

ESTATES OPERATIONS

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Please Note – the guidance provided in this Code of Practice pertains only to the Estates Operations Group and its operations. For Imperial College's Health & Safety policies and Codes of Practice go to: <https://imperial.ac.uk/safety>.

INTRODUCTION

This Code of Practice sets down the standards for the use of plant and equipment. It is intended to assist in meeting the requirements of current legislation and sets out procedures on how to achieve safe systems of work.

Over and above the general duty of care owed by the College to its staff, students and others under the Health and Safety at Work etc. Act 1974, all work related plant and equipment is legislated by The Provision and Use of Work Equipment Regulations 1998 (PUWER). Plant and equipment may also have specific requirements under the following pieces of legislation including, The Lifting Operations and Lifting Equipment Regulations 1998, The Gas Safety (Installation and Use) Regulations 1998, and The Pressure Systems Safety Regulations 2000.

This Code of Practice covers the following:

- A definition and the scope of the applicable Regulations
- The duties imposed on the employer/employee/others
- Inspection and maintenance guidance
- Responsibilities of duty holders and employees
- Competence

1. Overview and Introduction to Plant and Equipment

Provision and use of Work Equipment Regulations 1998 (as amended) places duties on any person who uses, supervises, manages or has any control of equipment used for work purposes. The regulations state that every employer shall ensure that work equipment is so constructed or adapted as to be suitable for the purpose for which it is used or provided.

Every employer shall ensure that work equipment is used only for operations for which, and under conditions for which, it is suitable. The regulations require that work equipment is maintained in an efficient state, in efficient working order and in good repair and any maintenance carried out is logged. The regulations also require suitable inspections at regular intervals if machinery is likely to suffer from deterioration or if work equipment depends on the installation conditions.

Lifting Operations and Lifting Equipment Regulations 1998 (as amended) places duties on any person who uses, supervises, manages or has any control of equipment used for lifting or lowering loads at work (either objects, persons or animals). The regulations state that lifting equipment must be positioned and installed so as to be safe. It must be of adequate strength and stability and clearly marked with its safe working load. In addition, any load parts or attachments used in the lifting operation must also be of adequate strength and marked with any information necessary to ensure their safe use. The regulations require that all lifting

operations must be properly planned by a competently trained person, appropriately supervised and carried out in a safe way.

The Gas Safety (Installation and Use) Regulations 1996 specifically deal with the installation, maintenance and use of gas appliances, fittings and flues in domestic and certain commercial premises.

Pressure Equipment Regulations 1999, and the Pressure Systems Safety Regulations 2000, deal with the installation, maintenance and use of pressure systems.

Examples of pressure systems and equipment include:

- boilers and steam heating systems;
- pressurised process plant and piping;
- compressed air systems (fixed and portable);
- pressure cookers, autoclaves and retorts;
- heat exchangers and refrigeration plant;
- valves, steam traps and filters;
- pipework and hoses; and
- pressure gauges and level indicators.

2. Duties Imposed on the Employer/Employees/Others

The Provision and Use of Work Equipment Regulations 1998 (PUWER) require the risks to people's health and safety from equipment that they use at work, to be prevented or controlled. Generally any equipment which is used by an employee at work is covered by the regulations. Examples of uses of equipment which are covered by the regulations include starting or stopping the equipment, repairing, modifying, maintaining, servicing, cleaning and transporting. To this end the College should appoint a suitably competent person to carry out the actions below.

The College has a duty to ensure that;

- A suitable and sufficient risk assessment is carried out on any work equipment which carries any significant hazards and risks.
- Any work equipment provided is suitable for use, and the purpose and conditions in which it is used.
- Work equipment is maintained in a safe condition for use so that people's health and safety is not at risk.
- All work equipment is inspected to ensure that it is, and continues to be, safe for use.

3. Inspection and Maintenance Guidance

The level of inspection and maintenance required will depend upon the type of work equipment being used, its use, and the conditions to which it is exposed. This will be determined through the risk assessment process and the use of manufacturer's guidelines and recommendations.

Any inspection and maintenance should concentrate on the safety-related parts which are necessary for the safe operation of the work equipment. Further guidance is provided in [Appendices 2 & 3](#) of this Code of Practice, however in summary the types of inspections required include:

- Visual checks before use (e.g. electric cable condition on hand-held power tools, functional testing of brakes, lights on mobile machinery)
- Weekly/monthly inspections (e.g. presence of guarding, function of safety devices, tyre pressures)
- More extensive thorough examinations (e.g. general condition of a ladder, close examination of a safety harness, portable appliance testing)

Thorough examinations will need to be undertaken by a competent person. The definition of what constitutes a 'competent person' is identified in Section 5 below. Such an inspection will involve a systematic and detailed examination of the work equipment. To determine the extent of any thorough examination, the competent person will assess the risks, considering factors such as where the work equipment is used, frequency of use, and its age and condition.

