CHAPTER 1

Health and Safety

THIS CHAPTER RELATES TO UNIT CC1001K AND UNIT CC1001S.

Health and Safety Legislation

There are a lot of different pieces of legislation and regulations that affect you within the construction industry. Over the course of this chapter we will discuss just a few of the more relevant ones that you need to be aware of. Some will be dealt with in more detail later on in the work.

Health and Safety at Work Act 1974 (HASWA)

The HASWA covers the health and safety of almost everyone in the workplace. The main objectives of the HASWA are to:

- secure the health, safety and welfare of all persons at work
- protect the public from risk to their health and safety caused by work activities
- control the use, handling, storage and transportation of explosives and highly flammable substances
- control the release of noxious or offensive substances into the atmosphere
- ensure safety notices are displayed outside a building site.

The HASWA is enforced by inspectors, employed by the Health and Safety Executive (HSE). Their authority permits them to:

- enter premises to carry out investigations
- take statements
- check records
- give advice and information
- seize, dismantle, neutralise or destroy material, equipment or substances that are likely to cause immediate serious personal injury

- issue prohibition notices (ban all activity until the situation is corrected)
- issue improvement notices (put right within a specified period of time any minor hazard or infringement of legislation)
- prosecute all persons who fail to comply with their duty under the HASWA

Employers' and Employees' Duties under HASWA

Employers and employees have responsibilities under the HASWA. These are often referred to as 'duties' and are things that should or should not be done by law. If you do not carry out your duties, you may be breaking the law and you could be prosecuted.

Employer Responsibilities

All work activities are covered by health and safety law. The law which is most relevant to construction health and safety is the Health and Safety at Work Act 1974. This Act applies to all work activities.

It requires employers to ensure as far as reasonably practicable the health and safety of their employees, other people at work and members of the public who may be affected by their work.

Employers should have a health and safety policy. If they employ five or more people, the policy should be in writing.

Employers are required to plan, control, organise, monitor and review their work. To do this they should:

- assess the risks associated with work to identify the control measures necessary to reduce these risks
- have access to competent health and safety advice
- provide health and safety information and training to employees
- have arrangements to deal with serious and imminent danger
- cooperate in health and safety matters with others who share the workplace.

Employers must identify the hazards involved with their work, assess the likelihood of any harm arising and decide on adequate precautions. This process is called risk assessment and is central to all planning for health and safety.

Site personnel must be trained in safe working practices. Employees cannot be relied upon to pick up safety training on the job from their colleagues – they might simply be learning someone else's bad habits.

Employers must provide a safe place to work with safe entrances and exits and provide all site personnel with personal protective equipment (PPE) if required.

Summary

In summary, the employer must ensure that health and safety is taken into account and managed throughout all stages of a project, from conception, design and planning through to site work and subsequent maintenance and repair of the structure.

Employee Responsibilities

Employees also have health and safety duties. They should:

- follow instructions given to them by their supervisors
- cooperate with their employer on health and safety matters
- follow the health and safety rules which apply to their particular job and to the site in general
- use the health and safety equipment provided
- report defects in equipment to their supervisor
- take care of their own health and safety as well as that of their workmates and others who might be affected by their work.

Employees should be trained to know what to do, and the work should be supervised and monitored to make sure that information provided as training is relevant to the work situation and is applied effectively.

Control of Substances Hazardous to Health Regulations 2002 (COSHH)

The COSHH cover dangerous solids, liquids or gases and gives guidelines on how they should be used and stored (Figure 1.1). They give details of actions the employer and the employee must take to protect the health of the individual and others.

Using chemicals or other hazardous substances at work can put people's health at risk. So the law requires employers to control exposure to hazardous substances to prevent ill health. Employers have to protect both site personnel and others who may be exposed, by complying with COSHH.

Provision and Use of Work Equipment Regulations 1998 (PUWER)

The PUWER help to provide guidance to protect people's health and safety from equipment that they use at work.

The PUWER cover all working equipment such as tools and machinery. This equipment can include ladders, lifting equipment, earth-moving machinery, powered hand tools (Figure 1.2), cutting and drilling machines and so on.

Words and Meanings

Health and safety has a lot of terms and meanings that need to be read, understood and remembered.
Regulations – Rules that have been put in place to ensure work is carried out both correctly and safely.
Legislation – A law that has been made in Parliament and is often called an Act.

Figure 1.1 Storage of hazardous substances.

Figure 1.2 Power tools.

Under the PUWER, employers must make sure that any tools and equipment they provide are:

- suitable for the work to be carried out
- maintained, serviced and repaired on a regular basis
- inspected on a regular basis to ensure that the piece of equipment and its parts are in good working condition.

Employers also have to make sure that any risk of harm from using the equipment has been identified and that all precautions and safety measures have been taken. Employers must also ensure that anyone who uses tools and equipment has been properly trained and instructed in how to do so.

Manual Handling Operations Regulations 1992

Manual handling is transporting or supporting loads by hand or using bodily force. Many people hurt their back, arms, hands or feet lifting everyday loads, not just when the load is too heavy. More than a third of all over-three-day injuries reported each year to the Health and Safety Executive and to local authorities are the results of manual handling. These can result in those injured taking an average of 11 working days off each year.

Control of Noise at Work Regulations 2005

Excessive noise levels from site machinery can cause hearing impairment if exposed to it continually. Therefore ear defenders must be worn to protect the eardrums (Figure 1.3). Young people can be damaged as easily as the old, and premature deafness is even worse. Sufferers often first start to notice hearing loss when they cannot keep up with conversations in a group or when the rest of their family complain they have the television on too loud. Deafness can make people feel isolated from their family, friends and colleagues. (See the section on noise safety later on in this chapter.)

Electricity at Work Regulations 1989

The Electricity at Work Regulations cover any work that involves the use of electricity or electrical equipment. Employers have a duty to make sure that all electrical systems you may come into contact with are safe and regularly maintained.

Personal Protective Equipment at Work Regulations 1992 (PPER)

The use of personal protective equipment (PPE) is not the solution for preventing accidents; it is used as a last resort. It is of primary

Figure 1.3 Worker using noisy equipment.

Words and Meanings

Accident – **An unplanned or unwanted event or occurrence that may result in injury to a person and/or damage to property.**

Figure 1.4 Some examples of PPE: high visual jacket, eye protection and hard hat.

importance to prevent accidents by identifying all possible hazards and then taking the necessary steps to eliminate them, *before* they cause an accident.

The PPER detail the different types of PPE that are available and state when they should be worn (Figure 1.4). For example, employers must provide employees with hard hats and make sure they are worn and worn correctly. (The different types of PPE available are covered in more detail later on in this chapter.)

Health and Safety (Safety Signs and Signals) Regulations 1996

These regulations bring into force the European Community Safety Signs Directive on the provision and use of safety signs at work. The purpose of the directive is to encourage the standardisation of safety signs throughout the member states of the European Union so that safety signs, wherever they are seen, have the same meaning. See the section on signs and notices later in this chapter for a closer look at the signs used on a construction site.

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

Certain events must be reported to the HSE, for example major injuries and deaths that occur on a construction site or accidents in which employees are unable to work for more than three days as well as diseases and dangerous occurrences.

The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR) require that certain accidents that happen on site, listed in the following section, have to be reported.

Reporting Responsibilities and Accidents

Remember **Emergencies require immediate action.**

Learners and employees in construction should be aware of the reporting system and should be able to report accidents verbally and understand the documentation used to record accidents. It is important that you are clear, accurate and factual about any accident you may have to report.

Some examples of emergencies are fire, security alerts, uncontained spillage or leakage of chemicals or other hazardous substances, scaffold failure, bodily damage and health problems.

In the European Union, the construction industry is the industry most at risk from accidents, with more than 1300 people being killed in construction accidents every year.

Reporting Hazards and Injuries

Reporting accidents and ill health at work is a legal requirement. The information enables the HSE and local authorities, referred to as the enforcing authority, to identify where and how risks arise and to investigate serious accidents.

Record Keeping

You must keep a record of any reportable injury, disease or dangerous occurrence for three years after the date on which it happened. You can keep the record in any form you wish.

The Accident Book

All accidents, even minor ones, have to be entered into the Accident Book at work. The following must be recorded:

- the name of the injured person, their home address and occupation;
- the signature of the person making the entry, their home address, occupation;
- when and where the accident happened;
- a brief description of the accident, its cause and what the injury was;
- the method of treating the accident;
- other people involved;
- whether the accident is reportable to the HSE.

The HSE will also need to be informed if a major injury or dangerous occurrence takes place, or if the employee is off work for more than three days.

Location of Accident Book

There is no set place to keep an Accident Book. However, it needs to be easy to get at and often it is kept near the first-aid point.

Employers must tell employees where the Accident Book is kept. Sometimes employers just tell employees when they first start where it is kept. Sometimes notices are displayed. The company's safety policy may also say where it is.

Accident Trends within the United Kingdom

Each year, many building site workers are killed or injured as a result of their work; others suffer ill health, such as dermatitis, occupational deafness or asbestosis. The building industry's accident trends have shown a steady long-term improvement. However, the rates of death, serious injury and ill health are still unacceptably high.

Words and Meanings

Hazard – Something that can cause harm, illness or damage to health or property.

Words and Meanings

Accident – This is an unplanned or unwanted event or occurrence that may result in injury to a person and/or damage to property.

