

Provision and Use of Work Equipment (PUWER)

Contents:

- 1.0 Statement of purpose/objectives
- 2.0 Scope
- 3.0 Definition
- 4.0 Application
- 5.0 Arrangements
- 6.0 Maintenance and inspection
- 7.0 Specific risks
- 8.0 Information, instruction, training and supervision.
- 9.0 Conformity
- 10.0 Machinery Hazards
- 11.0 Controls
- 12.0 Markings and warnings
- 13.0 Mobile Work Equipment
- 14.0 Summary of statutory duties and necessary action
- 15.0 Review of arrangement

1.0 Statement of purpose/objectives

Shropshire Council will ensure the health and safety of all employees who use work equipment and others who may be affected by its use.

2.0 Scope

The Council has statutory duties to assess potential risks to the health and safety of all employees and others who may be at risk. Where work equipment is used it must be used properly, maintained inspected and repaired properly.

3.0 Definition

3.1 The definition of work equipment is very broad covering anything from simple hand tools to complex installations.

The term work equipment is therefore synonymous with plant, appliance, apparatus, tools, any assembly of components whether fixed, free standing, portable or self-propelled.

Mobile equipment and lifting equipment is covered by PUWER.

Work equipment may be manually activated or powered by electricity, internal combustion, pneumatic, steam, water, hydraulic etc. energy source.

Generally, work equipment is utilised to make work activities easier, efficient and more productive.

Where hazardous or extreme environmental conditions exist or where the work activity is heavy, repetitive, monotonous and otherwise labour intensive, the use of work equipment could be considered essential to the user in terms of health and safety.

4.0 Application

The Provision and Use of Work Equipment Regulations applies to all work equipment. However, it cannot be considered in isolation from other health and safety legislation. In-particular, it needs to be considered with the requirements of the Health and Safety at Work etc Act 1974.

5.0 Arrangements for securing the health and safety of employees and others

5.1 Management Responsibility, Managers will ensure that:

- All work equipment is suitable, in terms of selection, construction, and if modified is used only for the work it for which it is intended to be used.
- All work equipment is safe for use, maintained in a safe condition and, in certain circumstances, inspected to ensure this remains the case.
- All work equipment is used only by employees who have received appropriate information, instruction and training.
- All work equipment is accompanied by suitable safety measures, e.g. protective devices, markings and warnings.
- All work equipment is suitably marked or labelled with information on safe working limits and parameters of use.
- All work equipment is periodically inspected/tested and maintained/repaired by competent persons.

6.0 Maintenance and inspection

6.1 Managers/supervisors will ensure that:

- Work equipment is maintained in an efficient state and in good repair and where the equipment has a maintenance log ensure that it is kept up to date.
- Operations to maintain work equipment are carried out in a safe manner so as to ensure the health and safety of maintenance personnel. This may involve a permit to work system being used.
- Where the safety of work equipment depends on the installation conditions, it is inspected:
 - After installation and before being put into service for the first time.
 - After assembly at a new site or location to ensure it has been installed correctly and is safe to operate.
 - At suitable intervals where it is exposed to detrimental conditions.
 - Each time exceptional circumstances jeopardise the safety of the work equipment.
- The results of an inspection are recorded and kept until the next inspection and such records accompany the relevant equipment when acquired and to other places of work.

7.0 Specific risks

7.1 Where the use of work equipment is likely to involve specific risks, managers will ensure:

- The use of work equipment is restricted to those competent and given the task of using it.
- Repairs, modifications, maintenance or servicing of the work equipment is restricted to those competent and designated to undertake this work.

8.0 Information, instruction and training

8.1 Managers/supervisors will ensure that:

- All employees who use work equipment have available to them adequate health and safety information and, where appropriate, written instruction on the safe use of the equipment.
- All employees who use work equipment will have received adequate training to do so without risk to themselves and others.
- Where appropriate such information/instruction will cover conditions in which, and the methods by which, the work equipment will be used and any foreseeable abnormal operating conditions which may be detrimental to the health and safety of users and others.
- All employees who operate work equipment will receive appropriate training necessary to ensure their awareness of potential health and safety hazards presented by the use of such work equipment.

9.0 Conformity

9.1 Managers will ensure that items of work equipment have been designated and constructed in compliance with any essential requirements relating to design and construction and safety of products - Ref. EC Directives and CE Marking e.g. Machinery, Simple Pressure Vessels, Personal Protective Equipment etc.

10.0 Machinery hazards:

10.1 Managers will ensure risks, created by the use of the equipment, are eliminated where possible or controlled by:

- Taking appropriate '**hardware measures**' e.g. providing suitable guards, protection devices, marking and warning devices, system control devices (such as emergency stop buttons) and personal protective equipment.
- Taking appropriate '**software measure**' such as safe systems of work (e.g. ensuring maintenance is only performed when equipment is shut down etc).

11.0 Controls:

11.1 Managers will, where appropriate, ensure work equipment is provided with appropriate controls for stopping and starting and controlling speed and actions as well as:

- Stop controls which are more readily accessible than others and which will bring the work equipment to a safe condition in a safe manner.
- Emergency stop controls which will operate in priority to any other controls fitted to the work equipment

- 11.2 Managers will also ensure that all controls are:
- Clearly visible.
 - Easily accessible.
 - Appropriately marked.
 - Positioned so persons operating the work equipment are not exposed to risk.
 - Periodically tested to ensure they work and are safe.
 - Provided with suitable means of isolation from all its sources of energy and where necessary, provision for 'locking off' the means of isolation to prevent accidental re-connection of energy.
- 12.0 Markings and Warnings**
- 12.1 Managers will ensure that:
- Work equipment is marked in a clearly visible manner with markings and where necessary safe procedure notices relevant to health and safety risks are displayed.
 - Controls and means of isolation are marked to be appropriate to the associated work equipment.
 - Work equipment incorporates any necessary warning devices (visual/audible) relevant to the health and safety risks presented.
 - Markings, notices and devices are unambiguous, easily seen and easily understood.
- 13.0 Mobile work equipment**
- 13.1 Managers/supervisors/employees which operate, or are involved with, work equipment which is mobile or self-propelled will ensure that no employee is carried by mobile work equipment unless:
- It is suitable for carrying persons.
 - It incorporates features for reducing or eliminating risk to the safety of those being carried. This applies also to risks from wheels and tracks.
- 13.2 Where mobile work equipment is suitable for carrying persons in the form of a driver or passenger, risks will be eliminated or minimised by:
- Stabilising the work equipment.
 - Fitting a structure which ensures that the work equipment does no more than fall on its side.
 - Fitting a structure giving sufficient clearance or a comparable protective device/restraint to anyone being carried where there could be a complete roll-over.
- 13.3 Where self-propelled equipment is used provision will be made by ensuring the equipment has:
- Means for the prevention of it being started by unauthorised persons.
 - Appropriate facilities for minimising the consequences of collision.
 - A device for braking and stopping.
 - Where appropriate, emergency controls or automatic braking equipment in the event of failure of the main system.
 - Where a driver's direct field of vision is inadequate to ensure safety, adequate devices for improving the drivers vision.

- Suitable lighting for work carried out at night or in dark places, to see and be seen
- Appropriate fire-fighting equipment provided or located nearby, where a fire hazard is present.

- 13.4 Where self-propelled equipment is remotely controlled provision needs to be made to ensure it stops once it leaves the control range. Where there is a risk of crashing or impact, features to guard against such hazards must be incorporated.
- 13.5 Where drive shafts between work equipment and ancillary equipment are exposed or could be subject to seizure which could present a risk to health and safety, steps must be taken to suitably guard the shaft from access, damage and becoming soiled or contaminated.

14.0 Summary of statutory duties and necessary action

- 14.1 The Provision and Use of Work Equipment Regulations 1998 brings together requirements of all previous legislation (now revoked) covering work equipment - principally the Factories Act, Offices Shops and Railway Premises Act and Construction Regulations, with the exception of more specific requirements relating to certain types of work equipment such as scaffolding which fall under the Construction (Design and Management) Regulations 2015. Most equipment therefore, in use within the Council will be already taken account of through existing arrangements for inspections/tests and record keeping. Managers will need to check all work equipment which is owned and operated by Shropshire Council to ensure the requirements of PUWER '98 are being met.

