# The NEBOSH Award in Health and Safety at Work





NEBOSH gratefully acknowledge the work of Barry Wilkes BSc (Hons) CMIOSH, Dr John Skevington PhD BSc(Eng), Roger Passey Dip2OSH CMIOSH MIIRSM and RRC Training in the production of this book. Design by indium design (indiumdesign@gmail.com)

Contains public sector information licensed under the Open Government Licence v1.0.

Product label examples in Element 9 are reproduced courtesy of RRC Training.

Every effort has been made to trace copyright material and obtain permission to reproduce it. If there are any errors or omissions, NEBOSH would welcome notification so that corrections may be incorporated in future reprints or editions of this course book.

© NEBOSH

All rights reserved.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form, or by any means, electronic, electrostatic, mechanical, photocopied or otherwise, without the express permission in writing from NEBOSH.

## Contents

	Introduction	4
Element 1	<ul> <li>The foundations of health and safety</li> <li>1.1 The scope and nature of workplace health and safety</li> <li>1.2 The reasons for practising good standards of health and safety</li> <li>1.3 The sources of health and safety information Practice Questions</li> </ul>	<b>5</b> 6 9 12 13
Element 2	<ul> <li>The responsibility for health and safety</li> <li>2.1 The health and safety role and responsibilities of relevant parties</li> <li>2.2 Systems for managing health and safety</li> <li>2.3 How accidents are caused</li> <li>2.4 Improving health and safety performance Practice Questions</li> </ul>	<b>15</b> 16 19 22 25 27
Element 3	<ul> <li>Health and safety risk assessment and control</li> <li>3.1 The aim and objectives of risk assessment</li> <li>3.2 Adequate risk assessment</li> <li>3.3 The stages of risk assessment based on the UK Health and Safety Executive's 5 steps</li> <li>3.4 Controlling health and safety risks</li> <li>3.5 Common safety signs References/Practice Questions</li> </ul>	<b>29</b> 30 34 37 39 42 43
Element 4	<ul> <li>Hazards and controls associated with work equipment</li> <li>4.1 The general requirements for work equipment</li> <li>4.2 Work equipment hazards and controls Practice Questions</li> </ul>	<b>45</b> 46 50 53
Element 5	Transport safety5.1The movement of vehicles – hazards and controls Practice Questions	<b>55</b> 56 61
Element 6	<ul> <li>Hazards and controls associated with working with electricity</li> <li>Hazards associated with the use of electricity in the workplace</li> <li>Control measures associated with working with electricity References/Practice Questions</li> </ul>	<b>63</b> 64 67 71
Element 7	<ul> <li>Fire safety</li> <li>7.1 The common fire hazards in the workplace</li> <li>7.2 Fire risk assessment</li> <li>7.3 Fire prevention and controls Practice Questions</li> </ul>	<b>73</b> 74 79 80 85
Element 8	<ul> <li>Hazards and controls associated with manual handling and repetitive movement</li> <li>8.1 Hazards from manual handling and repetitive activities</li> <li>8.2 Control measures References/Practice Questions</li> </ul>	<b>87</b> 88 94 97
Element 9	<ul> <li>Hazards and controls associated with hazardous substances</li> <li>9.1 The forms and classification of hazardous substances</li> <li>9.2 Sources of information</li> <li>9.3 Hazardous substance controls</li> <li>References/Practice Questions</li> </ul>	<b>99</b> 100 105 107 109
	<ul> <li>Hazards and controls associated with the working environment</li> <li>10.1 Welfare and work environmental issues</li> <li>10.2 Hazards and controls for pedestrians</li> <li>10.3 Psycho-social issues</li> <li>10.4 The health effects and controls associated with noise and vibration</li> <li>10.5 First-aid requirements in the workplace Practice Questions</li> </ul>	<b>111</b> 112 115 120 123 126 127
Unit HSW2	Workplace risk assessment activity	129

## The foundations of health and safety

## Introduction

This course book is designed to provide you with the basic knowledge you need to identify and deal with hazards in the workplace, so that you can help to reduce accidents at work. It presents the core information required to achieve the NEBOSH Award in Health and Safety at Work, which is the perfect introductory qualification for those who need to understand the principles of health and safety as part of their job.

Whether you intend to work through this course book alone or are using it as part of a taught course, you should find that it contains the essential knowledge you need to prepare for the formal NEBOSH assessment. This takes the form of:

- a multiple-choice assessment; and ٠
- a practical risk assessment activity, which is carried ٠ out in your own workplace.

The course book has been structured to match the NEBOSH syllabus, with the information divided into distinct elements, each of which starts with your learning outcomes for that particular section. If you have access to the Internet, we would recommend that you supplement this information by making use of additional resources, e.g. free leaflets from the UK Health and Safety Executive (available to download from www.hse.gov.uk) and guidance included on the International Labour Organisation's SafeWork website (www.ilo.org/safework). Other sources of information are available from the websites given in the References sections throughout.

We are going to cover lots of different aspects of health and safety at work, including ways to control common workplace hazards such as fire, manual handling, work equipment, hazardous substances and transport. When we talk about "health and safety at work" we need to consider the whole time a worker is "in the course of his/her employment". For example, working in an office, factory or shop is included and working in someone's home providing care is too. In addition, activities such as driving for work and working on another employer's premises are also covered.

