

NEBOSH National General Certificate

NGC1 - Management of Health and Safety

GC2 - Controlling Workplace Hazards

SAMPLE MATERIAL

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ROLE OF THE EUROPEAN UNION IN HARMONISING STANDARDS

The Council of the European Commission can, under the Treaty of Rome, issue Directives. These are to harmonise the laws of the member states, including those covering occupational health and safety.

Representatives of the member states meet to agree on the content of draft Directives. When they are agreed, they are presented to the European Parliament for ratification. The Directives impose a duty on each member state to make legislation to conform to the Directive and to enforce such legislation. The Directives are legally binding on the governments. Framework Directives set out the overall objectives and deal with individual objectives of Daughter Directives.

In the UK the Directives are translated into Regulations. For example, we have the Working Time Directive translated into the Working Time Regulations.

The Single European Act identified the need to eliminate technical barriers to trade, such as the differing legal health and safety standards throughout the Community. The approach is to develop a philosophy of essential health and safety requirements and harmonisation directives that establish those essential health and safety requirements. Further to this, there is recognition in the Act to encourage improvements in the working environment.

MEANING OF CRIMINAL LAW

Criminal law is the principal means by which the government identifies and criminalises behaviour that is considered wrong, damaging to individuals or to society as a whole or is otherwise unacceptable. A criminal offence is therefore an offence against the state.

The criminal justice system is the mechanism by which action is taken to deal with those suspected of committing offences. The criminal justice system refers to the whole process from the initial investigation of a crime through to acquittal or to conviction and sentence in the criminal courts.

Normally, the prosecution (Crown) must prove guilt to the standard of 'beyond reasonable doubt'. However, in the case of the Health and Safety at Work etc. Act (HASAWA) 1974 this requirement is modified by a duty placed on the accused to show that they were in compliance with the requirement that they were accused of breaching (Section 40). This differs from the traditional

criminal stance where the accused has no need to prove compliance and the emphasis is on the prosecution bringing sufficient evidence to convince the court of the non-compliance.

This does not take away the over-all burden of proof for the prosecution to establish the case beyond reasonable doubt, in relation to the facts of the case, but this will clearly depend on the employer's ability to illustrate that compliance existed.

MEANING OF STATUTE LAW

Statute law

Statute law is a **source** of both criminal and civil law. Statute law consists of primary legislation (Acts of Parliament) and delegated legislation such as Regulations, for example, the Management of Health and Safety at Work Regulations (MHSWR) 1999, as amended in 2002 and Orders. Some statutes, such as the HASAWA 1974 are entirely criminal law. Similarly, some statutes are actionable only under civil law (for example, the Occupiers' Liability Act 1957, which extends the occupiers duty, not to cause harm to employees, to visitors and others). It must be understood, however, that many health and safety related statutes may be used both as a basis for prosecution and as a platform for civil actions relating to personal injury suffered in the workplace.

Acts of parliament

Acts of parliament begin their life in draft form and are known as a Bill, this is presented to both houses of parliament to allow debate. After several stages of debate and amendment the Bill will be voted on and if passed will go to the Queen for 'Royal Assent', after which it is entered on the statute books and remains until amended or repealed. Acts of parliament are used to set out framework legislation on a given topic and may be legislating on criminal or civil matters.

Health and Safety at Work Etc. Act 1974

The Health and Safety at Work etc. Act (HASAWA) 1974 sets out general responsibilities in a legal framework. It places responsibilities on people, covering all the main parties that contribute to health and safety in the workplace, for example, employers, employees, designers and suppliers.

The duties are designed to be general rather than specific in order to make them widely applicable to all workplaces and all work activities. The HASAWA 1974 established means of regulation of behaviour in the form of enforcement notices and penalties, designed to match the circumstances that enforcing officers find.

them to demonstrate how they are managing them to ensure health and safety standards are maintained.

Senior management commitment should extend to supporting managers when they are managing contracts, in particular when they need to enforce requirements for good health and safety standards, even if this affects fulfilment of the contract and causes some difficulty to the organisation.

For further information on the responsibilities of clients and contractors, see 'NGC1 - Element 1.6 - Roles and responsibilities of clients and their contractors' and for the selection and management of contractors, see 'NGC1 - Element 1.7 - The principles of assessing and managing contractors'.



Figure 1-3-2: Contractors working at occupied premises.
Source: Shutterstock.

Role in reviewing health and safety performance

Top management, for example, directors/senior management, should be active in the management of health and safety reviews. Review of the organisation's performance in managing health and safety should be carried out periodically, for example, annually. This should include the review of the organisation's whole approach to health and safety, including its health and safety management system. This is best conducted with the senior management team's involvement as it demonstrates their commitment to the management of health and safety and ownership of it.