14.2 Further references and information:

- Safe use of work equipment. Provision and Use of Work Equipment Regulations 1998. Approved Code of Practice and Guidance L22 (Forth Edition). HSE Books 2008 ISBN 978 0 7176 6619 5.
<http://www.hse.gov.uk/pUbns/priced/l22.pdf>
- Safe use of lifting equipment. Lifting Operations and Lifting Equipment Regulations 1998. Approved Code of Practice and Guidance L113. HSE Books ISBN 978 0 7176 6586 0. <http://www.hse.gov.uk/pUbns/priced/l113.pdf>
- Safe use of power presses. Provision and Use of Work Equipment Regulations 1998 as applied to power presses. Approved Code of Practice and guidance L112 HSE Books 1998 ISBN 978 0 7176 6620 1.
<http://www.hse.gov.uk/pubns/books/l112.htm>
- Five steps to risk assessment Leaflet INDG163(rev4) HSE Books 2006 (single copy free to download). www.hse.gov.uk/pubns/indg163.pdf.
- Workplace health, safety and welfare: A short guide for managers Leaflet INDG244(rev2) HSE Books 2007 (single copy free to download).
www.hse.gov.uk/pubns/indg244.pdf

- Managing health and safety in construction. Construction (Design and Management) Regulations 2015. Approved Code of Practice L153 HSE Books 2015 ISBN 978 0 7176 6626 3 <http://www.hse.gov.uk/pUbns/priced/l153.pdf>
- Buying new machinery: A short guide to the law and some information on what to do for anyone buying new machinery for use at work Leaflet INDG271 HSE Books 2011 (single copy free to download). www.hse.gov.uk/pubns/indg271.htm
- Safe use of woodworking machinery. Provision and Use of Work Equipment Regulations 1998 as applied to woodworking machinery. Approved Code of Practice and guidance L114 (2nd Edition) HSE Books 2014 ISBN 978 0 7176 6621 8. <http://www.hse.gov.uk/pubns/books/l114.htm>
- Workplace transport safety: An overview Leaflet INDG199(rev1) HSE Books 2013 (single copy free to download). www.hse.gov.uk/pubns/indg199.pdf.
- A guide to workplace transport safety: An employers guide HSG136 (Third edition) HSE Books 2014. <http://www.hse.gov.uk/pUbns/priced/hsg136.pdf>

15.0 Review of this arrangement:

This arrangement will be reviewed by the Health and Safety Team every three years.

Updated by Health & Safety Team April 2009

Revised by Health & Safety Team April 2018

Provision and Use of Work Equipment (PUWER)

Frequently asked questions

Content:

- 1.0 Roles and Responsibilities/who does what?
- 2.0 What will Shropshire Council do for the staff using work equipment?
- 3.0 What is meant by the term 'inspection'?
- 4.0 What is meant by the term 'use'?
- 5.0 What is meant by 'Work Equipment'?
- 6.0 When is an employee considered to be at work?
- 7.0 Where does PUWER apply?
- 8.0 Who has duties under PUWER?
- 9.0 Employees' duties
- 10.0 How risk assessment and the Management Regulations link with PUWER
- 11.0 Suitability of Equipment
- 12.0 Maintenance
- 13.0 Inspection
- 14.0 Installation
- 15.0 'Conditions causing deterioration' and 'Dangerous situations'
- 16.0 Equipment that should receive an inspection
- 17.0 Equipment for which an inspection is not required
- 18.0 Frequency of inspections
- 19.0 Exceptional circumstances
- 20.0 Records
- 21.0 What PUWER doesn't cover
- 22.0 Specific risks
- 23.0 Information and instructions
- 24.0 Training requirements
- 25.0 Conformity
- 26.0 Machinery Hazards
- 27.0 Specified Hazards
- 28.0 High or very low temperatures
- 29.0 Controls for starting or making a significant change in operating conditions
- 30.0 Stop Controls
- 31.0 Emergency Stop Controls
- 32.0 Controls (for the operation of work equipment)
- 33.0 What is a "Control System"?
- 34.0 Isolation from energy sources
- 35.0 Stability
- 36.0 Lighting
- 37.0 Maintenance operations
- 38.0 Markings
- 39.0 Warnings
- 40.0 Mobile work equipment
- 41.0 Roll over of mobile work equipment
- 42.0 Overturning of fork-lift trucks
- 43.0 Driver's field of vision

- 44.0 Equipping mobile work equipment with lighting for use in the dark
- 45.0 The carriage of appropriate fire-fighting appliances
- 46.0 Remote-controlled self-propelled work equipment
- 47.0 Drive shafts
- 48.0 Access to information, advice and support

N.B. The following pages contain information taken from the approved code of practice For the Provision and Use of Work Equipment Regulations – L22.

Crown copyright information is reproduced with the permission of the Controller of HMSO and the Queen's Printer for Scotland.

1.0 Roles and Responsibilities/who does what?

- 1.1 Shropshire Council as a local authority employer, through its Elected Members, has ultimate responsibility for compliance with the Health and Safety at Work etc. Act 1974 and associated legislation - Provision and Use of Work Equipment Regulations (PUWER).
- 1.2 The Chief Executive and Corporate Management Team are responsible for ensuring:
- The implementation of the Provision and Use of Work Equipment Regulations arrangement across all areas to ensure a consistency of approach.
 - The allocation of suitable and sufficient resources.
- 1.3 Group Managers and Heads of Service are responsible for ensuring:
- The implementation of the Provision and Use of Work Equipment Regulations arrangement and that all employees are familiar with the contents of the arrangement in so far as it is relevant to their role and responsibilities.
 - That managers/supervisors receive sufficient training to undertake their role.
 - The allocation of sufficient resources to effectively manage working at height.
- 1.4 Line managers/supervisors are responsible for:
- Identifying employees who are exposed to any hazards presented by the use of work equipment.
 - Ensuring that all employees receive information, instruction and training on the management and use of work equipment.
 - Identifying employees who are exposed to any work equipment hazards.
 - Ensuring that any work equipment used by employees is assessed and that information on appropriate working practises/safe systems of working have been communicated to the employees.
 - Ensuring that appropriate work practises are observed by employees and contractors engaged to use work equipment, including safe working methods, use of appropriate personal protective equipment, safe working zones, job rotation, appropriate breaks and adherence to the control measures resulting from the risk assessment.
 - Reporting any issues to the Occupational Health and Safety Team.
 - Ensuring that a proper assessment of any work equipment is undertaken prior to purchase or hire.
 - Ensuring that work equipment is properly maintained.
 - Ensuring that employees take appropriate breaks.
- 1.4.1 Property Services Group (PSG) are responsible for:
- Ensuring that any contractors engaged to use work equipment are competent to do so.
 - Comply fully with the Provision and Use of Work Equipment Regulations and follow industry best practise at all times.

N.B: Where contractors are engaged independently of PSG then the Group Managers/Heads of Service who let the contract will take on this responsibility.

- 1.5 The Occupational Health and Safety Team is responsible for:
- Providing advice and guidance to managers on the provision and use of work equipment regulations and guidance on the effective control of work equipment within their work place.

- 1.6 All employees of Shropshire Council are responsible for:
- Complying with the requirements of this arrangement.
 - Reporting any concerns to their line manager as soon as possible, including issues of work practices, in order that remedial actions can be taken.

2.0 What will Shropshire Council do for the staff using work equipment?

Shropshire Council will ensure that:

- All work equipment is suitable for the work for which it is intended to be used.
- Risk assessed.
- Staff receive appropriate training, instruction and supervision.
- Work equipment is safe for use, maintained in a safe condition and where necessary, subject to a thorough inspection by a competent person to ensure this remains the case.
- Work equipment is only used by employees who have received appropriate information, instruction and training.
- Where appropriate employees have been issued with written authorisation to use this equipment (For example; lift trucks, chain saws etc.).
- Work equipment is accompanied by suitable safety measures, e.g. protective devices, markings and warnings.
- Work equipment is suitably marked or labelled with information on safe working limits and parameters of use.
- Work equipment is periodically inspected/tested and maintained/repared by competent persons.