4. Responsibilities of Duty Holders and Employees

The College has a responsibility to ensure that all plant and equipment, which could result in injury, is assessed and adequately controlled. To this end the College should appoint a suitably competent person to carry out the actions below.

PUWER

In summary the College has a duty to ensure that:

- work equipment is constructed or adapted to be suitable for the purpose it is used or provided for;
- work equipment is maintained in an efficient state, in efficient working order and in good repair;
- where a machine has a maintenance log, this is kept up to date;
- where the safety of work equipment depends on the manner of installation, it must be inspected after installation and before being put into use;
- all people using, supervising or managing the use of work equipment are provided with adequate, clear health and safety information. This will include, where necessary, written instructions on its use and suitable equipment markings and warnings;
- all people who use, supervise or manage the use of work equipment have received adequate training, which should include the correct use of the equipment, the risks that may arise from its use and the precautions to take;
- measures are taken to prevent or control the risks to people from parts and substances falling or being ejected from work equipment, or the rupture or disintegration of work equipment;
- the risks from very hot or cold temperatures from the work equipment or the material being processed or used are managed to prevent injury;
- work equipment is provided with appropriately identified controls for starting, stopping and controlling it, and that these control systems are safe.

Provision of new work equipment

When providing new work equipment for use at work, the College will ensure it conforms to the essential requirements of European Community law (for new machinery this means the Machinery Directive). The College will ensure that the new equipment:

- is CE marked;
- comes with a Declaration of Conformity;
- is provided with instructions in English;
- is free from obvious defects – and that it remains so during its working life;

Lifting Equipment

Guidance on the responsibilities of duty holders and employees with regards to lifting equipment is contained in the [Estates Operations' Code of Practice on the 'Management of Passenger Lifts and Hoists.'](#)

Further guidance can be found in [Appendix 3](#) to the rear of this Code of Practice.

Gas Safety

The College will:

- ensure gas fittings and flues are maintained in a safe condition. Gas appliances should be serviced in accordance with the manufacturer's instructions. If these are not available it is recommended that they are serviced annually unless advised otherwise by a Gas Safe registered engineer;
- ensure an annual safety check is carried out on each gas appliance/flue. Before any new lease starts, you must make sure that these checks have been carried out within one year before the start of the lease date, unless the appliances in the property have been installed for less than 12 months, in which case they should be checked within 12 months of their installation date;
- have all installation, maintenance and safety checks carried out by a Gas Safe registered engineer;

Pressure Systems

Further guidance can be found in [Appendix 3](#) to the rear of this Code of Practice.

5. Competence

A competent person is someone who has sufficient technical and practical knowledge of the plant and equipment to be able to detect any defects or maintenance issues and assess how significant they are. It is also important that the competent person is sufficiently independent and impartial to allow them to make an objective assessment. For this reason, it is not advisable for the same person who performs routine maintenance to carry out the thorough examination, as they are then responsible for assessing their own work. The College will utilise an external company to act as the competent person, ensuring they meet the above criteria. The competent person will understand what is meant by a 'thorough examination' and what the law requires. For all works on gas appliances, the College must appoint a registered Gas Safe engineer.

Appendix 1 - Guidance Documents Available

Simple guide to the Provision and Use of Workplace Equipment Regulations

This guide provides information about the legal requirements of the Provision and Use of Workplace Equipment Regulations (PUWER) which came into force in 1998.

It gives a general indication of some of the main requirements of the Regulations. The guidance documents are available at the following link:

<http://www.hse.gov.uk/pubns/indg291.pdf>

For further guidance on the Lifting Operations and Lifting Equipment Regulations 1998, College staff are referred to the [*Estates Operations' Code of Practice the 'Management of Passenger Lifts and Hoists.'*](#)

Further guidance is also available at the below link:

<http://www.hse.gov.uk/pubns/indg290.pdf>

Gas Safety

Further guidance on gas safety and the maintenance and testing of gas appliances is available at the below link:

<http://www.hse.gov.uk/pubns/indg238.pdf>

Pressure Systems

Further guidance on pressure systems and the maintenance and testing of pressure systems is available at the below links:

<http://www.hse.gov.uk/pubns/indg261.pdf>

<http://www.hse.gov.uk/pubns/indg178.pdf>

Appendix 2 – Legislation Guidance

Provision and Use of Work Equipment Regulations 1998.