Note

The HSE introduced a new accident record book in May 2003. The new publication ensures companies comply with legal requirements to record accidents at work. It was revised in 2007 to take account of the requirements of the 2003 Data Protection Act.

Try this Out

Accidents have to be reported in writing using a form, an example of which is illustrated in Figure 1.5 (see elsewhere in this chapter for more information about accident reporting). Take a copy of the form and complete it, imagining that you have just witnessed an accident to a colleague.

Get your tutor to check that the form has been accurately completed.

1. About the person who had the accident

Name:_____

Address:_____

_____

Postcode: _____

Occupation:_____

2. About you, the person filling in this record

If you did not have the accident, write your address and occupation

Name:_____

Address:_____

_____

Postcode: _____

Occupation:_____

3. About the accident; (continue on the back of this form if you need to)

Say when it happened: Date: ___/___/_____ Time: ___:___

Say where it happened. State which room or place: _____

_____

Say how the accident happened. Give the cause if you can: _____

_____

_____

If the person who had the accident suffered an injury, say what it was: _____

_____

Please sign and date the record:

Signature:_____ Date: ___/___/_____

4. For the employer only

Complete this box if the accident is reportable under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR)

How was it reported? _____

Date Reported: ___/___/_____ Signature: _____

Figure 1.5 Accident report form.

The Government and the Health and Safety Commission (HSC) set targets for improving the United Kingdom's health and safety performance. These targets include aims to:

- reduce the incidence rate of fatalities and major injuries by 66% by 2009/10;
- reduce the incidence rate of cases of work-related ill health by 50% by 2009/10;
- reduce the number of working days lost per 100 000 workers from work-related injury and ill health by 50% by 2009/10.

These targets will only be achieved if everyone involved in the construction industry plays their part.

Preventing Accidents

You can help prevent accidents by following the procedures, rules, training and instruction provided, and by cooperating with your employer.

Reporting to the Enforcing Authority

Reports have to be sent to the enforcing authority if there is an accident connected with work and:

- an employee, working on site is killed or suffers a major injury, or
- a member of the public is killed or taken to hospital.

You must notify the HSE without delay, usually by telephone. The HSE will ask for brief details about the injured person and the accident.

Within ten days, you must follow this up with a completed accident report form F2508 (Figure 1.6).

Over-Three-Day Injury

If there is an accident connected with work and an employee working on site suffers an over-three-day injury, you must send a completed accident report form (F2508) to the HSE within ten days.

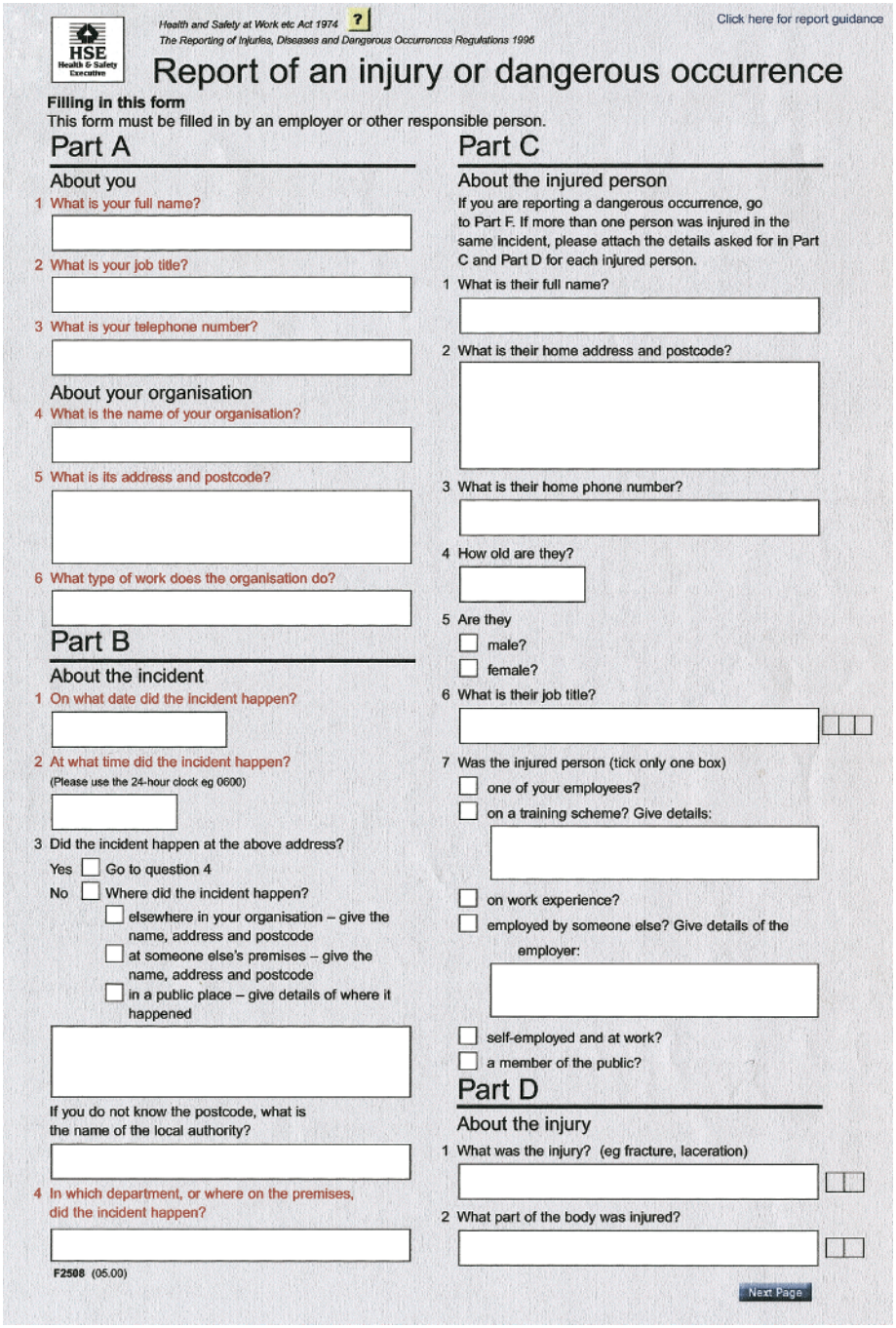
An over-three-day injury is one which is not major but results in the injured person being away from work or unable to do the full range of their normal duties for more than three days.

Disease

If a doctor notifies you that an employee suffers from a reportable work-related disease, you must send a completed disease report form (F2508A) to the enforcing authority.

Words and Meanings

Major injury – Usually requires hospital treatment and a long time off work.
Minor injury – Usually does not require hospital treatment and does not involve more than three days off work.



HSE Health & Safety Executive

Health and Safety at Work etc Act 1974 ?

The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995

Click here for report guidance

Report of an injury or dangerous occurrence

Filling in this form

This form must be filled in by an employer or other responsible person.

Part A

About you

1 What is your full name?

2 What is your job title?

3 What is your telephone number?

About your organisation

4 What is the name of your organisation?

5 What is its address and postcode?

6 What type of work does the organisation do?

Part B

About the incident

1 On what date did the incident happen?

2 At what time did the incident happen?

(Please use the 24-hour clock eg 0600)

3 Did the incident happen at the above address?

Yes ☐ Go to question 4

No ☐ Where did the incident happen?

- ☐ elsewhere in your organisation – give the name, address and postcode
- ☐ at someone else's premises – give the name, address and postcode
- ☐ in a public place – give details of where it happened

If you do not know the postcode, what is the name of the local authority?

4 In which department, or where on the premises, did the incident happen?

F2508 (05.00)

Part C

About the injured person

If you are reporting a dangerous occurrence, go to Part F. If more than one person was injured in the same incident, please attach the details asked for in Part C and Part D for each injured person.

1 What is their full name?

2 What is their home address and postcode?

3 What is their home phone number?

4 How old are they?

5 Are they

☐ male?

☐ female?

6 What is their job title?

7 Was the injured person (tick only one box)

☐ one of your employees?

☐ on a training scheme? Give details:

☐ on work experience?

☐ employed by someone else? Give details of the employer:

☐ self-employed and at work?

☐ a member of the public?

