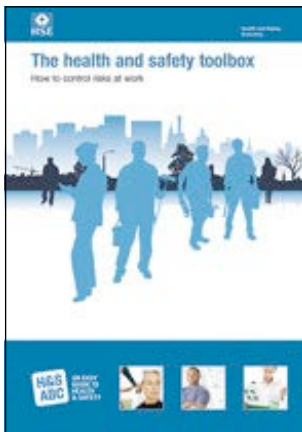


# The health and safety toolbox

## How to control risks at work



This is a free-to-download, web-friendly version of HSG268 (published 2014). You can order a printed version at [www.hse.gov.uk/pubns/books/hsg268.htm](http://www.hse.gov.uk/pubns/books/hsg268.htm) or visit the website at [www.hse.gov.uk/toolbox](http://www.hse.gov.uk/toolbox).

Packed with sound advice to put you on the right track, *The health and safety toolbox: How to control risks at work* covers the most common workplace hazards. It shows how most small to medium-sized businesses can put measures into place to control the risks.

The book is easy to use and will help you comply with the law and prevent workplace accidents and ill health. It's great value for those starting up or running a small business, or those who have been appointed as a safety representative in a larger organisation, or want additional advice on how to control workplace hazards. Whatever line of work you're in, it will help you run a safe and healthy workplace.

It replaces HSE's most popular guidance book *Essentials of health and safety at work* and builds on that title's success by including:

- case studies showing how accidents and cases of ill health have occurred, with helpful tips on how to avoid similar things happening in the future;
- simplified advice on key duties to make it easier for you to comply with the law and run your business;
- helpful lists of 'dos and don'ts' for key hazards which summarise the actions you need to take;
- updates on legal changes;
- detailed lists of useful websites and sources of advice.

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This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance.

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# Introduction

## Why use this book?

In general, health and safety laws apply to all businesses, no matter how small. As an employer, or a self-employed person, you are responsible for health and safety in your business. You need to take the right precautions to reduce the risks of workplace dangers and provide a safe working environment.

Health and safety management should be a straightforward part of managing your workplace as a whole. It involves practical steps that protect people from harm and at the same time protect the future success and the growth of your business. Good practice in health and safety makes sound business sense.

This book explains what the law requires and helps you put it into practice.

## What are the main causes of ill health and accidents at work?

Each year people are killed at work and many are injured or suffer ill health. The most common causes of serious injury at work are slips and trips and falls from height. There are health conditions that can be caused or made worse by work and working environments, including cancer, asthma, skin complaints, stress and musculoskeletal disorders such as back pain.

## The law and guidance

The main law governing health and safety at work in the United Kingdom is the Health and Safety at Work etc Act 1974 (HSW Act). This places general duties on you to do what is 'reasonably practicable' (see page 12) to ensure health and safety.

Other regulations supporting the HSW Act set out more detailed legal duties for specific activities or industries. The relevant regulations are set out in 'The law' sections in each chapter.

The Health and Safety Executive (HSE) has produced publications to help you understand what the duties mean in practice (<http://books.hse.gov.uk>).

Information about useful publications and websites is given in 'Find out more' sections throughout the book.

## How to use this book

This book is easy to use and will help you comply with the law and prevent workplace accidents and ill health.

It is aimed at those starting up or running a small to medium-sized business, those who have been appointed as a safety representative in a larger organisation, employees and those who want additional advice on how to control workplace hazards. Whatever line of work you're in, it will help you run a safe and healthy workplace.

**Chapter 1** suggests how you can tackle the basics of health and safety. It shows how you can identify, assess and control the activities that might cause harm in your business.

**Chapters 2, 3 and 4** cover issues to consider when looking at how you operate your business and things you need to take account of regarding your workers' health and safety.

**Chapters 5 to 19** are for anyone who needs to know more about tackling a particular hazard. They tell you what you need to do to work safely, as well as which laws apply. The Contents pages (3–5) will help you find the topics most relevant to you, including electricity, gas, harmful substances etc.

Looking at your workplace in the way this book suggests will help you and your workers stay safe and healthy. It will also go a long way to satisfying the law – including the risk assessment that you must do under the Management of Health and Safety at Work Regulations 1999.

# 1 How to manage health and safety

Managing health and safety is an integral part of managing your business. You need to do a risk assessment to find out about the risks in your workplace, put sensible measures in place to control them, and make sure they stay controlled.

This chapter provides information on what you need to consider when managing health and safety and assessing the risks in your workplace. It shows how you can follow a 'Plan, Do, Check, Act' approach.

<b>PLAN</b>
Describe how you manage health and safety in your business (your legally required policy) and plan to make it happen in practice.
<b>DO</b>
Prioritise and control your risks – consult your employees and provide training and information.
<b>CHECK</b>
Measure how you are doing.
<b>ACT</b>
Learn from your experience.

## Planning for health and safety

Planning is the key to ensuring your health and safety arrangements really work. It helps you think through the actions you have set out in your policy and work out how they will happen in practice. Consider:

- what you want to achieve, eg how you will ensure that your employees and others are kept healthy and safe at work;
- how you will decide what might cause harm to people and whether you are doing enough or need to do more to prevent that harm;
- how you will prioritise the improvements you may need to make;
- who will be responsible for health and safety tasks, what they should do, when and with what results;
- how you will measure and review whether you have achieved what you set out to do.



## The law

Under the Health and Safety at Work etc Act 1974 you have to ensure, so far as reasonably practicable (see page 12), the health and safety of yourself and others who may be affected by what you do or do not do. It applies to all work activities and premises and everyone at work has responsibilities under it, including the self-employed.

Employees must take care of their own health and safety and that of others who may be affected by their actions at work. They must also co-operate with employers and co-workers to help everyone meet their legal requirements.

The Management of Health and Safety at Work Regulations 1999 also apply to every work activity and workplace and require all risks to be assessed and, where necessary, controlled.

### Find out more

If you want more information to help you put suitable arrangements in place to manage health and safety, see [www.hse.gov.uk/managing](http://www.hse.gov.uk/managing).

## Writing a health and safety policy

Your business must have a health and safety policy, and if you have five or more employees, that policy must be written down.

Most businesses set out their policy in three sections:

- **The statement of general policy on health and safety at work** sets out your commitment to managing health and safety effectively, and what you want to achieve.
- **The responsibility section** sets out who is responsible for specific actions.
- **The arrangements section** contains the detail of what you are going to do in practice to achieve the aims set out in your statement of health and safety policy.

To help you structure your policy, there is an example and an interactive template on the HSE website ([www.hse.gov.uk/risk](http://www.hse.gov.uk/risk)).

The arrangements section should say how you will meet the commitments you have made in your statement of health and safety policy. Include information on how you are going to eliminate or reduce the risks of hazards in your workplace.

### What do we mean by 'hazard' and 'risk'?

A **hazard** is something in your business that could cause harm to people, such as chemicals, electricity and working at height. A **risk** is the chance – however large or small – that a hazard could cause harm.

### ***Additional arrangements***

The additional actions you take to manage health and safety should be set out in the arrangements section of your policy. They could include:

- staff training;
- using signs to highlight risks;
- improved safety equipment such as guards or additional personal protective equipment including goggles, safety boots or high-visibility clothing;
- replacing hazardous chemicals with less harmful alternatives;
- improved lighting;
- anti-slip flooring.

Focus your attention on the activities that could present a risk to people or cause serious harm.

### **Controlling the risks**

As part of managing the health and safety of your business, you must control the risks in your workplace. To do this you need to think about what might cause harm to people and decide whether you are doing enough to prevent that.

This process is known as risk assessment and it is something you are required by law to carry out. If you have fewer than five employees you don't have to write anything down.

Risk assessment is about identifying and taking sensible and proportionate measures to control the risks in your workplace, not about creating huge amounts of paperwork.

You are probably already taking steps to protect your employees, but your risk assessment will help you decide whether you should be doing more.

Think about how accidents and ill health could happen and concentrate on real risks – those that are most likely and which will cause the most harm.

For some risks, other regulations require particular control measures. Your assessment can help you identify where you need to look at certain risks and these particular control measures in more detail.

These control measures do not have to be assessed separately but can be considered as part of, or an extension of, your overall risk assessment.

### *Identify the hazards*

One of the most important aspects of your risk assessment is accurately identifying the potential hazards in your workplace.

A good starting point is to walk around your workplace and think about any hazards. In other words, what is it about the activities, processes or substances used that could injure your employees or harm their health?

When you work in a place every day it is easy to overlook some hazards, so here are some tips to help you identify the ones that matter:

- **Check manufacturers' instructions** or data sheets for chemicals and equipment as they can be very helpful in explaining the hazards and putting them in their true perspective.
- **Look back at your accident and ill-health records** – these often help to identify the less obvious hazards.
- **Take account of non-routine operations** (eg maintenance, cleaning operations or changes in production cycles).
- **Remember to think about long-term hazards to health** (eg high levels of noise or exposure to harmful substances).

There are some hazards with a recognised risk of harm, for example working at height, working with chemicals, machinery, and asbestos. Depending on the type of work you do, there may be other hazards that are relevant to your business.

### *Who might be harmed?*

Then think **how** employees (or others who may be present such as contractors or visitors) might be harmed. Ask your employees what they think the hazards are, as they may notice things that are not obvious to you and may have some good ideas on how to control the risks.

For each hazard you need to be clear about who might be harmed – it will help you identify the best way of controlling the risk. That doesn't mean listing everyone by name, but rather identifying groups of people (eg 'people working in the storeroom' or 'passers-by'). Remember:

- Some workers may have particular requirements, for example new and young workers, migrant workers, new or expectant mothers, people with disabilities, temporary workers, contractors, homeworkers and lone workers (see Chapter 3).
- Think about people who might not be in the workplace all the time, such as visitors, contractors and maintenance workers.
- Take members of the public into account if they could be harmed by your work activities.
- If you share a workplace with another business, consider how your work affects others and how their work affects you and your workers. Talk to each other and make sure controls are in place.
- Ask your workers if there is anyone you may have missed.