3.0 What is meant by the term ‘inspection’?

The term ‘inspection’ is used in PUWER. The purpose of an inspection is to identify whether the equipment can be operated, adjusted and maintained safely and that any deterioration (for example, any defect, damage or wear) can be detected and remedied before it results in unacceptable risks.

4.0 What is meant by the term ‘use’?

The definition of ‘use’ is wide and includes all activities involving work equipment such as stopping or starting the equipment, repair, modification, maintenance and servicing. In addition to operations normally considered as use, cleaning and transport of the equipment are also included.

5.0 What is meant by ‘Work Equipment’?

- 5.1 The definition given in Regulation 2: - *“work equipment” means any machinery, appliance, apparatus, tool or installation for use at work (whether exclusively or not); and related expressions shall be construed accordingly.*

- 5.2 Therefore, the scope of 'work equipment' is extremely wide. It covers almost any equipment used at work, including:
- 'toolbox tools' such as hammers, knives, handsaws, meat cleavers etc;
 - single machines such as drilling machines, circular saws, photocopiers, combine harvesters, dumper trucks etc;
 - apparatus such as laboratory apparatus (Bunsen burners etc);
 - lifting equipment such as hoists, lift trucks, elevating work platforms, lifting slings etc;
 - other equipment such as ladders, pressure water cleaners etc;
 - an installation such as a series of machines connected-together, for example a paper-making line or enclosure for providing sound insulation or scaffolding or similar access equipment (except where CDM imposes more detailed requirements).
 - PUWER applies to work equipment (as identified in regulation 2) whether it is new, existing or second-hand.
 - 'Installation' does not include an offshore installation, but it does include any equipment attached or connected to it.

5.3 The following are not classified as work equipment:

- livestock;
- substances (for example acids, alkalis, slurry, cement, water);
- structural items (for example walls, stairs, roofs, fences);
- private cars.

5.4 Motor vehicles:

- Motor vehicles being used for work activities, which are not privately-owned fall within the scope of PUWER. When these vehicles are used on public roads or in a public place, the more specific road traffic legislation takes precedence. When such vehicles are used off the public highway and the road traffic law does not apply, for example on a dock road, PUWER and the HSW Act would normally take precedence unless relevant local by-laws are in operation – for example, road traffic by-laws at some airports. Drivers should hold a Department for Transport driving licence and vehicles should be maintained to the normal standards required for use on the public highway, i.e. they should have an MOT certificate, where necessary, or be maintained to equivalent standards where statutory testing is not a legal requirement.

6.0 **When is an employee considered to be at work?**

- Section 52(1)(b) and (c) of the HSW Act says that 'an employee is at work throughout the time when he is in the course of his employment, but not otherwise'.

7.0 **Where does PUWER apply?**

PUWER applies:

- to all sectors where the HSW Act applies, not only factories, offices and shops but also, for example schools, universities, hospitals, hotels, places of entertainment and offshore oil and gas installations;
- to work equipment used in the common parts of shared buildings (such as lifts),

private roads and paths on industrial estates and business parks and temporary work sites, including construction sites;

- throughout Great Britain and has effect wherever work is done by the employed or the self-employed except for domestic work in a private household;
- to equipment used by homeworkers; and to hotels, nursing homes and similar establishments and to parts of workplaces where 'domestic' staff are employed, such as the kitchens of hostels or sheltered accommodation.

8.0 Who has duties under PUWER?

8.1 PUWER places duties on:

- Employers;
- The self-employed;
- People who have control of work equipment.

8.2 The duty on people who have control of work equipment reflects the way that work equipment is used in industry where there may not necessarily be a direct 'employment' relationship between the user and the person who controls the work equipment. For example, temporary workers supplied by an employment business ('agency') will be under the control of a user business (often called the client or hirer) that uses their services, and which will have duties towards them under regulation 3(3)(b). Similarly, where a subcontractor carries out work at another person's premises with work equipment provided by that person or someone else who controls the equipment but not its use, such as a plant hire company. This approach is in line with that taken in CDM, LOLER and in the Work at Height Regulations.

8.3 Employers duties:

Employers (whether as an individual, partnership or company) have a duty to ensure that items of work equipment provided for your employees and the self-employed working for you comply with PUWER. You have a legal duty to consult with your employees on matters relating to health and safety in the workplace.

8.4 Self-employed people's duties

If you are self-employed, you have a duty to ensure that work equipment you provide for work or use at work complies with PUWER.

8.5 The duties of 'those in control of work equipment'

8.5.1 If you provide work equipment for use at work, where you do not control its use or the premises where it is to be used, you should still ensure that the work equipment complies with PUWER. People in control of non-domestic premises who provide work equipment which is used by other people at work should also comply with PUWER. PUWER places duties on employers and the self-employed, this includes owners, operators and contractors. Their duties cover both their own employees and, as people having control of work equipment, other workers who may be affected. Meeting these duties where a number of employers and their employees are involved requires co-operation and co-ordination of activities. For example, the owner of a multi-occupied building has a legal responsibility to ensure that a lift complies with the Regulations, and the main contractor of a construction site would be responsible for a scaffold.

9.0 Employees' duties:

9.1 If you are an employee you do not have any specific duties under PUWER, but you do have general legal duties to take reasonable care of yourself and others who could be affected by your actions, and to co-operate with your employer so that your employer can comply with their health and safety duties and requirements. If you are an employee, or working under someone else's control, the law says you must:

- report any safety hazard you identify to your employer;
- use the equipment and safety devices supplied or given to you properly, in accordance with any training and instructions (unless you think that would be unsafe, in which case you should seek further instructions before continuing).

9.2 Where employees provide their own work equipment for use at work

PUWER also covers situations where employees provide their own work equipment. For example, where builders use their own trowels or hammers.

10.0 How risk assessment and the Management Regulations link with PUWER

10.1 Risks to health and safety should be assessed taking into account the type of work equipment, substances and electrical or mechanical hazards to which people may be exposed.

10.2 Action to eliminate/control any risk might include, for example, during maintenance:

- a) disconnecting the power supply to the work equipment;
- b) supporting parts of the work equipment which could fall;
- c) securing mobile work equipment so it cannot move;
- d) removing or isolating flammable or hazardous substances;
- e) depressurising pressurised equipment.

10.3 Consider environmental conditions such as:

- a) lighting;
- b) problems caused by weather conditions;
- c) other work being carried out which may affect the operation;
- d) the activities of people who are not at work.

10.4 Managers have a duty under health and safety law to ensure, as far as reasonably practicable the health, safety and welfare of employees and others such as temporary workers supplied through an employment agency.

10.5 When carrying out an assessment of the risk to their health and safety, you should identify groups of workers that might be particularly at risk, such as young or disabled people, or those whose first language is not English. The outcome of your risk assessment will help you to meet your duty to provide the information, instruction, training and supervision necessary to ensure the health and safety of your employees. You should take account of factors such as their competence, experience and maturity. Formal qualifications, training certificates, aptitude tests etc can be used to help you identify competence.

11.0 Suitability of Equipment – regulation 4

11.1 Equipment must be suitable, by design, construction or adaptation, for the actual work it is provided to do. This means that when you provide work equipment you must make sure it is suitable for the work being done and is used in accordance with the

manufacturer's specifications and instructions. If work equipment is adapted it must still be suitable for its intended purpose.

- 11.2 You must assess the location where the work equipment is being used and take account of any risks that may arise from the particular circumstances. The risks involved may mean that you cannot use the work equipment in a particular place. For example, electrically powered equipment is not suitable for use in wet or flammable atmospheres unless it is designed for this purpose. In such circumstances you should consider selecting suitably protected electrical equipment or alternative pneumatically or hydraulically powered equipment.

12.0 Maintenance – regulation 5

- 12.1 Equipment must be maintained in an efficient state so that its performance does not deteriorate to the extent that people are put at risk. 'Efficient' relates to how the condition of the equipment might affect health and safety. It is not concerned with productivity.