Part D

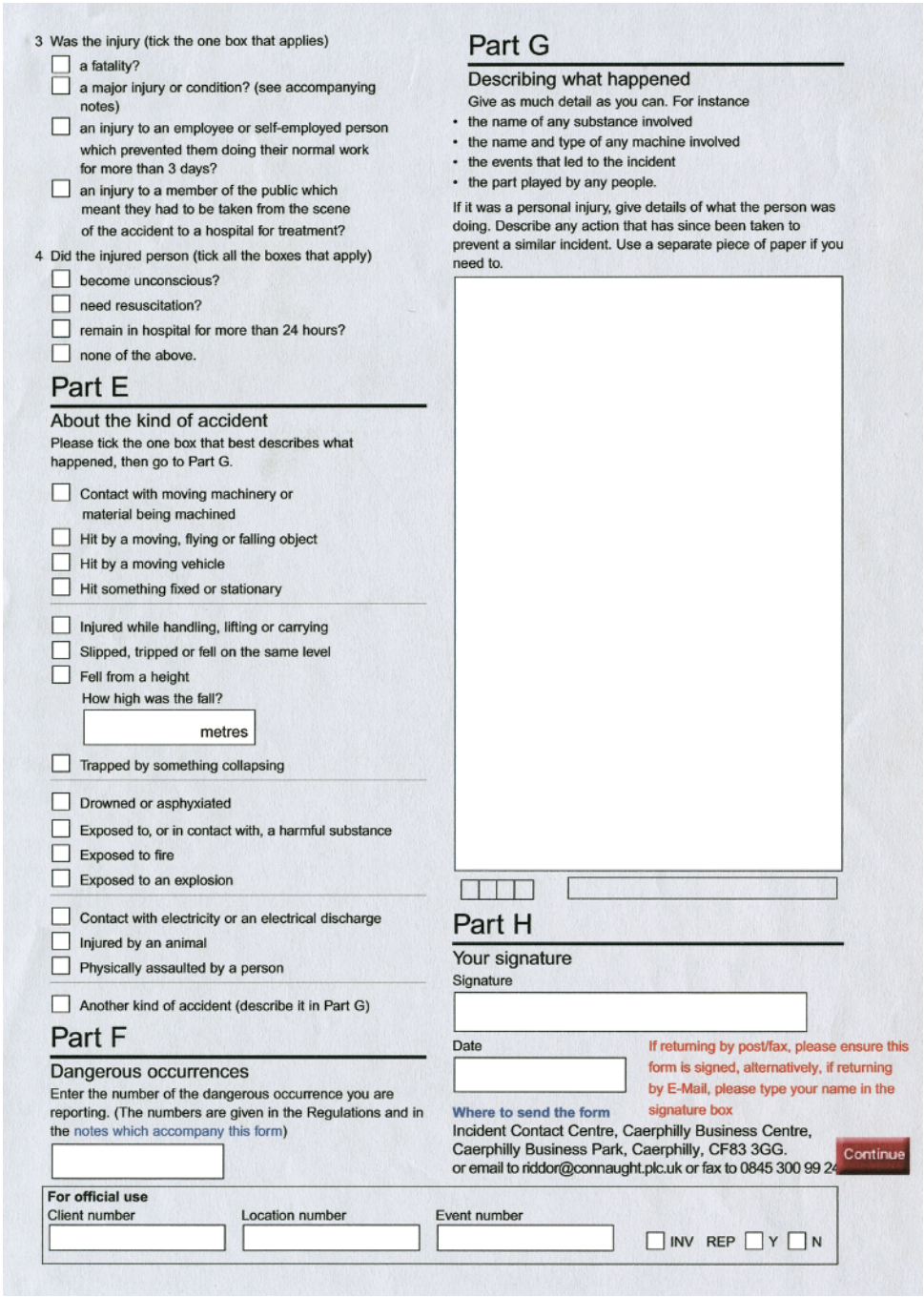
About the injury

1 What was the injury? (eg fracture, laceration)

2 What part of the body was injured?

Next Page

Figure 1.6 Report form F2508.



3 Was the injury (tick the one box that applies)

- ☐ a fatality?
- ☐ a major injury or condition? (see accompanying notes)
- ☐ an injury to an employee or self-employed person which prevented them doing their normal work for more than 3 days?
- ☐ an injury to a member of the public which meant they had to be taken from the scene of the accident to a hospital for treatment?

4 Did the injured person (tick all the boxes that apply)

- ☐ become unconscious?
- ☐ need resuscitation?
- ☐ remain in hospital for more than 24 hours?
- ☐ none of the above.

Part E

About the kind of accident

Please tick the one box that best describes what happened, then go to Part G.

- ☐ Contact with moving machinery or material being machined
- ☐ Hit by a moving, flying or falling object
- ☐ Hit by a moving vehicle
- ☐ Hit something fixed or stationary
- ☐ Injured while handling, lifting or carrying
- ☐ Slipped, tripped or fell on the same level
- ☐ Fell from a height
  How high was the fall?
  metres
- ☐ Trapped by something collapsing
- ☐ Drowned or asphyxiated
- ☐ Exposed to, or in contact with, a harmful substance
- ☐ Exposed to fire
- ☐ Exposed to an explosion
- ☐ Contact with electricity or an electrical discharge
- ☐ Injured by an animal
- ☐ Physically assaulted by a person
- ☐ Another kind of accident (describe it in Part G)

Part F

Dangerous occurrences

Enter the number of the dangerous occurrence you are reporting. (The numbers are given in the Regulations and in the notes which accompany this form)

Part G

Describing what happened

Give as much detail as you can. For instance

- the name of any substance involved
- the name and type of any machine involved
- the events that led to the incident
- the part played by any people.

If it was a personal injury, give details of what the person was doing. Describe any action that has since been taken to prevent a similar incident. Use a separate piece of paper if you need to.

Part H

Your signature

Signature

Date

If returning by post/fax, please ensure this form is signed, alternatively, if returning by E-Mail, please type your name in the signature box

Where to send the form

Incident Contact Centre, Caerphilly Business Centre, Caerphilly Business Park, Caerphilly, CF83 3GG.
or email to riddor@connaught.plc.uk or fax to 0845 300 99 2

Continue

For official use

Client number | Location number | Event number | ☐ INV REP ☐ Y ☐ N

Figure 1.6 Continued

Dangerous Occurrence

If something happens that does not result in a reportable injury, but which clearly could have done, it may be a dangerous occurrence, which must be reported immediately by telephone to the enforcing authority. Within ten days, you must follow this up with a completed accident report form (F2508).

Accident Reporting

If you are involved in an accident or near miss at work:

- you may have to give details to your site manager, or
- you may be asked to fill in an accident report form as a witness or as an injured person.

These forms can be complicated. They must be read very carefully.

Accident and Emergency Records

Your employer has to inform you and all employees of the first-aid arrangements. Putting up notices telling employees who and where the first-aiders or appointed persons are and where the first-aid box is will usually be sufficient. Your employer also needs to make special arrangements to give first-aid information to employees with reading or language difficulties.

Working Safely

Remember **You are legally required to assess the risks in the workplace.**

Serious accidents can easily happen in the construction industry, so keeping yourself and others safe at work is vital. For each job you do on site and in the workshop, you, your tutor and your employer must follow a process of risk assessment.

The important things you need to decide are whether a hazard is significant and whether you have it covered by satisfactory precautions so that the risk is small. You need to check this when you assess the risks. See Figure 1.7, which shows some potential hazards that may find on a building site.

In most firms in the construction industry the hazards are many and complex. Checking them is common sense, but necessary.

Communicating Health and Safety

The HASWA is a very important piece of safety legislation. It is displayed on a poster (Figure 1.8) in every place of work and should be read and understood by all employers and employees. However, the quantity and difficulty of the text can make the task daunting.

Figure 1.7 Potential hazards.

Try this Out

With the information you already have from lessons and reading this textbook, carry out:

- basic risk assessments including completion of the necessary forms on activities in the brick workshop
- a near-miss report on a simulated activity in the brick workshop and complete the hazard book noting the near miss.

On completion, show your work to your tutor for assessment.

Every year building workers are injured or killed at work. You need to be aware of what your employer should be doing to protect everyone's safety. You should also be clear about what safety areas you and your colleagues are responsible for (see the section on the HASWA above and in particular the responsibilities of employers and employees).

Tip

Look up any unfamiliar words from a dictionary or ask your tutor for help.

Try this Out

Look at a copy of the health and safety poster, which your tutor will have a copy of, and carry out the following:

- Find out what your employer's duties or responsibilities are.
- Read the information carefully as many times as you need to.
- Which information relates to you, the employee, including your duties or responsibilities?

Find out the meaning of any unfamiliar words by:

- asking someone
- looking them up
- trying to work out what they mean from the rest of the sentence.

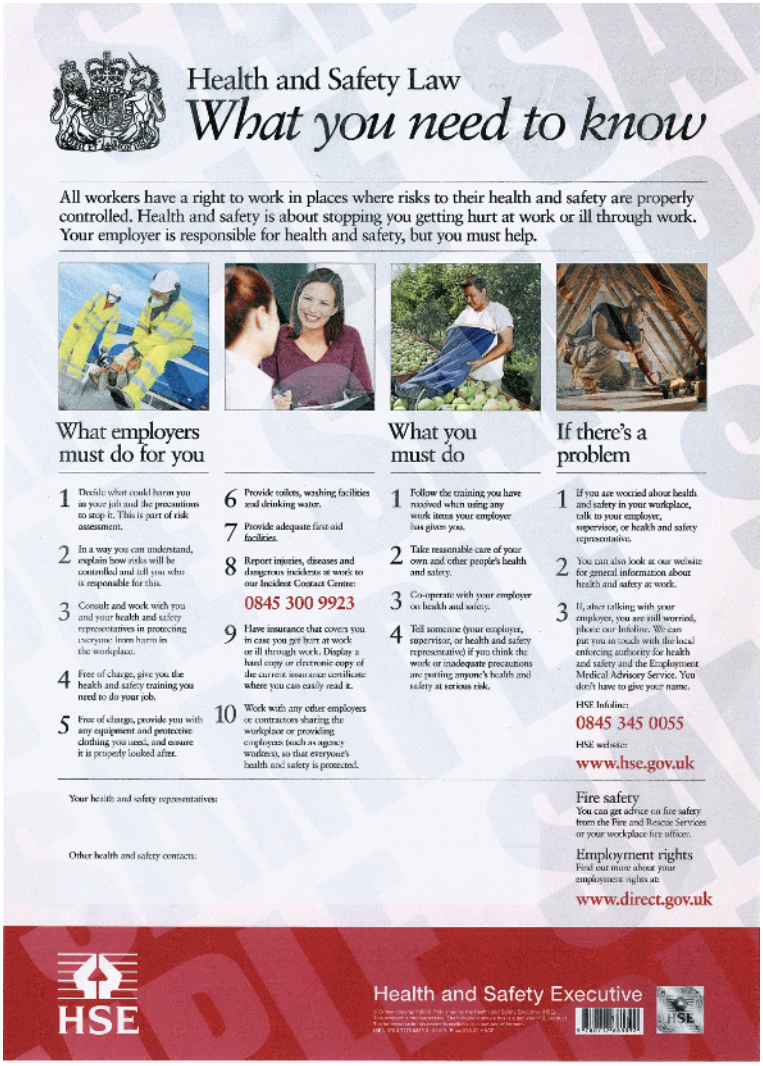


Figure 1.8 Example of a poster.