### Evaluate the risks

Having identified the hazards, you then have to decide how likely it is that harm will occur, ie the level of risk and what to do about it.

Risk is a part of everyday life and you are not expected to eliminate all risks. What you must do is make sure you know about the main risks and the things you need to do to manage them responsibly. Generally, you need to do everything 'reasonably practicable' to protect people from harm.

#### **What does 'so far as reasonably practicable' mean?**

This means balancing the level of risk against the measures needed to control the real risk in terms of money, time or trouble. However, you do not need to take action if it would be grossly disproportionate to the level of risk.

Your risk assessment should only include what you could reasonably be expected to know – you are not expected to anticipate unforeseeable risks. Look at what you're already doing and the control measures you already have in place. Ask yourself:

- Can I get rid of the hazard altogether?
- If not, how can I control the risks so that harm is unlikely?

Some practical steps you could take include:

- trying a less risky option;
- preventing access to the hazards;
- organising your work to reduce exposure to the hazard;
- issuing protective equipment;
- providing welfare facilities such as first-aid and washing facilities;
- involving and consulting with workers.

Improving health and safety need not cost a lot. For instance, placing a mirror on a blind corner to help prevent vehicle accidents is a low-cost precaution considering the risks. Failure to take simple precautions can cost you a lot more if an accident does happen.

Involve your workers, so you can be sure that what you propose to do will work in practice and won't introduce any new hazards. You can find more advice on HSE's website ([www.hse.gov.uk/involvement](http://www.hse.gov.uk/involvement)).

If you control a number of similar workplaces containing similar activities, you can produce a 'model' risk assessment reflecting the common hazards and risks associated with these activities.

You may also come across 'model' assessments developed by trade associations, employers' bodies or other organisations concerned with a particular activity. You may decide to apply these 'model' assessments at each workplace, but you can only do so if you:

- satisfy yourself that the 'model' assessment is appropriate to your type of work;
- adapt the 'model' to the detail of your own work situations, including any extension necessary to cover hazards and risks not referred to in the 'model'.

### **Record your findings**

Make a record of your significant findings – the hazards, how people might be harmed by them and what you have in place to control the risks. Any record produced should be simple and focused on controls.

If you have fewer than five employees you don't have to write anything down. But it is useful to do this so you can review it at a later date, for example if something changes. If you have five or more employees you are required by law to write it down.

Any paperwork you produce should help you to communicate and manage the risks in your business. For most people this does not need to be a big exercise – just note the main points down about the significant risks and what you concluded.

An easy way to record your findings is to use the risk assessment template on HSE's website ([www.hse.gov.uk/risk](http://www.hse.gov.uk/risk)). When writing down your results keep it simple, for example 'fume from welding – local exhaust ventilation used and regularly checked'.

A risk assessment must be 'suitable and sufficient', ie it should show that:

- a proper check was made;
- you asked who might be affected;
- you dealt with all the obvious significant hazards, taking into account the number of people who could be involved;
- the precautions are reasonable, and the remaining risk is low;
- you involved your employees or their representatives in the process.

Where the nature of your work changes fairly frequently or the workplace changes and develops (eg a construction site), or where your workers move from site to site, your risk assessment may have to concentrate more on a broad range of risks that can be anticipated.

Take a look at our selection of example risk assessments. They show you what a completed risk assessment might look like for your type of workplace. You can use these as a guide when doing your own.

We have also developed online risk assessment tools, to help employers complete and print off their own records. The example risk assessments and online tools can be found at [www.hse.gov.uk/risk](http://www.hse.gov.uk/risk).

If your risk assessment identifies a number of hazards, you need to put them in order of importance and address the most serious risks first.

Identify long-term solutions for the risks with the biggest consequences, as well as those risks most likely to cause accidents or ill health. You should also establish whether there are improvements that can be implemented quickly, even temporarily, until more reliable controls can be put in place.

Remember, the greater the hazard the more robust and reliable the control measures to control the risk of an injury occurring will need to be.

### Regularly review your risk assessment

Few workplaces stay the same. Sooner or later, you will bring in new equipment, substances and procedures that could lead to new hazards. So it makes sense to review what you are doing on an ongoing basis, look at your risk assessment again and ask yourself:

- Have there been any significant changes?
- Are there improvements you still need to make?
- Have your workers spotted a problem?
- Have you learnt anything from accidents or near misses?

Make sure your risk assessment stays up to date.

### Find out more

HSE's risk management website: [www.hse.gov.uk/risk](http://www.hse.gov.uk/risk)

*Risk assessment: A brief guide to controlling risks in the workplace* Leaflet INDG163(rev4)  
HSE Books 2014 [www.hse.gov.uk/pubns/indg163.pdf](http://www.hse.gov.uk/pubns/indg163.pdf)

## Accidents and investigations

Monitor the effectiveness of the measures you put in place to control the risks in your workplace. As part of your monitoring, you should investigate incidents to ensure that corrective action is taken, learning is shared and any necessary improvements are put in place. Investigations will help you to:

- identify why your existing control measures failed and what improvements or additional measures are needed;
- plan to prevent the incident from happening again;
- point to areas where your risk assessment needs reviewing;
- improve risk control in your workplace in the future.

Reporting incidents should not stop you from carrying out your own investigation to ensure risks in your workplace are controlled efficiently. An investigation is not an end in itself, but the first step in preventing future **adverse events** that includes:

- accident: an event that results in injury or ill health;
- incident:
  - near miss: an event not causing harm, but which has the potential to cause injury or ill health (in this guidance, the term near miss will include dangerous occurrences);
  - undesired circumstance: a set of conditions or circumstances that have the potential to cause injury or ill health, eg untrained nurses handling heavy patients;
- dangerous occurrence: one of a number of specific, reportable adverse events, as defined in the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR).

### Find out more

*Investigating accidents and incidents* HSG245 HSE Books 2004  
ISBN 978 0 7176 2827 8 [www.hse.gov.uk/pubns/books/hsg245.htm](http://www.hse.gov.uk/pubns/books/hsg245.htm)

## **Multi-occupancy workplaces**

Where employers share workplaces (whether on a temporary or permanent basis), they need to co-operate with each other to comply with their respective health and safety obligations.

Each employer needs to take all reasonable steps to co-ordinate the measures they adopt to fulfil those obligations. They also need to tell the other employers about any risks their work activities could present to their employees, both on- and off-site.

These requirements apply to self-employed people where they share a workplace with other employers or where they share a workplace with other self-employed people.

## **Deciding who will help you with your duties**

As an employer, you must appoint someone competent to help you meet your health and safety duties. A competent person is someone with the necessary skills, knowledge and experience to manage health and safety. In many cases, you will know the risks in your own business best. This will mean that you are the competent person and can carry out the risk assessments yourself. You could appoint (one or a combination of):

- yourself;
- one or more of your workers;
- someone from outside your business.

Many businesses can develop the necessary expertise in-house and are well equipped to manage health and safety themselves. However, there are some things you may not be able to do for yourself and you may decide to get external help. Possible sources of advice include:

- trade associations;
- safety groups;
- trade unions;
- consultants registered on the Occupational Safety and Health Consultants Register (OSHCR) – see ‘Find out more’ below;
- local councils;
- health and safety training providers;
- health and safety equipment suppliers.

Identifying and deciding what help you need is very important. If you appoint someone to help you, you must ensure that they are competent to carry out the tasks you give them and that you provide them with adequate information and support. If you are not clear about what you want, you probably won't get the help you need.

### ***Some points to consider when using external help***

- Make sure you clearly explain what you need and check that they understand you. Ask them to explain what they understand the work to be and what they will do, when they will do it, and what they will charge you.
- Check for evidence of relevant health and safety training/knowledge, such as formal qualifications or practical experience of providing advice in your industry/area of work.
- Can they explain why they are competent to advise you on your particular problem?
- Is the person a member of a professional body? If you are in doubt, you can check with the professional body on what training, knowledge or qualifications are relevant and whether the person is listed as a member.
- Shop around to find the right help at the right price. If you were buying equipment or another service, you wouldn't always accept the first offer, so do the same with health and safety advice. You should also check that the person you choose is adequately insured.
- Consider whether you have received the help you needed. Do you have a practical, sensible solution to your problem? Or have you ended up with something completely 'over the top' or a mountain of useless paperwork? If you are not happy with the solution, ask for an explanation and whether there may be a simpler alternative.
- You can find consultants through OSHCR, an independent online directory to help you find sensible health and safety advice. Registered members have met set standards within their professional bodies, and are bound by a code of practice. They give proportionate advice, specific to your business needs, by topic, industry or location.

Try to make sure that you get a good follow-up service and are able to get further advice on any issues that arise from implementing their recommendations.

### ***Find out more***

Occupational Safety and Health Consultants Register (OSHCR): [www.hse.gov.uk/oshcr](http://www.hse.gov.uk/oshcr)

If you need help with technical issues or very specific health and safety risks, you may need to consult external specialists. See HSE's website ([www.hse.gov.uk/business/competent-advice.htm](http://www.hse.gov.uk/business/competent-advice.htm)).

### **Consulting your employees**

Workplaces where employees are involved in taking decisions about health and safety are safer and healthier. Collaboration with your employees helps you to manage health and safety in a practical way by:

- helping you spot workplace risks;
- making sure health and safety controls are practical;
- increasing the level of commitment to working in a safe and healthy way;
- providing you with feedback on the effectiveness of your health and safety arrangements and control measures.

You must consult all your employees, in good time, on health and safety matters. In workplaces where a trade union is recognised, this will be through union health and safety representatives. In non-unionised workplaces, you can consult either directly or through other elected representatives.



Representatives' main role is to talk to their employer about issues affecting the health and safety of employees they represent in the workplace. You should ensure that any representatives receive paid time off during normal working hours so they can carry out their duties. They should also receive suitable training and access to any facilities needed to help them in their role.

Consultation involves employers not only giving information to employees but also listening to them and taking account of what they say before making decisions on health and safety. You have to give employees or their representatives information to allow full and effective participation in consultation. This should include:

- risks arising from their work;
- proposals to manage and/or control these risks;
- what to do if employees are exposed to a risk;
- the best ways of providing information and training.