Guidance on the Regulations intended to ensure work equipment should not result in health and safety risks regardless of age, condition or origin. PUWER 98 apply to all such equipment including mobile and lifting devices and all workplaces and situations where the Health and Safety at Work etc Act.

This is addressed to anyone with responsibility (direct or indirect) for equipment and its use (eg employers, employees, self-employed and hirers).

Lifting Operations and Lifting Equipment Regulations 1998

For anyone with responsibility for work equipment and its use (eg employers, employees, self employed and hirers). The Approved Code and guidance reflect the Regulations applicable to all industry sectors and work activities. While documenting more obvious on-the-job issues covered by the Regulations, such as the strength and stability of lifting equipment, its positioning and installation, and the general organisation of operations, the Approved Code and guidance also acknowledge the required ancillary duties to maintain and consider, including thorough examination and inspection, reports, defect matters and good information keeping.

Pressure Systems Safety Regulations 2000.

Approved Code of Practice addressed to all duty holders under the Regulations, eg users, owners, competent persons, designers, manufacturers, importers, suppliers and installers of pressure systems. Reflects pertinent issues such as: design and construction; provision of information and marking; installation; safe operating limits; matters concerning the written scheme of examination; imminent danger action; maintenance; modification/repair; record keeping; and specific precautions preventing pressurisation of certain vessels.

Gas Safety (Installation and Use) Regulations 1998

This Approved Code of Practice and Guidance relates to the Gas Safety (Installation and Use) Regulations 1998. The Regulations deal with the safe installation, maintenance and use of gas systems, including gas fittings, appliances and flues mainly in domestic and commercial premises.

The Regulations affect a wide range of people, from those installing, servicing, maintaining or repairing gas appliances and other gas fittings, to suppliers and users of gas, including some landlords.

The HSE approved class of persons that gas engineering businesses are required to be a member of the Gas Safe Register.

Appendix 3 – Further Guidance on PUWER, Pressure Systems, and LOLER.

PUWER

The College will ensure that:

- work equipment is constructed or adapted to be suitable for the purpose it is used or provided for;
- consideration is given to the working conditions and health and safety risks in the workplace when selecting work equipment;
- work equipment is only used for suitable purposes;
- work equipment is maintained in an efficient state, in efficient working order and in good repair;
- where a machine has a maintenance log, this is kept up to date;
- where the safety of work equipment depends on the manner of installation, it must be inspected after installation and before being put into use;
- where work equipment is exposed to deteriorating conditions liable to result in dangerous situations, it must be inspected to ensure faults are detected in good time so the risk to health and safety is managed;
- all people using, supervising or managing the use of work equipment are provided with adequate, clear health and safety information. This will include, where necessary, written instructions on its use and suitable equipment markings and warnings;
- all people who use, supervise or manage the use of work equipment have received adequate training, which should include the correct use of the equipment, the risks that may arise from its use and the precautions to take;
- where the use of work equipment is likely to involve a specific risk to health and safety (e.g. woodworking machinery), ensure that the use of the equipment is restricted to those people trained and appointed to use it;
- effective measures are in place to prevent access to dangerous parts of machinery. This will normally be by fixed guarding but where routine access is needed, interlocked guards (sometimes with guard locking) may be needed to stop the movement of dangerous parts before a person can reach the danger zone. Where this is not possible – such as with the blade of a circular saw – it must be protected as far as possible and a safe system of work used. These protective measures should follow the hierarchy laid down in PUWER regulation 11(2) and the PUWER Approved Code of Practice and guidance or, for woodworking machinery, the Safe use of woodworking machinery: Approved Code of Practice and guidance;
- measures are in place to prevent or control the risks to people from parts and substances falling or being ejected from work equipment, or the rupture or disintegration of work equipment;
- the risks from very hot or cold temperatures from the work equipment or the material being processed or used are managed to prevent injury;
- work equipment is provided with appropriately identified controls for starting, stopping and controlling it, and that these control systems are safe
- where appropriate, provide suitable means of isolating work equipment from all power sources (including electric, hydraulic, pneumatic and gravitational energy);
- work equipment is stabilised by clamping or otherwise to avoid injury;

- appropriate measures are in place to ensure maintenance operations on work equipment can be carried out safely while the equipment is shut down, without exposing people undertaking maintenance operations to risks to their health and safety.