The Health and Safety Executive (HSE)

The HSE enforces the law in the workplace. It has the powers to inspect premises and construction sites to ensure employers and employees are not breaking the law.

One of the jobs of health and safety inspectors is to see how well site hazards are being dealt with, especially the more serious ones that

could lead to injuries or ill health. They may also wish to investigate an accident or complaint.

HSE inspectors have wide powers, which include:

The right to issue an improvement notice, which gives a company a certain amount of time to deal with a health and safety issue.

The right to issue a prohibition notice (particularly where a risk of serious personal injury exists), which stops a process or the use of dangerous equipment.

Health and Safety on Site

Every year in the United Kingdom the HSE faces the challenge of reducing:

- about 350 fatalities to workers and members of the public due to reportable accidents at work
- some 12000 early deaths due to past exposure to hazardous agents (e.g. asbestos)
- over 36 million working days lost due to work-related accidents and ill health.

Enforcement of Health and Safety

Health and safety laws which apply to construction companies are usually enforced by an inspector from the HSE. However, some smaller jobs inside offices, shops and similar premises are the responsibility of inspectors from the local authority.

Induction Programmes

On starting work or a college course you will be give an induction briefing session explaining your roles and responsibilities in the organisation. These will be backed up on a regular basis by what are known as tool box talks. These talks are done informally and are usually related to health and safety. It is important that you listen and take notice of them.

Construction Skills Certification Scheme (CSCS)

'Quality up, accidents down and cowboys out' were the main objectives for the formation of the Construction Skills Certification Scheme (CSCS) when it was launched in 1995.

Today, its main purpose is to help people who work in construction prove that they are competent to do their job and that they have health and safety awareness.

The levels of card (Figure 1.9) available are:

- CSCS cards list the holder's qualifications and are valid for one, three or five years.

Words and Meanings

Improvement Notice – This is issued by the HSE to state what is wrong and what is required to be put right, usually to a given timescale.
Prohibition Notice – This is issued by the HSE on employers or employees where, in the HSE inspector's opinion, there is an imminent risk of an accident. The work must stop immediately. Matters must be corrected before the notice is lifted.

Note

Conviction in a magistrates' court can lead to a fine of up to £20000 and six months in prison, and in the Crown court to an unlimited fine and two years in prison.

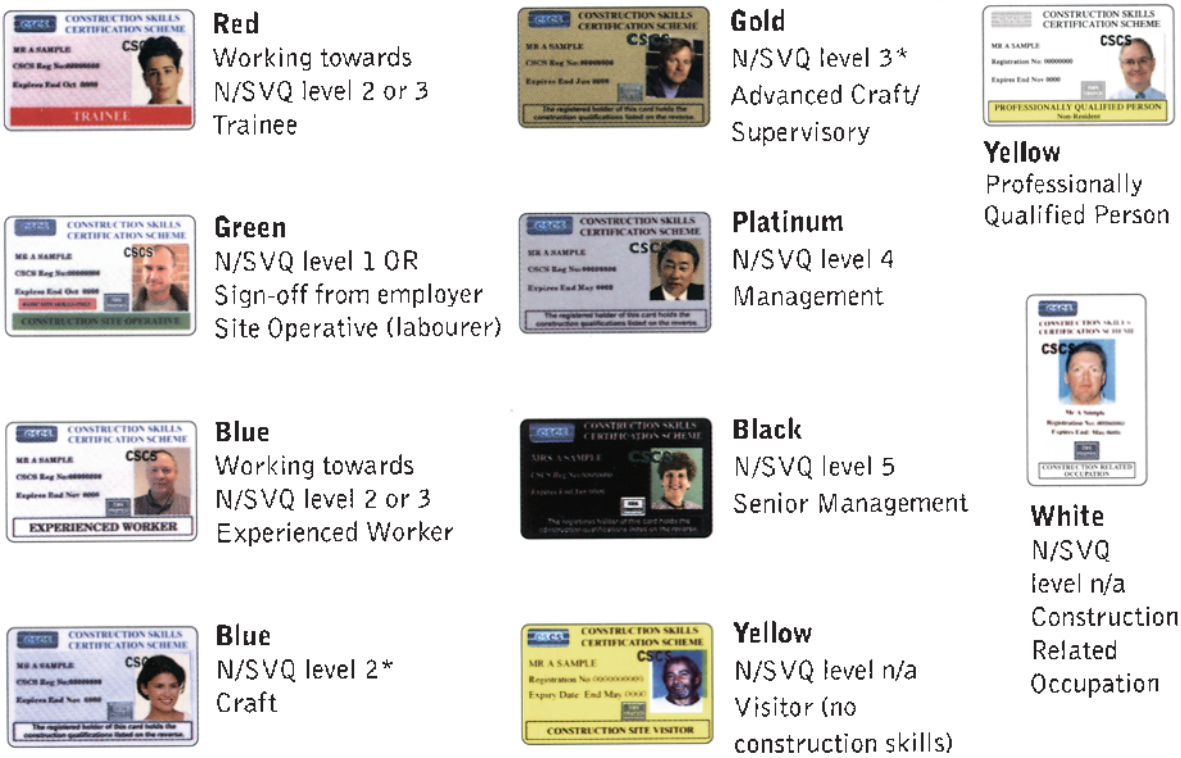


Figure 1.9 Construction Skills Certification Scheme cards.

- The cards are based on the N/SVQ system. There are different coloured cards for each of the levels.

The back of each CSCS card states in which occupation(s) the cardholder is qualified.

To apply for a CSCS card, you must pass the Construction Skills' health and safety test.

Health and Safety Requirements

All applicants must take and pass an independent test of retained health and safety knowledge. The test is designed to examine the knowledge of the individual across a wide range of health and safety topics.

Construction Health and Safety Test

The Construction Skills construction health and safety test is available at four levels: operative, supervisory, management and professionally qualified person.

Authorised Persons

An authorised person is someone chosen to:

- take charge when someone is injured or falls ill, including calling an ambulance if required;
- look after the first-aid equipment (e.g. restocking the first-aid box).

Authorised persons should not attempt to give first aid for which they have not been trained, though short emergency first-aid courses are available. Remember that an authorised person should be available at all times people are at work on site – this may mean having more than one authorised person.

Authorised persons include:

- first-aiders
- supervisors
- safety officers
- managers
- members of the emergency services or HSE.

First-Aiders

An employer has to make adequate arrangements to treat employees and others who are injured or become ill at work. Employers have to appoint one first-aider, depending on the number of employees and the risk involved in the employer's work.

For low-risk employers and/or where there are few employees, it is adequate to authorise someone to take charge of a situation when someone has a serious illness or accident. Employers with a first-aider or first-aiders also tend to have these appointed persons to cover first-aid situations on sites that do not provide permanent first-aid staff.

First-Aid Boxes

People at work can suffer injuries or fall ill. It does not matter whether the injury or the illness is caused by the work they do. What is important is that they receive immediate attention and, in serious cases, an ambulance is called.

The Health and Safety (First Aid) Regulations require employers to provide adequate and appropriate equipment, facilities and personnel. This is so that employees can get first aid if they are injured or become ill at work.

What is adequate and appropriate will depend on the circumstances in your workplace.

Words and Meanings

First Aid – **This is the method of treating minor injuries where other treatment is not needed. This minimises any chance of further injury or illness until a doctor, nurse or paramedic arrives.**

Figure 1.10 First-aid box.

Try this Out

With the information you already have and using the library, Internet and textbooks:

- **Analyse national statistics regarding key accidents trends within the UK building industry.**
- **Compile a report of your finding and show it to your tutor for assessment.**

The minimum first-aid provision on any building site is:

- a suitably stocked first-aid box (Figure 1.10);
- an appointed person to take charge of first-aid arrangements.

It is important to remember that accidents can happen at any time. First-aid provision needs to be available at all times when people are at work.

Employers must tell employees about first-aid arrangements at work. They usually do this by putting up notices telling staff who and where the first-aiders or appointed persons are, and where the first-aid box is.

Your tutor during the first week of your course will explain what first aid is and where the nearest first-aid box is located. Locate the first-aid box and make a list of its contents then ask your tutor for comments.