### *Find out more*

For more information on consulting with your employees, see HSE's worker involvement website: [www.hse.gov.uk/involvement](http://www.hse.gov.uk/involvement)

*Consulting employees on health and safety: A brief guide to the law* Leaflet INDG232(rev2) HSE Books 2013 [www.hse.gov.uk/pubns/indg232.htm](http://www.hse.gov.uk/pubns/indg232.htm)

## The law

Safety Representatives and Safety Committees Regulations 1977 (as amended)

Health and Safety (Consultation with Employees) Regulations 1996

## Providing training and information

Everyone who works for you needs to know how to work safely and without risks to health. You must provide clear instructions, information and adequate training for your employees.

Don't forget contractors and self-employed people who may be working for you and make sure everyone has information on:

- hazards and risks they may face;
- measures in place to deal with those hazards and risks;
- how to follow any emergency procedures.

Some employees may have particular training needs, for example:

- new recruits need basic induction training in how to work safely, including arrangements for first aid, fire and evacuation;
- people changing jobs or taking on extra responsibilities need to know about any new health and safety implications;
- young employees are particularly vulnerable to accidents and you need to pay particular attention to their needs, so their training should be a priority. It is also important that new, inexperienced or young employees are adequately supervised;

- employee representatives or safety representatives will require training that reflects their responsibilities;
- some people's skills may need updating by refresher training.

Your risk assessment should identify any further training needs associated with specific risks. If you have identified danger areas in your workplace, you must ensure that your employees receive adequate instruction and training on precautions they must take before entering them.

You need to think about any legal requirements for specific job training, eg for operating forklift trucks. Remember that if you introduce new equipment, technology or changes to working practices/systems, your employees will need to know about any new health and safety implications.

Employees also have responsibilities under health and safety law to:

- take care of their own health and safety and that of others;
- co-operate with you to help you comply with health and safety legislation;
- follow any instructions or health and safety training you provide;
- tell you about any work situations that present a serious and imminent risk;
- let you know about any other failings they identify in your health and safety arrangements.

### **Find out more**

*Health and safety training: A brief guide* Leaflet INDG345(rev1) HSE Books 2012  
[www.hse.gov.uk/pubns/indg345.htm](http://www.hse.gov.uk/pubns/indg345.htm)

## **Providing supervision**

You must provide an adequate and appropriate level of supervision for your workers:

- Supervisors need to know what you expect from them in terms of health and safety. They need to understand your health and safety policy, where they fit in, and how you want health and safety managed.
- Supervisors may need training in the specific hazards of your processes and how you expect the risks to be controlled.
- New, inexperienced or young people, as well as those whose first language is not English, are very likely to need more supervision than others. Make sure workers know how to raise concerns and supervisors are familiar with the possible problems due to unfamiliarity, inexperience and communication difficulties.
- Supervisors need to ensure that workers in their charge understand risks associated with the work environment and measures to control them.
- Supervisors will need to make sure the control measures to protect against risk are up to date and are being properly used, maintained and monitored.
- Make sure you have arrangements in place to check the work of contractors is being done as agreed.

Effective supervision can help you monitor the effectiveness of the training that people have received, and whether employees have the necessary capacity and competence to do the job.

### Find out more

For advice on those new to the job see Chapter 3 and HSE's website:  
[www.hse.gov.uk/vulnerable-workers/new-to-the-job.htm](http://www.hse.gov.uk/vulnerable-workers/new-to-the-job.htm)

For advice on young people at work see Chapter 3 and HSE's website:  
[www.hse.gov.uk/youngpeople](http://www.hse.gov.uk/youngpeople)

*Young people and work experience: A brief guide to health and safety for employers*  
Leaflet INDG364(rev1) HSE Books 2013 [www.hse.gov.uk/pubns/indg364.htm](http://www.hse.gov.uk/pubns/indg364.htm)

### First aid

You need to assess your first-aid requirements to help you decide what equipment and facilities you need, and how many first-aid personnel you should provide. The minimum first-aid provision in any workplace is:

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

You also need to put up notices telling your employees where they can find:

- the first-aiders or appointed persons;
- the first-aid box.

Your assessment may also indicate that you should provide a first-aid room, particularly where your work involves certain hazards, including some of those found in chemical industries and on large construction sites.

If you are self-employed, you should have equipment to be able to provide first aid to yourself at work. You should make an assessment of the hazards and risks in your workplace and establish an appropriate level of first-aid provision.

If you carry out low-risk activities (eg clerical work) in your own home, you only need to provide first-aid equipment appropriate to your normal domestic needs. If your work involves driving long distances or you are continuously on the road, your assessment may identify the need to keep a personal first-aid kit in your vehicle.

### Find out more

See HSE's first aid site for more information: [www.hse.gov.uk/firstaid](http://www.hse.gov.uk/firstaid)

*First aid at work: Your questions answered* Leaflet INDG214(rev1) HSE Books 2009  
[www.hse.gov.uk/pubns/indg214.htm](http://www.hse.gov.uk/pubns/indg214.htm)

### The law

Health and Safety (First Aid) Regulations 1981

## Emergency procedures

Workplaces need a plan for emergencies that can have a wider impact. Special procedures are needed for emergencies such as serious injuries, explosion, flood, poisoning, electrocution, fire, release of radioactivity and chemical spills.

Quick and effective action may help to ease the situation and reduce the consequences. However, in emergencies people are more likely to respond reliably if they:

- are well trained and competent;
- take part in regular and realistic practice;
- have clearly agreed, recorded and rehearsed plans, actions and responsibilities.

Write an emergency plan if a major incident at your workplace could involve risks to the public, rescuing employees or co-ordinating emergency services.

Where you share your workplace with another employer, you should consider whether your emergency plans and procedures should be co-ordinated.

### *Points to include in emergency procedures*

- Consider what might happen and how the alarm will be raised. Don't forget night and shift working, weekends and times when the premises are closed, eg holidays.
- Plan what to do, including how to call the emergency services. Help them by clearly marking your premises from the road. Consider drawing up a simple plan showing the location of hazardous items.
- If you have 25 tonnes or more of dangerous substances, you must notify the fire and rescue service and put up warning signs.
- Decide where to go to reach a place of safety or to get rescue equipment. You must provide suitable forms of emergency lighting.
- You must make sure there are enough emergency exits for everyone to escape quickly, and keep emergency doors and escape routes unobstructed and clearly marked.
- Nominate competent people to take control (a competent person is someone with the necessary skills, knowledge and experience to manage health and safety).
- Decide which other key people you need, such as a nominated incident controller, someone who is able to provide technical and other site-specific information if necessary, or first-aiders.
- Plan essential actions such as emergency plant shutdown, isolation or making processes safe. Clearly identify important items like shut-off valves and electrical isolators etc.
- You must train everyone in emergency procedures. Don't forget the needs of people with disabilities and vulnerable workers.
- Work should not resume after an emergency if a serious danger remains. If you have any doubts ask for assistance from the emergency services.

### The law

The Management of Health and Safety at Work Regulations 1999 cover emergencies.

The Dangerous Substances (Notification and Marking of Sites) Regulations 1990 cover sites holding at least 25 tonnes of dangerous substances.

## Reporting accidents, incidents and diseases

The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) require employers, or in certain circumstances others who control or manage the premises, to report to the relevant enforcing authority and keep records of:

- work-related deaths;
- work-related accidents which cause certain specified serious injuries to workers, or which result in a worker being incapacitated for more than seven consecutive days (see [www.hse.gov.uk/riddor](http://www.hse.gov.uk/riddor));
- cases of those industrial diseases listed in RIDDOR;
- certain 'dangerous occurrences' (near-miss accidents);
- injuries to a person who is not at work, such as a member of the public, which are caused by an accident at work and which result in the person being taken to hospital from the site for treatment.

**Reports** to the enforcing authority of all of the above categories, except over-seven-day injuries, must be made immediately by the quickest practicable means and followed up by a written notification within ten days. Reports of over-seven-day injuries must be sent to the enforcing authority within 15 days.

In addition, **records** must be kept of all 'over-three-day injuries', which are those where a person who is injured at work is incapacitated for more than three consecutive days. Over-three-day injuries do not, however, have to be reported to the enforcing authority. If you are an employer who must keep an accident book under the Social Security (Claims and Payments) Regulations 1979, an entry about an over-three-day injury is a sufficient record for the purposes of RIDDOR.

A person is incapacitated if they are unable to carry out the activities they would reasonably be expected to do as part of their normal work. The period of time for an over-three-day injury or an over-seven-day injury does not include the day of the accident, but it does include any weekends or rest days.

### *Why report and record?*

Reporting and recording are legal requirements. The report tells the enforcing authorities for occupational health and safety (HSE and local authorities) about serious incidents and cases of disease. This means they can identify where and how risks arise and whether they need to be investigated. It also allows HSE and local authorities to target their work and provide advice on how to avoid work-related deaths, injuries, ill health and accidental loss.

Information on accidents, incidents and ill health can be used as an aid to risk assessment, helping to develop solutions to potential risks. Records also help to prevent injuries and ill health, and control costs from accidental loss.

You must keep a record of:

- any reportable death, injury, occupational disease or dangerous occurrence;
- all work-related injuries that result in a worker being away from work or unable to do their full range of normal duties for more than **three** consecutive days (not counting the day of the accident but including any weekends or other rest days).

### Find out more

There is more about RIDDOR (including reporting gas incidents) on HSE's website: [www.hse.gov.uk/riddor](http://www.hse.gov.uk/riddor)

RIDDOR applies to all work activities but not all incidents are reportable. HSE's website has a full list of the types of injuries, dangerous occurrences, gas incidents and occupational diseases that must be reported under RIDDOR: [www.hse.gov.uk/riddor/reportable-incidents.htm](http://www.hse.gov.uk/riddor/reportable-incidents.htm)

*Reporting accidents and incidents at work: A brief guide to the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR)*  
Leaflet INDG453(rev1) HSE Books 2013 [www.hse.gov.uk/pubns/indg453.htm](http://www.hse.gov.uk/pubns/indg453.htm)

#### The law

Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR)

### The health and safety law poster

If you employ anyone, you must display the health and safety law poster, or provide each worker with a copy of the approved leaflet or equivalent pocket card. You must display the poster where your workers can easily read it.

