

Code of Practice for Managing the Selection and Use of Personal Protective Equipment

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Reviews and Revisions

Action	Date	Reason	Reviewer
Statement Update	20/06/2017	Reference to ensure the use of PPE is not shared as stated within 'Provision of Health and Safety (Miscellaneous Amendments) Regulation 2002	S.Hewes

1. Introduction

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

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

This code of practice has been developed to provide guidance regarding selection, use and maintenance of Personal Protective Equipment (PPE) and identifies what is required by Managers, Supervisors and employees to ensure compliance with the requirements of the Personal Protective Equipment Regulations 1992.

All selected PPE must conform to the appropriate British (BS) or European (EN) Standards. It must be "CE" marked and be provided with comprehensive user information. The CE marking signifies that the PPE satisfies basic safety requirements, and in some cases will have been tested and certified by an independent body. It is recommended that PPE be purchased from a recommended supplier.

PPE should always be considered as 'the last resort' whilst engineering controls and safe systems of work should always be considered first as they can be equally or more effective.

The reasons for this are:

- Controlling the risk at source can protect others, whereas PPE only protects the wearer
- If the PPE fails, the user may be exposed to the hazard
- The actual level of protection from the PPE is difficult to assess
- PPE may restrict the wearer by, e.g. limiting mobility/visibility and therefore introduce additional hazards.

The Personal Protective Equipment Regulations 1992 do not apply to the following activities as they are governed by other Regulations. However it should be noted that the principles of assessment, selection, maintenance and training are common to all Regulations that refer to PPE.

- The Control of Lead at Work Regulations 2002
- The Ionising Radiations regulations 1999
- The Control of Asbestos Regulations 2012
- The Control of Substances Hazardous to Health Regulations 2002 (COSHH)
- The Control of Noise at Work Regulations 2005
- Health and Safety (Miscellaneous Amendments) Regulations 2002

When implementing health and safety measures which include the selection and use of PPE, Managers and Supervisors should consult

- Safety representatives appointed by recognised trade unions ; and
- Where there are employees who are not represented by such representatives, either directly or indirectly through elected representatives.

Consultation with those who carry out the work and wear the PPE is crucial to make sure the correct PPE is chosen, that it is maintained properly, and staff are given any appropriate training.

2. Why is Personal Protective Equipment important?

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

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

- The lungs – e.g. from breathing in contaminated air
- The head and the feet – e.g. from falling materials or objects
- The eyes - e.g. from flying particles or splashes of corrosive liquids
- The skin – e.g. from contact with corrosive materials
- The body – e.g. from extremes of heat or cold

3. Definitions of Personal Protective Equipment

Personal protective equipment includes all equipment, (including clothing affording protection against the weather) which is intended to be worn or held by an employee and which protects against one or more risks to health or safety.

PPE includes the following when they are worn for health and safety protection: Safety helmets, gloves, masks, eye protection, high-visibility clothing, safety footwear, safety harnesses. These are some examples.

Waterproof or insulated clothing is subject to the Personal Protective Equipment Regulations only if its use is necessary to protect employees against adverse climatic conditions that could otherwise adversely affect their health or safety.

Except in the case of uniforms, which the University requires the employee to wear when on duty, an employee will be expected to wear clothing generally suitable for which he/she is employed. Any additional items of clothing or PPE should be identified through Risk Assessment.

4. PPE Risk Assessments

A Health and Safety Risk Assessment should be used to identify where PPE is required. The risk assessment should consider the use of PPE as a last resort for the control of risk after all other practicable measures have been taken such as:

- Can the hazard be removed altogether?
- If not, how can the risk be controlled so harm is unlikely?
- Is there a less risky option e.g. use of lower voltage tools.
- Prevent access to the hazard, e.g. by guarding.
- Organise the work to reduce exposure to the hazard.
- If after all of the above there is still a residual risk, PPE will need to be provided.
- Is specific PPE compatible with other PPE worn simultaneously by the user?

When undertaking a risk assessment it is important to remember that PPE only protects the worker when it is correctly chosen, fitted and used. Where PPE is considered appropriate, managers must ensure that it is suitable for the risk it is designed to protect against, and a PPE risk assessment must be completed in all cases.

