a serious

risk of injury), to cease the activity until the matters specified in the notice and any associated contraventions have been remedied.

8.2 The Management of Health & Safety at Work Regulations 1999 (amended 2003)

These Regulations make explicit what was already implicit in the Health & Safety at Work. Acts 1974, namely the duty to identify workplace hazards and eliminate them if possible or if not, to assess the risks presented by them and control them to an acceptable level. In addition, having arrangements for the management of health and safety.

The personal responsibilities of managers are highlighted, particularly with reference to the use of sub-contractors, the enforcement of the use of personal protection equipment and the training of employees in health and safety matters.

Referring to the factory schematic (diagram 3) a management system is shown superimposed on the risks, identified previously for this notional workplace.

8.3 The Workplace (Health, Safety & Welfare) Regulations 1992

The Regulations require the provision of a safe and healthy workplace in terms of lighting, heating, washing facilities, sanitary conveniences, traffic routes, safety glazing where necessary, etc. and which replace and extend slightly the equivalent requirements of the Factories Act and Offices, Shops and Railway Premises Act which have been repealed.

8.4 The Provision and Use of Work Equipment Regulations 1998

These require the provision of work equipment which is safe, and also its use in a safe manner e.g. maintenance, user instructions, etc. and which replace the machinery safety provisions of the Factories Act and Offices, Shops and Railway Premises Act and which will have repealed virtually all of the old machine/process regulations made under them - for example the Woodworking Machines Regulations 1974 and the Abrasive Wheels Regulations 1970.

8.5 The Personal Protective Equipment at Work Regulations 1992 (Amended 1996)

These Regulations require the careful selection and provision of suitable and appropriate personal protective clothing and equipment and its proper maintenance and use.

8.6 The Manual Handling Operations Regulations 1992

The Regulations impose an overriding duty to avoid manual handling, but where this is not reasonably practicable, to assess the risks and make suitable arrangements to reduce them as far as reasonably practicable.

8.7 The Health and Safety (Display Screen Equipment) Regulations 1992

These require employers to assess work stations in relation to the operators who are habitual users, and to ensure that all components of the work station i.e. desk, chair, computer screen, keyboard etc. conform to established standards. The working environment must also meet established criteria in respect of lighting, reflections, glare, heat, humidity, etc. and the operators must be provided with a suitable eye care programme.

Each of these sets of regulations 7.2-7.7, commonly known as 'The Six-Pack' is published in a booklet which contains not only the text of the regulation itself, but also an Approved Code of

Practice and Guidance on how the duties imposed may be fulfilled, and each embodies as its underlying theme, the principle of risk assessment.

8.8 Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR)

These Regulations require employers to notify certain occupational injuries and dangerous events.

8.9 The Electricity at Work Regulations 1989

To quote from HSE Guidance, ‘The Electricity at Work Regulations require people in control of electrical systems to ensure that they are safe to use, and maintained in a safe condition’, that is, they are primarily to protect people. In contrast, the IEE Wiring Regulations are a technical standard for the electrical integrity of the electrical installation.

8.10 Noise at Work Regulations 1989

Require employers to take action to protect employees from hearing damage. They require employers to undertake a noise risk assessment to establish the daily noise dose and to take appropriate control measures. There is a duty to reduce noise to the lowest level so far as reasonably practicable when above the specified action levels. Good practice suggests reducing noise at source. Other control measures could include making personal protective equipment available and the designation of noise protection zones.

8.11 Control Of Substances Hazardous to Health Regulations 2002 (COSHH)

These require employers to assess the risks from hazardous substances and take appropriate precautions covering use, storage and handling. There are also special regulations covering asbestos and lead (see 7.13 and 7.14).

8.12 Dangerous Substances and Explosive Atmospheres Regulations 2002

8.13 The Control of Lead at Work Regulations 2002

The Control of Lead at Work Regulations requires employers to do an assessment to ascertain if exposure is significant or not. The criteria for significance are given. If exposure is not significant, no action under these regulations is required. If exposure is significant, employers must undertake a risk assessment and implement an exposure control programme.

