



Management of Work Equipment

General Guidance

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WELLBEING, SAFETY AND HEALTH MANAGEMENT SYSTEM

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Definitions

Work equipment is

- Any machinery, appliance, apparatus, tool or installation
- Used or provided by staff, students or visitors for their work or study
- At a workplace owned or managed by the University of Leeds

It includes:

- Already owned or controlled by the University
- Purchased *new* or *second hand*
- Designed, self-built, constructed, modified or adapted by staff or students at the University
- Loaned or donated to the University
- Borrowed, hired in or acquired to share with external users
- Erected or dismantled by staff or students

Examples include:

- Laboratory equipment such as autoclaves, microscopes and centrifuges
- Medical equipment and devices
- Clinical alarms and monitors
- 3D printers
- Workshop equipment such as pillar drill, lathe, milling machine, grinding wheel
- Machines such as circular saws, drilling machines, floor polishers
- Catering equipment, such as mixers, sterilizers, slicers, dishwashers
- Domestic equipment used at work such as toasters, microwaves, kettles
- Installations such as: sound enclosures, scaffolding, or similar access equipment
- Hand tools such as power tools, portable drills, screwdrivers, scalpels, knives, chisels, battery operated hand drills, hot air guns
- Equipment described as plant i.e. pumps, compressors, vacuum systems, electrical switchgear, air conditioning and other ventilation systems
- Other equipment such as ladders; pressure washers, production lines

The following elements fall under the definition of work equipment, however, these requirements are dealt with under other protocols and processes:

- **Office and IT equipment** (e.g. desks, chairs, cabinets, racking, shelving, laptops, tablets, computers, printers, keyboard, mouse, photocopiers)
- **LEVs, fume cupboards, microbiological safety cabinet** (see LEVs protocol)
- **Equipment containing asbestos** (see Asbestos protocol)
- **University owned, privately owned or hired motor vehicles** (see checklist in 'Transport (safe movement of vehicles) on campus' protocol)
- **Medical devices to be used on patients** (*as listed in the Medical Devices Regulations- link to <http://www.mhra.gov.uk/home/groups/comms-ic/documents/websiteresources/con2031677.pdf>*)
- **Radiation Equipment and lasers** (see specific protocols)

Ask your Health and Safety Manager for more information about these topics as they have specific requirements and will be covered in future protocols: electrical equipment, lifting equipment of all types including fork lift trucks, elevating work platforms, farm vehicles etc.

Other definitions:

- **Commissioning** – to bring something (either newly produced or that has been out of use) into safe working condition.
- **Competent** - have the correct skills, knowledge, and experience and are physically suited to the task. Sometimes formal qualifications are needed.
- **Dangerous parts of machinery** – pieces of work equipment that could cause injury to people – e.g. rotating arm, blades, motor, drill.
- **Emergency stop controls** – controls that shut down the work equipment quickly and in a controlled way, in an emergency.
- **Energy sources** – a source of power to a machine, including electric, hydraulic, pneumatic and gravitational energy.
- **Good condition** - in efficient working order, maintained and in good repair.
- **Isolation** - refers to breaking the energy supply in a way that ensures inadvertent reconnection is not possible.
- **Machinery** - refers to an assembly of parts, one or more of which are fitted with a drive system which are joined together for a specific application.
- **Use** - is any activity involving work equipment and includes starting, stopping, programming, setting, transporting, repairing, modifying, maintaining, servicing and cleaning.
- **Work equipment formal inspection (also thorough examination see Table)** - these may be undertaken by qualified insurance company engineers, contractors or staff who are competent. Formal inspection is a process whereby a location, activity or piece of equipment is checked to see that the expected health and safety requirements are being achieved and to check for deterioration through damage or wear. The frequency of inspection depends on the type of work equipment. Any key requirements are detailed in the inspection criteria and are set by a competent person.
- **Workplace** - any non-domestic premises (indoor or outdoor) available to any person as a place where people carry out work, research or study.