The following points should be considered when undertaking a PPE risk assessment:

- The risks in the workplace.
- The nature of the job or task.
- The parts of the body that may be affected.
- The degree of physical effort involved.
- How long the PPE must be worn
- Any special requirements e.g. ease of use when wearing spectacles with other PPE.
- Provide adequate control of any identified risks, without adding to the risk.
- Provide minimal discomfort to the wearer.

Also, when selecting and using PPE, the following questions should be asked:

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

5. Selection and use of PPE

- Choose products which are CE marked in accordance with the Personal Protective Equipment Regulations 1992 – suppliers can advise you.
- Choose equipment that suits the user – consider the size, fit and weight of the PPE. If the users help choose it, they will be more likely to use it.
- Make sure that if more than one item of PPE is being worn, they can be used together, e.g. wearing safety glasses may disturb the seal of a respirator causing air leaks.
- In the interests of hygiene and free from risk to health, PPE is NOT to be shared amongst other users.

The PPE provided to employees and students must be suitable for the purpose and person. In selecting the appropriate PPE, the health of the wearer must be taken into consideration. If there is any doubt as to the wearer's health the Occupational Health Service should be contacted for advice.

6. Responsibilities of Managers

Following on from the Risk Assessment process all Managers, Supervisors and employees involved with determining the selection and supply of PPE must take into account the following criteria:

- Each case should be assessed, taking into account all of the tasks and potential hazards involved, including inclement weather. In cases where the health and safety of the employee would be at risk without some additional protection, advice is available from the Health and Safety Office on 0191 243 7318 if required.
- If protection is considered necessary, the appropriate type of clothing/equipment for the particular activity/task/potential hazard concerned needs to be determined, **(a non-exhaustive guide list and considerations of items of protective equipment is included in appendix 1).**
- Ensure an effective maintenance system for PPE is carried out and recorded by competent staff. **See 9. Maintenance and Storage of Personal Protective Equipment.**
- Ensure systems for the reporting of defects is effectively understood by all employees.

7. Information, Instruction, Training and Supervision

Managers and Supervisors must ensure that all employees who are required to use or maintain PPE receive adequate information, instruction and training which is adequate and appropriate, so that the employee or student understands how to use it, for example, train people how to remove their glasses without contaminating their skin, and enable them to know:

- The risks that the PPE is controlling and the purpose for which it is being used;
- The way in which the PPE controls the risks and its limitations;
- Why the PPE is appropriate;
- The way to use the PPE to ensure that it is effective and, when appropriate, test it;
- How to maintain the PPE in effective working order and good repair.
- Where necessary, train and instruct workers to put on and remove contaminated clothing without contaminating themselves.

The extent of the training required will depend on the type of equipment, how frequently it is used and the needs of the staff being trained.

Anyone involved in a supervisory role must also have adequate training and instruction relating to PPE in order for them to have the necessary skills to spot potential bad practices, defects or incorrect use of equipment by staff.

Training records should be kept wherever more than very simple instruction is required.

8. Employee Responsibilities

All employees who are required to use PPE must:-

- Wear it on every occasion where it has been identified as being necessary or appropriate;
 - Make proper use of the equipment provided, in accordance with the training received;
 - Report any defects or loss of PPE immediately to their Supervisor/Line Manager;
 - Store PPE correctly. Ensure items of PPE used together are compatible with each other to ensure they continue to be effective against the risks.
- (a) Do not reuse disposable PPE.
 - (b) Do not leave contaminated work areas without removing the contaminated clothing in appropriate changing areas.
 - (c) Do not store PPE in direct sunlight or in hot and humid places as this can cause damage.
 - (d) Do not share the use of PPE with others.

9. Maintenance and Storage of Personal Protective Equipment

PPE must be well looked after and properly stored when not in use to protect it from loss or damage, e.g. in a dry clean cupboard. If it is re-usable, it must be cleaned and kept in good condition.

A storage facility should be provided for PPE which has become contaminated during use, and this should be separate from that provided for ordinary clothing.

If the PPE contains hazardous materials, it may need special storage arrangements.