The poster outlines British health and safety laws and includes a straightforward list that tells workers what they and their employers need to do. You can also add details of any employee safety representatives or health and safety contacts if you wish to do so.

The poster was updated in 2009 and all employers must display this new version, or provide each worker with a copy of the equivalent leaflet or pocket card, by no later than 5 April 2014.

Employers can use the older poster or leaflet until then. You can download free copies of the leaflet and pocket card ([www.hse.gov.uk/pubns/books/lawposter.htm](http://www.hse.gov.uk/pubns/books/lawposter.htm)), where you can also buy them in priced packs, or buy the law poster itself.

#### The law

Health and Safety Information for Employees Regulations 1989

### Safety signs

Employers must provide safety signs if there is a significant risk that can't be avoided or controlled in any other way, such as through safe systems of work or engineering controls.

There is no need to provide safety signs if they don't help reduce the risk or if the risk isn't significant. This applies to all places and activities where people are employed.

Employers must, where necessary:

- use road traffic signs in workplaces to regulate road traffic;
- maintain the safety signs they provide;
- explain unfamiliar signs to their employees and tell them what they need to do when they see safety signs.

### **Find out more**

*Safety signs and signals. The Health and Safety (Safety Signs and Signals) Regulations 1996. Guidance on Regulations L64 (Second edition) HSE Books 2009 ISBN 978 0 7176 6359 0 [www.hse.gov.uk/pubns/books/l64.htm](http://www.hse.gov.uk/pubns/books/l64.htm)*

## **The law**

Health and Safety (Safety Signs and Signals) Regulations 1996

## **Insurance**

If your business has employees you are likely to be required by law to have employers' liability insurance.

If an employee is injured or becomes ill as a result of the work they do for you, they may claim compensation from you. Complying with health and safety legislation does not have to be difficult. As long as you have taken reasonable steps to prevent accidents or harm to your employees (and the injury or illness was caused after 1 October 2013), you should not have to pay compensation. However, if you are held to be liable, employers' liability insurance will enable you to meet the cost of any compensation for your employees' injuries or illness.

Only a few businesses are not required to have employers' liability insurance. If you have no employees, or are a family business and all employees are closely related to you, you may not need it. You can find more details in HSE's leaflet *Employers' Liability (Compulsory Insurance) Act 1969: A brief guide for employers* (see 'Find out more' below).

### **How do you get employers' liability insurance?**

You can buy employers' liability insurance through insurers or intermediaries, like brokers or trade associations. You may find that it often comes as part of an insurance package designed to cover a range of business needs.

Your policy must be with an authorised insurer and the Financial Conduct Authority (FCA) has a list of these. You can check their register on the FCA website ([www.fca.org.uk](http://www.fca.org.uk)).

### **Find out more**

*Employers' Liability (Compulsory Insurance) Act 1969: A brief guide for employers* Leaflet HSE40(rev4) HSE Books 2012 [www.hse.gov.uk/pubns/hse40.htm](http://www.hse.gov.uk/pubns/hse40.htm)

## **Inspectors and the law**

Health and safety laws applying to your business are enforced by HSE inspectors or by officers from your local authority.

An inspector's role is to:

- investigate (when accidents have happened or a complaint is made) whether people are at risk, to find out if something has gone wrong;
- require you to take action to control risks properly if you are not already complying with the law;
- take appropriate enforcement action in relation to any non-compliance, ranging from advice on stopping dangerous work activities to potentially taking prosecutions where people are put at serious risk;
- provide advice and guidance to help you comply with the law and avoid injuries and ill health at work.

Inspectors have the right of entry to your premises as well as the right to talk to employees and safety representatives, and exercise powers to help them fulfil their role.

HSE operates a Fee for Intervention (FFI) cost recovery scheme. If you are breaking health and safety laws, HSE may recover its costs from you by charging a fee for the time and effort it spends on helping you to put the matter right, such as investigating and taking enforcement action.

If an HSE inspector visits your premises and you want to confirm their identity, they all carry identification and you can ask to see this.

Inspectors and local authority officers prioritise the highest risks and those businesses which fail to manage health and safety properly.

### ***Find out more***

How HSE enforces health and safety law: [www.hse.gov.uk/enforce](http://www.hse.gov.uk/enforce)

Fee for Intervention: [www.hse.gov.uk/fee-for-intervention](http://www.hse.gov.uk/fee-for-intervention)

*What to expect when a health and safety inspector calls: A brief guide for businesses, employees and their representatives* Leaflet HSC14(rev1)  
HSE Books 2013 [www.hse.gov.uk/pubns/hsc14.htm](http://www.hse.gov.uk/pubns/hsc14.htm)



## 2 Your organisation

This chapter covers issues that can affect your workers and may need action at an organisational level.

Each section explains how factors in your workplace can have an impact, either because of the nature of the work or the way it is managed. The sections relate to hazards and health issues you may need to assess and take action to deal with – they could be included in your health and safety policy.

### Ergonomics and human factors

People are involved in all aspects of work. That is why HSE recognises the important role ergonomics and human factors can play in helping to avoid accidents and ill health at work.

Human factors are concerned with three interrelated areas:

- what people are being asked to do (**the job** and its characteristics);
- who is doing it (**the individual** and their competence);
- where they are working (**the organisation** and its attributes).

#### *The job*

This includes the nature of the task, the workload, the working environment, the design of displays and controls, and training to carry out the job.

#### *The individual*

This includes their competence, skills, personality, attitude, and risk perception. Individual characteristics influence behaviour in complex ways. Some characteristics (such as personality) are fixed, whereas others (such as skills and attitudes) may be changed or enhanced.

#### *The organisation*

This includes work patterns, the culture of the workplace, resources, communications, leadership etc. Such factors are often overlooked during the design of jobs but have a significant influence on individual and group behaviour.

#### *Find out more*

More advice on human factors: [www.hse.gov.uk/humanfactors/introduction.htm](http://www.hse.gov.uk/humanfactors/introduction.htm)

*Ergonomics and human factors at work: A brief guide* Leaflet INDG90(rev3)  
HSE Books 2013 [www.hse.gov.uk/pubns/indg90.htm](http://www.hse.gov.uk/pubns/indg90.htm)

















































































































## Find out more

HSE's MSDs website: [www.hse.gov.uk/msd](http://www.hse.gov.uk/msd)

*Manual handling at work: A brief guide* Leaflet INDG143(rev3) HSE Books 2012  
[www.hse.gov.uk/pubns/indg143.htm](http://www.hse.gov.uk/pubns/indg143.htm)

*Manual handling. Manual Handling Operations Regulations 1992 (as amended).  
Guidance on Regulations L23* (Third edition) HSE Books 2004  
ISBN 978 0 7176 2823 0 [www.hse.gov.uk/pubns/books/l23.htm](http://www.hse.gov.uk/pubns/books/l23.htm)

*Managing upper limb disorders in the workplace: A brief guide*  
Leaflet INDG171(rev2) HSE Books 2013 [www.hse.gov.uk/pubns/indg171.htm](http://www.hse.gov.uk/pubns/indg171.htm)

### The law

The Manual Handling Operations Regulations 1992 (as amended) apply to work which involves lifting, lowering, pushing, pulling or carrying.

# 11 Noise

**Loud noise at work can damage your hearing. This usually happens gradually and it may only be when the damage caused by noise combines with hearing loss due to ageing that people realise how impaired their hearing has become.**

## CASE STUDY

A risk assessment revealed that the noise level at the operator's position of a metal cutting guillotine was very high, at 92 decibels (dB).

### How was the problem tackled?

After taking technical advice, the employers ensured the guillotine was fully serviced and its hydraulics overhauled. In addition, a collecting tray was fitted with rollers and covered with carpet, to reduce the impact of falling offcut metal.

As a result, the noise level at the operator's position was reduced by 8 dB to 84 dB.

## Why is dealing with noise important?

Noise at work can cause hearing damage that is **permanent** and **disabling**. This can be gradual, from exposure to noise over time, but damage can also be caused by sudden, extremely loud, noises. The damage is disabling in that it can stop people being able to understand speech, keep up with conversations or use the telephone.

Hearing loss is not the only problem. People may develop tinnitus (ringing, whistling, buzzing or humming in the ears), a distressing condition which can lead to disturbed sleep.

Noise at work can interfere with communications and make warnings harder to hear. It can also reduce a person's awareness of his or her surroundings. These factors can lead to safety risks – putting people at risk of injury or death.

## Do I have a noise problem?

You will probably need to do something about the noise if any of the following apply:

- the noise is intrusive – like a busy street, a vacuum cleaner or a crowded restaurant, or worse than intrusive, for most of the working day;
- your employees have to raise their voices to have a normal conversation when about 2 metres apart for at least part of the day;
- your employees use noisy powered tools or machinery for more than half an hour a day;
- your sector is one known to have noisy tasks, eg construction, demolition or road repair, woodworking, plastics processing, engineering, textile manufacture, general fabrication, forging or stamping, paper or board making, canning or bottling, foundries, waste and recycling;
- there are noises due to impacts (such as hammering, drop forging, pneumatic impact tools etc), explosive sources such as cartridge-operated tools or detonators, or guns.

Situations where you will need to consider safety issues in relation to noise include where:

- you use warning sounds to avoid or alert to dangerous situations;
- working practices rely on verbal communications;
- there is work around mobile machinery or traffic.

## How can I control noise?

There are many ways of reducing noise and noise exposure. Nearly all businesses can decide on practical, cost-effective actions to control noise risks, if necessary by looking at the advice available, such as HSE's noise at work website ([www.hse.gov.uk/noise](http://www.hse.gov.uk/noise)).