Responsibilities outlined in the University Health and Safety Policy

The health and safety responsibilities of staff, students or visiting personnel are set out in the University Health and Safety Policy responsibilities of staff, students or visiting personnel are set out in the University Health and Safety Policy (<http://www.leeds.ac.uk/safety>).

Roles and proposed actions

For the management of this protocol, the following actions for the role-holders are listed below.

Heads of School / Service - Need to be sure that adequate resources are assigned to managers and staff so that they are competent and qualified or they appoint contractors to install, examine, inspect, test and use work equipment in a way which will not impact on anyone's safety and that where necessary records are kept. The Head of School / Service ensures that staff who have been given specific roles with regards to this protocol have the necessary training knowledge and experience to perform those tasks.

Nominated Person - Identified by the Head of School or Service to manage formal inspections of work equipment, maintenance, and record this.

Guidance

- **Nominated Person** – The Head of School / Service will need to appoint a 'Nominated Person' who will lead on managing the implementation of the work equipment protocol (standard and table). A fundamental requirement of this role will be to manage formal inspections of work equipment. This includes;
 - Identify an inventory of work equipment determining whether it requires central or local formal inspection.
 - Maintain the schedule for inspection and maintenance and keep this up to date.
 - Engage competent contractors / people to carry out formal inspections on this work equipment.
 - Notify the University Insurance Officer of work equipment requiring central formal inspection.
 - Liaise with the University insurer's (Allianz) and other competent people to coordinate access to work equipment for central and local formal inspections.
 - Check that maintenance and inspections for work equipment requiring central and local formal inspection occur as per the inspection schedule.
 - Receive all formal inspection reports and keep for three years.
 - Check that any actions listed in the formal inspection reports are completed and recorded on the University insurer's (Allianz) / local database.
 - If local or central formal inspection finds work equipment is defective, ensure that the equipment is taken out of service.
 - Notify the University Insurance Officer if any work equipment requiring central formal inspection is taken out of service
- **CE Marking and Certificate of Conformity** - It is essential to check that any equipment or machine coming into the University has a CE marking attached and that a Certificate of Conformity is provided. If work equipment is from outside the EU then it is possible to produce a technical file. A technical file will require information concerning the products design assessment and include information showing that the Essential Health & Safety Requirements (EHSR's) have been met. This will help demonstrate that adequate consideration has been given to the safety aspects of the work equipment. Your Health and Safety Manager will be able to support you with this process.

It is important to understand that these markings are only a claim by the manufacturer / technical file that the machine meets legal requirements and it is the purchaser's responsibility to make sure that the machine is, in fact, safe to use.

- **Work equipment selected and used** - All items of work equipment are selected and used to reduce the likelihood of harm to users and those who may come into contact with them. Following this protocol will help you do this.
- **Designed, self-built, adapted or modified equipment** – It is essential that all work equipment / machinery is suitable for its intended use, taking into account its: design; adaptation; operation; and conditions where it would be sited or used.

Risk assessment is the key process in the planning, designing and building, adapting or modifying equipment / machinery. This will help you to implement the work equipment standard by identifying that the equipment / machinery is:

- Properly designed (see guidance for designing, self-building, modifying or adapting work equipment)
 - Constructed from suitable material
 - Suitably located
 - Is fitted with protective devices such as interlocks and guarding to prevent injury damage to health and property.
 - Supervised or managed by competent people
 - Supplied with adequate information, written instructions and safe systems of work.
- **Risk Assessment** – All work equipment is assessed to identify where there is a likelihood of it causing harm. In some instances, work equipment can be included in an existing risk assessment. Examples include:
 - Activity risk assessment – experiments in a workshop, laboratory risk assessment, general kitchen or event risk assessment etc.
 - Fieldwork risk assessment – covering any specific tools or equipment.
 - Manual handling risk assessment – covering equipment that may be pushed, pulled or lifted.