Some common selection, use and maintenance advice for PPE are:

PPE should be labelled to show what it protects against and is resistant to. Talk to manufacturers and suppliers on the protection offered by their products before buying. Another useful source of information is the British Safety Industry Federation (Tel: 01745 585600 Website: www.bsif.co.uk)

Always use PPE according to the manufacturer's instructions. The Personal Protective Equipment Regulations 1992 state that PPE on the market must be supplied with relevant information in the official language(s) of the country of destination, and must include:

- (i) storage, use, cleaning, maintenance, servicing and disinfecting.
- (ii) the level of protection provided by the PPE, and its limitations on use.
- (iii) Suitable PPE accessories and appropriate spare parts.
- (ii) The obsolescence period for the PPE or certain parts of its components.

Simple maintenance of PPE can be carried out by the trained wearer. More intricate repairs, or repairs to complex equipment should only be done by specialist personnel.

PPE should be regularly checked and inspected for condition, defects and continued effectiveness.

Manufacturer's maintenance schedules and instruction should normally be followed; any significant departure from them should be discussed with the manufacturers.

Where appropriate, records of maintenance, examinations and tests must be kept. Records should include:

- (i) Type of Personal Protective Equipment (PPE) including Examination – checking for faults, damage, wear and tear, dirt, etc.
- (ii) Provision of appropriate storage for PPE including segregation of contaminated and decontaminated items, separate storage of personal clothing and any additional measures required for mobile workers.

10. Types of Personal Protective Equipment

10.1 Head Protection

Types of head protection:

- (a) **Industrial safety helmets** - Protect against falling objects or impact with fixed objects and offer limited resistance to flame. Helmets are also available which give protection against impact at high or low temperatures, against electrical shock from brief contact up to 440 V ac and against molten metal splash.
- (b) **Bump caps** - Protect against bumping the head (e.g. walking into a fixed object) and scalping, and can stop hair getting caught in machinery and moving parts. Bump caps do not offer adequate protection where there is a risk of falling objects or moving or suspended loads.
- (c) **Transport helmets** - Protect against head injuries from falling off a motorcycle or bicycle. The PPE at Work Regulations do not cover the provision of motorcycle and bicycle helmets on the road. Motorcycle crash helmets are legally required for motorcyclists under road traffic legislation. However in off-road situations, employers should provide suitable transport helmets, for example motorcycle helmets for workers who use all-terrain vehicles (ATVs).
- (d) **Leisure helmets** - Helmets used for activities, such as horse riding, canoeing or climbing, which protect against the risks of that particular activity.



Industrial Safety Helmets
Approval BS EN 397



Figure 2. Bump Caps
Approval BS EN 8112

Figure 1.

Examples of hazards or situations where head protection may be required are:

- (a) Low-level fixed objects, for example pipe work, machines or scaffolding where there is a risk of collision;
- (b) Transport activities, hoists, lifting plant, conveyors etc. involving the risk of falling material;
- (c) tree-felling;

Key Points

The key points to note for head protection are:

- (a) Use an adjustable chinstrap, if fitted, to make sure the helmet does not fall off.
- (b) Clean the inside of the helmet and clean or replace sweatbands regularly.
- (c) Check regularly that any damage to the outside is no more than shallow scratches or grazes and that the internal harness is not damaged or deformed.
- (d) Throw head protection away after significant impact by a fixed or falling object. Head protection is unfit for use if the outside is deeply scratched, worn or deformed, the harness is damaged or deformed or it is beyond its usable protective life*.
- (e) Wear the helmet so that the brim is level when the head is upright. Do not wear it sloping up or down as this may significantly reduce the protection it can provide.
- (f) Do not wear head protection back to front - it will not protect you if you do.
- (g) Do not customise head protection, e.g. make your own ventilation holes, paint, mark or put stickers on it.
- (h) Do not wear a baseball-style bump cap where there is a risk of falling objects - wear an industrial safety helmet instead.

* As a general guide, industrial safety helmets should be replaced three years after manufacture, but always check with the manufacturer.