First, think about how to remove the source of noise altogether, for example housing a noisy machine where it cannot be heard by workers. If that is not possible, investigate:

- using quieter equipment or a different, quieter process;
- engineering/technical controls to reduce at source the noise produced by a machine or process;
- using screens, barriers, enclosures and absorbent materials to reduce the noise on its path to the people exposed;
- designing and laying out the workplace to create quiet workstations;
- limiting the time people spend in noisy areas.

### CASE STUDY

A woman working in the textiles industry only realised something needed to be done about her hearing loss when, at the age of 40, she couldn't hear the phone ringing any more.

#### What should have happened?

Such hearing loss could have been prevented in the short term with hearing protection. In the longer term, other ways of reducing exposure included quieter machines, maintenance, and changing job patterns.

## Choosing quieter equipment and machinery

You should consider noise alongside other factors (eg general suitability, efficiency) when hiring or buying equipment. You should compare the noise data from different machines, as this will help you to buy from among the quieter ones.

## When should personal hearing protection be used?

Hearing protection should be issued to employees:

- where extra protection is needed above what has been achieved using noise control;
- for short-term protection, while other methods of controlling noise are being developed.

You should not use hearing protection as an alternative to controlling noise by technical and organisational means.

Employees to whom you provide hearing protection should receive training in how to use it.

## Detecting damage to hearing

If the risk assessment indicates that there is a risk to health for employees exposed to noise, they should be placed under suitable health surveillance (regular hearing checks).

## Find out more

HSE's noise at work website: [www.hse.gov.uk/noise](http://www.hse.gov.uk/noise)

*Noise at work: A brief guide to controlling the risks* Leaflet INDG362(rev2)  
HSE Books 2012 [www.hse.gov.uk/pubns/indg362.htm](http://www.hse.gov.uk/pubns/indg362.htm)

*Controlling noise at work. The Control of Noise at Work Regulations 2005. Guidance on Regulations L108* (Second edition) HSE Books 2005  
ISBN 978 0 7176 6164 0 [www.hse.gov.uk/pubns/books/l108.htm](http://www.hse.gov.uk/pubns/books/l108.htm)

### The law

The Control of Noise at Work Regulations 2005 require employers to take action to prevent or reduce risks to health and safety from noise at work.

# 12 Personal protective equipment (PPE)

Employers have duties concerning the provision and use of personal protective equipment (PPE) at work.

PPE is equipment that will protect the user against health or safety risks at work. It can include items such as safety helmets, gloves, eye protection, high-visibility clothing, safety footwear, safety harnesses and respiratory protective equipment (RPE).

## CASE STUDY

A commercial gardener was using a petrol-driven strimmer to trim undergrowth. He hit a piece of unseen debris, which was thrown into the air and caught him in the eye. He lost the sight in that eye because he was not wearing protective goggles, which was advised in the manufacturer's written instructions for using the strimmer.

### How similar accidents can be prevented

Ensure those operating strimmers are trained to recognise the hazards posed by unseen debris and wear appropriate PPE, including protective goggles.

## Why is PPE important?

Making the workplace safe includes providing instructions, procedures, training and supervision to encourage people to work safely and responsibly.

Even where engineering controls and safe systems of work have been applied, some hazards might remain. These include injuries to:

- the lungs, eg from breathing in contaminated air;
- the head and feet, eg from falling materials;
- the eyes, eg from flying particles or splashes of corrosive liquids;
- the skin, eg from contact with corrosive materials;
- the body, eg from extremes of heat or cold.

PPE is needed in these cases to reduce the risk.



## What do I have to do?

- Only use PPE as a last resort.
- If PPE is still needed after implementing other controls (and there will be circumstances when it is, eg head protection on most construction sites), you must provide this for your employees free of charge.
- You must choose the equipment carefully (see selection details below) and ensure employees are trained to use it properly, and know how to detect and report any faults.

## Selection and use

You should ask yourself the following questions:

- Who is exposed and to what?
- How long are they exposed for?
- How much are they exposed to?

When selecting and using PPE:

- Choose products which are CE marked in accordance with the Personal Protective Equipment Regulations 2002 – suppliers can advise you.
- Choose equipment that suits the user – consider the size, fit and weight of the PPE. If the users help choose it, they will be more likely to use it.
- If more than one item of PPE is worn at the same time, make sure they can be used together, eg wearing safety glasses may disturb the seal of a respirator, causing air leaks.
- Instruct and train people how to use it, eg train people to remove gloves without contaminating their skin. Tell them why it is needed, when to use it and what its limitations are.

## Other advice on PPE

- Never allow exemptions from wearing PPE for those jobs that ‘only take a few minutes’.
- Check with your supplier on what PPE is appropriate – explain the job to them.
- If in doubt, seek further advice from a specialist adviser.

## Maintenance

PPE must be properly looked after and stored when not in use, eg in a dry, clean cupboard. If it is reusable it must be cleaned and kept in good condition.

Think about:

- using the right replacement parts which match the original, eg respirator filters;
- keeping replacement PPE available;
- who is responsible for maintenance and how it is to be done;
- having a supply of appropriate disposable suits which are useful for dirty jobs where laundry costs are high, eg for visitors who need protective clothing.

Employees must make proper use of PPE and report its loss or destruction or any fault in it.

### *Monitor and review*

- Check regularly that PPE is used. If it isn't, find out why not.
- Safety signs can be a useful reminder that PPE should be worn.
- Take note of any changes in equipment, materials and methods – you may need to update what you provide.

## **Types of PPE you can use**

### *Eyes*

#### **Hazards**

Chemical or metal splash, dust, projectiles, gas and vapour, radiation

#### **Options**

Safety spectacles, goggles, face screens, faceshields, visors

#### **Note**

Make sure the eye protection chosen has the right combination of impact/dust/splash/molten metal eye protection for the task and fits the user properly.

### *Head and neck*

#### **Hazards**

Impact from falling or flying objects, risk of head bumping, hair getting tangled in machinery, chemical drips or splash, climate or temperature

#### **Options**

Industrial safety helmets, bump caps, hairnets and firefighters' helmets

#### **Note**

- Some safety helmets incorporate or can be fitted with specially-designed eye or hearing protection.
- Don't forget neck protection, eg scarves for use during welding.
- Replace head protection if it is damaged.

### *Ears*

#### **Hazards**

Noise – a combination of sound level and duration of exposure, very high-level sounds are a hazard even with short duration

#### **Options**

Earplugs, earmuffs, semi-insert/canal caps

#### **Note**

- Provide the right hearing protectors for the type of work, and make sure workers know how to fit them.
- Choose protectors that reduce noise to an acceptable level, while allowing for safety and communication.

## Hands and arms

### Hazards

Abrasion, temperature extremes, cuts and punctures, impact, chemicals, electric shock, radiation, biological agents and prolonged immersion in water

### Options

Gloves, gloves with a cuff, gauntlets and sleeving that covers part or all of the arm

### Note

- Avoid gloves when operating machines such as bench drills where the gloves might get caught.
- Some materials are quickly penetrated by chemicals – take care in selection, see HSE's skin at work website ([www.hse.gov.uk/skin](http://www.hse.gov.uk/skin)).
- Barrier creams are unreliable and are no substitute for proper PPE.
- Wearing gloves for long periods can make the skin hot and sweaty, leading to skin problems. Using separate cotton inner gloves can help prevent this.

## Feet and legs

### Hazards

Wet, hot and cold conditions, electrostatic build-up, slipping, cuts and punctures, falling objects, heavy loads, metal and chemical splash, vehicles

### Options

Safety boots and shoes with protective toecaps and penetration-resistant, mid-sole wellington boots and specific footwear, eg foundry boots and chainsaw boots

### Note

- Footwear can have a variety of sole patterns and materials to help prevent slips in different conditions, including oil- or chemical-resistant soles. It can also be anti-static, electrically conductive or thermally insulating.
- Appropriate footwear should be selected for the risks identified.

## Lungs

### Hazards

Oxygen-deficient atmospheres, dusts, gases and vapours

### Options – respiratory protective equipment (RPE)

- Some respirators rely on filtering contaminants from workplace air. These include simple filtering facepieces and respirators and power-assisted respirators.
- Make sure it fits properly, eg for tight-fitting respirators (filtering facepieces, half and full masks).
- There are also types of breathing apparatus which give an independent supply of breathable air, eg fresh-air hose, compressed airline and self-contained breathing apparatus.

### Note

- The right type of respirator filter must be used as each is effective for only a limited range of substances.
- Filters have only a limited life. Where there is a shortage of oxygen or any danger of losing consciousness due to exposure to high levels of harmful fumes, only use breathing apparatus – never use a filtering cartridge.
- You will need to use breathing apparatus in a confined space or if there is a chance of an oxygen deficiency in the work area.
- If you are using respiratory protective equipment, look at HSE's publication *Respiratory protective equipment at work: A practical guide* (see 'Find out more' below).

### Whole body

#### Hazards

Heat, chemical or metal splash, spray from pressure leaks or spray guns, contaminated dust, impact or penetration, excessive wear or entanglement of own clothing

#### Options

Conventional or disposable overalls, boiler suits, aprons, chemical suits

#### Note

- The choice of materials includes flame-retardant, anti-static, chain mail, chemically impermeable, and high-visibility.
- Don't forget other protection, like safety harnesses or life jackets.

### Emergency equipment

Careful selection, maintenance and regular and realistic operator training is needed for equipment for use in emergencies, like compressed-air escape breathing apparatus, respirators and safety ropes or harnesses.

### Find out more

*Personal protective equipment (PPE) at work: A brief guide* Leaflet INDG174(rev2)  
HSE Books 2013 [www.hse.gov.uk/pubns/indg174.htm](http://www.hse.gov.uk/pubns/indg174.htm)

*Personal protective equipment at work (Second edition). Personal Protective Equipment at Work Regulations 1992 (as amended). Guidance on Regulations L25* (Second edition) HSE Books 2005 ISBN 978 0 7176 6139 8  
[www.hse.gov.uk/pubns/books/l25.htm](http://www.hse.gov.uk/pubns/books/l25.htm)

*Respiratory protective equipment at work: A practical guide* HSG53 (Fourth edition)  
HSE Books 2013 ISBN 978 0 7176 6454 2  
[www.hse.gov.uk/pubns/books/hsg53.htm](http://www.hse.gov.uk/pubns/books/hsg53.htm)

#### The law

The Personal Protective Equipment Regulations 2002 and the Personal Protective Equipment at Work Regulations 1992 (as amended) give the main requirements.