If this is not suitable a specific assessment may be required;

Additional hazards and controls you may wish to consider;

Potential access to moving parts

Moving parts on a machine are often protected by the design of the equipment. However, several items may allow access to moving parts when the machine is being operated. Measures are taken to prevent access to these parts and / or provide a system of work that ensures users are trained and competent to operate the item. Guarding (fixed or interlocked) is often provided or designed – further details can be found in the use of guarding section.

Combinations of electric, hydraulic, pneumatic and gravitational energy

Work equipment which have one or more of electric, hydraulic, pneumatic or gravitational energy sources, can pose a specific risk. This is because simply turning off the power doesn't always make them safe. There can be the potential for energy to remain after the energy source has been disconnected (e.g. coiled up chains or a jack to suspend heavy blocks, hydraulic hoses and fittings), therefore a means of isolating all energy sources is required.

Identified controls for starting, stopping and controlling equipment

Controls are in place for being able to start and stop equipment in an emergency. Where controls are in place they are easily accessible. Supervision, information, instruction and training is provided for staff and students so they understand how to use and the stop the equipment in an emergency.

Visible and audible warning devices

Some pieces of work equipment will use visible or audible warning devices – e.g. Flashing beacons or audible alarms indicating the start-up of a machine – and these are maintained properly and easy to see and / or hear when in use. Systems need to be in place to assure that the checking of these is included in inspection processes in your area.

Warning signs

Adequate signs are displayed, highlighting significant dangers generated from work equipment in any particular environment. These play an important role but only act as a reminder and be in addition to other engineering controls.

- **Specialist Noise / Vibration Assessments** - Due to the potential exposure to noise or vibration, a specific assessment may be required for an item of work equipment. If you are unsure or feel the equipment or process introduces a high level of noise or vibration, contact your health & safety manager to determine if a specific assessment is required.
- **Competent Person** - Staff who have been nominated to use, install, examine and test any work equipment have adequate knowledge and experience and be competent or supervised to perform these tasks. This is usually met by providing adequate training. Some work activities will require specific formal training but others may only require in-house training using manufacturer's instructions and the knowledge of other experienced workers.
- **Planning the location of Work Equipment** – Information, instruction and training is given to staff to enable them to plan for the arrival and location of work equipment before purchasing or receiving it. The following elements could be considered:
 - The location in which it will be used - e.g. lighting, access to services (water, gas, electricity), access issues, electrical equipment that is designed to be used outside - e.g. battery not mains;
 - The weight restrictions in a building - e.g. floor loading,
 - The access routes to the location - e.g. weight restrictions in the lift, width of staircase;
 - Select equipment which will reduce the likelihood of harm - e.g. choosing a grinder or hedge trimmer with lower levels of vibration or noise;
 - Position the work equipment to allow safe access, use, maintenance, inspection and cooling of work equipment;
 - Plan and provide training and information to staff, students and other users which includes the selection of 'the right tool for the job'.

When effective planning does not take place there can be problems. Previous real examples of this which had an impact on staff / student safety, and research include equipment:

- Being delivered but exceeding the loading (weight) limit of the floor;
 - Dimensions being too large to fit in the room or through the door or staircase;
 - Being positioned with no means of access to carry out maintenance when it broke down;
 - Being positioned in a small space causing it to overheat due to a lack of air flow for cooling;
- **Commissioning of Work Equipment** - Process by which equipment which is installed, or is complete or near completion and before first use it is tested to verify if it functions according to its design objectives or specifications.
 - **Erected / dismantled** – Where equipment needs to be erected or dismantled this is done by following manufacturer's instructions. This will include a safe system of work and involve staff or contractors with the required levels of competence. Where instructions are unavailable a method statement is to be produced and followed.