10.2 Eye and Face Protection

Types of Protection

The main types of eye and face protection are:

- (a) **Safety spectacles** - May be separate lenses in a metal or plastic frame (similar in appearance to prescription glasses) or have a single lens/frame moulding (sometimes called eye shields). Most designs have side shields. Spectacles can incorporate corrective lenses, while eye shields may fit over prescription glasses.
- (b) **Goggles** - These are made with a flexible plastic frame and one or two lenses with a flexible elastic headband. They give the eyes protection from all angles as the complete rim is in contact with the face. Some goggles are ventilated and may be unsuitable for protection against gases and fine dusts.
- (c) **Face shields** - These have one large lens with a frame and adjustable head harness or are mounted on a helmet. Most can be worn with prescription glasses. They protect the face but do not fully enclose the eyes.



Figure 3. Safety Spectacles
Approval BS EN 166



Figure 4. Face Shield
Approval BS EN 16

The main hazards are:

- (a) Liquid or chemical splash as a result of handling or coming into contact with dangerous liquids or chemical substances.
- (b) Working with power-driven tools, where chippings or debris are likely to fly into the face, or abrasive materials may be projected.
- (c) Dust, gas or liquid mist from machines, high-pressure cleaning, or using gas or vapour under pressure.
- (d) Radiant heat, molten metal, hot solids, sparks or hot liquid splash from working in hot conditions, for example welding, ovens, furnaces etc.
- (e) Intense light or other optical radiation emitted at levels liable to cause risk of injury, for example welding, lasers etc.

Key Points

The key points to note for eye and face protection are:

- (a) Make sure the eye/face protection fits the user and does not fall off easily. It should be issued on a personal basis.
- (b) Consider misting/fogging. Anti-mist and ventilated eye protection is available.
- (c) Store eye protection in a protective case.
- (d) Follow the manufacturer's instructions on cleaning, not forgetting headbands and frames. Use only anti-mist, cleaning and anti-static fluids and cloths recommended by the manufacturer.
- (e) Do not use when visibility is noticeably reduced (e.g. the lenses are deeply scratched or worn) or the frame, headband or harness is deformed. Throw them away and replace them.

10.3 Hand and Arm Protection

Types of Protection

There are four types of hand and arm protection:

- (a) **Gloves** - hand only.
- (b) **Gloves with a cuff** - hand and wrist.
- (c) **Gauntlets/sleeves/long gloves** - hand, wrist and part of forearm.
- (d) **Sleeves/arm protection** - part or whole of forearm and/or upper arm.

Examples of hazards which may require hand/arm protection

Some examples where hand and arm protection may be required are:

- (a) Protection from cuts and abrasions, for example when handling sharp or pointed objects.
- (b) To keep hands warm and supple in cold weather, for example when working on a building site, as manual dexterity is lost when the hands are cold.
- (c) To keep hands warm in cold weather when operating machines that cause vibration, such as pneumatic drills and chainsaws. Vibration white finger occurs more often and more severely when the hands and fingers are cold as the blood supply to the fingers is reduced by the body in an attempt to conserve heat.
- (d) Danger from electrical hazards.
- (e) Handling or coming into contact with chemicals, for example maintenance of machinery, cleaning up chemical spillages and mixing and dispensing pesticide formulations.
- (f) Handling radioactive materials.
- (g) Handling hot or cold materials and work involving accidental contact with naked flames such as welding, ovens etc.



Figure 5. Hand protection in laboratories
Approval EN 374 2003



Figure 6. Protection from cuts etc.
Approval EN 388

Note: **It is the policy of the University NOT to use products or articles which contain or are made up from latex**

Key Points - The key points to note for hand and arm protection are:

- (a) Make sure that users are not allergic to or sensitised by the material, for example latex gloves are made of rubber and the proteins present in the rubber are skin and respiratory sensitises. :
- (b) Ensure they fit the wearer properly and are worn correctly for the job being done. For example there should be no gap between the glove and the wearer's sleeve when handling dangerous chemicals.
- (c) Ensure users can handle and remove the gloves carefully to avoid contamination of the hands and the inside of the glove. Contaminants that get inside the glove and sit permanently against the skin may cause greater exposure than if a glove had not been worn at all. Many wearers are not instructed on how to correctly put on and take off gloves, which means that the insides of the gloves become contaminated when worn for the second time or more. This contamination can cause damage to the skin.
- (d) Ensure users clean their hands thoroughly when they change gloves and moisturise their hands at least once a day.
- (e) Check gloves regularly and throw them away if they are worn or have deteriorated. They should be free of holes or cuts and debris and their shape should not be distorted.
- (f) **Do not** wear a glove for extended periods as this can lead to the development of excessive moisture (sweat) on the skin which in itself will act as an irritant.
- (g) **Do not** use pre-work creams, sometimes sold as barrier creams, as a replacement for carefully selected gloves. They are not PPE because:
 - (i) They do not provide protection against hazards;
 - (ii) Workers may not apply them properly, leaving part of their skin uncovered;
 - (iii) There is no information available on the rate of penetration of substances through pre-work creams; and
- (iv) Protection may be removed while working without workers noticing.
- (h) Select carefully for chemical resistance and protection, especially against mixtures, and do not use for longer than the recommended breakthrough times. Manufacturers will advise on breakthrough times for their products.