First-Aid Kits

An employer has to provide first-aid materials to deal with minor injuries or conditions such as cuts, fractures, burns and so on. A basic first-aid kit (Figure 1.11) should contain the following:

- a leaflet giving general advice on first aid (e.g. HSE leaflet *Basic advice on first aid at work*);
- 20 individually wrapped sterile adhesive dressings (assorted sizes);
- 2 sterile eye pads;
- 4 individually wrapped triangular bandages (preferably sterile);

Figure 1.11 First-aid kit.

Figure 1.12 Tidy work area for the building of a large brick retaining wall, to hold back the embankment.

- 6 safety pins;
- 6 medium-sized (approximately 12 cm × 12 cm) wrapped sterile un-medicated wound dressings;
- 2 large (approximately 18 cm × 18 cm) sterile wrapped un-medicated wound dressings;
- 1 pair of disposable gloves.

You should not keep tablets or medicines in the first-aid box.

Hazards on Construction Sites

When you see a good bricklayer at work, the chances are the area in which he is working will be clean and tidy; quality work and a tidy workspace go hand in hand (Figure 1.12). This is what is meant by good housekeeping.

The Working Area

- Keep your work area tidy by stacking bricks correctly.
- Do not overload the mortar boards.
- Keep the tools you are not using in your tool bag.
- Leave time at the end of the day to clean the area and leave it ready for the next day.
- Sweep up debris.
- On site a brush can be used to sweep fine debris into heaps.

- In confined spaces or in the workshop, lay the dust by sprinkling water on the area to be swept.
- If dust cannot be avoided, always wear a dust mask.

Waste Bins

Remember Materials are expensive – do not throw away good bricks and blocks.

All brick and block waste should be deposited in waste bins for reuse or recycling.

A clean work area helps safety, improves working conditions and allows operatives to work efficiently.

Risk Assessments

Words and Meanings

Risk – Likelihood or chance that harm, illness or damage will occur and the degree of harm (how many people might be affected and how badly).
Risk Assessment – Mainly carried out by an employer to identify risks to his/her employees (and others) and to decide what is necessary to control these risks to the standards required under the law.

Workers on site should all personally assess the risk of working in particular settings or on particular jobs. At Diploma level 1 you will be recording risk assessment information; so you should be able to read and understand it.

This section covers the principles of risk assessment so that you can assess risk assessment information and take responsibility for your own health and safety.

Employers carry out formal risk assessments and write down safe working methods or method statements. You should also carry out a risk assessment for yourself every time you start a job.

There are three main steps to risk assessment:

- Step 1: Look for the hazards. Look for things that can cause harm or areas where accidents are more likely to happen.
- Step 2: Think about who is at risk from this hazard. Is it everyone or only workers doing one particular job? Are members of the public at risk?
- Step 3: What can be done to reduce the risk? Is there a safe method of working that will help to prevent accidents? Who is responsible for carrying out these safety precautions?

Method Statements

You need to be familiar with method statements, their purpose and their use on site. You need to make the link between method statements and risk assessments and the need to understand and comply with both.

Method statements may be written in a range of formats and will use some technical language. This may be a barrier to reading and understanding. Some method statements are quite lengthy and apply to a

Corfield Scaffolding LTD

Method Statement

Contractor: Buildfull

Site: Industrial Estate, Dursley, Gloucestershire

Date: 4th June 2005

1. **Package:** Scaffolding
2. **Description of Works:** Safety/crash deck
3. **Task:** Erect safety/crash deck
4. **Location:** Unit Tower 220
5. **Duration:** 1 day
6. **Labour Requirement:** 2 scaffolders
7. **Supervision:** An experienced foreman will supervise this task.
8. **Plant:** No mechanical plant will be used during initial erection.
9. **Materials:** All materials will be fully serviced and prepared for use. All scaffolding and fittings required for this task will be delivered from our yard to site as required.
10. **Management of the Work Area:** This scaffold will be erected within the site boundary. Other trades will not be working in the area.

a) The perimeter of the work area will be cordoned off.
b) Warning signs (scaffolding complete) will be posted at either end and remain in place until the job has been inspected at the end.
c) No one will be allowed into the area unless they have a written permit from the foreman.

11. Construction sequence:

a) Ensure contractor has prepared the base, which must be firm, level and clear of obstructions.
b) All levels to be agreed with the site manager and checked.
c) Erect the first board layer – to have two layers with plastic sheeting in between.
d) Erect the second layer – board out using a minimum of three board runs for safety.
e) Lay plastic sheeting before doing the top layer.

12. **Manual Handling:** All scaffolders are experienced and aware of safe handling of scaffolding materials.
13. **COSHH:** The freeing agent used on fittings is non-harmful even after prolonged exposure.
14. **PPE:** All scaffolders will wear and use hard hats, safety boots, hi-vis vests and body harness.

Figure 1.13 Method statement, courtesy of the Department for Education.

range of different teams. By scanning the headings of a document, you should be able to identify which parts of it are relevant to you.

Method statements are work instructions. They give you information about the job and procedures to follow, including safety measures. Make sure you read and understand all parts of the method statement before you start the job. See Figure 1.13.

Method statements vary from place to place. Make sure you are familiar with the ones you use.

You have a responsibility to look after your own safety and that of others on site. The method statement you have for your job tells you what will or should be done to make that job as safe as possible. This is why you need to read it in detail to make sure you understand it.

Near Misses

If something happens which does not result in a reportable injury, but which clearly could have done, it may be a near miss or dangerous occurrence, which must be reported immediately by telephone to the enforcing authority. Within ten days you must follow this up with a completed accident report form (F2508). Near misses and dangerous occurrences include:

- plant or equipment coming into contact with overhead power lines;
- electrical short circuit or overload causing fire or explosion;
- collapse or partial collapse of a scaffold over 5 m high, or erected near water where there could be a risk of drowning after a fall;
- malfunction of breathing apparatus while in use or during testing immediately before use;
- accidental release of any substance which may damage health.

Reporting near misses, accidents and ill health at work is a legal requirement. The information enables the HSE and local authorities, referred to as the enforcing authority, to identify where and how risks arise and to investigate serious accidents.

Hazards in the Workplace

On the majority of construction sites in the United Kingdom, there is great emphasis on protecting construction personnel and the public from hazards associated with the work area and certain types of work practice.

Falling Materials/Tools

Falling materials or tools on building sites can cause injury to the head and other parts of the body. It is not only essential: the law dictates protective headgear must be worn at all times by all site personnel and visitors in order to minimise the hazard.

Noise

Excessive noise levels from site machinery can cause damage to hearing if personnel are exposed to it continually. Therefore ear defenders must be worn to protect the eardrums (see Figure 1.3 above). (See the section on noise safety later on in this chapter.)

Manual Handling

Manual handling is transporting or supporting loads by hand or using bodily force. Many people hurt their backs, arms, hands or feet lifting

everyday loads, not just when the load is too heavy. Most cases of injury can be avoided by providing suitable lifting equipment, which is regularly maintained, together with relevant training on both manual handling techniques and the safe use of equipment.

Handling and Storing of Materials and Equipment

When lifting loads without the use of lifting devices, care must be taken to avoid injury to the spinal column and the stomach and back muscles. By using the kinetic method of manual handling, injuries to the back can be avoided.

In your first week at college, you will be shown how to store tools, materials and equipment in the workshop. These may include, hand tools, hand-held power tools, wheelbarrows, ladders, trestles, scaffolding boards, brick, blocks and so on.

Electricity

Electricity can kill. Most deaths are caused by contact with overhead or underground power cables. Even non-fatal shocks can cause severe and permanent injury. Shocks from equipment may lead to falls from ladders, scaffolds or other work platforms. Those using electricity may not be the only ones at risk. Poor electrical installation and faulty electrical appliances can lead to fires, which can result in death or injury.

Fire Protection

Fire protection methods should be included in the organisation of any institutional or building site safety programme. The most common type of fire protection equipment is the fire extinguisher.

Fire extinguishers should be suitably placed, distinctly marked and easily accessible. Fire hoses, nozzles, connections, taps and pumps should be checked and maintained on a regular basis.

Enclosed workshops should have ample exits and all adjoining shops should be separated by fire walls or fire doors. Fire doors and walls provide a means of containing and preventing the spread of fire.

Work Equipment

Work equipment covers an enormous range, including process machinery, machine tools, lifting equipment, hand tools and ladders. Important points include:

- selecting the right equipment for the job;
- making sure equipment is safe to use and keeping it safe through regular maintenance;
- inspection and, if appropriate, thorough examination;

Note

Do not try to lift anything that weights over 25 kg on your own.

Try this Out

Write a report including illustrations detailing where all the tools, equipment and materials are kept in the workshop. Emphasise in your report the health and safety aspects behind the correct storage of tools and materials. On completion, show the report to your tutor for assessment.

Figure 1.14 Workplace transport: a site stacker truck.

Remember Keep a check on your workplace safety.

Note

Safety programmes should develop a permanent safety consciousness in learners and workers by promoting the idea of doing things the safe way.

- training of personnel to use equipment safely and following manufacturers' or suppliers' instructions;
- accidents involving work equipment happens all the time – many serious, some fatal.

Workplace Transport

Every year, about 70 people are killed and approximately 2500 seriously injured in accidents involving vehicles at the workplace. Being struck or run over by moving vehicles, falling from vehicles or vehicles overturning are the most common causes. There are many different types of vehicles on a construction site at any one time, from cars to much larger vehicles (Figure 1.14).