Pressure Systems

The College will:

- When installing new equipment, ensure that it is suitable for its intended purpose and that it is installed correctly. This requirement can normally be met by using the appropriate design, construction and installation standards and/or codes of practice. From 30 May 2002, most pressure equipment placed on the market must meet the requirements of the Pressure Equipment Regulations 1999. For pressure equipment not covered by the Pressure Equipment Regulations 1999, the more general requirements of the Pressure Systems Safety Regulations 2000 apply.
- Ensure the pressure system is designed and manufactured from suitable materials. Ensure the vessel, pipes and valves should have been made of suitable materials for the liquids or gases they will contain.
- Ensure the system can be operated safely - without having to climb or struggle through gaps in pipework or structures, for example.
- Be careful when repairing or modifying a pressure system. Following a major repair and/or modification, there may be a need to have the whole system re-examined before allowing the system to come back into use.
- Know what liquid or gas is being contained, stored or processed (eg is it toxic/flammable?).
- Know the process conditions, such as the pressures and temperatures.
- Know the safe operating limits of the system and any equipment directly linked to it or affected by it.
- Ensure there is a set of operating instructions for all the equipment and for the control of the whole system including emergencies.
- Ensure that appropriate employees have access to these instructions, and are properly trained in the operation and use of the equipment or system (see the section on training).
- Ensure suitable protective devices are fitted to the vessels, or pipework (eg safety valves and any electronic devices which cause shutdown when the pressure, temperature or liquid or gas level exceed permissible limits).
- Ensure the protective devices have been adjusted to the correct settings.
- Where warning devices are fitted, ensure they are noticeable, either by sight or sound.
- Ensure protective devices are kept in good working order at all times.
- Ensure that, where fitted, protective devices such as safety valves and bursting discs discharge to a safe place.
- Ensure that, once set, protective devices cannot be altered except by an authorised person.
- Ensure all pressure equipment and systems are properly maintained. There should be a maintenance programme for the system as a whole. It should take into account the system and equipment age, its uses and the environment.
- Look for tell-tale signs of problems with the system, eg if a safety valve repeatedly discharges, this could be an indication that either the system is over pressurising or the safety valve is not working correctly.
- Look for signs of wear and corrosion.
- Ensure systems are depressurised before maintenance work is carried out.
- Ensure there is a safe system of work, so that maintenance work is carried out properly and under suitable supervision.

Under the Pressure Systems Safety Regulations 2000, a written scheme of examination is required for most pressure systems. Exempted systems are listed in the Regulations. Generally speaking, only very small systems are exempted.

- The written scheme should be drawn up (or certified as suitable) by a competent person. It is the duty of the user of an installed system and the owner of a mobile system to ensure that the scheme has been drawn up. You must not allow your

pressure system to be operated (or hired out) until you have a written scheme of examination and ensured that the system has been examined.

- The written scheme of examination must cover all protective devices. It must also include every pressure vessel and those parts of pipelines and pipework which, if they fail, may give rise to danger.
- The written scheme must specify the nature and frequency of examinations, and include any special measures that may be needed to prepare a system for a safe examination.
- The pressure system must be examined in accordance with the written scheme by a competent person.
- For fired (heated) pressure systems, such as steam boilers, the written scheme should include an examination of the system when it is cold and stripped down and when it is running under normal conditions.

LOLER

The College will ensure:

- Lifting equipment is of adequate strength and stability. This adds to the general obligations under PUWER regarding the suitability of work equipment.
- Lifting equipment will be positioned or installed in such a way as to reduce the risk, as far as reasonably practicable, of the equipment or load striking a person, or of the load drifting, falling freely or being unintentionally released.
- All lifting equipment, including accessories, will be clearly marked to indicate their 'safe working loads' (SWL) - the maximum load the equipment can safely lift.
- Where the SWL of any equipment or accessory depends on its configuration, the information provided on the SWL must reflect all potential configurations (for example, where the hook of an engine hoist can be moved to different positions, the SWL should be shown for each position). In some cases, the information should be kept with the lifting machinery, eg the rated capacity indicator fitted to a crane, showing the operator the SWL for any of the crane's permitted lifting configurations.
- Accessories will be marked to show any characteristics that might affect their safe use. This may include the weight of the parts, where their weight is significant.

All lifting operations involving lifting equipment will be:

- properly planned by a competent person;
- appropriately supervised, and
- carried out in a safe manner.

Lifting equipment will be thoroughly examined in a number of situations, including:

- before first use (unless there is a valid Declaration of Conformity made less than 12 months earlier);
- where it depends on installation, or re-installation / assembly at another site;
- where it is exposed to conditions causing deterioration, liable to result in danger.

Records of thorough examinations will be made and, where defects are identified, will be reported to both the person using the equipment (and to any person from whom it has been hired or leased), and the relevant enforcing authority (HSE for industrial workplaces; local authorities for most other workplaces).