Selection of hand protection/gloves should be made giving consideration to the composition of the gloves, i.e. latex, protein content and chemicals from processing, whether powdered or not, **See Appendix 2. 'Hand Protection guidance' for additional information on selection.**

10.4 Protective Clothing (including the legs)

Types of Protection

Protective clothing must offer some specific protection – if it does not, it is classified as 'work wear'. There are three main types of protective clothing:

- (a) **Separates** - jackets, trousers etc. that only cover part of the body.
- (b) **Aprons** - that only cover part of the body.
- (c) **Overalls, coveralls and body suits** - which cover the whole body.

As well as trousers for leg protection there are also knee pads and gaiters. Hard fibre or metal guards will help protect against some impacts.



Figure 7. Chemical Apron
Approval BS EN 467 1995



Figure 8. Waterproof foul weather

The main hazards are:

- (a) Working with chemicals — handling small quantities of low-risk chemicals may only require aprons protecting against accidental splashes. Larger quantities of chemical or risks of contact with sprays or jets of chemical are likely to require protective coats/trousers or coveralls. Potential exposures to large quantities of chemical or very hazardous materials will often require the use of gas- or liquid-tight suits and appropriate RPE.
- (b) Cuts and hazards working with knives, machinery etc. - use clothing made of thick or padded material or multi-layer reinforced fabric, aramid fibres (e.g. body armour material) or chain mail.†
- (c) Electrical hazards - use electrical insulating clothing when working on or near live parts of low-voltage installations at nominal voltages up to 500 V ac or 750 V dc. The clothing needs to be used with other electrical insulating PPE, such as boots and gloves. It prevents electrocution when there is a risk of unintentional contact with live parts. Use conductive clothing for live working (especially bare-hand working) at a nominal voltage up to 800 kV ac. This clothing also includes gloves, shoes, mitts and hoods.
- (d) Electrostatic hazards - where clothing is to be used in potentially explosive atmospheres, select clothing made from materials which have been shown to resist the build-up of static electricity.
- (e) Cold from working outside or in a cold/freezer area - use clothing made of thick or padded material or multi-layer leather or fabric or thermal insulating fabrics. Minus 25 and Minus 50 suits are available which are designed to protect at these sub-zero temperatures.
- (f) Wet when working outside in the rain or using water sprays for cleaning etc. – use rubbers, plastics, water-repellent coatings, waterproof and breathable fabrics.
- (g) Radiant heat and flame from welding, metalworking, foundries - use suitable flame-retardant, insulating and heat-resistant fabrics.

Key Points

The key points to note about protective clothing are:

- (a) Store used/contaminated clothing separately from clean clothing.
- (b) Select protective clothing carefully for chemical resistance and protection, especially against mixtures, and do not use for longer than the recommended breakthrough times. Manufacturers will advise on breakthrough times for their products.
- (c) Clean clothing according to the manufacturer's instructions. For chemical suits hygienic cleaning may be possible but industry guidance is that this clothing cannot be effectively decontaminated.
- (d) Inspect for wear and tear, loose seams and surface damage before use.
- (e) **Do not** wear loose protective clothing near moving machinery in case it gets caught.

10.5 High-Visibility Clothing

Most high-visibility clothing has a fluorescent yellow or orange background, made from materials impregnated with fluorescent pigments, with bands of shiny retro-reflective material. It is designed to make the wearer easy to see under any light conditions in the day and under illumination, for example by vehicle headlights in the dark.