- 12.2 **Frequency of maintenance** - equipment should be checked frequently to ensure that safety-related features are functioning correctly. A fault which affects production is normally apparent within a short time; however, a fault in a safety-critical system could remain undetected unless appropriate safety checks are included in maintenance activities.

- 12.2.1 The frequency of maintenance activities should take into account the:

- a) intensity of use – frequency and maximum working limits;
- b) operating environment, for example outdoors;
- c) variety of operations – is the equipment performing the same task all the time or does this change?
- d) risk to health and safety from malfunction or failure.

- 12.2.2 The extent and complexity of maintenance can vary considerably from simple checks on basic equipment to integrated programmes for complex plant. Simple hand tools usually require minimal maintenance, but could need repair or replacement at intervals. More complex powered equipment will normally be accompanied by a manufacturer's maintenance manual, which specifies routine and special maintenance procedures to be carried out at particular intervals.

- 12.2.3 Where **safety-critical** parts could fail and cause the equipment, guards or other protection devices to fail and lead to immediate or hidden potential risks, a formal system of planned preventative or condition-based maintenance is needed. If items of plant and equipment are hired, it is important that the person responsible for hiring the equipment to establish who will carry out safety-related maintenance. This is particularly important when equipment is on long-term hire.

- 12.3 **Maintenance log:** There is no requirement for you to keep a maintenance log. Although it is strongly recommended that you keep a record of maintenance for high-risk equipment. A detailed maintenance log can provide information for future planning of maintenance activities and inform maintenance personnel what actions have been taken previously.

13.0 Inspection – regulation 6

- 13.1 When work equipment is first installed, and when it is moved or relocated, it must be inspected to make sure that it has been correctly installed and is operating safely.

- Where it is possible that the equipment is exposed to conditions that could cause it to deteriorate, it must be inspected regularly.
- 13.2 Inspection does not normally include the checks that are a part of the maintenance activity although certain aspects may be common. Inspection does not include a pre-use check that an operator makes before using the work equipment. Inspections need to be recorded, pre-use checks do not.
- 13.3 **Identifying what needs to be inspected:**
Where the risk assessment has identified a significant risk to the operator or other workers from the installation or use of the work equipment, a suitable inspection must be carried out.
- 13.4 **Significant risk:** A significant risk is one which could result in an imminent failure, which could lead to a major injury, as a result of:
- a) incorrect installation or re-installation;
 - b) deterioration;
 - c) exceptional circumstances which could affect the safe operation of the work equipment.
- 13.5 **Purpose of an inspection:** The purpose of an inspection is to identify whether the equipment can be operated, adjusted and maintained safely and that any deterioration (for example defect, damage, wear) can be detected and remedied before it results in unacceptable risks.
- 13.6 **What should be included in the inspection:** An inspection will vary from a simple visual external inspection to a detailed comprehensive inspection, which may include some dismantling and/or testing. An inspection should always include those, safety-related parts necessary for safe operation of equipment, for example overload warning devices and limit switches. The extent of the inspection required will depend on:
- a) the type of equipment;
 - b) where it is used;
 - c) how it is used.
- Some work equipment will need examinations and thorough examinations under other legislation such as the Pressure Systems Safety Regulations 2000, COSHH, Control of Lead at Work Regulations 2002, Control of Asbestos Regulations 2012 and LOLER. Inspections are only needed for such work equipment if these other examinations do not fully cover all the significant health and safety risks which are likely to arise from the use of the equipment, in a way that satisfies the requirements of PUWER.
- 13.7 **Testing:** As part of an inspection, a functional or other test may be necessary to check that the safety-related parts, for example interlocks, protection devices, controls etc are working as intended and that the work equipment and relevant parts are structurally sound, for example non-destructive testing of safety-critical parts. The need for any testing (for example non-destructive testing of safety-critical parts) should be decided by the competent person who determines the nature of the inspection.
- 13.8 **Competent persons:** Inspections must be carried out by competent persons, with the necessary knowledge and experience.
- 13.8.1 Determining the nature of inspections, the person who determines the extent of the inspection should have sufficient knowledge and experience, so that they can decide:
- a) what the inspection should include;
 - b) how it should be done;
 - c) when it should be carried out.

Experienced, in-house employees such as a department manager or supervisor may be able to do this. They need to have sufficient experience and knowledge to be able to identify what needs to be inspected, and to be able to detect damage or faults resulting from deterioration. They should also be able to determine whether any tests are needed during the inspection to see if the equipment is working safely or is structurally sound.

14.0 Installation – regulation 6 (1)

Where work equipment is of a type where the safe operation is critically dependent on it being properly installed (or reinstalled), and where failure to carry this out would lead to a significant risk to the operator, or other worker, you should arrange for a suitable inspection to be carried out before it is put into service.

15.0 ‘Conditions causing deterioration’ and ‘Dangerous situations’ – regulation 6 (2)

Where work equipment is of a type where the safe operation is critically dependent on its condition in use and deterioration would lead to a significant risk to the operator or other worker, you should arrange for suitable inspections to be carried out.

16.0 Equipment that should receive an inspection

The types of equipment whose use could result in significant risk as a result of deterioration and which may therefore need to be inspected include:

- a) most fairground equipment;
- b) machines where there is a need to approach the danger zone during normal operation such as horizontal injection moulding machines, paper-cutting guillotines, die-casting machines, shell-moulding machines;
- c) complex automated equipment;
- d) integrated production lines.

17.0 Equipment for which an inspection is not required

If failure or fault of the equipment cannot lead to significant risk or if safety is guaranteed through appropriate maintenance regimes (under regulation 5), inspection may not be necessary. Equipment unlikely to need an inspection includes:

- a) office furniture;
- b) hand tools;
- c) non-powered machinery and;
- d) powered machinery such as a reciprocating fixed-blade metal cutting saw.

18.0 Frequency of inspections

The frequency of inspections should be based on how quickly the work equipment or parts of it are likely to deteriorate and so give rise to a significant risk. This should consider the type of equipment, how it is used and the conditions to which it is exposed. The inspection frequency may be different for the same type of equipment because the rate of deterioration can vary in different situations. Where equipment is subject to frequent use in a harsh outdoor environment (for example on a construction site), it is likely to need more frequent inspection than if it is used occasionally in an indoor environment such as a warehouse.

19.0 Exceptional circumstances

An inspection is necessary 'each time that exceptional circumstances which are liable to jeopardise the safety of the work equipment have occurred.'

Exceptional circumstances which may result in the need for inspection include:

- a) major modifications, refurbishment or repair work;
- b) known or suspected serious damage;
- c) substantial change in the nature of use, for example from an extended period of inactivity.

20.0 Records

20.1 Records do not have to be kept in a particular form. They can be handwritten or stored electronically – from a pre-printed form to an entry in a diary. Although there are no legal requirements stating what they should contain, this is the sort of information you should include:

- a) information on the type and model of equipment;
- b) any identification mark or number;
- c) its normal location;
- d) the date that the inspection was carried out;
- e) who carried out the inspection;
- f) any faults;
- g) any action taken;
- h) to whom the faults have been reported;
- i) the date when repairs or other necessary action were carried out.

20.2 **Physical evidence:** Regulation 6, (4), requires that physical evidence of an inspection is retained. For large items of equipment for which inspection is necessary, the physical evidence can be a copy of the record of the last inspection that was carried out. For smaller items of equipment, a tagging, colour coding or labelling system can be used. The purpose of the physical evidence is to help a user check easily:

- a) if an inspection has been carried out;
- b) whether, or not it is current;
- c) to determine the results of that inspection, by being able to link back from the physical evidence to the records.

21.0 What PUWER doesn't cover

- a) Work equipment for lifting loads, including people. This is defined as work equipment for lifting or lowering loads and includes its attachments used for anchoring, fixing or supporting it. A load includes a person. (covered by the Lifting, Operations, Lifting Equipment Regulations (LOLER)).
- b) Under the Mines (Shafts and Winding) Regulations 1993, winding apparatus means 'mechanically operated apparatus for lowering and raising loads through a (mine) shaft and includes a conveyance or counterweight attached to such apparatus and all ancillary apparatus'.
- c) Work equipment required to be inspected by a competent person in accordance with regulation 31(4) or 32(2) of CDM, for example any work equipment and materials used for an excavation which affect its safety.
- d) Inspection requirements for work equipment used for work at height are in regulation 12 of the Work at Height Regulations. Types of work equipment

include: a guard rail, toe-board barrier or similar collective means of protection; working platforms that are fixed (e.g. a scaffold around a building) or mobile (e.g. a MEWP or scaffold tower); or a ladder.