- **Manufacturer instructions** - Systems need to be in place for copies of the manufacturer instructions (in English at least) to be available for work equipment and for staff to be trained in the use of these. Ideally, these are available close to a machine so that they can be referred to, however they can be available electronically. If these are not available, staff can consult with their Health and Safety Manager.
- **The use of guarding** - Machine guarding is used to protect people from accessing dangerous parts of machinery. There are many different types of machine or guards (e.g. an interlock which cuts the power when you open a microwave oven door), the types of guard will depend on the machine and its hazards; they either come with the equipment or may need to be retro-fitted.

Fixed guards are to remain in place at all times, except when they need to be removed by authorised and competent persons for the purpose of maintenance. Interlocked guards and devices such as pressure-sensitive mats and safety light curtains are to be considered where fixed guards would not be practicable because they would hinder normal operation of the machine.

Information, instruction and training can be provided for staff and students both to understand the importance of, and how to use any guards and other protection devices (e.g. interlock switches for laser rooms, chuck guard on a pillar drill). Work equipment is *NOT* to be used with a missing, damaged or inadequate guard.

- **Planning maintenance** – In order to carry out maintenance safely, machines are isolated from the source/s of power. As this could pose harm, staff will need to understand the risks associated with maintenance and the need for competent people to carry out this work.

Where on the rare occasion that work equipment cannot be shut down / isolated for maintenance or repair both the Health & Safety Manager and a suitable technical expert, are to be consulted before this work takes place. Maintenance without shutting down and isolating the work equipment can only happen if adequate control measures are agreed in writing (such as a method statement)

- **Defective work equipment** – Is to be taken out of service immediately. Examples of defects in equipment include a broken wheel on a trolley, damaged or missing guards from machines or a broken thermostat on an oven. There are a number of ways in which staff can identify a defect:
 - User visual checks
 - Faults reported by staff
 - Local inspections
 - Outcomes of maintenance work
 - Central (Allianz) or local reports as a result of their formal inspection

Providing training and information will allow staff to know how to:

- Identify defects and missing guards
 - Take defective equipment out of service immediately (where possible lock it away / remove it from use)
 - Isolate it
 - Report defective equipment and to whom
 - Sign it 'do not use, out of service'
- **Frequency and nature of formal inspections** – All work equipment is to be inspected to check that it is safe and in good working condition. The kind of inspection will range from a simple visual inspection to a formal inspection which is either carried out by the University's insurers (Allianz), locally appointed contractor or by a competent member of staff (where a competent person surveys the piece of work equipment)

Work equipment that requires organised formal inspection is itemised in the Standard (see Table).

- **Work Equipment requiring formal inspection** – An inventory of work equipment requiring a formal inspection is in place and determines whether the inspection is required centrally or locally. This can be achieved by using the University central insurance database (Allianz), a locally held record of items or a combination of both.
- **Maintenance and Inspection of equipment** – Many pieces of equipment require particular maintenance to keep them safe and in good working condition. Work equipment that is kept outside may have very different maintenance requirements, from equipment that is kept inside. For example – an exterior electrical cable is checked more often (because of the potential effects of adverse weather conditions), than an extension lead in an office.

Inspections help identify whether the work equipment can be operated, adjusted and maintained safely to prevent defects (e.g. any deterioration needing repair) which may lead to it being taken out of service. Maintenance will help to ensure that the equipment is in good condition.

Any maintenance or inspection requirements of work equipment are to be identified using the original manufacturer instructions or as part of the risk assessment. Ongoing maintenance and inspection needs to take place (and is carried out by competent people) and any actions identified are completed and that records (either as electronic or paper copies) of these are kept. A maintenance log is provided for some work equipment – if this is the case it is kept up to date.

For formal inspections that are completed centrally the Nominated Person is responsible for the sign-off of any actions identified in the inspection report, and completing the notes section (detailing the action taken) on the Allianz database. The Nominated Person will need to have the necessary access levels and training on the Allianz database, so completed actions can be signed off on behalf of school or service. The University Insurance Officer can arrange access.