Senior management involvement in the review process is important to the motivation of all levels of management and workers. It is also important because the senior management team will decide the resources that are necessary for the continuing success of the organisation's health and safety performance.

For further information on reviewing, see 'NGC1 - Element 5 - Health and safety management systems - Act'.



REVIEW

Outline the factors that the employer should consider when selecting an individual to fulfil the role of health and safety practitioner.

3.2

Concept of health and safety culture

MEANING AND EXTENT OF THE TERM 'HEALTH AND SAFETY CULTURE'

The term 'safety culture' was first used in the International Atomic Energy Agency's (IAEA) initial report following the Chernobyl disaster, in 1986. One definition of the term 'safety culture' was given in 1993 by the UK, Health and Safety Executive (HSE) Advisory Committee on the Safety of Nuclear Installations (ACSNI), not long after the IAEA report on Chernobyl. The definition was included in the ACSNI Human Factors Study Group's third report - 'Organising for safety', **see figure 1-3-3**.



"The safety culture of an organisation is the product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organisation's health and safety management."

Figure 1-3-3: Safety culture.
Source: ACSNI.

In more recent years the term 'safety culture' has been widened in its general use to 'health and safety' culture to reflect the increased interest in work-related ill-health. To better understand the term health and safety culture a useful approach is to distinguish between three interrelated aspects of health and safety culture, specifically:

- 1) 'How people feel' about health and safety.
- 2) 'What people do' about health and safety in the organisation.
- 3) 'What the organisation has' in place for health and safety.

'How people feel' about health and safety encompasses the values, beliefs, attitudes and perceptions of individuals and groups at all levels of the organisation, which are often referred to as the health and safety climate of the organisation.

Scaffolding terms

Base plate	A small square metal plate that distributes the load from a standard or a raker (scaffold standard used as an outrigger).
Brace	A tube fixed diagonally across two or more members in a scaffold for stability.
Guardrail	A horizontal tube fixed to standards (uprights) to prevent persons from falling.
Ledger	A tube spanning horizontally and tying the scaffold longitudinally. It may act as a support for putlogs or transoms.
Putlog	A tube with a flattened end, spanning from a horizontal member to a bearing in or on a brick wall. It may support scaffold boards.
Reveal tie	A tube wedged by means of a reveal screw between two opposite surfaces (for example, window reveals) to make a friction anchorage for tying a scaffold.
Standard/column	A vertical or near vertical supporting member.
Tie	A member used for fixing the scaffold to the building or other structure for stability.
Transom	A tube spanning across ledgers to tie a scaffold transversely (normally at 90° to the building face). It may also support a working platform.

Independent tied scaffold

This type of scaffold typically uses two sets of standards; one near to the structure and the other set at the width of the work platform.

It is erected so that it is independent from the structure and does not rely on it for its primary stability.

However, as the name suggests, it is usual to tie the scaffold to the structure in order to prevent the scaffold falling towards or away from the structure.

Base plates and sole boards

A base plate must be used under every standard - it spreads the load and helps to keep the standard vertical.

Sole boards are used to spread the weight of the scaffold and to provide a firm surface on which to erect a scaffold, particularly on soft ground. Sole boards must be sound and sufficient, and should run under at least two standards at a time.



Figure 2-1-43: Independent tied scaffold.
Source: RMS.

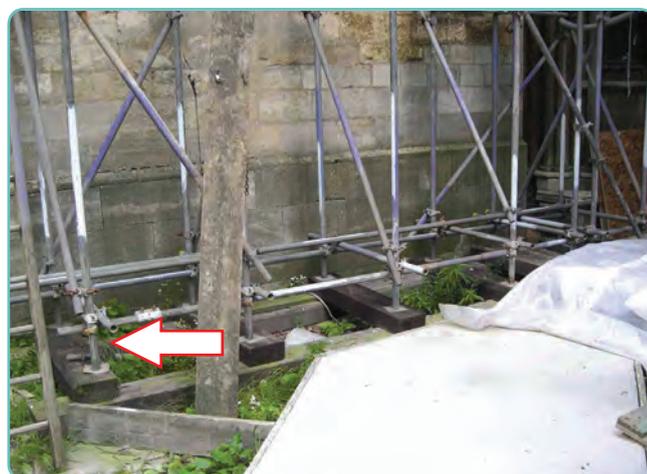


Figure 2-1-44: Base plates and sole boards.
Source: Lincsafe.



Figure 2-1-45: Base plate and protection.
Source: RMS.

Standards

All standards must be truly plumb, or leaning only a little **towards** the structure. One standard out of plumb will 'bow' and push the others. Any joints in standards must be staggered.

