

# SUPPLEMENT



27-37 St George's Road • London SW19 4DS  
Tel: +44 (0)20 8944 3100 • Fax: +44 (0)20 8944 7099  
e-mail: support@rrc.co.uk • web: www.rrc.co.uk

---

## NEBOSH CERTIFICATE – UNIT NGC2

Contents	Page
INTRODUCTION.....	2
ELEMENT 1: MOVEMENT OF PEOPLE AND VEHICLES – HAZARDS AND CONTROL.....	2
ELEMENT 3: WORK EQUIPMENT HAZARDS AND CONTROL .....	2
ELEMENT 4: ELECTRICAL HAZARDS AND CONTROL .....	3
ELEMENT 5: FIRE HAZARDS AND CONTROL .....	3
ELEMENT 6: CHEMICAL AND BIOLOGICAL HEALTH HAZARDS AND CONTROL .....	4
ELEMENT 7: PHYSICAL AND PSYCHOLOGICAL HEALTH HAZARDS AND CONTROL .....	6
ELEMENT 8: CONSTRUCTION ACTIVITIES – HAZARDS AND CONTROL .....	6

# INTRODUCTION

This Supplement has been prepared to augment your study material for the National General Certificate Unit NGC2 course. You should read it in conjunction with your existing course material.

## ELEMENT 1: MOVEMENT OF PEOPLE AND VEHICLES – HAZARDS AND CONTROL

### Hazards in Vehicle Operations

#### Conditions in which Hazards Arise

Driver error is often a key factor in vehicle accidents and this can vary from simple mistakes to acts of gross irresponsibility, such as driving too fast – particularly cornering at excessive speed, and sudden braking. The influence of alcohol or drugs can be another or compounding factor.

### Control Strategies for Safe Vehicle Operations

#### Traffic Routes

All routes used by vehicles should be clearly marked with appropriate signs. As far as possible, separate pedestrians from moving vehicles, with barriers and refuges, and have clearly marked crossing places for pedestrians. Visibility should be optimised by adequate lighting. If blind corners are unavoidable have mirrors to see round them, and transparent doors where forklift trucks frequently pass. Surfaces should be maintained in good condition, free from obstructions. Consider use of traffic-calming measures such as speed humps.

#### Movement Systems

Other systems to address the risk to pedestrians from reversing vehicles include:

- The use of a banksman.
- Limiting reversing to hours when there is little or no pedestrian traffic.
- Avoidance of blind spots or fitting CCTV/mirrors.

## ELEMENT 3: WORK EQUIPMENT HAZARDS AND CONTROL

### Hand-Held Tools

#### Hand Tools - Hazards

If we assume perfect technical competence, then the other hazards of hand tools arise from misuse (unsafe acts) and improper maintenance/defective equipment (unsafe conditions) – for example:

- Using a chisel with a splayed ('mushroomed') head, or a hammer with a worn or chipped head – the hammer may slip off the chisel and impact on the worker's hand, or might shatter on impact, sending sharp fragments flying toward the user or others nearby.

- Using a blunt chisel – more force will be needed to be effective and this increases the likelihood of an accident.

The hammer and chisel should also be compatible, not an excessively large hammer for a small chisel.

### **Hand Tools - Safe Use**

This includes:

- Correct and regular maintenance, e.g. ensuring that blades are sharp and cut at the correct angle.
- Regular pre-use checks and the withdrawal of defective tools, e.g. if impact tools, such as chisels, have mushroomed heads, the heads should be ground to reshape the tool.

## **ELEMENT 4: ELECTRICAL HAZARDS AND CONTROL**

### **Control Measures**

#### **Protective Systems – Earthing**

Earthing of electrical appliances is widespread, e.g. kettles, computers, etc. unless they are double-insulated. Earthing is also done on metal benches where electrical equipment is being used, in case the bench comes into contact with a live conductor.

#### **Protective Systems – Residual Current Devices**

Residual current devices are particularly useful when using portable tools such as grinders and hedge trimmers that can easily cut through the supply cable.