Types of High-Visibility Clothing

There are three classes of high-visibility clothing. Each has minimum areas for the background and retro-reflective bands:

- (a) **Class 1** - the least conspicuous (waistcoats and most trousers).
- (b) **Class 2** - more conspicuous than Class 1 (waistcoats, jackets and some trousers).
- (c) **Class 3** - the most conspicuous (jackets and coveralls).



Figure 9 High-visibility waterproof jacket
Approval BS EN 471



Figure 10 High visibility Waistcoat

Examples of use

High-visibility clothing is used as follows:

- (a) Some industries specify a background colour, e.g. fluorescent orange is used as the background colour for railway work as specified in Railway Group Standard GO/RT3279.
- (b) Some industries may specify the type of clothing, e.g. the Code of Practice to the New Roads and Street Works Act 1991 as modified in 2002 requires Class 2 or 3 waistcoats or jackets for road work. Class 3 jackets (i.e. full length sleeves) should be worn on dual-carriageway roads with a speed limit of 50 mph or above.

Key Points

The key points to note for high-visibility clothing are:

- (a) Select high-visibility clothing suitable for the task. Clothing that protects from other hazards such as cold weather is often available with a high visibility option. Outdoor workers may need different clothing at different times of the year.
- (b) Inspect before use for wear and tear, or loose seams.
- (c) Ensure only correct cleaning materials are used. Lack of cleanliness is a significant factor in the loss of visibility.

10.6 Foot Protection

Types of Protection

Footwear is available in a range of styles, for example shoe, low ankle boot, high ankle boot, knee boot, thigh boot and even chest-high waders. The different types of protective footwear include the following:

- (a) **Safety boots or shoes** - These are the most common type of safety footwear. They normally have protective toe-caps and may also have other safety features including slip-resistant soles, penetration-resistant mid-soles and insulation against extremes of heat and cold.
- (b) **Wellington boots** - These are usually made of rubber and used for working in wet conditions. They are also useful in jobs where the footwear needs to be washed and disinfected for hygiene reasons, e.g. in the food industry and the chemical industry.
- (c) **Clogs** - These may also be used as safety footwear. They are traditionally made from beech wood and may be fitted with steel toe-caps and thin rubber soles for quieter tread.
- (d) **Footwear for specific tasks** - These protect against hazards in these areas, for example foundry boots and chainsaw boots.



Figure 11. Safety Boot with steel toecaps and steel midsole
Approval BS EN 150

Examples of hazards which may require foot protection

The main hazards which may need foot protection are:

- (a) Objects falling on and crushing the foot/toes - this will include jobs requiring manual handling, such as construction workers or removal people.
- (b) Treading on pointed or sharp objects (e.g. nails) on the ground piercing the shoe, injuring the sole of the foot and resulting in cuts and wounds.
- (c) Slips, trips and falls resulting in injuries such as sprained ankles. Although there is no such thing as non-slip footwear there are slip-resistant 'anti-slip' soles which can reduce the likelihood of slipping on certain floors.
- (d) Working in cold or hot conditions. Working in the cold requires footwear with thermal insulation. Work in hot conditions requires footwear with heat resistant and insulating soles. For protection against molten metal splash, footwear must have quick-release fastenings.
- (e) Electrical hazards.
- (f) Working in potentially explosive atmospheres or for the handling of sensitive materials (e.g. detonators). Footwear must be anti-static.
- (g) Working with and handling hazardous chemicals. Footwear should be impermeable and resistant to that chemical.
- (h) Wet work, for example using water sprays when cleaning. Water-resistant or waterproof material should be used. Wellington boot style footwear should be used for very wet work.

Key Points

Key points to note about protective footwear are:

- (a) Consider the comfort factors for the wearer. Generally footwear should be flexible, wet-resistant and absorb perspiration. Cushioned soles make standing more comfortable.
- (b) Inspect for wear and rear and loose seams before use. Replace broken laces and remove materials lodged in the tread of the sole.

10.7 Personal Fall Protection

Types of Systems

Personal fall-protection systems comprise of an assembly of components for protection against falls from height at work, including at least a body-holding device connected to a reliable anchor. Such systems include **work-restraint** systems, **work-positioning** systems, **rope-access** systems, **rescue** systems and **fall-arrest** systems.