22.0 Specific risks - Regulation 7

22.1.0 Regulation 7 deals with specific risks to health and safety and states:

- 1) *Where the use of work equipment is likely to involve a specific risk to health or safety, every employer shall ensure that:*
 - a) *the use of that work equipment is restricted to those persons given the task of using it; and*
 - b) *repairs, modifications, maintenance or servicing of that work equipment is restricted to those persons who have been specifically designated to perform operations of that description (whether, or not also authorised to perform other operations).*
- 2) *The employer shall ensure that the persons designated for the purposes of subparagraph (b) of paragraph (1) have received adequate training related to any operations in respect of which they have been so designated.*

22.1.1 Managers should ensure that, wherever possible, risks are always controlled by (in the order given):

- a) eliminating the risks, or if that is not possible;
- b) taking engineering (physical) measures to control the risks such as the provision of guards; but if the risks cannot be adequately controlled;
- c) taking appropriate management measures to deal with the remaining risk, such as following safe systems of work and the provision of information, instruction and training.

22.1.2 **Normal operation:** Where the risks from the use of work equipment cannot be adequately controlled by engineering measures such as guards or protection devices during its normal operation, it is particularly important that only the people whose task it is should be allowed to use the equipment. They should have received sufficient information, instruction and training to enable them to carry out the work safely. The person whose normal work includes the use of a piece of work equipment will have been given 'the task of using it' and the instruction and training provided should be appropriate to that work.

22.1.3 **Repairs, modifications etc:** Where the risks from the use of work equipment cannot be adequately controlled by engineering measures such as guards or protection devices during repair, maintenance, or other similar work, only people who have received sufficient information, instruction and training to enable them to carry out the work safely should do the work. They shall be the designated person for the purpose of this regulation.

The designated person to carry out repairs will be the person whose work includes these activities. This person could be the operator of the equipment, provided that they have received relevant instruction and training. For example, the training for a person who has to change the knives on guillotines should include any devices which could be used, such as knife handles, as well as the system of work.

22.1.4 **Specific risks** can be common to a particular class of work equipment. There can also be a specific risk associated with the way a particular item of work equipment is repaired, set or adjusted as well as with the way it is used.

When looking at the risks from machinery it is easy to focus only on the safety risks. However, risks to health from manual handling, dust, fumes, noise, hand/arm vibration etc are equally important, and should always be considered in your risk assessment.

23.0 Information and instructions – regulation 8

- 23.1 There is a general duty in the HSW Act to provide employees and others, such as temporary workers supplied through an employment agency, with the information and instructions that are necessary to protect their health and safety – regulation 8 of PUWER supplements that general duty and requires that all persons who use work equipment have available to them adequate health and safety information and, where appropriate, written instructions pertaining to the use of the work equipment. This requirement applies to those employees who supervise other workers.
- 23.2 **What the information and instructions should cover:** Information and written instructions you provide should cover:
- a) the conditions in which the work equipment can be used;
 - b) the way in which the work equipment can be used;
 - c) any foreseeable difficulties that could arise, and instructions on how to deal with them;
 - d) using any conclusions drawn from experience using the work equipment, you should either record them or take steps to make sure that all appropriate members of the workforce are aware of them.
- 23.3 **Written instructions:** Written instructions include the information provided by manufacturers or suppliers of work equipment such as instruction sheets or manuals, instruction placards, warning labels and training manuals. It can also include in-house instructions and instructions from training courses. There are duties on manufacturers and suppliers to provide sufficient information, including drawings, to enable the correct installation, safe operation and maintenance of the work equipment. Managers must check that this has been provided.
- 23.4 **How the information and instructions should be made available:** Information should be provided in writing, or verbally where that is considered sufficient. It is your responsibility to decide what is appropriate, taking into consideration the individual circumstances. Where there are complicated or unusual circumstances, the information should be in writing. Other factors that you should consider are:
- a) the level of skill of the workers involved;
 - b) their experience and training;
 - c) the degree of supervision;
 - d) the complexity and length of the job.

24.0 Training – regulation 9

- 24.1 Managers must ensure that all persons who use work equipment have received adequate training for purposes of health and safety, including training in the methods which may be adopted when using the work equipment, any risks which such use may entail and precautions to be taken.
- 24.2 Managers must ensure that any employee who supervises or manages the use of work equipment has received adequate training for purposes of health and safety, including training in the methods which may be adopted when using the work equipment, any risks which such use may entail and precautions to be taken.

24.3 **When is training necessary?** Training needs are likely to be greatest on recruitment. But training is also required:

- a) if the risks to which people are exposed change due to a change in their working tasks;
- b) because new technology or equipment is introduced;
- c) if the system of work changes.

You will need to provide refresher training when necessary. Skills decline if they are not used regularly.

24.4 **Training for young people.** Training and proper supervision of young people is particularly important because of their relative immaturity and unfamiliarity with the working environment. Induction training is particularly important, because a young person will have little or no previous experience to draw on. PUWER does not contain any specific requirements relating to the age of people using work equipment, since all employees should be competent to use work equipment with due regard to health and safety, regardless of their age. However, there is general guidance relevant to the provision and use of machinery under regulation 19 of the Management Regulations.

24.5 **Definitions of young people and children by age:**

- a) **A young person** is anyone under 18.
- b) **A child** is anyone who has not yet reached the official minimum school leaving age (MSLA). Pupils will reach the MSLA in the school year in which they turn 16.

24.6 **Driver training:** Managers must ensure that self-propelled work equipment, including any attachments or towed equipment, is only driven by workers who have received appropriate training in the safe driving of such work equipment.

24.7 **Chainsaw operators:** Managers must ensure that all workers who use a chainsaw should be competent to do so, before using a chainsaw to carry out work on or in a tree, a worker should have received appropriate training and obtained a relevant certificate of competence or national qualification, unless they are undergoing such training and are adequately supervised.

The training should cover:

- a) dangers arising from the chainsaw itself;
- b) dangers arising from the task for which the chainsaw is to be used;
- c) the precautions to control these dangers, including relevant legal requirements.

Over and above this, due to the significant risks involved, if a chainsaw is to be used on or in a tree, the operator will be expected to hold a certificate of competence or national qualification relevant to the work they undertake.

The list's below gives the minimum level of professional qualifications recommended for chainsaw operators working in forestry or arboriculture, managers should ensure that chainsaw operators have received the appropriate level of training and have sufficient experience for the tasks they will be carrying out.

