



Maintenance

Introduction

This information sheet gives employers practical advice on managing maintenance activities and the main hazards associated with maintenance work.

Maintenance is carried out in all workplaces and it concerns everyone. Buildings and structures that are not maintained regularly eventually become unsafe not only for the people who work there, but also for visitors, customers and members of the public.

Machinery and equipment that is poorly maintained can be unsafe for operators and create risks for other employees. While maintenance is essential to ensure safe and healthy working conditions, the maintenance work itself can pose serious risks if not properly managed. Maintenance work may cause additional hazards (e.g. fire, machine guards removed, slips trips and falls) which need to be risk assessed. Therefore maintenance work needs to be planned and the hazards identified before work starts.

Types of maintenance

There are two types of maintenance:

Corrective maintenance – when work is done to get a machine or system that has broken down working again e.g. repair or replacement of broken parts, building maintenance.

Preventive or planned maintenance – when work is carried out at set intervals e.g. as per the manufacturer's manual, to reduce the probability of breakdowns or to keep items in good working order e.g. replacement, lubrication, cleaning or inspection.

Careful planning of maintenance activities is crucial to minimise the risks for the maintenance workers themselves and for others.



1. Falls from height

Maintenance work often involves using equipment to reach roofs, gutters, building services and raised sections of plant and machinery. It can be all too easy to fall from these, or to drop objects onto people below. (See figure 1)

2. "Live" plant and equipment

Isolation and lock off arrangements, and in some cases permits to work, are essential as cutting power to plant and equipment (isolation) and preventing start up (lock off) until maintenance work is complete allows the work to be done safely. (See figure 2)

3. Disturbing asbestos

Some buildings may contain asbestos and the health consequences of disturbing this when drilling holes or replacing panels can be severe, as can the clean up costs involved.

4. Falls of heavy items

Heavy items sometimes have to be moved or disturbed during maintenance work. There may well be cranes, fork lift trucks or props available for use, but maintenance tasks can sometimes involve one-off situations and the handling of heavy loads isn't always properly planned.



Figure 1
Maintenance work involving work at height

Some other hazards associated with maintenance work include:

Chemical hazards such as:

- ▶ glass fibres
- ▶ vapours, fumes, dusts (e.g. asphalt fumes, diesel exhaust, crystalline silica)
- ▶ solvents

Biological hazards such as:

- ▶ bacteria (e.g. legionella, salmonella)
- ▶ mould and fungi

Physical hazards such as:

- ▶ noise, vibration
- ▶ excessive heat and cold
- ▶ radiation (ultraviolet radiation, x-rays, electromagnetic fields)
- ▶ high physical workload
- ▶ difficult to reach items (bending, kneeling, reaching, pushing and pulling, working in confined spaces)



Figure 2
Lock off / tag out system

Risk assessment of maintenance tasks

Before starting any maintenance work a risk assessment should be carried out. Employees doing the work should be involved in this. Assessment of risk for maintenance work can be difficult because of uncertainties such as not knowing the actual condition of plant until it has been opened up, or not being able to decide on the repair work needed until an initial survey has been completed.

The contents of the risk assessments and the safe work procedures must be clearly communicated to the employees involved. Procedures need to be in place for unexpected developments. Part of the safe system of work should be to stop work when faced with an unforeseen problem and revising the risk assessment before work restarts.

Selecting contractors

Some of your maintenance work will be done in-house and some will require outside contractors. Contractors' employees must meet with a designated person on arrival at your workplace. To enable both in-house and contracted staff to work safely, you will need to brief them on the hazards associated with your workplace. They must also brief you on the hazards associated with the work they are going to be doing, and you will need them to follow safe work procedures.

Communication

All information which is necessary to perform a task safely should be shared between all parties concerned. This includes not only the employees and contractors directly involved in the maintenance task, but also those likely to be affected by it or who may be working in the area. Important information includes the results of the risk assessment, safe work procedures, details of any necessary protective equipment and how to report problems.



Figure 3
External contractor at work

Training

Contractors and maintenance employees must possess the knowledge and skills to carry out the work safely e.g. repairs on electrical circuits are only carried out by a registered electrician.

Maintenance employees must receive safety training including relevant information in the safety statement, risk assessments and safe working procedures. They must also be trained in the use of fire extinguishers where hot work is undertaken and must be made aware of all external gas, water and electricity cut off points.

Control measures

Control measures should be identified and implemented based on the results of the risk assessment. When hazards cannot be completely eliminated, the risk of harm should be minimised by other measures. Due to the variety of potential maintenance work hazards it is not possible to detail all potential controls, but they may include engineering controls, such as enclosing the process, local exhaust ventilation and safety guards, and safe systems of work including lock off procedures and permits to work. Below are some examples:

Hazard	Controls
Falls from height	Work at height is avoided where possible. If not possible, all work at height is planned and supervised, and employees are adequately trained
	Where possible, an edge protection system is in place around a work area at height e.g. double handrail or parapet
	Employees climbing and working at height are secured and protected against falls
	If possible a mechanical lifting device is used to eliminate the need to climb, such as a "cherry picker" or a mobile elevating work platform (MEWP)
	Employees are made aware of the dangers and understand the importance of the protective equipment they have to wear, know how to use it properly and that it must be inspected, maintained and replaced as required
"Live" plant and equipment Unexpected start-up of machines	Machines are isolated from electric, hydraulic and pneumatic power supplies before maintenance work starts
	If adjustments are required to machines when parts are moving and pose a risk, these are only carried out when machines are at slow speed and / or under "hold to run" control
	Guards are only removed to the extent work requires and are replaced as soon as maintenance is complete
	Safe systems of work are in place including permits to work, lock off and tagging procedures
	Safe systems of work are communicated and understood by employees
Disturbing asbestos	Where maintenance work may involve disturbing asbestos all possible types and locations of asbestos have been identified by a competent person
	Employees performing maintenance tasks are aware of the risks and know how to protect themselves and others
	Asbestos removal and disposal is only carried out by trained, competent persons in accordance with relevant legislation
	A clearance certificate is received from a competent person after asbestos removal is complete and before any other work starts
Lifting / moving equipment or materials Falls of heavy items	The lift is planned from start to finish before the task starts
	Mechanical equipment is used where possible to lift or move heavy loads
	All lifting equipment and accessories are certified by a competent person and operator(s) of lifting equipment are trained
	Unnecessary personnel are kept out of the lifting area
	Equipment or materials are prevented from falling from a work area at height or while being lifted