Often, there is significantly more danger from vehicles in the workplace than on the public highway, since the operating conditions are different.

Slipping and Tripping

The most common cause of injuries at work is the slip or trip. Resulting falls can be serious. They happen in all kinds of business, with the construction industry reporting higher-than-average numbers. These cost employers many millions of pounds a year in lost production and other expenses.

Hazardous Substances

Thousands of people are exposed to all kinds of hazardous substances at work. These can include chemicals that people make or work with directly and dust, fumes and bacteria, all of which can be present in the workplace. Exposure can happen by breathing them in, contact with the skin, splashing them into the eyes or swallowing them. If exposure is not prevented or properly controlled, it can cause serious illness, including cancer and dermatitis, trigger asthma and sometimes even cause death.

Storage of Combustibles and Chemicals on Site

Liquefied petroleum gas (LPG), petrol, cellulose thinners, methylated spirits, and white spirit are all highly flammable liquids and require special storage to ensure they do not risk injury to operatives.

Small supplies of flammable substances should be kept in clearly marked containers with securely fastened caps or lids in a well-ventilated store built with brick walls, concrete floor and non-combustible roof. The store should be sited well away from other buildings and marked with a prominent notice stating that the contents are highly inflammable.

Figure 1.15 LPG storage.

Liquid Petroleum Gas (LPG)

As well as the above, there are also specific storage regulations for liquid petroleum gas. LPG must be stored in the open and usually in a locked cage. It should be stored off the floor and protected from direct sunlight and frost or snow (Figure 1.15).

The storage of LPG is covered by the Highly Flammable Liquids and Liquefied Petroleum Gases Regulations.

Chemicals

Chemicals such as brick cleaners or certain types of adhesives or solvents can be classified as dangerous chemicals and must be stored in a locked area to prevent abuse or cross-contamination. Always check the COSHH before handling and storing chemicals.

Health and Hygiene

Everyone who works on site must have access to adequate toilet and washing facilities, a place for warming up and eating their food and somewhere for storing clothing. Toilets need to be easily accessible from where the work is being done. Wash hand basins should be close

to toilets. Washing facilities need to be near rest rooms so that people can wash before eating.

In the building industry, you will be exposed to substances or situations that may be harmful to your health. Some of these health risks may not be noticeable straight away and it may take years for symptoms to be recognised.

Sanitary Conveniences

The number of toilets required will depend on the number of people working on the site. A wash basin with water, soap and towels or dryers should be close to the toilets if the toilets are not near the other washing facilities provided on the site.

Washing Facilities

On all building sites, basins should be provided large enough to allow people to wash their faces, hands and forearms. All basins should have a supply of clean hot and cold, or warm, water. Water supplied from a tank may be used. Soap and towels or dryers should also be provided.

Where the work is particularly dirty or workers are exposed to toxic or corrosive substances, showers may be needed.

Drinking Water

There should be a supply of drinking water. It is best if a tap direct from the mains is available. Otherwise, bottles or tanks of water may be used for storage.

Storing and Changing Clothes

There should be arrangements for storing (Figure 1.16):

- clothing not worn on site (e.g. hats and coats)
- protective clothing needed for site work (e.g. wellington boots and overalls).

Separate lockers might be needed, although on smaller sites the site office may be a suitable storage area, provided it is kept secure. Where there is a risk of protective site clothing contaminating everyday clothing, items should be stored separately.

There should also be somewhere to dry wet clothing.

Figure 1.16 Example of a storage facility: a locker.

Rest Facilities

Facilities for taking breaks and meals should be available. The facilities should provide shelter from the wind and rain and be heated as necessary.

The rest facilities should have:

- tables and chairs;
- a kettle or urn for boiling water;
- a means for heating food (e.g. a gas/electric ring/microwave oven).

For small sites, rest facilities can often be provided within the site office, or site hut, especially where this is one of the common portable units.

Noise Safety

Noise is the sound made by pressure changes in the air and picked up by your ear. Loud noise can annoy people. More importantly, it can damage your hearing. But very soft noise can be difficult to hear.

People who are exposed to high noise levels, even for a short time, may experience temporary hearing loss. If they are exposed to noise for a long time, they can suffer serious, permanent hearing loss. Sufferers do not often realise that their hearing is being damaged until other people notice and make them aware of it.

The damage happens when pressure changes in the air affect the inner ear. This is the part of the ear that allows you to hear. You will find that loud noise over a short period of time can cause temporary hearing loss and a 'buzzing' in your ears.

At work, noise can stop you concentrating. It distracts you and may make you unsafe. There is legislation in place to help protect your hearing throughout your lifetime.

Noise is measured in decibels (dB).

As a guide:

- If you have to raise your voice to speak to someone 2 m away, noise levels are about 85 dB.
- If you have to shout to speak to someone who is 1 m away, noise levels are about 90 dB.

Identifying 'ear protection zones' and putting up signs where noise is at or above 90 dB can control the effects of noise.

Noise at Work Regulations

Noise levels are measured with sound level meters. They have up to four scales, A to D, which give readings in decibels (dB). The most common scale for construction work and for legal purposes is the A scale.

The regulations identify time limits for exposure to various sound levels and set out three action levels:

- First level 80 dB (A) scale: Employee is provided, at their request, with suitable and efficient personal ear protectors.

- Second level 85 dB (A) scale: Employee is provided with suitable personal ear protectors, which must be worn.
- Peak level 140 dB (A) scale: Employee must wear the personal protective equipment (PPE) provided as noise at this level will cause permanent damage to hearing.

Noise assessment should be carried out by a competent person.

Wearing Ear Protection

You should wear ear protection when the sound level is between the 80 dB and 85 dB action levels. You must wear it above 85 dB.

Without protection, there is a risk of damage to your hearing. Remember that, over time, this damage can result in permanent hearing loss. Ear protection cannot repair damage that has already been caused.

Substances Hazardous to Health

Any hazardous substances that are going to be used, or processes which may produce hazardous materials, should be identified. The risks from work which may affect site workers or members of the public should then be assessed. Designers should eliminate hazardous materials from their designs. Where this is not possible, they should specify the least hazardous products that perform satisfactorily.

What is a substance hazardous to health under the COSHH? Under COSHH, there are a range of substances that are regarded as hazardous to heath.

Hazardous substances include:

- substances used directly in work activities (e.g. adhesives, paints, cleaning agents);
- substances generated during work activities (e.g. fumes from soldering and welding);
- naturally occurring substances (e.g. grain dust);
- biological agents such as bacteria and other micro-organisms.

Substances or Mixtures of Substances Classified as Dangerous to Health under the Chemical Regulations 2002

A warning label can identify these substances. The supplier must provide a safety data sheet for them. Many commonly used dangerous substances are listed in the HSE's *Publication Approved Supply List*.

Any kind of dust if its average concentration in the air exceeds the levels specified in COSHH should be controlled.

For the vast majority of commercial chemicals, the presence (or not) of a warning label will indicate whether COSHH is relevant.

Advice and Information

If in doubt, contact your local HSE office (the address is in the phone-book). The staff there can refer you to the appropriate inspector or the environmental health officer at your local authority.

Assessment

Your supervisor will look at the way people are exposed to the hazardous substance in the particular job that is about to be done. He will then decide whether it is likely to harm anyone's health.

Prevention

If harm from the substance is likely, the first step to take is to try to avoid it completely by not using it at all.

Control Exposure

If the substance has to be used because there is no alternative, the next step is to try to control exposure. Some of the ways this could be done include:

- ensuring good ventilation in the workplace by opening doors and windows;
- using as little of the hazardous substance as possible;
- transferring liquids by a pump or siphon rather than by hand;
- using cutting or grinding tools fitted with exhaust ventilation or water suppression to control dust.

Personal Protective Equipment

If, and only if, exposure cannot be adequately controlled by any combination of the measures already mentioned, provide personal protective equipment. This can take the form of:

- respirators, which can protect against dusts, vapours and gases;
- protective clothing, such as overalls, boots and gloves;
- eye protection, such as goggles or face visors.

Select PPE with care. Choose good-quality equipment which is CE-marked. (See section on PPE elsewhere in this chapter.)

Personal Hygiene

Substances can be a hazard to health when they are transferred from workers' hands onto food, and so taken into the body. This can be avoided by good personal hygiene, for example by:

- washing hands and face before eating, drinking and before using the toilet (Figure 1.17);
- eating and drinking only away from the work area.

Words and Meanings

Hazardous – Dangerous or harmful.
Substances – Materials used in the course of the work activity.

Try this Out

During your first week at college, your tutor will inform you of basic hygiene standards and health and safety issues in the workshop.

Carry out a report listing the procedures you have to carry out at the end of every workshop session. These may include:

- putting away all materials, tools and equipment;
- sweeping the floor and disposing of waste matter in an environmentally friendly manner;
- washing your hands and face;
- placing your overalls back in your locker and so on.

In your report include all health and safety aspects of your time in the workshop with the emphasis on why things are done in a certain way.

Figure 1.17 Handwashing.

Make sure as few people as possible are exposed to the substances by excluding people not directly involved in the work from the contaminated area.