24.8 **List of qualifications for 'high risk' chainsaw activities:**

Level 2 Award in cross-cut timber using a chainsaw

Level 2 Award in chainsaw maintenance and cross-cutting

Level 2 Award in felling and processing trees up to 380 mm

Level 2 Award in remove branches and breakdown crowns using a chainsaw

Level 3 Award in severing uprooted or windblown trees using a chainsaw

- Level 3 Award in assisted fell operations
- Level 3 Award in emergency tree work operations
- Level 2 Award in accessing a tree using a rope and harness
- Level 3 Award in aerial tree rescue operations
- Level 3 Award in aerial cutting of trees with a chainsaw using free-fall techniques
- Level 3 Award in aerial tree rigging
- Level 3 Award in using a chainsaw from a mobile elevated work platform
- 24.9 **List of qualifications for ‘lower risk’ chainsaw activities:**
 - Level 2 Award in chainsaw maintenance
 - Level 3 Award in felling and processing trees over 380 mm
 - Level 2 Award in supporting colleagues undertaking off ground tree-related operations
 - Level 3 Award in preparing and agreeing emergency tree work operations
 - Level 2 Award in using a powered pole pruner
 - Level 3 Award in aerial tree pruning
 - Level 3 Award in aerial cutting of trees using a crane
 - Level 3 Award in installation and maintenance of structural tree supports
 - Level 4 Award in thorough examination of arboricultural lifting equipment
- 25.0 **Conformity – regulation 10**
 - 25.1 Managers must ensure that work equipment provided for use in the workplace has been made to the requirements of the legislation implementing any European product Directive that is relevant to the equipment. This means that in addition to specifying that work equipment should comply with current health and safety legislation, you must check to see that the equipment bears a CE marking and is accompanied by the relevant certificates or declarations (ask for a copy of the EC Declaration of Conformity), as required by relevant product Directives.
 - 25.2 Managers will need to check that appropriate operating instructions have been provided with the equipment and that there is information about residual hazards such as noise and vibration. You should also check the equipment for obvious faults.
- 26.0 **Machinery Hazards – regulation 11**
 - 26.1 Effective measures must be taken to prevent access to dangerous parts of machinery or stop their movement before any part of a person enters a danger zone. It also applies to contact with a rotating stock-bar which projects beyond the headstock of a lathe. The term ‘dangerous part’ has been established in health and safety law through judicial decisions. In practice, this means that if a piece of work equipment could cause injury, while being used in a foreseeable way, it can be considered a dangerous part.
 - 26.2 **Risk Assessment** - Your risk assessment should identify hazards presented by machinery. It should evaluate the nature of the injury, its severity and likelihood of occurrence for each hazard identified. This will enable you to decide whether the level of risk is acceptable or if risk reduction measures are needed. In most cases the objective of risk reduction measures is to prevent contact of part of the body or clothing with any dangerous part of the machine, for example by guarding.
 - 26.3 **Levels of Protection** - Regulation 11(2) specifies the measures you must take to prevent access to the dangerous parts of the machinery and achieve compliance with regulation 11(1).

The measures are ranked in the order they should be implemented, to achieve an adequate level of protection.

The levels of protection are:

- a) fixed enclosing guards;
- b) other guards or protection devices such as interlocked guards and pressure mats;
- c) protection appliances such as jigs, holders and push-sticks etc.

Information, instruction, training and supervision will be needed regardless of the level of protection.

26.4 The hazards from machinery should be identified as part of your risk assessment.

The purpose of the risk assessment is to identify measures you can take to reduce the risks that the hazards present. When selecting measures, you should consider each level of protection from the first level of the scale listed above 26.3.

The selection process should continue down the scale until the combined measures are effective in reducing the risks to an acceptable level so meeting the requirements of regulation 11(1).

Most machinery will present more than one mechanical hazard, and you should deal with the risks associated with all of these. For example, at belt conveyors there is a risk of entanglement with the rotating shafts and of being trapped by the intake between drum and moving belt – so you should adopt appropriate safety measures.

Your risk assessment carried must not only deal with the machine when it is operating normally, but should also cover activities such as setting, maintenance, cleaning or repair. The assessment may indicate that these activities require a different combination of protective measures from those appropriate to the machine doing its normal work. In-particular, parts of machinery that are not dangerous in normal use because they are not then accessible may become accessible and therefore dangerous while this type of work is being carried out.

27.0 **Specified hazards** - regulation 12

Regulation 12 covers measures which have, to be taken to prevent, control or minimise the effects of specified hazards during the use of work equipment. The hazards are listed in paragraph (3) of the regulation.

Examples of hazards that the regulation covers are:

- a) an article or substance falling from equipment, for example a loose board falling from scaffolding, a straw bale falling from a tractor fore-loader or molten metal spilling from a ladle;
- b) an article or substance being ejected from equipment. This is where material held in the equipment is unexpectedly thrown out, for example swarf or workpiece ejected from a machine tool;
- c) rupture of parts of work equipment, for example an abrasive wheel bursting;
- d) disintegration or coming apart of parts of work equipment, such as the collapse of scaffolding or falsework;
- e) overheating or fire, due, for example to friction (bearings running hot, conveyor belt on jammed roller), electric motor burning out, thermostat failing, cooling

- system failure;
- f) explosion of the equipment due to pressure build-up, for example due to the failure of a pressure-relief valve or the unexpected blockage or sealing off of pipework;
- g) explosion of substances in the equipment, due, for example to exothermic chemical reaction or unplanned ignition of a flammable gas or vapour or finely divided organic material (for example flour, coal dust), or welding work on a container with flammable residues.

28.0 High or very low temperatures – regulation 13

28.1 Many items of equipment have exposed surfaces, or contain or use hot or very cold substances, regulation 13 requires:

“Every employer shall ensure that work equipment, parts of work equipment and any article or substance produced, used or stored in work equipment which, in each case, is at a high or very low temperature shall have protection where appropriate so as to prevent injury to any person by burn, scald or sear”.

Accessible surfaces of equipment or machinery, when hot or very cold, represent sources of risk of burn or other injury such as frostbite. Examples of relevant equipment might include a flat-iron, foundry equipment, liquid nitrogen tank, gas cooker, cold store, steam pipe etc. Employees may have to work close to such equipment. Touching such surfaces may take place intentionally, for example to operate a handle of the equipment, or unintentionally, when someone is near the equipment. Where it is possible to apply engineering protective measures, for example by reducing the risk from contact with hot surface temperatures by insulation, shielding, barricading or guarding, you should adopt these in preference to personal protective measures. The risk from hot process materials – contact, splashing, spilling etc – should likewise be reduced by limiting maximum temperature, limiting liquor level, indirect steam heating methods, provision of doors, lids or covers, temperature interlocking of doors or lids and deflection systems for hot liquor (catch pan, spillway etc).

28.2 In some cases, surfaces of equipment or devices have to be hot and accessible to operate, for example cooker hotplates, soldering iron bit. While the regulation says that engineering protective measures should be taken in preference to others, it recognises that this is not always possible. Alternative methods include the provision and use of personal protective equipment and/or organisational measure. This includes:

- a) training;
- b) warning signs (warning signals, visual and noise alarm signals);
- c) supervision;
- d) operating instructions/instructions for use.

29.0 Controls for starting or making a significant change in operating conditions

29.1 Regulation 14 addresses the risks to health and safety created by the starting or uncontrolled operation of work equipment.

It covers the need for one or more controls for starting work equipment. And why, apart from automatic equipment, equipment should never start or change its

operating conditions unintentionally.

Restarting or changing operating conditions as a result of the normal operating cycle of an automatic device is not covered by this regulation.

30.0 Stop Controls - Regulation 15

30.1 Regulation 15 requires that all work equipment have stop controls, which should bring the equipment to a safe condition in a safe manner. This acknowledges that it is not always desirable to bring all items of work equipment immediately to a complete stop if this could result in other risks. If needed, to ensure the safety of the operator, it is acceptable that the operation of the stop control brings the equipment to rest in sequence or at the end of an operating cycle.

31.0 Emergency Stop Controls – regulation 16

31.1 Based on your risk assessment, an emergency stop should be provided at every control point and at other appropriate locations around the equipment so that action can be taken quickly. The location of emergency stop controls should be determined as a follow-up to the risk assessment. Although it is desirable that emergency stops rapidly bring work equipment to a halt, this must be achieved under control in order not to create any additional hazards.

32.0 Controls (for the operation of work equipment) – regulation 17

32.1 Work equipment must be provided with controls for operation which are clearly visible and easily identifiable, and are appropriately marked. Controls should be located (except where necessary) so that they can be operated without risk. It should be possible to identify easily what each control does and on which equipment it takes effect. Both the controls and their markings should be clearly visible. As well as having legible wording or symbols, factors such as the colour, shape and position of controls are important; a combination of these can often be used to reduce ambiguity. Some controls may need to be distinguishable by touch, for example inching buttons on printing machines. Few controls will be adequately identifiable without some sort of marking.

33.0 What is a “Control System” – regulation 18

33.1 A control system can be defined as: ‘a system or device which responds to input signals and generates an output signal which causes the equipment under control to operate in a particular manner.’

The input signals may be made by an operator via a manual control, or from the equipment itself, for example from automatic sensors or protection devices (photoelectric guards, guard interlock devices, speed limiters etc). Signals from the equipment may also include information (feedback) on the condition of the equipment and its response (position, whether it is running, speed).

Failure of any part of the control system or its power supply should lead to a ‘fail-safe’ condition.