## **ELEMENT 5: FIRE HAZARDS AND CONTROL**

### **Fire Control Measures**

#### **Control of Ignition Sources**

Since 1<sup>st</sup> July 2007 it has been against the law to smoke in virtually all enclosed public places, workplaces and in public and work vehicles. Despite that, covert smoking may occur, and discarded cigarettes may well go unnoticed. Smoking may still be allowed externally on the company's premises.

Legitimate activities such as welding, cutting and grinding either use naked flames or produce mechanical sparks, as do electrical circuits (particularly if in poor condition) and machines that have not been adequately lubricated.

# ELEMENT 6: CHEMICAL AND BIOLOGICAL HEALTH HAZARDS AND CONTROL

## Introduction

This area of health and safety is subject to detailed control by two important statutory regulations – the **Control of Substances Hazardous to Health Regulations 2002** (known generally as **COSHH**) and the **Chemicals (Hazard Information and Packaging for Supply) Regulations 2009** (known as **CHIP 4**).

In addition, the **European Regulation (EC 1907/2006) on the Registration, Evaluation, Authorisation and Restriction of Chemicals**, abbreviated as “**REACH**”, has a particular impact on the requirements for Safety Data Sheets for substances hazardous to health.

Also of importance are the **Personal Protective Equipment (PPE) at Work Regulations 1992, as amended**, the **Environmental Protection Act 1990** and the **Controls on Dangerous Substances and Preparations Regulations 2006**.

## Classification of Hazardous Substances

The **Chemicals (Hazard Information and Packaging for Supply) Regulations 2009**, abbreviated as **CHIP 4** (or “the **CHIP Regulations**”) and the **European Regulation (EC 1907/2006) on the Registration, Evaluation, Authorisation and Restriction of Chemicals**, abbreviated as “**REACH**”, are the foundation of general chemicals regulation.

## Sources of Information

As we noted previously, the **Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (CHIP)**, in conjunction with the **European Regulation (EC 1907/2006) on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)**, are the foundation of general chemicals regulation.

## Manufacturers' Safety Datasheets

The **REACH Regulation** requires suppliers of substances classified as dangerous for supply to provide safety datasheets.

## Basic Surveys for Health Risks

### Dust Monitoring Equipment

Dust is often evident from deposits lying on surfaces, or from people suffering effects such as sneezing: in such cases there is little point in carrying out measurements until improvements have been made. Then a subjective impression of the quantity of dust suspended in the atmosphere can be obtained by using a Tyndall lamp, or instruments may be used to measure the concentration.

### Indirect-Reading Filtration Equipment

Such devices can be worn personally by the worker or mounted statically in the workplace. A pre-weighed filter is fitted into the sampler. Air is then drawn through it by a calibrated pump for a known period of time. The filter is then removed and reweighed. From the increase in weight and the amount of air that has passed through, the concentration of dust in the atmosphere can

be calculated. If it is necessary to obtain a result for a specific substance where more than one is present, the filter can be eluted with solvent in the laboratory for analysis.

## Control Measures

### Respiratory Protective Equipment

#### Factors Limiting Effectiveness

- Initially the correct RPE must be chosen for the task, with an adequate protection factor.
- The fit of the equipment is vital, and the user must know how to wear and adjust it.
- Wearing PPE is never comfortable, and operators are inclined to remove it temporarily.
- It must be stored correctly when not in use, or its condition may be affected adversely.

### Personal Hygiene and Protection

If food such as sandwiches is brought into the workplace, there must be appropriate facilities for storage away from chemicals.

It is important to prevent people accidentally ingesting chemicals. Not preparing and eating food in workrooms, or even taking drinks there, will help control the hazard of ingestion. Washing hands before eating, drinking or smoking is vital to avoid contaminants being transferred to the mouth.

If warranted by the risk assessment, vaccinations may also be required, e.g. to protect against bites and stings, or where contact with excrement may take place.

## Basic Environmental Issues

### Waste Disposal

#### Hazardous Waste

Exempted producers are those that produce hazardous waste, but in quantities of less than **500** kg per year.

## Summary

Substances and preparations which are hazardous to health must, under the **CHIP Regulations** and **REACH**, be classified by the category of danger and risk that they present and, on supply, be appropriately labelled and accompanied by a safety datasheet. The **CHIP** Approved Supply List provides standard categories of danger and associated symbols, and risk and safety phrases for these purposes.