Throughout the course book we will focus primarily on practical knowledge of health and safety which will be equally applicable to any type of workplace. As you work through, you will notice that the examples included relate to all sorts of industries, e.g. offices, manufacturing, and service industries such as care homes and catering, etc. You are also expected to apply the principles you learn to familiar situations in your own workplace.

The course book is intended to be suitable for those working in the UK and international students working all over the world. Generally, health and safety systems, controls and guidance which constitute best practice have been used as the basis, together with international standards and examples from the UK. Knowledge of specific legislation, either in the UK or in your own country, is not required and will not be included in the formal assessment.

We recommend that you spend a total of at least 24 hours studying for the NEBOSH Award in Health and Safety at Work; this includes four hours preparing for your practical risk assessment activity. Details of how to take the formal assessments can be found on the NEBOSH website www.nebosh.org.uk, where you will also find additional information including a syllabus summary.

### PAUSE FOR THOUGHT/ACTIVITY



These ask you to think about what you have been learning, to relate it to your own experience, or to carry out an activity to reinforce what you have just read.

#### EXAMPLE

Real or imagined scenarios that give context to points made in the text.

This element focuses on some initial concepts which are fundamental to this course book. You will become familiar with some of the meanings of common words used in health and safety and then look at the reasons why health and safety is important.



#### Learning outcomes

On completion of this element, you should be able to:

- 1.1 Outline the scope and nature of workplace health and safety
- 1.2 Identify the reasons for practising good standards of health and safety
- 1.3 Identify the key internal and external sources of health and safety information

Before you read this section, pause to consider what 'health' and 'safety' mean to you. Then read on to learn what they mean in the context of this course book.



All subjects tend to use their own terminology and health and safety is no exception. Therefore, it is important that you understand from the beginning some of the most common terms used by health and safety professionals. These will be used throughout this course book. It is important that you can appreciate both the meaning of these terms and the differences between them. These are not always obvious to people who are new to health and safety but don't worry, you'll soon be very familiar with them.

### 1. Health, safety and welfare

#### Health

The most common definition of *health* comes from the World Health Organisation, namely: "a state of complete physical, mental, and social well-being and not merely the absence of disease, or infirmity".

Health has a very wide meaning and does not just relate to whether you are free of a particular disease. It also takes into account other things such as how you feel both physically and emotionally about your health, how you live, how you interact with society, and the effect of the environment around you.

In relation to the definition of health we've just looked at, think about:



- the short-term and long-term health effects of drinking large amounts of alcohol;
- the effects on health of stress.

Can you now begin to see the wider meaning of the term "health"?

Throughout this course book we are only referring to health issues as they are affected by work. This is most commonly called 'occupational health'.

When used together, *health and safety* generally refers to all aspects of maintaining a healthy and a safe workplace where harm to people is prevented. This can include many issues such as laws, management systems and training, as well as physical items such as guards on dangerous machines.

#### Safety

*Safety* is not merely the absence of accidents, but the results of ALL persons taking positive actions to identify accident causes and implement suitable preventative measures.

The term "safety" tends to relate to physical dangers such as those from machinery or falling from a height.

#### Welfare

*Welfare* is the availability of facilities and presence of conditions required for reasonably comfortable, healthy, and secure living.

Welfare facilities which should be provided and maintained for workers include toilets, washing facilities, rest facilities and drinking water. Workers should use welfare facilities correctly and help the employer to keep them clean and well maintained.

#### Accident, dangerous occurrence, near-miss and work-related ill-health

#### Accident

An *accident* is any unplanned occurrence which results in some loss, often an injury.

An accident is always an unplanned occurrence. The most common kinds of accidents which occur in workplaces are slips, trips and falls; falls from height; being injured while carrying or moving objects; and being struck by moving or falling objects.

#### Dangerous occurrence

The International Labour Organisation (ILO) defines a *dangerous occurrence* as a "Readily identifiable event as defined under national laws and regulations, with potential to cause an injury or disease to persons at work or the public."

A dangerous occurrence is "any unplanned occurrence which normally results in some loss or damage to machinery and/or the workplace but has not resulted in injury."

Examples of things which might be classified as a dangerous occurrence include large scaffolding collapses, a crane overturning, and fires which stop normal activity for more than 24 hours in the workplace.

#### Near-miss

A *near-miss* is "an incident in which no injury or damage results."

Generally, workplace incidents are very much more likely to result in a near-miss than an actual injury. For every one injury there are probably at least another 90 near-misses. The important thing is to report and act on a near-miss so that action can be taken to ensure that it doesn't happen again. Next time the consequences could be far more serious. Near-miss reporting could help highlight some of the less obvious hazards in a workplace, or identify areas where a problem is developing.

#### Work-related ill-health

This is defined as "any physical or psychological ill-health which is caused by or affected by your work."