Make sure those at risk know the hazards. Provide good washing facilities and somewhere clean to eat meals. Good clean welfare facilities can play an important part in protecting the health of everyone involved in the work.

Drugs and Alcohol

Excessive drinking and the use of drugs by operatives is of serious concern to employers, given the risk of the operative underperforming and putting their own health and safety, and that of others, at risk.

Drug abuse poses a potential threat to the health, well-being and the livelihood of operatives. The consequences are a reduction in perception, concentration and awareness, which can affect the safety and welfare of afflicted persons and those of others. The inability of a person to function competently and with reasonable care is a problem

that must be addressed to prevent accidents occurring in the workplace.

Alcohol-related problems can be detrimental to the individual and the smooth running of the site and can result in waste and inefficiency. However, it is well known that such problems can be effectively treated. Source: Construction skills, 2007.

Waste Control

Over 70 million tonnes of waste is produced in the construction industry each year. This amounts to 24 kg per week for every person in the United Kingdom, about four times the rate of household waste production. Government guidance suggests we should follow a prioritising approach to reduce the amount of waste and to re-use and recycle what is produced.

It is important that all waste material is collected and removed from the work area promptly and not allowed to accumulate. When waste has accumulated, it will require removal. The most common method is loading into a waste disposal skip (Figure 1.18).

When cleaning the work area, there may be many materials that can be salvaged and used again. Surplus bricks, blocks and so on should be returned to their original storage place. Materials should be properly cleaned, if necessary, before storing.

When work is being carried out at height, the waste materials need to be removed to the ground level without causing a dust problem. Waste chutes are used, and these can be adapted to suit any height (Figure 1.19). They are utilised to empty waste material into skips often with a large dust sheet attached.

Words and Meanings

Waste – All substances that the holder wishes, or is required, to dispose of in solid, liquid or gaseous forms.

Remember Materials are expensive – do not throw them away.

Figure 1.18 Example of an empty skip.

Figure 1.19 Example of a waste chute.

Using Personal Protective Equipment

Types of PPE used in the workplace including hard hat, face mask, eye shield, breathing apparatus, dust mask, high-visibility (or hi-vis, as they are sometimes known) jackets, steel-toecap boots, ear defenders, gloves, sun protection, barrier cream and clothing.

The use of protective clothing and equipment is not the solution for preventing accidents. It is most important that the primary protection against accidents is to identify possible hazards and take the necessary safety measures to eliminate the hazards.

The wearing of protective clothing should provide a back-up for a safety programme.

Head Protection

Safety helmets or hard hats should be worn by workers employed at any place where they may be exposed to head injury from:

- falling
- falling or flying objects
- striking against objects or structures.

Where necessary to protect the head from possible electrical shocks, protective hats should be insulated or made of insulating materials. See Figure 1.20.

Workers working in the sun in hot weather should wear suitable head covering.

Figure 1.20 Examples of head protection.

Figure 1.21 Example of hand protection.

Hand Protection

Where necessary, workers should wear suitable gloves or gauntlets (Figure 1.21) and/or be protected with appropriate barrier creams when employed at places where they may be exposed to hand or arm injuries from:

- corrosive or toxic substances
- sharp or rough points, edges or surfaces.

Foot Protection

Workers should wear footwear of an appropriate type when employed at places where they may be exposed to injury from:

- falling objects
- hot, corrosive or poisonous substances
- sharp-edged tools (Figure 1.22)
- nails
- abnormally wet surface
- slippery or ice-covered surfaces.

Eye Protection

Workers should be protected by a screen or wear clear or coloured goggles or other suitable eye protection when employed at places where they may be exposed to eye injury from:

- flying particles (Figure 1.22)
- dangerous substances
- harmful light or other radiation.

Figure 1.22 PPE: Example of eye and foot protection.

Note

Accident prevention should be approached from a positive point of view. Avoid demonstrating or explaining the *don'ts* and concentrate on the *dos*.

Try this Out

Practical Exercise: Cutting Bricks and Blocks

Your tutor has asked you to sort through the PPE he has provided and to choose the following to suit your size: overalls, safety helmet, gloves, safety footwear and goggles.

Adjust the PPE accordingly so that it fits you well. Get your tutor to check that you have selected and adjusted the PPE correctly.

Maintain PPE

After completion of the cutting bricks and blocks exercise, ensure all the PPE you used is cleaned and put away in the proper place.

Get your tutor to check to see if you have carried out this activity to the required industrial standard.

Moving Vehicles

Workers who are regularly exposed to danger from moving vehicles should wear:

- distinguishing clothing, preferably bright yellow or orange in colour; or
- devices of reflecting or otherwise conspicuously visible material (e.g. high-visibility jackets).

Vehicles such as earth-moving equipment, forklifts, ready-mixed concrete delivery trucks (Figure 1.23) and so on should have a distinct warning signal that activates automatically when the vehicle reverses.

Equipment Checks

Frequent safety checks of workshop equipment, building sites, scaffolding and safety equipment such as fire extinguishers and so on should be mandatory in any safety programme.

Storage and Maintenance of Personal Protective Equipment

The correct storage and maintenance of personal protective equipment is important because damaged personal protective equipment will

Figure 1.23 Site vehicle: a ready-mixed concrete delivery truck.

probably not provide you with the necessary protection required against site hazards.

To be effective, all PPE that you use must be manufactured to a known standard, kept in good condition and be suitable for the user. For example, a damaged safety helmet will not offer the required degree of protection as an undamaged one would.

Health and safety law places a legal duty on you not to interfere with or misuse anything provided for your safety. This means looking after and maintaining PPE correctly.

Remember It is in your interests to correctly store and maintain PPE and is a legal requirement.

Importance of Personal Protective Equipment

Depending on the type of site situation or workshop, the wearing of personal protective clothing, the use of the correct safety equipment and safe practices are the best ways of avoiding accidents or injuries.

Consequences of Not Using Personal Protective Equipment

The possible health risks of not using PPE in the workplace are:

- catching skin cancers, dermatitis and various infections;
- damage to the eyes, cuts and head injuries;
- leptospirosis and burns;
- hearing damage and respiratory failure.

Remember You have a legal responsibility to wear or use the PPE your employer has provided. You cannot decide to opt out.

Training is needed in the use of some PPE. If you are not trained, the PPE will not be effective and you will be exposed to the dangers from which the PPE was supposed to protect you.

Fire and Emergency Procedures

Elements Essential to Creating and Sustaining a Fire

The following three elements need to be present for a fire to start. If you remove one element, you will be able to put a fire out.

- Fuel: can be anything that will burn (e.g. wood, furniture, flammable liquid, gas).
- Oxygen: or air in normal circumstances will allow a fire to burn.
- Heat: a minimum temperature is needed but a naked flame, match or spark is sufficient to start a fire, especially if in contact with something flammable.

Emergency Evacuation Procedures

During your first week at college or work, your tutor or supervisor will carry out an emergency evacuation procedure (Figure 1.24). This will consist of:

- sounding the alarm
- leaving the building by the nearest available exit
- reporting to an assembly point.

During the procedure, you must not:

- return to the building until authorised to do so
- use the lifts.

Pay attention to the procedure and make notes in your college workbook, as it will be of use to you at a later stage in the programme.

Figure 1.24 Fire evacuation sign.

How Fire Can Spread

To reduce the risk of the spread of fire, site offices, stores and other temporary buildings should be sited at least 6 m away from main buildings. Temporary offices should be built with a reasonable distance between them, preferably up to 6 m. The area around site offices should be kept free of combustible materials; these include grass or weeds. Similar precautions should be taken at the perimeter of the compound, where weeds and grass can accumulate and present a hazard to materials stored close to the fence.

Storage areas must be kept free of surplus packing materials and other debris likely to ignite quickly, which should be put in bins and removed at regular intervals. There are various types of fire extinguishers (see Table 1.1 later in this chapter). All fire extinguishers should be

located so that they can be reached as quickly as possible in the event of fire. They should be identified by a prominent sign.

The employer should nominate a person to be responsible for fire precautions on site who should be available outside working hours so that the fire service or police can contact him/her if a fire breaks out on site.

Fire Prevention

Many fires can be avoided by carefully planning and controlling work activities. Good housekeeping and site tidiness are important not only to prevent fire but also to ensure that emergency routes do not become obstructed. It helps to make, and adhere, to site rules.

Plan how the site can be kept tidy. In particular, walkways and stairs should be kept free of loose materials. Clear all paper, timber offcuts and other flammable materials from all areas to reduce fire risks.

Types of Fire Extinguisher

There are six different types of extinguishers to use to fight fires: water, carbon dioxide (CO_2), foam, powder, halon and wet chemical (Table 1.1). You will need to choose the right one. Each is designed to put out fires that are caused by specific things. It can be dangerous to use the wrong fire extinguisher.

The standard colour for fire extinguishers is red, with the contents indicated by a contrasting colour band or panel on the extinguisher. There are also pictograms showing what type of fire it can be used on.

Fire Blankets

In addition to the various types of fire extinguisher, there are fire blankets (Figure 1.25). These are fireproof blankets that, when laid on a fire, cut off the oxygen supply to the fire and so stifle the flames. They can be used on all types of fires.

Discovering a Fire

Fires are the worst kind of hazard on a construction site. They do a great deal of damage every year. You should investigate all fires, however small, and report them to your supervisor.