33.2 There are national, European and international standards (BS EN 60204-1, BS EN ISO 13849-1, BS EN 62061) which provide guidance on design of control systems so as to achieve high levels of performance related to safety. Though they are aimed at

new machinery, they may be used as guidance for existing work equipment.

34.0 Isolation from sources of energy - regulation 19

34.1 It must be possible to isolate work equipment from all sources of energy to allow equipment to be made safe under particular circumstances, such as when maintenance is to be carried out, when an unsafe condition develops (failure of a component, overheating, or pressure build-up), or where a temporarily adverse environment would render the equipment unsafe, for example electrical equipment in wet conditions or in a flammable or explosive atmosphere. This is a brief summary of regulation 19, further detailed guidance can be found in the ACoP - Safe use of work equipment (Forth edition) L22.

35.0 Stability – regulation 20

35.1 Many types of equipment could topple over, overturn or collapse unless they are securely fixed. Regulation 20 explains how equipment should be stabilised, clamped, tied or fastened to make it safe.

35.2 Strength and stability of lifting equipment - specific information on securing the stability of lifting equipment is set out in regulation 4 of LOLER.

36.0 Lighting – regulation 21

36.1 Any place where a person uses work equipment should be suitably and sufficiently lit. If the ambient lighting provided in the workplace is suitable and sufficient for the tasks involved in the use of the equipment, special lighting won't be needed. Regulation 21 looks at areas where additional lighting may be required.

37.0 Maintenance operations - regulation 22

37.1 Regulation 22 requires that equipment is constructed or adapted in a way that takes account of the risks associated with carrying out maintenance work, such as routine and planned preventive maintenance, as described in the guidance to regulation 5. The design of equipment in relation to maintenance work on it may also be affected by other legislation. In particular, electrically powered equipment is subject to the Electricity at Work Regulations 1989 relating to risks of injury from electric shock or burn, or from explosion or ignition initiated by electricity. Guidance on those Regulations includes details of relevant equipment requirements.

38.0 Markings – regulation 23

38.1 Where equipment is dangerous or has dangerous parts that project, the equipment should be marked so that employees are not put at risk. Some of the markings required by this regulation may also serve as the warning required by regulation 24.

39.0 Warnings – regulation 24

39.1 Regulation 24 makes it clear that warnings are not appropriate unless they are clearly signalling danger.

The regulation focuses on ensuring that warnings are:

- clear;
- easy to understand;
- unmistakable.

39.2 Work equipment must incorporate any warnings or warning devices which are appropriate for reasons of health and safety. Warnings or warning devices are appropriate where risks to health or safety remain after hardware measures have been taken. They may be incorporated into systems of work (including permit-to-work systems). A warning is normally in the form of a notice or similar. Examples are positive instructions ('hard hats must be worn'), prohibitions ('not to be operated by people under 18 years'), restrictions ('do not heat above 60 °C'). A warning device is an active unit giving a signal; the signal will typically be visible or audible, and is often connected into equipment so that it is active only when a hazard exists.

Warning devices can be:

- a) audible, for example reversing alarms on construction vehicles;
- b) visible, for example a light on a control panel that a fan on a microbiological cabinet has broken down or a blockage has occurred on a particular machine;
- c) an indication of imminent danger, for example machine about to start, or development of a fault condition (i.e. pump failure or conveyor blockage indicator on a control panel);
- d) the continued presence of a potential hazard (for example, hotplate or laser on).

A particular warning may use both types of device simultaneously, for example, some automatic safe load indicators on mobile cranes.

40.0 Mobile work equipment - regulations 25–30

40.1 The provision and use of work equipment regulations implement additional requirements for mobile work equipment, which relate to the equipment when it is travelling. Except for the specific requirements of regulation 30 which deals with drive shafts, they are not intended to apply to moving parts of mobile work equipment which is carrying out work in a static position, for example an excavator involved in digging operations.

Where vehicles are designed primarily for travel on public roads, compliance with the Road Vehicles (Construction and Use) Regulations 1986 will normally be enough to comply with regulations 25–30.

40.2 **Mobile work equipment** - for the purposes of PUWER regulations 25–30, mobile work equipment is any work equipment which carries out work while it is travelling or which travels between different locations where it is used to carry out work. Such equipment would normally be moved on, for example wheels, tracks, rollers, skids etc. Mobile work equipment may be self-propelled, towed or remote controlled and may incorporate attachments.

40.3 **Self-propelled mobile work equipment** is work equipment which is propelled by its own motor or mechanism. The motor or mechanism may be powered by energy generated on the mobile work equipment itself, for example by an internal combustion engine, or through connection to a remote power source, such as an electric cable, electric induction or hydraulic line.

40.4 **Attachments** are work equipment which may be mounted on self-propelled mobile work equipment to alter its characteristics. For example, a load rotator fitted to a lift truck will alter its load-handling capabilities and may alter its safety characteristics, such as stability. Attachments are not considered to be mobile work equipment in their own right but if they can affect the safety of the self-propelled mobile work equipment when they are attached, they are considered to be part of the self-propelled work

- equipment. Attachments may be non-powered, powered by an independent power source or powered by the self-propelled work equipment to which they are attached.
- 40.5 **Towed mobile work equipment** includes work equipment such as towed machines and trailers which are primarily self-supporting on, for example, their own wheels. They may have moving parts which are:
- a) powered by the vehicle (for example, a power harrow);
 - b) an integral power source (for example, a powered crop sprayer);
 - c) they may have no moving parts and function as a result of the movement of the mobile work equipment (for example, a plough or trailer).
- 40.6 **Remote-controlled mobile work equipment** is operated by controls which are not physically connected to it, for example radio control.
- 40.7 **Pedestrian-controlled work equipment**, for example, a lawnmower, is not generally covered by regulations 25–30 of PUWER irrespective of whether some functions are powered or not.
- 40.8 **Employees carried on mobile work equipment** – regulation 25. Managers must ensure that no employee is carried by mobile work equipment unless –
- a) it is suitable for carrying persons; and
 - b) it incorporates features for reducing to as low as is reasonably practicable risks to their safety, including risks from wheels or tracks.
- Regulation 25 contains general requirements which cover the risks to people (drivers, operators and passengers) carried by mobile work equipment when it is travelling. This includes risks associated with people falling from the equipment or from unexpected movement while it is in motion or stopping. It also covers risks associated with the environment and the place in which the mobile work equipment is used (for example, falling objects, low roofs and the surfaces on which it operates). Regulations 26–30 deal with particular risks. Regulation 25(b) also specifically covers the risks from wheels and tracks when the equipment is travelling but it does not cover the risks from other moving parts, which are covered by regulation 11. In addition, it does not cover the risks associated with mounting or dismounting from the equipment which is covered by the HSW Act.
- 40.8.1 **Suitable for carrying people** - operator stations with seats or work platforms normally provide a secure place on which the drivers and other people can travel on mobile work equipment.
- 40.8.2 **Seating** - Seats should be provided wherever necessary. They can provide security for:
- a) drivers who need to be seated when operating mobile work equipment, for example the seat on a site dumper;
 - b) people who need to be seated while being transported by the mobile work equipment, for example bench seats in mine locomotive man-riding carriages;
 - c) people who are involved in on-board work activities which are best carried out in a seated position.
- 40.8.3 **Cabs, operators' stations and work platforms**, with suitable side, front and rear barriers or guard rails can prevent people from falling from mobile work equipment when it is travelling. Where provided, they should be properly designed and constructed.
- 40.8.4 **Equipment not specifically designed for carrying people**, under exceptional circumstances mobile work equipment may be used to carry people although it is not

specifically designed for this purpose, for example trailers used to carry farmworkers during harvest time. Under these circumstances the mobile work equipment must have features to prevent people falling from it and to allow them to stabilise themselves while it is travelling, for example trailers with sides of appropriate height or by providing a secure handhold. People would also need to be able to safely mount and dismount.