- **Equipment requiring a formal inspection centrally** – Some work equipment requires formal inspection where possible this it to be carried out centrally by the insurance contractors (Allianz) engaged by the University. Examples of this work equipment are:
 - Lifting equipment (slings, chains, shackles, harnesses, lanyards, winches and other parts used for lifting),
 - Pressure vessels,
 - Power presses,
 - Lifts,
 - LEVs (Local Exhaust Ventilation systems) excluding microbiological cabinets.

It is the role of the Nominated Person to notify the University Insurance Officer of all work equipment of this type, so they can arrange formal inspections of these. The Nominated Person liaises with Allianz to ensure that they can have access to the work equipment listed for their inspection visits.

Notifying the University Insurance Office – The Nominated Person is to notify the University Insurance Officer when work equipment requiring central formal inspection is;

- Disposed of or taken out of service
- Brought into the working area
- Moved to another work area

Changes to contact / access arrangements are to be updated so that the Allianz engineers can be notified prior to their next inspection.

- **Local formal inspection** - Where work equipment requires a local formal inspection (e.g. microbiological safety cabinets – see LEV Protocol) the Nominated Person is informed who will then arrange a local formal inspection – by a competent person/contractor.

Staff are to inform the Nominated Person when work equipment requiring local formal inspection is disposed of or taken out of service. They can then amend their records and the inspection schedule.

The Nominated Person checks and sign off any completed actions identified in the report and keeps records as either electronic or hard copies for three years. The local system could be an internal database or paper filing system with a log of each piece of work equipment, its inspection and re-inspection dates, inspection reports and any actions taken.

- **Labelling of formal inspection** - The details of the expiry / due date of a centrally or locally required formal inspection are to be displayed with a label on the piece of equipment. These details can also be found for centrally required inspections in the equipment record in the Allianz database.

Whenever it is inspected, the inspector / competent person will stipulate the expiry / inspection due date. If the expiry / inspection due date is exceeded, then the work equipment is to be taken out of service until it can be inspected.

- **Selling, donating or gifting work equipment** - If you supply (whether for payment or not) second-hand equipment for use at work, you will need to complete the Equipment Transfer Agreement. In order to do this, you will need to contact your Health & Safety Manager who will provide the form and assist you to complete. (This is due to additional legal complexities which need to be explored on a case by case basis).

For equipment that was originally CE marked (this applied to most products supplied in the last 15 years) ensure, as far as the health and safety aspects are concerned, that it is supplied in the same condition with regard its safety, as when the product was originally placed on the market or first brought into use. This does not mean it has to be in perfect condition, but that all features for health and safety are present and fully functional (e.g. guards and other safety devices are in good condition and work correctly).

Older equipment built locally by Schools and Services, including equipment that did not require CE marking, is to be supplied in a safe condition and in some cases this may require additions to what was originally provided.

A copy of the signed transfer agreement will need to be returned to the Nominated Person and copies will then be distributed to the locally defined stakeholders.

*NB: The term "sold as seen" or similar cannot be used to avoid these legal responsibilities. If you are importing or constructing the machine yourself, you take on the responsibilities of the supplier. (See guidance for designing, self-building, modifying or adapting work equipment)

- **Machinery manufactured for sale** – Due to the complexity and additional legal duties your Health & Safety Manager will need to support you as there are specific requirements involved. Further details can be found in the guidance for designing, self-building, modifying or adapting work equipment. The University legal team is also to be consulted.
- **Disposal of work equipment** – For further information please consult the University waste procedures.
- **Additional legal requirements** - Please refer to the Work Equipment Table which outlines additional requirements for specific types of work equipment.
- **Variation requests** - If you feel that the requirements of the standard are unable to be fully implemented in your area then contact your Health & Safety Manager who will assist in making the formal request to the Director of Wellbeing, Safety and Health and the Head of Health & Safety. All requests will result in a written response.

For more information about how to translate this guidance into your own area please speak to your Health and Safety Manager.