8.14 The Control of Asbestos at work Regulations 2002

8.15 Construction

The legislation affecting the construction industry is in two parts. The Construction (Design and Management) Regulations 1994, the so called CDM Regs, cover the contract management aspects and subsequent safety related management issues. The Construction (Health Safety and Welfare) Regulations 1996 are primarily aimed at ensuring the safety of construction workers.

8.15.1 The Construction (Design and Management) Regulations 1994 (CDM Regs - last modified in 1996)

The Objective of the CDM Regs is to improve the management of safety during construction work. In particular, they emphasise the need to take account of health and safety aspects during initial planning to ensure that these considerations are built into the scheme.

The health and safety requirements identified at the design and planning stage must be set down in a Safety Plan. This must be further developed during the construction phase. When the project is complete, a Safety File must be provided which contains the detailed information about the structure and equipment within it, so the end user can manage health and safety properly during subsequent use, construction and maintenance activities throughout the life of the building.

The Regulations apply to 'construction work' on 'structures' but both the definitions are extremely broad and include repair and demolition.

The Regulations apply if more than four persons will be involved in the construction work at any one time. The project is notifiable to the HSE if, amongst other things, it will exceed 30 days, it will involve demolition or dismantling, or it will involve more than 500 person-days of work.

Duties are defined and imposed on various participants including:

- Client
- Planning Supervisor
- Designer
- Principal Contractor

Several or all of these roles can be performed by the same person and can be performed in-house. The essential fact is that competent persons must perform each of the roles.

8.15.2 The Construction (Health Safety and Welfare) Regulations 1996

The intention behind the proposals is to implement Annex IV of the Temporary or Mobile Construction Sites Directive, covering Health Safety and Welfare provisions and to consolidate:

- The Construction (General Provisions) Regulations (1961)
- The Construction (Working Places) Regulations (1966) and
- The Construction (Health and Welfare) Regulations

into a single set of Regulations. This removes the sometimes complex fragmentation of the requirements of the existing regulations.

As with the CDM Regulations, they not only apply to construction work as such, but to installation or removal of services which are part of a structure, and to the removal or dismantling of fixed plant, where there is a risk of falling from 2 metres or more.

Duties under the regulations will not only fall on 'Contractors' but on employers, self-employed and employees. Thus manufacturing employers, for example, who use their own employees on work covered by the regulations will have a duty to comply.

The main additional requirements of the proposals cover:

- prevention of falls

- traffic routes
- access and egress
- doors and gates
- inspection requirements
- fire precautions
- emergency routes and exits
- temperature
- house keeping

Office accommodation and Welfare facilities attract special attention.

8.16 The Fire Precautions Act 1971

It should be noted that at the time of writing, the UK Government is planning to reform the fire safety laws. Further information should be sought from the Office of the Deputy Prime Minister .

Fire Certificates are required for most premises that are used as factories, offices, shops, railway premises, hotels and boarding houses. The Fire Precautions Act 1971 in England, Scotland and Wales and The Fire Services (Northern Ireland) Order 1984 specify that a fire certificate must be applied for the following designated premises if:

Factories, Offices, Shops and Railway Premises:

- More than 20 people are employed, or
- more than 10 people are at work elsewhere than on the ground floor, or
- explosives or highly flammable materials are stored or used, regardless of the numbers of people employed

Hotels and Boarding Houses:

- If there is sleeping accommodation for more than six people, whether staff or guests, or
- some of the sleeping accommodation is above first floor level, or
- some of the sleeping accommodation is below ground level.

Application for a Fire Certificate

A fire certificate is a legal document (i.e. binding in law and enforceable in court), consisting of written text and plans of the building.

The owner or occupier is responsible for applying for a fire certificate if the premises are in single occupancy. If the premises are of multiple occupancy, the responsibility for application for a fire certificate rests with the owner (landlord).