- 40.8.5 **Falling object protective structures (FOPS)**, if people carried on the mobile work equipment are at significant risk of injury from objects falling on them while it is in use, a suitably strong safety cab or protective cage which provides adequate protection in the working environment must be provided.
- 40.8.6 **Restraining systems**, the need for restraining systems on mobile work equipment is determined by the risks to workers operating and riding on the mobile work equipment and the practicability of fitting and using such restraints. Restraining systems can be full-body seat belts, lap belts or purpose-designed restraining systems. When assessing the need for restraining systems and the nature of seat restraint required, the risk of people being injured through contact with or being flung from the mobile work equipment if it comes to a sudden stop, or moves unexpectedly, should be taken into account. The need for protection against risks for rolling over and overturning should also be taken into account when deciding whether restraining systems should be fitted.
- 40.8.7 **Speed adjustment**, if work needs to be carried out during the journey, speeds should be adjusted as necessary. When carrying people, mobile work equipment should be driven within safe speed limits to ensure that the equipment is stable when cornering and on all the surfaces and gradients on which it is allowed to travel. In addition, the speeds at which the mobile machinery travels should be limited to avoid sudden movements which could put people being carried at risk.
- 40.8.8 **Guards and barriers**, you should ensure that guards and/or barriers fitted to mobile work equipment, which are designed to prevent contact with wheels and tracks, are suitable and effective. Where there is a foreseeable risk of contact with wheels or tracks when mobile equipment is travelling, adequate separation needs to be provided between people and the wheels and tracks – regulation 25(b).

41.0 Rolling over of mobile work equipment – regulation 26

41.1 In addition to the more general requirements of regulation 25, regulation 26 covers the measures necessary to protect employees carried on mobile work equipment where there are risks from roll-over while it is travelling, for example a moving dumper truck on a construction site or an agricultural tractor forwarding or manoeuvring on a slope. It covers roll-over in which the mobile work equipment may only roll over onto its side or end (i.e. through 90 degrees) or turn over completely (i.e. through 180 degrees or more).

It does not apply to the risk of mobile work equipment, such as an excavator or a vehicle with a winch, overturning when operating in a stationary position. This is covered by regulation 20 (ref 35.0).

- 41.2 **Risk assessment** - To assess the likelihood and potential consequences of roll-over, you will need to take into account the following to determine what safety measures are needed:
 - a) nature of the mobile work equipment and any attachments or accessories fitted

- to it;
- b) the effects of any work being carried out on or by the mobile work equipment;
- c) the conditions in which it is used.

When mobile work equipment is travelling, uneven surfaces, variable or slippery ground conditions, excessive gradients, inappropriate speeds, incorrect tyre pressures and sudden changes in direction may lead to roll-over. It can also occur due to the inertia transmitted to the mobile work equipment by attachments used with it, particularly if those attachments are not securely restrained from movement.

When carrying out a risk assessment it is important to remember that although drivers should be trained to minimise the risk of roll-over, this is not a substitute for hardware measures to prevent roll-over (for example counterbalance weights) or protective structures (for example roll-over protective structures (ROPS) to minimise the risk of injury in the event of a roll-over) where they are necessary.

42.0 Overturning of fork-lift trucks – regulation 27

42.1 This regulation applies to lift trucks (LTs) fitted with vertical masts, which effectively protect seated operators from being crushed between the LT and the ground in the event of roll-over (The mast of a vertical-mast LT will generally prevent an LT overturning by more than 90 degrees) and other LTs fitted with roll-over protection structures (ROPS). For example, rough terrain variable reach trucks when they are used with lift attachments. N.B. A variable reach truck LT is capable of rolling over 180 degrees or more and would need a ROPS to protect the operator if it is used in circumstances where there is a risk of it rolling over. Other types of LT are covered by regulation 26 (ref 41.0).

N.B. There is a history of accidents on counterbalanced, centre control, high lift trucks that have a sit-down operator. Restraining systems will normally be required on these trucks to protect operators from the risks of roll-over. Managers are therefore recommended to ensure that restraining (seat belts) systems are used by the operators at all times LT are in use.

43.0 Driver's field of vision – regulation 28(e)

43.1 This regulation applies when mobile work equipment is about to move or while it is travelling (including manoeuvring). Under these circumstances, where the driver's direct field of vision is inadequate to ensure safety then visibility aids or other suitable devices should be provided so far as is reasonably practicable. Regulation 17 requires that operators of mobile equipment should be able to see anyone who may be put at risk when any control is operated. Therefore, if direct vision is impaired, then mirrors, CCTV or more sophisticated visual or sensing facilities may be necessary.

44.0 Equipping mobile work equipment with lighting for use in the dark

44.1 In terms of the regulation, 'dark' means any situation where the light levels are not good enough for the driver to operate the self-propelled work equipment safely without risks to themselves or other people in the vicinity. In such situations' the equipment needs to be equipped with 'appropriate' lighting. The level of lighting required will depend on the type of equipment being operated, how it is being operated and the area in which it is operating.

45.0 The carriage of appropriate fire-fighting appliances

- 45.1 Where escape from self-propelled work equipment in the event of a fire could not be achieved easily, you should ensure that fire-fighting appliances are carried on that equipment.
- 45.2 For self-propelled work equipment that is used on the public highway carrying a dangerous load, it should carry suitable fire extinguishers under the requirements of the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2007

46.0 Remote-controlled self-propelled work equipment - regulation 29

- 46.1 For the purposes of regulation 29, 'remote-controlled self-propelled work equipment' is self-propelled work equipment that is operated by controls which have no physical link with it, for example radio control. Pendant-controlled mobile work equipment is not covered by regulation 29.
- 46.2 **Risk assessment**, as part of your risk assessment you should consider risks, due to the movement of the equipment, to the person controlling it and to anyone else in the vicinity. You should consider alarms or flashing lights so that other people in the area are aware of its movement, or presence, sensing or contact devices which will protect people from the risks associated with the equipment, i.e. if people may come close to or contact it.
- 46.3 When the equipment is switched off you must ensure that every part of the equipment which could present a risk comes to a safe stop. If the equipment is controlled manually, the controls for its operation should be of the hold-to-run type so that any hazardous movements can stop when the controls are released.
- 46.4 If the equipment leaves its control range, any part of it which could present a risk should be able to stop and remain in a safe state.

47.0 Drive shafts - regulation 30

- 47.1 A 'drive shaft' is a device which conveys the power from the mobile work equipment to any work equipment connected to it. In agriculture, these devices are known as power take-off shafts. Regulation 30 deals drive shaft(s) and the measures needed to make them safe.
- 47.2 'Seizure' refers to stalling of the drive shaft when the operating mechanism of any accessory or anything connected to it becoming incapable of movement due to blockage or some other reason. Under these circumstances regulation 30 applies if the power output of the mobile work equipment is sufficient to cause damage to the connected work equipment which could lead to risk. Regulation 30 does not apply to the risks associated with trapped energy resulting from stalling of the drive shaft if the power output of the mobile work equipment is insufficient to cause damage which could lead to risk. This situation is covered by regulation 19 (ref 34.0) which deals with the isolation of work equipment from sources of energy.
 - 47.2.1 You should assess the risks associated with seizure of the drive shaft. If seizure could lead to risk, for example the ejection of parts, measures should be taken to protect against such risks. For example, slip clutches on the power input connection of the connected work equipment can protect it from damage and guards fitted in

accordance with regulation 12 can protect people from ejection risks in the event of equipment break-up.

- 47.2.2 To prevent damage to power take-off shafts in the event of seizure, you should use shafts of adequate length. There should be sufficient overlap between the two halves of the shaft to ensure that it is stable in use, to protect against damage when movements occur in the hitch and to ensure that it has sufficient strength. The shaft needs to be capable of sustaining the full power output of the mobile work equipment, taking account of any slip clutches, shear bolts or similar devices which are provided to limit the torque that the shaft would sustain.
- 47.2.3 To prevent damage to the drive shaft and its guard when the equipment is not in use, the drive shaft should be supported on a cradle wherever one is provided. If there is no cradle, it should be supported by other means to give equivalent protection against damage. You should not rest the drive shafts on draw bars, nor drop them on the ground, as this could lead to damage.

48.0 Access to information, advice and support

- 48.1 For health and safety advice or support please contact Shropshire Councils Health and Safety Team on (01743) 252819.