The equipment and components used may sometimes be the same within any of these systems - it is the manner in which they are used which determines the type of system:

- (a) **Work-restraint** systems prevent the user from reaching zones where the risk of a fall exists. Such systems are sometimes incorrectly called 'fall restraint'.
- (b) **Work-positioning** systems support the user in tension or suspension while a task is being undertaken in such a way that a fall is prevented or restricted.
Such systems allow the user to have both hands free for working. However, work-positioning systems must always incorporate a back-up system (typically a fall-arrest system) designed to protect the user if the primary work-positioning system fails.
- (c) **Rope-access** systems use two separately secured sub-systems, one as the means of support and the other as a safety back-up for (specifically) getting to and from the place of work. Such systems become work-positioning systems when the user is at the place of work. It is important to note that in such a system both ropes are static (i.e. stationary) while the user moves up and down the rope. If the rope supporting the user moves with the user (i.e. as in a bosun's chair arrangement) the system is a work-positioning system not a rope-access system.
- (d) **Rescue** systems are personal protective systems by which a person can rescue themselves or others by pulling, lifting or lowering.
- (e) **Fall-arrest** systems are personal protective systems where the fall is arrested to absorbance capacity built into the system and are designed to limit the forces on the human body to no greater than 6 kN. Examples are energy absorbing lanyards, inertia reel devices (when used correctly, i.e. anchored vertically above the user) or lead climbing using dynamic rope.
NB: When using fall arrest systems there is a risk of suspension trauma. Managers must have in place rescue plans which do not rely on the emergency services. Further information can be obtained at; <http://www.suspensiontrauma.info/>



Figure 12 Height Safety Harness Kit
Approval BS EN 361

Key Points

Key points to note about personal fall protection:

- (a) Consider all elements when selecting suitable equipment - the maximum descent height and load; safe and secure anchorage points; the length, type and number of ropes and lanyards; the specification of ascender/descender devices; a system for recovery after a fall. Regulation 5 of the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) requires that equipment used for lifting or lowering people is safe.
- (b) Inspect equipment at regular intervals. Regulation 9 of LOLER requires lifting equipment for lifting people to be examined every six months by a competent person if it is exposed to conditions causing deterioration which is liable to result in dangerous situations.
- (c) Special care needs to be taken when inspecting components made from webbing and rope because of the deterioration that can take place in these materials. Guidance on this topic and the recommended inspection frequency can be found in INDG367 *Inspecting fall arrest equipment made from webbing or rope*.

10.8 Hearing Protection

The PPE at Work Regulations do not apply to hearing protection except that it must be compatible with any other PPE provided. Full guidance on the selection, use, care and maintenance of hearing protection is given in L108 *Controlling noise at work: Guidance on the Control of Noise at Work Regulations 2005*. *Hearing protection should only be used where risks to hearing remain despite the implementation of other measures to control the noise, or while those other measures are being developed or put in place.

Types of Protection

There are two main types of hearing protection:

- (a) **Earplugs** - These fit into or cover the ear canal, to form a seal. They sometimes have a cord or neckband to prevent them being lost. They can be permanent (indefinite use), reusable (use only a few times) or disposable (use once).
- (b) **Earmuffs** - These are normally hard plastic cups, which fit over and surround the ears. They are sealed to the head by cushion seals (filled with plastic foam or a viscous liquid). The inner surfaces of the cups are covered with a sound-absorbing material, usually soft plastic foam. They can be headband or helmet mounted and some can have communication equipment built into them.



Figure 13. Ear plugs
Approval BS EN 352-2



Figure 14. Ear Defenders
Approval BS EN 352

10.9 Respiratory Protective Equipment

Full guidance on the selection, use and maintenance of respiratory protective equipment (RPE) is given in the HSE publication HSG53 *Respiratory protective equipment at work: A practical guide*. If you use RPE you need to refer to this document.

Types of RPE

Respiratory protective equipment is generally of two types:



Figure 15 Half face respirator
Approval BS EB 140 1998

- (a) **Respirators** that rely on filtering contaminants from workplace air. These include simple filtering face pieces and respirators and power-assisted respirators.
- (b) **Breathing apparatus**, which gives an independent supply of breathable air, for example fresh-air hose, compressed airline and self-contained breathing apparatus. You will need to use breathing apparatus in a confined space or if there is a chance of an oxygen deficiency in the work area.