The most common types of work-related ill-health include:

- effects on muscles and bones of the upper limbs and back;
- work-related stress, which can be caused by many things such as poorly organised work, difficulties with colleagues, etc.;
- diseases caused by exposure to certain chemicals and other substances, e.g. detergents causing dermatitis and asbestos causing lung disease;
- hearing loss caused by long-term exposure to loud noises.

For this Activity you will need some index cards or pieces of paper.

Write each of the following terms on a separate card:

Health, Safety, Welfare, Accident, Dangerous Occurrence, Near-Miss, Work-Related III-Health

Then write each of the meanings given above on a separate card.

Mix all the cards up and then match the correct meaning to each term.

# 3. Health, safety and workplace fire law and guidance

Any country that has adopted International Labour Organisation Convention C155 "Occupational Safety and Health Convention, 1981" must have, in their own country, a system promoting health and safety which includes relevant laws.

In the UK, the laws which first started to regulate health and safety were first made many years ago. In certain industries, such as the manufacture and processing of cotton, these laws have been in place since the 1830's. These laws have changed a great deal over time and now the most important in England and Wales is the Health and Safety at Work, etc. Act 1974 (HSW Act 1974) which regulates general safety, health and welfare at work. This Act is quite general and gives very little actual detail on what should be done. The details are covered in legal Regulations and Orders; Approved Codes of Practice and Guidance.

Workplace fire safety is regulated in England and Wales through the Regulatory Reform (Fire Safety) Order 2005 and in Scotland through the Fire (Scotland) Act 2005. Looking outside of the UK there are health and safety legal systems operating worldwide. Many of these follow the International Labour Organisation (ILO) model which requires employers to protect both workers and the public so far as is reasonably practicable. "Reasonably practicable" means that when deciding what to do to protect workers and others such as visitors, employers will be expected to do all that is possible or technically feasible to adequately control the risk, based on local or national legislative principles. Employers can balance the health and safety risk of an activity against the cost (in terms of money, time or effort needed) of controlling this risk. Here, for protection to be "reasonably practicable" the risk and the cost should be balanced, therefore a high risk might require more resources to adequately control it than would a low risk



The specific situation in your country may vary but generally health and safety laws apply to all businesses, however small, including the self-employed and to workers.

# 4. Health, safety and workplace fire enforcing agencies and inspectors

Where any laws exist, it is important that they are enforced by an independent regulator if they are going to be effective. There should also be adequate penalties if the laws are violated. The system of enforcement varies significantly around the world but is most often carried out by Labour Inspectors or in the case of the UK by Health and Safety Inspectors from either the Health and Safety Executive (HSE) or the Local Authority. The Health and Safety Executive enforces health and safety at factories, farms and building sites, while the Local Authorities have enforcement powers in offices, shops, hotels and catering, and leisure activities. Workplace fire safety in the UK is generally regulated by the Fire Authority.

The range of powers that these Inspectors have varies, but most commonly:

- they can enter any premises;
- they will inspect workplaces to check that people are obeying the rules as laid down by law and give advice;
- they can take samples or look at records;
- they can interview any persons;
- they may investigate accidents and complaints.

When they find things that are seriously wrong, Inspectors may take enforcement action. This enforcement action might require specific improvements to be made in a set time, in which case the Inspector in the UK will issue an Improvement Notice. However, the issue may be so serious that the Inspector requires some or all work to stop until the necessary action has been taken to make the situation safe. In this case a Prohibition Notice will be issued. In the most serious circumstances the ultimate sanction for an enforcing agency will be to prosecute a company and/or individual workers. Such a decision is not taken lightly.



Before you read this section, note down some reasons why you think health and safety is important.

We will come back to these later.

There are a number of very important reasons why organisations and workers should see health and safety as a priority. For ease of understanding, these reasons have been grouped under three main headings:

- Moral;
- Legal;
- Financial.

#### 1. The moral reasons

Very few if any organisations deliberately set out to allow their workers to be injured through their work. Most organisations and the people who work for them try to do what they believe to be the right thing. Some people call this moral. Others call it ethical or humanitarian.

Many people across the world are killed or seriously injured at work each year. In 2005, the International Labour Organisation (ILO) estimated that there may be as many as 2.2 million people dying each year as a result of workrelated accidents and diseases<sup>1</sup>. This number exceeds the average annual deaths from road accidents, war and HIV/ AIDS combined.

# The reasons for practising good standards of health and safety

Element 1 The foundations of health and safety

In the UK alone, from April 2009 to March 2010<sup>2</sup>:

- 152 people were killed as a result of work;
- nearly a quarter of a million other injuries are believed to have occurred; and
- 1.3 million people believed they were suffering from an illness which was caused or made worse by their current or past work.

These figures do not show the pain and suffering caused to the individuals concerned and the effects on their families and friends resulting from these occurrences.

The good news is that many if not all of these injuries and diseases are preventable. The numbers injured have reduced significantly in the last 30 years, mainly as a result of better health and safety standards.

### 2. The legal reasons

Many countries of the world have laws to ensure that employers do as much as they can to prevent people being injured as a result of their work. These laws are also there to protect the general public from workplace dangers. Obviously, organisations wish to avoid prosecution, since they could be fined, they would receive bad publicity and, most seriously, individuals within their organisation could go to prison.