The fire authority must inspect the premises if an application is made for a fire certificate. If the fire authority is satisfied that:

- means of escape
- means for ensuring that the means of escape can safely and effectively be used
- means of fighting fire, and
- means of giving warning

are such as may reasonably be required, the fire authority must issue a certificate covering the use of those premises.

Any significant changes proposed to the structure, or to the internal arrangements of furniture or equipment, must be notified to the fire authority.

A person found guilty of failure to comply with the requirements of a fire certificate shall be liable:

- on summary conviction to a fine not exceeding £20,000
- on conviction or indictment, to a fine or imprisonment for a term of up to two years, or both.

Refusal to Grant a Certificate

The fire authority, if not satisfied, shall by notice served on the applicant:

- inform of the steps required to remedy the situation
- notify that they will not issue a fire certificate unless steps are taken to rectify the situation, within a specified time

Rights of Appeal

The occupier has 21 days to lodge an appeal to a Magistrates (Lower) Court. This applies for a refusal of a fire certificate or a schedule of works to be carried out.

Note: For high hazard industries, fire certificates are issued by the HSE under the Fire Certificate (Special Premises) Regulations 1976.

8.17 The Fire Precautions (workplace) Regulations 1997 (amended 1999 and 2003)

The regulations require the provision and maintenance of appropriate measures to detect, warn and fight fires and to ensure the safe evacuation of people in a workplace. The regulations work in conjunction with the Management of Health and Safety at Work regulations and require that fire risks are included in general workplace assessments.

8.18 Working at Height Regulations 2005.

The regulations apply to all work at height where there is a risk of a fall liable to cause injury. The HSE has produced a short introductory guide to the new regulations (INDG 401)

8.19 Other Legislation

There is also legislation that is applicable to particular industries for example, the Railways (Safety Case) Regulations 1994, the Mines Miscellaneous Health and Safety Provisions Regulations 1995, the Dangerous Substances in Harbour Regulations 1987 and the Nuclear Installations Act 1965 (as amended).

In addition to industry specific legislation, there may be specific regulations relating to the design and use of some types of equipment, e.g. the Pressure Equipment Safety Regulations 2002.

Finally, this document does not cover legislation that relates to the supply of equipment or other products, e.g. the Supply of Machinery (safety) Regulations 1992 (as amended).

Reference should be made to the information published regularly by the HSE to ensure that you keep up to date with the legislation that has particular relevance to your work.

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9. SOURCE DOCUMENTATION AND INFORMATION

The Health and Safety Commission and Executive have responsibility for 36 Acts of Parliament and nearly 400 regulations concerning health and safety that apply to businesses in Great Britain.

The HSE maintains a very useful and informative website at www.hse.gov.uk. This website gives access to many of the HSE's free leaflets on H&S topics as well as pages devoted to particular topics, e.g. stress and asbestos.

The HSE also provides an online information service called **hsedirect**. This provides access to Health and Safety legislation and guidance. The service is available by subscription over the Internet at www.hsedirect.com. The service has a range of search facilities and you can also choose to receive weekly emails with details of new legislation and HSE guidance.

The HSE also operate an **HSE Infoline** for general queries on workplace health and safety, and how to find your way around HSE. The telephone number is **+44 (0)541 545500**.

HSE is gratefully acknowledged as the original source of the workplace schematics used in this document.

The IET publishes a series of Health and Safety briefings on a variety of subjects ranging from Risk Assessment to Safety Culture. These can be found on the IET website at:

http://www.theiet.org/publicaffairs/health/h_s_briefings.cfm

Information on the possible biological effects of mobile phones and power lines can also be found on the IET website at: <http://www.theiet.org/publicaffairs/bepag/index.cfm>

The TUC also maintains a website on H&S issues at <http://www.tuc.org.uk/> and offers a free email newsletter service.

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