Summary - machinery hazards

	Mechanical	Non-mechanical
Entanglement	Auger drill, drilling machine	Access
Friction and abrasion	Grinding wheel	Biological
Cutting	Sharp edges of circular saw	Chemicals
Shear	Scissor lift mechanism	Electricity
Stabbing and puncture	Nail gun	Extremes of temperature
Impact	Moving arm of an excavator	Hot surfaces/fire
Crushing	Platform of a hoist, ram of a forge hammer	Radiation
Drawing-in	Conveyor belt	Noise and vibration
Injection	High-pressure hydraulic oil system	Vibration
Ejection	Grinding wheel - sparks	Manual handling

Figure 2-4-35: Mechanical and non-mechanical machinery hazards.
Source: RMS.

Other (non-mechanical) hazards

Machinery may also present other hazards. The nature of the hazard will determine the measures taken to protect people from them.

The various sources of non-mechanical hazards include the following:

- Access - slips, trips and falls; obstructions and projections.
- Biological - viral and bacterial.
- Chemicals that are toxic, irritant, flammable, corrosive, explosive.
- Electricity - shock and burns.
- High/low temperatures.
- Hot surfaces/fire.
- Ionising and non-ionising radiation.
- Manual handling.
- Noise and vibration.

HAZARDS PRESENTED BY A RANGE OF EQUIPMENT

Office machinery

Photocopier

Hazards are drawing-in, hot surfaces, fumes, toner dust, electrical, manual handling, noise and ultraviolet light. These hazards are more likely to be encountered by people who carry out unauthorised maintenance work.

Document shredder

The main hazards are drawing-in, cutting or crushing, as well as cuts from paper handling and electrical dangers. Although these machines are well designed and guarding is therefore adequate, care has to be taken to ensure that loose clothing such as ties and scarves do not get caught in the blades. If the equipment is fitted with an interlock, there should be regular inspections to ensure that the device has not moved out of adjustment or has been overridden. Unauthorised electrical repairs should not be carried out.



Figure 2-4-36: Document shredder.
Source: www.axminster.co.uk.

Manufacturing/Maintenance machinery

Bench-top grinder

Bench-top grinders are typically found in workshops and are suitable for indoor use. Bench-top grinders are used for sharpening of tool bits (drills, chisels and blades), shaping steel, and de-burring cut steel components. Hazards include friction and abrasion from contact with the moving abrasive wheel, entanglement, drawing-in and possible ejections when parts of the wheel or work piece break and sparks are thrown off. Other hazards are electricity, heat and noise.



Figure 2-4-37: Abrasive wheel (grinder).
Source: RMS.

COMMON FIRE DETECTION AND ALARM SYSTEMS

Common fire detection

The speed with which a fire in a building is detected is a critical factor in the determination of survival for the occupants of that building. Fires should be detected as soon as they start and building occupants alerted to the presence of the fire by the quickest possible means. It is essential that some form of detection and alarm system is used in the workplace, although the exact type of system will depend on national and local legislation and standards and the level of risk in the workplace.



Figure 2-6-47: Smoke detector.
Source: RMS.

Heat detection

Sensors operate by the melting of a metal (fusion detectors) or expansion of a solid, liquid or gas (thermal expansion detectors).

Radiation detection

Photoelectric cells detect the emission of infrared/ultra-violet radiation from the fire.

Smoke detection

Smoke may be detected by using ionising radiations, light scatter (smoke scatters beams of light) or obscuration (smoke entering a detector prevents light from reaching a photoelectric cell).

Flammable gas detection

Flammable gas is detected by measuring the amount of flammable gas in the atmosphere and comparing the value with a reference value.

Alarm systems

The purpose of a fire alarm is to give an early warning of a fire in a building for two reasons:

- 1) To increase the safety of occupants by encouraging them to escape to a place of safety.
- 2) To increase the possibility of early extinction of the fire, thus reducing the loss of or damage to the property.

Types of fire alarms

Alarms must make a distinctive sound, audible in all parts of the workplace. Sound levels should be 65 dB(A) or 5 dB(A) above any other noise - whichever is the greater. Audible alarms may be supplemented by visual or tactile (vibrating) alarms where this would aid hearing-impaired workers and other people.

The meaning of the alarm must be understood by all and readily differentiated from other alarms. Alarms may be manually or automatically operated.

Voice	Simplest and most effective type, but very limited because it depends on the size of the workplace and background noise levels.
Hand operated	Rotary gong, hand bell or triangle and sounder, but limited by the scale of the building.
Call-points with sounders	Standard system, operation of one call-point sounds alarm throughout workplace.
Automatic system	System as above, with added fire detection to initiate the alarm if it is not raised by a person.



Figure 2-6-48: Easy operation alarm call-point.
Source: RMS.



Figure 2-6-49: Alarm point identified and well located.
Source: RMS.