Other special regulations cover hazardous substances (including lead and asbestos), and also noise and radiation.

# 13 Pressure equipment

Many types of pressure equipment can be hazardous. These include steam boilers and associated pipework, pressurised hot-water boilers, air compressors, air receivers and associated pipework, autoclaves, gas (eg LPG) storage tanks and chemical reaction vessels.

When things go wrong, these types of equipment can cause serious injuries and even fatalities. However, assessing the risks and putting proper precautions in place will minimise the chances of any accidents occurring.

## CASE STUDY

A company used a steam boiler in its manufacturing processes. An alteration to pipework inadvertently caused salty water to be introduced into the boiler.

The resulting build-up of scale caused its furnace to overheat and collapse internally, creating an explosion. This blew out the ends of the boiler house and the ejected boiler demolished an electrical substation hundreds of feet away before coming to rest.

## How the accident could have been prevented

This accident could have been prevented by giving the maintenance staff correct information and instruction, and by adequately managing the maintenance operation.

As a result of the damage to the building, its contents and exterior damage, the company had to replace the boiler and rebuild the boiler house, with significant loss of production.

## Why is pressure equipment safety important?

If a piece of pressure equipment fails and bursts violently apart, the results can be devastating to people in its vicinity.

Parts of the equipment could also be propelled over great distances, causing injury and damage to people and buildings hundreds of metres away.

## What do I have to do?

### *Assess the risks*

You need to assess the levels of risk when working with pressure equipment. The level of risk from the failure of pressure systems and equipment depends on a number of factors including:

- the pressure in the system;
- the type of liquid or gas and its properties;
- the suitability of the equipment and pipework that contains it;
- the age and condition of the equipment;
- the complexity and control of its operation;
- the prevailing conditions (eg a process carried out at high temperature);
- the skills, knowledge and experience of the people who maintain, test and operate the pressure equipment and systems.

### *Basic precautions*

To reduce the risks you need to know (and act on) some basic precautions:

- Ensure the system can be operated safely, for example without having to climb or struggle through gaps in pipework or structures.
- Be careful when repairing or modifying a pressure system. Following a major repair and/or modification, you may need to have the whole system re-examined before allowing the system to come back into use.
- Ensure there is a set of operating instructions for all of the equipment in the system and for the control of the system as a whole, including in emergencies.
- There should be a maintenance programme for the system as a whole. It should take into account the system and equipment age, its uses and the environment in which it is being used.

### *Written scheme of examination*

A written scheme of examination is required for most pressure systems:

- This should be drawn up (or certified as suitable) by a competent person – someone who has the necessary skills, knowledge and experience to carry out the work safely.
- It must cover all protective devices, every pressure vessel and those parts of pipelines and pipework which, if they fail, could be dangerous.
- The written scheme must specify the nature and frequency of examinations, and include any special measures that may be needed to prepare a system for a safe examination.
- Remember, a statutory examination carried out in line with a written scheme is designed to ensure your pressure system is suitable for your intended use. It is not a substitute for regular and routine maintenance.

## How can I do it?

- First of all, consider whether the job can be done another way without using pressure equipment, for example using vacuum equipment for cleaning rather than compressed air. If you have to use pressure equipment, don't use high-pressure equipment when low-pressure will do.
- Ensure that you buy pressure equipment that complies with the relevant product regulations.
- Before using pressure equipment, ensure that you have a written scheme of examination if one is required. Also make sure that any inspections needed have been completed by a competent person, and that the results have been recorded.
- Always operate the equipment within the safe operating limits. If these are not provided by the manufacturer or supplier, a competent person can advise you, for example your employers' liability insurer.
- Provide instruction and relevant training for the workers who are going to operate the pressure equipment and also include what to do in an emergency.
- Ensure you have an effective maintenance plan in place, which is carried out by appropriately trained people.
- Make sure that any modifications are planned, recorded and do not lead to danger.

## Find out more

HSE's website on pressure systems: [www.hse.gov.uk/pressure-systems](http://www.hse.gov.uk/pressure-systems)

*Pressure systems: A brief guide to safety* Leaflet INDG261(rev2) HSE Books 2012  
[www.hse.gov.uk/pubns/indg261.htm](http://www.hse.gov.uk/pubns/indg261.htm)

*Written schemes of examination: Pressure Systems Safety Regulations 2000*  
Leaflet INDG178(rev2) HSE Books 2012 [www.hse.gov.uk/pubns/indg178.htm](http://www.hse.gov.uk/pubns/indg178.htm)

### The law

The Pressure Systems Safety Regulations 2000 deal with the safe operation of a pressure system.

The Pressure Equipment Regulations 1999 deal with the design, manufacture and supply of pressure systems.

# 14 Radiations

Every day in the UK, a wide range of radiation types are used in industrial, medical, research and communications applications.

Some of these applications cause harmful exposure risks that must be effectively controlled. This chapter explains how those controls can be put in place.

## CASE STUDY

### X-rays

A scrap metal dealer bought a hand-held X-ray fluorescence analyser (XRF gun) to analyse alloy content in scrap. These generate an intense beam of X-ray radiation at the front end of the equipment, scattering X-rays when they strike the test material. When used properly, pointing away from all parts of the body, the radiation risks to operators and others are minimal. But if the equipment is damaged, incorrectly set up, or misused, there is potential for exposure to high-radiation fields.

### How the problem was tackled

The manager asked a radiation protection adviser (RPA) to help carry out a risk assessment. This recommended workers were trained in how to use the gun safely and not to operate without fully covering the X-ray aperture, or to hold the item being tested in their hand.

Users were shown what to do if the gun was dropped or damaged, and advised to buy an interlocked test box from the suppliers to test small parts safely. The RPA measured dose rates of the device to help the business meet its legal requirements. By taking this action, the employer ensured his workers and others were protected.

## What are the main types of radiation?

Radiation is generally classed as either 'ionising' or 'non-ionising', with the former generally having more energy than the latter.

### *Ionising radiations*

These include X-rays, gamma rays and particulate radiation (alpha, beta and neutron radiation) produced from X-ray sets or radioactive substances.

They are typically used in medical exposures, industrial radiography equipment and gauges used in industry for process control, but may also be produced from naturally occurring radioactive substances, including radon gas.



### Non-ionising radiations

These include:

- radiofrequency and microwaves, eg from plastic welding and some communications transmitters;
- infra-red, eg from very hot, glowing sources in glass and metal production;
- ultraviolet (UV) rays, eg from welding or the sun;
- visible radiation from high-intensity light sources, eg lasers.

## CASE STUDY

### Radon

After media reports claiming some homes were prone to radon, the manager of a local engineering firm was approached by a number of workers wanting assurances that they were not at risk while at work.

The manager used the Health Protection Agency's website to confirm the premises were in a Radon Affected Area, and that many employees spent their working day in ground-floor rooms, where radon gas is more likely to accumulate.

### How the problem was tackled

The manager used HSE's guidance (see 'Find out more' on page 91) to carry out a radon assessment, which included making measurements. The results showed very high levels (and possibly significant radiation doses) in two rooms.

He consulted a radiation protection adviser on how to reduce his employees' exposures. Following this, he contacted a radon remediation specialist, who quickly installed a simple, underfloor sump/extract system to prevent the gas entering the premises.

Repeat measurements showed this was extremely effective in affording long-term protection, as the levels of radon were now very low.

## The hazards

Ionising radiations can cause dermatitis, burns, cell damage, cataracts and changes to blood.

Microwaves and radio frequencies can cause heating of any exposed part of the body, infra-red rays can cause skin burns and cataracts and UV light can cause skin burns, skin cancer, conjunctivitis and arc eye. Lasers can cause permanent, severe damage to the eyes and skin.

Exposure to ionising and UV radiation can damage DNA and can cause health effects, such as cancer, later in life. The risks are small for low levels of exposure but exposure to high levels of ionising and non-ionising radiations can cause acute effects such as burns, tissue and organ damage.

## What do I have to do?

Identify all sources of ionising and non-ionising radiation in your workplace and the risks they pose. Once you have identified the significant risks, you must control them.

Try and reduce any exposure to ionising and UV radiation as far as possible. For example, you may be able to use safer alternative processes or equipment, eg ultrasonic, non-destructive testing instead of X-rays.

## Dos and don'ts of radiation safety

### Do...

- make sure you are aware of the different potential sources of radiation in your workplace, particularly all sources of ionising radiations, UV light and high-power lasers;
- consider getting competent advice from a radiation protection adviser (RPA) – this is a legal requirement when working with ionising radiations. Names and contact details of RPAs can be found on HSE's radiation website ([www.hse.gov.uk/radiation](http://www.hse.gov.uk/radiation));
- consider whether staff should be subject to medical surveillance – an RPA will help with this;
- consider radon gas exposure as part of your risk assessment. This is naturally occurring and may be present in your workplace even if you don't do any other work with radiation;
- ensure appropriate shielding and personal protective equipment is used to reduce exposure when working with ionising radiation and to protect the skin and eyes when working with hazardous sources of infra-red (eg molten metal) and UV (eg welding);
- seek expert advice where lasers are used for displays (eg bars, nightclubs and stage shows) and there could be a risk to the public.

### Don't...

- override any interlocks preventing access to high-voltage electrical equipment, X-ray cabinets, laser enclosures or machinery containing lasers;
- use potentially harmful germicidal UV lamps as replacements in otherwise safe insect-killing devices or other fluorescent light fittings. Make sure you replace these with the correct type specified by the manufacturer.

## Remember...

If your work with ionising radiations could produce a radiation emergency (ie an event that could lead to a member of the public receiving a dose of ionising radiation above certain levels), the Radiation (Emergency Preparedness and Public Information) Regulations 2001 may apply.