Where there is a fire risk, all necessary precautions must be taken. Everyone on site should be aware of the fire drill procedure.

If you discover a fire:

- Raise the alarm.
- Close doors and windows to prevent the spread.
- Evacuate the area.

You are the Supervisor

Checklist: Fire and emergency procedures

- **Is the quantity of flammable materials, liquids and gases kept to a minimum?**
- **Are they properly stored?**

You are the Supervisor

Checklist: Fire and emergency procedures

Are smoking and other ignition sources banned in areas where gases or flammable liquids are stored or used?

Try this Out

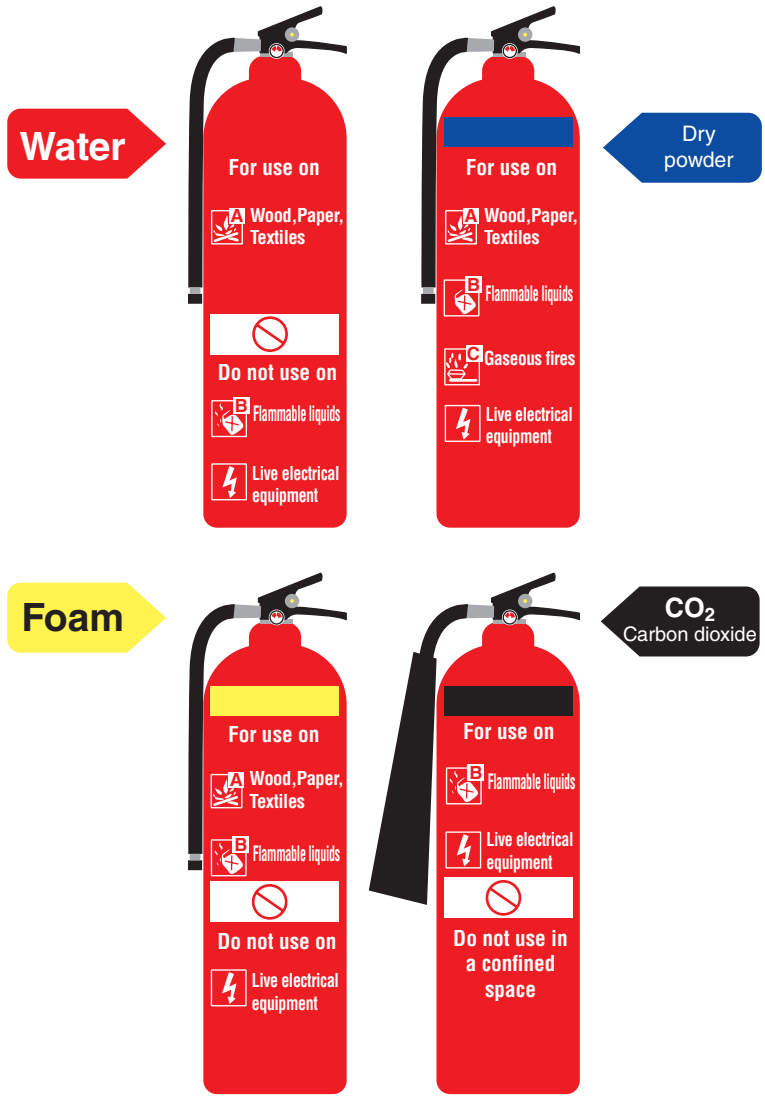
Simulated Fire Evacuation Procedure

With your colleagues, plan and carry out a simulated fire evacuation procedure of the brick workshop, which must include ensuring all exits are clear and assembling at the correct fire assembly point.

On completion, make a report of the activity and give it to your tutor for checking against the regulations.

Table 1.1 Types of fire extinguishers

Type	Band colour	Use on	Do not use on/in
Water	Red	Solid fuels (e.g. wood, paper, textiles)	Flammable liquids or live electrical equipment
Foam	Cream	Wood, paper, textiles, flammable liquids	Live electrical equipment
Dry powder	Blue	Wood, paper, textiles, flammable liquids, gaseous fires, live electrical equipment	–
Carbon dioxide	Black	Flammable liquids and live electrical equipment	Confined space
Halon	Green	Flammable and liquefied gases and electrical hazards	–
Wet chemical	Canary yellow	Deep fat fryers	All other types of fire



All fire extinguishers are red and each has a different colour band to identify its type.

Figure 1.25 Fire blanket.

- Fight the fire, if you have been trained to do so, but avoid endangering life.
- Fight the fire with an appropriate fire extinguisher, fire blankets, water or sand, but do not put yourself at risk.
- Only persons who are fully trained should carry out the fighting of fires.

In order to save lives and reduce the risk of injury occurring, all site personnel must be informed of the current safety and emergency procedures. All site personnel must be aware of what to do in the event of a fire or accident.

Fire Evacuation Procedures

During induction to any workplace, you will be made aware of the fire procedure as well as where the fire assembly points are and what the alarm sounds like. On hearing the alarm, you must stop what you are doing and make your way to the nearest assembly point.

This is so everyone can be accounted for. If you do not go to the assembly point or if you leave before someone has taken a register, someone may risk their life to go back into the fire to get you.

Note

Halon extinguishers are being phased out for environmental reasons.

Remember Fire extinguishers should only be used if the user is properly trained. Untrained users could make the situation worse.

When you hear the alarm, you should not stop to gather any belongings and you must not run. If you discover a fire, you must only try to fight the fire if it is blocking your exit or if it is small. Only when you have been given the all-clear can you re-enter the site or building.

Signs and Notices

Employers are required to provide safety signs in a variety of situations that do, or may, affect health and safety. There are five types of safety signs in general use. Each of these types has a designated shape and colour to make sure that employees get health and safety information in a simple, bold and standard way, and with little use of words (Figure 1.26).

Building sites have many safety signs. These include general signs at the entrance to a site and many other more specific signs displayed

Figure 1.26 Identification of safety signs.

around the site as appropriate (Figure 1.27). Knowing the standard format for different types of sign will help you to interpret these signs effectively, for example knowing that some signs are warnings and others are prohibitive and that these can be distinguished by shape and colour.

Safety signs on site give vital information to keep you and others safe while you are working. They use a standard colour and shape system to make them instantly recognisable, even from a distance.

To be safe at work you will need to recognise, understand and respond to a lot of different safety signs. The five basic categories of safety signs are listed in Table 1.2.

The standard system of safety signs and colours used on site draws your attention to objects and situations that could affect your health or safety. But there are other types of signs. Supplementary signs are signs with writing on them, rather than just symbols. They can be used on their own or in support of other signs to provide more information. For example, the signs:

PROHIBITION
Stop/must not
Red on white background

WARNING
Risk of danger hazard ahead
Yellow background with black border

MANDATORY
Must obey
Blue background with white symbol

SAFE WAY TO GO
Safe condition
Green background with white symbol

No smoking

Figure 1.27 Safety signs and signals.

Table 1.2 The five basic categories of safety signs

Type	Shape	Colour	Meaning
Warning	triangular	yellow background with a black border and symbol	Warns of hazards or danger (e.g. 'Caution, there is a risk of an electric shock')
Prohibition	circular	red border and cross bar with a black symbol on a white background	Shows what must not be done (e.g. 'No smoking')
Safe	square or oblong	white symbols on a green background	Indicates or gives information about safety provision (e.g. 'First aid available in site office')
Mandatory	circular	white symbol on a blue background	Shows what must be done (e.g. 'Wear your safety helmet')
Fire safety and equipment	square or rectangular	white symbols on a red background	Gives location of fire information, alarms or equipment (e.g. 'Fire extinguisher located in site office')

Try this Out

Think of some examples of safety signs from any sites you have worked on and then draw the signs using coloured pencils. Check with your tutor to see if you have drawn them correctly.

Note: If you have difficulty recognising colours, speak to your tutor or supervisor.

Remember **Always look out for and obey safety signs – they are there for your protection.**

Fire assembly point

Figure 1.28 Fire safety signs.

All drivers and visitors to report to site office

can be on a white background, whereas:

Hand protection must be worn

can be the colour of the sign it is supporting, in this case blue.

Fire safety signs are of equal importance and are there for the safety of both workers on and visitors to a site. Figure 1.28 shows two of the most common fire safety signs.

Health and Safety Information

There are various sources of health and safety information. For more details on all aspects of health and safety, visit the following institutions' websites.

The Health and Safety Executive

The HSE website contains information about the objectives of HSE, how to contact HSE, how to complain, recent press releases and research

and current initiatives. Information about risks at work and information about different workplaces is also available. HSE priced publications are also available from bookshops and free leaflets can be downloaded from the HSE website.

Website: www.hse.gov.uk

ConstructionSkills

ConstructionSkills is the sector skills council for construction. It represents every part of the construction industry, from architects to bricklayers, in every part of the United Kingdom. And it covers every part of the skills agenda – from grants to college places.

Website: www.cskills.org

Royal Society for the Prevention of Accidents (RoSPA)

The Royal Society for the Prevention of Accidents is a registered charity whose mission is to save lives and reduce injuries.

Website: www.forms.rospa.com

British Safety Council

The British Safety Council is one of the world's leading occupational health, safety and environmental organisations. Founded in 1957, it now has a turnover of more than £9 million. Its mission is to support a healthier, safer and more sustainable society.

Website: www.britsafe.org