**Note:** It is no longer necessary for you to download the June 2007 podcast entitled **REACH**.

## **ELEMENT 7: PHYSICAL AND PSYCHOLOGICAL HEALTH HAZARDS AND CONTROL**

### **Noise**

#### **Exposure Action Values**

##### **Upper Exposure Action Values**

Where the exposure is at, or above the upper exposure action value, the employer is (in addition to the measures for the lower action value) also required to eliminate noise at source or reduce exposure to a level as low as is reasonably practicable, by introducing a formal programme of control measures. If the exposure cannot be reduced below the upper action level, then a hearing protection zone must be designated, where it is compulsory to wear hearing protection.

#### **Personal Hearing Protection**

##### **Encouraging Employees to Wear Protection**

The first approach must be to explain to employees not only the effects of noise exposure, but also how short periods exposed to high levels without protection can be damaging.

A company policy on noise control has to be put in place. If it is clear that, where reasonably practicable, noise levels have been reduced, employees are more likely to comply with requirements for hearing protection elsewhere.

Hearing protection zones must be designated, and complied with by all personnel including management (even though they may be exposed only for short periods).

- Employees should be involved in the selection of protective equipment.
- Protective equipment should be adequately maintained and replaced when necessary.
- Supplies should be readily available.
- Wearing of protective equipment should be monitored by supervisors, and persistent offenders should be disciplined.

## **ELEMENT 8: CONSTRUCTION ACTIVITIES – HAZARDS AND CONTROL**

### **General Principles of Construction**

#### **Main Hazards and Controls**

##### **Machinery and Vehicles**

- **Skips**

Rubble, etc. is frequently moved from construction sites in skips. These should not be overfilled and should be fitted with tarpaulins or nets to stop material falling out. The vehicle that carries the skip is fitted with a bed constructed of non-slip material that must be kept free of grease, etc. so the load does not slide in transit. The chains, shackles and lifting

mechanism on the vehicle undergo statutory examinations. To ensure stability when lifting, outriggers are deployed, and the safe working loads for both the skip and the lifting mechanism must not be exceeded. Depending on the location it may be advisable to have a banksman to direct the driver, or the area may be cordoned off to separate from passing traffic and pedestrians. The driver should wear a high-visibility tabbard, safety boots and heavy-duty gloves. When alighting from his cab he should use the steps fitted, not jump to the ground which is often slippery.

## Working Above Ground Level

### Basic Hazards

There is no specific level defined as working at height, but in general the vertical distance of a drop is critical. Other hazards may present higher risks when working at height, such as the likelihood of coming into contact with overhead obstructions.

### Methods of Avoiding Working at Height

In most instances in the construction industry, avoidance will not be possible and a risk assessment and control measures for working at height will be required. Consideration has to be given to factors such as:

- The nature and duration of the task to be carried out.
- The level of competence of the persons to be involved.
- The training that may need to be provided.
- The planning and level of supervision required.
- The means of access and egress.
- The suitability of the equipment to be used, and its maintenance.
- The use of working platforms, guardrails and toeboards.
- Personal protective equipment such as harnesses and helmets.
- Whether a fall-arrest system is required, or netting.
- Weather conditions.
- The health condition of the individuals, particularly if they suffer from vertigo or a heart condition.
- Compliance with the **Management of Health and Safety at Work Regulations 1999** and the **Work at Height Regulations 2005**.

### Revision Question

- (a) What are the possible immediate (direct) causes of a fall from a ladder?  
 (b) What are the possible underlying (root) causes of a fall from a ladder?

### Suggested Answer to Revision Question

- (a) Immediate causes: ladder is unsuitable for the task, e.g. too short; ladder is unsecured and not footed; ladder is damaged and not inspected before use; ladder set up at wrong angle or on slippery/uneven ground or used incorrectly; ladder was hit by a vehicle; the worker was over-reaching or was distracted; inappropriate footwear.

#### **S-NGC2.1.4**

- (b) Underlying causes: selection of equipment perhaps as a consequence of lack of suitable alternative; poor resources in general and management/peer pressure to get job done without due regard to safety; no maintenance scheme; no training of worker; lack of supervision and enforcement; lack of policy on working at height/safe system of work/risk assessment; poor traffic management.