For more information, see HSE's radiation website: ([www.hse.gov.uk/radiation/ionising/reppir.htm](http://www.hse.gov.uk/radiation/ionising/reppir.htm)).

Businesses are required to manage general risks in the workplace – this includes sources of non-ionising radiation, such as electromagnetic fields (EMFs).

HSE currently advises employers to use the recommendations of the International Commission on Non-Ionising Radiation Protection ([www.icnirp.org](http://www.icnirp.org)) as the basis for assessing the risks arising from exposures to EMFs.

## Find out more

HSE's radiation website: [www.hse.gov.uk/radiation](http://www.hse.gov.uk/radiation)

Advice on making a radon assessment:  
[www.hse.gov.uk/radiation/ionising/radon.htm](http://www.hse.gov.uk/radiation/ionising/radon.htm)

*Work with ionising radiation. The Ionising Radiations Regulations 1999. Approved Code of Practice and guidance* L121 HSE Books 2000  
ISBN 978 0 7176 1746 3 [www.hse.gov.uk/pubns/books/l121.htm](http://www.hse.gov.uk/pubns/books/l121.htm)

*Guidance for employers on the Control of Artificial Optical Radiation at Work Regulations (AOR) 2010* Leaflet HSE 2010  
[www.hse.gov.uk/radiation/nonionising/employers-aor.pdf](http://www.hse.gov.uk/radiation/nonionising/employers-aor.pdf)

Health Protection Agency (HPA): [www.hpa.org.uk](http://www.hpa.org.uk)

### The law

The Ionising Radiations Regulations 1999 apply to most work with ionising radiations, including exposure to naturally occurring radon gas.

The Control of Artificial Optical Radiation at Work Regulations 2010 require businesses with hazardous sources of bright light (eg lasers, welding processes) to ensure the eyes and skin of their workers are protected.

# 15 Slips and trips

**Most slips occur when floors become wet or contaminated and many trips are due to poor housekeeping.**

**The solutions are often simple and cost-effective and a basic assessment of the risks should help to identify what you can do to tackle slips and trips risks.**

## CASE STUDY

An NHS trust recognised they had problems with slips and trips on wet hospital floors. In a two-year period, 100 members of staff had reported slips or trips on wet, recently cleaned floors.

### How was the problem tackled?

HSE recommended a dry mopping system, using microfibre mops that reduce the amount of residue left on the floor during and after mopping. The staff were also advised to mop and dry the floor in sections before moving onto the next part of the ward, to provide safe access around the area.

Since the trust implemented the system, it has seen an 85% reduction in slips and trips from the 100 reported in the previous two years.

## Why is dealing with slips and trips important?

Slips and trips are the most common cause of injury at work. On average, they cause over a third of all major injuries and can lead to other types of accidents, such as falls from height or falls into machinery.

Slips and trips also account for half of all reported injuries to members of the public in workplaces where there is public access, such as hospitals, shops and restaurants.

## What do I have to do?

To help prevent these accidents you need to think about what might cause slips or trips in your workplace and decide whether you are doing enough to prevent them. Once you have identified the risks you must control them.

## How can I do it?

- Prevent floors from getting wet or contaminated in the first place.
- Have procedures in place for both routine and responsive cleaning.
- If a spillage does happen, clean it up quickly.
- If floors are left wet after cleaning, stop anyone walking on them until they are dry and use the right cleaning methods and products.
- Look out for trip hazards, such as uneven floors or trailing cables, and encourage good housekeeping by your workers.
- Make sure workers wear footwear that is suitable for the environment they are working in.
- Make sure your flooring is suitable, or floors likely to get wet are of a type that does not become unduly slippery.

### The law

Health and Safety at Work etc Act 1974

Management of Health and Safety at Work Regulations 1999

Workplace (Health, Safety and Welfare) Regulations 1992

### *Slips and Trips eLearning Package (STEP)*

This is designed to help you assess and manage slip and trip hazards in the workplace. STEP ([www.hse.gov.uk/slips/step/start.htm](http://www.hse.gov.uk/slips/step/start.htm)) is a great introduction to slips and trips, and covers how they are caused, why preventing them is important and how to tackle them.

It includes easy-to-follow guidance, case studies, videos, animations and quizzes. These are designed to give you the information you need to set up and maintain a safer way of working.

### Find out more

HSE's slips and trips website: [www.hse.gov.uk/slips](http://www.hse.gov.uk/slips)

*Preventing slips and trips at work: A brief guide* Leaflet INDG225(rev2)  
HSE Books 2012 [www.hse.gov.uk/pubns/indg225.htm](http://www.hse.gov.uk/pubns/indg225.htm)

# 16 Vibration

**Hand-arm vibration (HAV) can be caused by operating hand-held power tools, such as road breakers, and hand-guided equipment, such as powered lawnmowers, or by holding materials being processed by hand-fed machines, such as pedestal grinders. Occasional exposure is unlikely to cause ill health.**

**Whole-body vibration (WBV) mainly affects drivers of vehicles used off-road, such as dumpers, excavators and agricultural tractors. However, it can also affect drivers of some vehicles used on paved surfaces, such as lift trucks, or on rails, such as gantry cranes.**

## CASE STUDY

### Foundry work

Manufacturing cast pipe components using 'traditional' green sand casting resulted in a product requiring a lot of remedial work (fettling), using powered hand-held tools, to produce the necessary quality of finish. The holes in the pipe flanges then had to be drilled in a separate operation.

### How was the problem tackled?

A 'lost-foam' casting process was introduced and resulted in such a high quality of casting that fettling was no longer required, eliminating all exposure to hazardous vibration.

The casting was so precise that it allowed the holes to be cast into the flanges, which removed the need for drilling and further reduced production time and costs.

## Why is dealing with vibration important?

### *Hand-arm vibration syndrome (HAVS)*

HAVS is a painful and disabling condition that affects the nerves, blood vessels, muscles and joints of the hands and arms. It causes tingling and numbness in the fingers, reduces grip strength and the sense of touch, and affects the blood circulation (vibration white finger, also known as VWF).

### *Whole-body vibration (WBV)*

WBV is associated mostly with low back pain. However, back pain can also be caused by other factors, such as manual handling and postural strains, and while exposure to vibration and shocks may be painful for people with back problems, it will not necessarily be the cause of the problem.

## What do I have to do?

You must:

- assess the vibration risk to your employees to identify if there is a problem;
- put in place appropriate control measures to counter the risks;
- provide health surveillance where risk remains (HAVS only);
- provide information and training to employees on health risks and the actions being taken to control those risks.

## How can I reduce hand-arm vibration?

- Identify hazardous machines, tools and processes, especially those which cause tingling or numbness in the hands after a few minutes' use.
- If possible, do the job another way without using high-vibration equipment, eg rotary hammers, powered pedestrian-controlled mowers, hand-fed forging hammers etc.
- Ask about likely vibration levels for the way you use equipment before deciding on which new tool or machine to buy or hire.
- Provide suitable tools designed to cut down vibration.
- Make sure people use the right tool for the job and are trained to use it correctly.
- Make sure machines (including tools) are maintained as recommended by the manufacturer to prevent vibration increasing – check their sharpness, the condition of abrasive wheels, and anti-vibration mounts etc where fitted.
- Check whether the job can be altered to reduce the grip or pressure needed.

## How can I reduce whole-body vibration?

- Choose vehicles or machines designed to cope with the task and conditions.
- Keep site roadways level, fill in potholes and remove debris.
- Train drivers to operate machines and attachments smoothly, to drive at appropriate speeds for the ground conditions and to adjust suspension seats correctly.
- Maintain and repair machine and vehicle suspension systems, tyre pressures and suspension seats.

## Find out more

HSE's vibration at work website: [www.hse.gov.uk/vibration](http://www.hse.gov.uk/vibration)

*Hand-arm vibration at work: A brief guide* Leaflet INDG175(rev3) HSE Books 2012  
[www.hse.gov.uk/pubns/indg175.htm](http://www.hse.gov.uk/pubns/indg175.htm)

*Hand-arm vibration. The Control of Vibration at Work Regulations 2005. Guidance on Regulations* L140 HSE Books 2005 ISBN 978 0 7176 6125 1  
[www.hse.gov.uk/pubns/books/l140.htm](http://www.hse.gov.uk/pubns/books/l140.htm)

*Whole-body vibration. The Control of Vibration at Work Regulations 2005. Guidance on Regulations* L141 HSE Books 2005 ISBN 978 0 7176 6126 8  
[www.hse.gov.uk/pubns/books/l141.htm](http://www.hse.gov.uk/pubns/books/l141.htm)

### The law

The Control of Vibration at Work Regulations 2005 require employers to assess and control health and safety risks to their employees from vibration.

# 17 Working at height

**Working at height remains one of the biggest causes of fatalities and major injuries. Common cases include falls from ladders and through fragile surfaces. ‘Work at height’ means work in any place where, if there were no precautions in place, a person could fall a distance liable to cause personal injury (for example a fall through a fragile roof).**

**This chapter shows how employers can take simple, practical measures to reduce the risk of any of their workers falling while working at height.**

## CASE STUDY

### Preventing falls from ladders

A large, independent installer of digital terrestrial and satellite equipment recognised it could be doing more to tackle falls, especially as engineers were installing aerials and dishes at a variety of heights from portable leaning ladders and roof ladders.

### The solution

They took measures including making sure ladders were secured using an eyebolt and ratchet strap, and equipping appropriately trained workers with specialist kit, such as a flexible safety line that can be attached to the secured ladder.

Trained workers now wear a fall-arrest harness that can be attached to the line and the ladder. This means that the ladder cannot slip during use and, even if the engineer slips and falls from the ladder, the fall will be stopped.

## What do I have to do?

You must make sure work is properly planned, supervised and carried out by competent people with the skills, knowledge and experience to do the job. You must use the right type of equipment for working at height.

Take a sensible approach when considering precautions. Low-risk, relatively straightforward tasks will require less effort when it comes to planning and there may be some low-risk situations where common sense tells you no particular precautions are necessary.

### Control measures

First assess the risks. Factors to weigh up include the height of the task, the duration and frequency, and the condition of the surface being worked on.



Before working at height work through these simple steps:

- **avoid** work at height where it's reasonably practicable to do so (see page 12);
- where work at height cannot be easily avoided, **prevent** falls using either an existing place of work that is already safe or the right type of equipment;
- **minimise** the distance and consequences of a fall, by using the right type of equipment where the risk cannot be eliminated.

For each step, always consider measures that protect everyone at risk (collective protection) before measures that only protect the individual (personal protection).

Collective protection is equipment that does not require the person working at height to act for it to be effective. Examples are permanent or temporary guardrails, scissor lifts and tower scaffolds.

Personal protection is equipment that requires the individual to act for it to be effective. An example is putting on a safety harness correctly and connecting it, with an energy-absorbing lanyard, to a suitable anchor point.

## Dos and don'ts of working at height

### Do...

- as much work as possible from the ground;
- ensure workers can get safely to and from where they work at height;
- ensure equipment is suitable, stable and strong enough for the job, maintained and checked regularly;
- take precautions when working on or near fragile surfaces;
- provide protection from falling objects;
- consider emergency evacuation and rescue procedures.

### Don't...

- overload ladders – consider the equipment or materials workers are carrying before working at height. Check the pictogram or label on the ladder for information;
- overreach on ladders or stepladders;
- rest a ladder against weak upper surfaces, eg glazing or plastic gutters;
- use ladders or stepladders for strenuous or heavy tasks, only use them for light work of short duration (a maximum of 30 minutes at a time);
- let anyone who is not competent (who doesn't have the skills, knowledge and experience to do the job) work at height.

## Find out more

HSE's work at height website provides further practical advice on how to comply with the law, and the safe use of ladders and stepladders. It also contains useful links to industry-specific guidance: [www.hse.gov.uk/work-at-height](http://www.hse.gov.uk/work-at-height)

### The law

Work at Height Regulations 2005

# 18 Working in confined spaces

**A confined space is one which is both enclosed, or largely enclosed, and which also has a reasonably foreseeable risk to workers of fire, explosion, loss of consciousness, asphyxiation or drowning.**

**It may be small and restrictive for the worker or it could be far larger such as a grain storage silo with hundreds of cubic metre capacity.**

## CASE STUDY

Having identified a fault in a crane's hydraulics, two men accessed a closed compartment. Within a minute of entering the compartment, one had passed out and the other was feeling lightheaded but managed to escape. Two others entered and tried to save the first man but were both overcome.

The three men were extracted by the emergency service but two of them died.

### How could it have been avoided?

Water had got into the compartment causing rusting, which depleted the oxygen levels. Had the oxygen levels been checked, the space could have been ventilated and the deaths could have been avoided.

## What are the hazards?

Working in a confined space is dangerous because of the risks from noxious fumes, reduced oxygen levels, or a risk of fire.

Other dangers may include flooding/drowning or asphyxiation from some other source such as dust, grain or other contaminant.

## What do I have to do?

Wherever possible, you should avoid carrying out tasks in confined spaces. Where this is not possible, you must assess the risks of the particular confined space and plan how you will control those risks. For example:

- if a confined space has noxious fumes, you should consider how these can be ventilated or removed;
- if there is a risk of liquids or gases flooding in, you should establish whether the valves can be locked shut;
- if someone is going into a confined space and there is not enough oxygen to breathe properly, you must provide breathing apparatus or ventilate the space to increase oxygen levels before entering.

You should have emergency arrangements where necessary. If someone is working in a confined space, think about the following:

- How will you know they are okay and haven't been overcome by fumes?
- How will you get them out if they are overcome? (It is not enough to rely on the emergency services.)

## Dos and don'ts of working in confined spaces

### Do...

- be aware of the risks that may occur within a confined space;
- make sure the person doing the work is capable and trained in both the work and the use of any emergency equipment.

### Don't...

- work in confined spaces unless it's essential to do so;
- ignore the risks – just because a confined space is safe one day doesn't mean it will always be;
- let others enter a confined space until you are sure it's safe to do so.

## Find out more

HSE's confined spaces website: [www.hse.gov.uk/confinedspace](http://www.hse.gov.uk/confinedspace)

*Confined spaces: A brief guide to working safely* Leaflet INDG258(rev1)  
HSE Books 2013 [www.hse.gov.uk/pubns/indg258.htm](http://www.hse.gov.uk/pubns/indg258.htm)

*Safe work in confined spaces. Confined Spaces Regulations 1997. Approved Code of Practice, Regulations and guidance* L101 HSE Books 2009  
ISBN 978 0 7176 6233 3 [www.hse.gov.uk/pubns/books/l101.htm](http://www.hse.gov.uk/pubns/books/l101.htm)

## The law

Confined Spaces Regulations 1997

Other legislation may apply, depending on where the confined space is situated or on the task being carried out, for example:

### *Confined spaces within machinery*

Provision and Use of Work Equipment Regulations 1998 (PUWER)

Workplace (Health, Safety and Welfare) Regulations 1992

### *Equipment required before entering a confined space*

Personal Protective Equipment Regulations 2002

Personal Protective Equipment at Work Regulations 1992 (as amended)

# 19 Workplace transport

**Every year, there are accidents involving transport in the workplace, some of which result in people being killed.**

**People are knocked down, run over, or crushed against fixed parts by vehicles (eg HGVs, lift trucks and tractors), plant and trailers. People also fall from vehicles – whether getting on or off, working at height, or when loading or unloading.**

## CASE STUDY

A forklift truck operator was driving his truck in a yard that was poorly lit and did not have designated traffic lanes for either industrial trucks or vehicles. As the operator drove across the yard, a large industrial truck started to reverse into it.

The truck driver had checked his mirrors and, although the truck was fitted with reversing alarms, they failed to detect that the forklift was in its path. The truck hit the forklift, which tipped over onto its side.

The forklift operator, who was not wearing his seat belt, was trapped underneath. He was pronounced dead at the scene, despite the efforts of the plant emergency response team and the emergency medical service.

## How similar accidents could be avoided

- Better lighting in the yard
- Designated traffic lanes
- Reversing alarms that work effectively
- Wearing a seat belt

## What do I have to do?

Think about whether there is an easier, safer way of doing the job. Your risk assessment must consider all workplace transport activities such as loading and unloading. It will help if you:

- look carefully at all the vehicles and people moving round your workplace;
- mark the traffic and pedestrian movements on a plan so you can see where pedestrians and vehicles interact;
- identify improvements that will reduce the contact between pedestrians and vehicles;
- remember to include less frequent tasks, eg waste skip changes;
- make sure you consider delivery drivers as they are particularly vulnerable.

## **CASE STUDY**

While working on the construction of a new school, a maintenance engineer took a short cut across the vehicle route rather than using the pedestrian pathway.

As the building work was nearing completion, banksmen were not felt to be necessary for reversing vehicles. There were no barriers in place to prevent pedestrians crossing vehicle routes, and there were no signs to warn of the dangers of moving vehicles.

The maintenance engineer was struck by a reversing dumper truck whose driver had failed to see him behind the vehicle. The maintenance engineer died at the scene from multiple injuries.

### **How similar accidents could be avoided**

- Using adequately trained banksmen when needed, even when work is nearing completion
- Barriers in place to keep pedestrians and vehicles apart
- Signs warning of moving vehicles

## **How can I do it?**

Consider each of the following areas:

### **Safe site**

- Plan your workplace so that pedestrians are safe from vehicles.
- Provide a one-way system if you can.
- Provide separate routes for pedestrians and vehicles where possible.
- Avoid reversing where possible.
- Provide appropriate crossing points where pedestrians and traffic meet.
- Use 'Highway Code' signs to indicate vehicle routes, speed limits, pedestrian crossings etc.
- Make sure lighting is adequate where people and vehicles are working.
- Make sure road surfaces are firm and even.
- Make sure there are safe areas for loading and unloading.
- Try to provide separate car parking for visitors as they may not know your site.

### **Safe vehicle**

- Ensure vehicles are suitable for the purpose for which they are used.
- Maintain vehicles in good repair, particularly the braking system, steering, tyres, lights, mirrors and specific safety systems.
- Remove the need for people to climb up on vehicles where possible, eg by providing gauges and controls that are accessible from ground level.
- Reduce the risk of falling when people have to climb onto a vehicle or trailer by providing well-constructed ladders, non-slip walkways and guard rails where possible.
- Provide reversing aids such as CCTV where appropriate.
- Fit rollover protective structures and use seat belts where fitted.

### Safe driver

- Train lift truck operators.
- Reassess lift truck operators at regular intervals, eg every three to five years, or when new risks arise such as changes to working practices.
- Train drivers of other vehicles to a similar standard.
- Make sure all drivers are supervised (including those visiting the site).

### Find out more

More HSE advice on vehicles at work: [www.hse.gov.uk/workplacetransport](http://www.hse.gov.uk/workplacetransport)

*Workplace transport safety: A brief guide* Leaflet INDG199(rev2) HSE Books 2013  
[www.hse.gov.uk/pubns/indg199.htm](http://www.hse.gov.uk/pubns/indg199.htm)

*Workplace transport safety: An employers' guide* HSG136 (Second edition)  
HSE Books 2005 ISBN 978 0 7176 6154 1  
[www.hse.gov.uk/pubns/books/hsg136.htm](http://www.hse.gov.uk/pubns/books/hsg136.htm)

### The law

Workplace (Health, Safety and Welfare) Regulations 1992, regulation 17

Provision and Use of Work Equipment Regulations 1998 (PUWER)

Lifting Operations and Lifting Equipment Regulations 1998 (LOLER)

## Further information

For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit [www.hse.gov.uk](http://www.hse.gov.uk). You can view HSE guidance online and order priced publications from the website. HSE priced publications are also available from bookshops.

This publication is available at [www.hse.gov.uk/pubns/books/hsg268.htm](http://www.hse.gov.uk/pubns/books/hsg268.htm).