To make sure that the selected RPE has the potential to provide adequate protection for individual wearers, the Approved Codes of Practice supporting the Control of Substances Hazardous to Health Regulations 2002 (as amended), the Control of Lead at Work Regulations 2002, and the Control of Asbestos at Work Regulations 2002 require the fit testing of RPE which incorporates a tight-fitting face piece. A tight face piece is a full-face mask, a half-face mask, or a filtering face piece.

RPE which requires a face seal is not suitable for persons with facial hair (beard/moustache). Filtered air hoods will be necessary for such individuals. **Contact the Health and Safety Office for arrangements for 'Face Fit Testing' on 0191 243 4100.**

11. Signage

Signage must be displayed on the door or other prominent position in an area where PPE is mandatory. There is no minimum standard for mandatory PPE as this must be determined by the risk assessment.



Figure 16 – Example of Personal Protective Equipment signage

12. Spillage and other emergencies

PPE provided for use to manage spillage or other emergencies should, wherever reasonably practicable, be stored outside the laboratory/area of intended use. The spillage/emergency kit must be stored in a suitable cupboard close to the main access/egress. Where this is not possible, face masks/filters etc. must be stored in sealed containers where they cannot become contaminated.

13. Paying for Personal Protective Equipment

The University must not charge for any PPE provided for employees.

14. Further Information and Guidance

Personal Protective Equipment at Work Regulations 2002.

Guidance on Regulations L25 HSE Books 2005 ISBN 97807 17661398 COSHH a brief guide to the Regulations: What you need to know about the Control of Substances Hazardous to Health Regulations 2002 (COSHH) Leaflet INDG136 (rev3) HSE Books

Noise at Work: A Brief Guide to Controlling the Risks Leaflet INDG362 (rev2) HSE Books (single copy free or priced packs of 10 ISBN 0 7176 2539 7)

Selecting protective gloves for work with chemicals: Guidance for employers and health and safety specialists Leaflet INDG330 HSE Books 2000 (single copy free of priced packs of 15 ISBN 0 7176 1827 7)

The Health and Safety (safety Signs and Signals) Regulations 1996

(HSE publications are available from HSE Books, PO Box 1999, Sudbury, Suffolk, CO10 2WA. Tel: 01787 7881165. Fax: 01787 313995. Website hsebooks.co.uk Many HSE publications can be downloaded from www.hse.gov.uk).

APPENDIX 1

Personal Protective Equipment Workplace Checklist

Personal Protective Equipment Workplace Checklist	YES	NO
Has a workplace risk assessment been conducted to determine which PPE items are necessary? Is this documented?		
Are Annual task analyses completed for employees and students requiring PPE?		
Has a process or chemical change occurred that requires additional levels of PPE? Were employees and students notified and training provided?		
Is a variety of sized PPE available as needed by employees and students?		
Are employees and students trained on the purpose of PPE and the hazards the PPE will protect them from?		
Are employees and students aware of the procedure for reporting damaged PPE to the supervisor?		
Are employees and students made aware of the limitations of the PPE?		
Have employees/students been trained on how and when they are to use the PPE?		
Are training records maintained, up to date and accurate?		
Is all PPE maintained in a sanitary condition and ready to use?		
Are temporary employees/visitors etc. advised on the correct use of PPE while in the work area?		
Has your (Material Data Safety Sheets) MSDS information been surveyed for required PPE?		
Are procedures in place for decontamination and disposal of PPE?		
Are PPE items for re-order verified for the same level of protection when there are changes in manufacturers?		
Are adequate levels of PPE stored on site or accessible to employees when needed?		
Is PPE available at no cost?		
Are protective gloves, aprons, shields, or other PPE provided where there is a danger employees/students could be cut or exposed to corrosive, hazardous or infectious materials?		
Are re-usable PPE cleaned and inspected before re-use?		
Are re-usable PPE inspected for wear and tear before each used and discarded as necessary?		

APPENDIX 2 Hand Protection Guidance

It is the policy of the University NOT to use products or articles which contain or are made up from latex

- Choose hand protection that adequately protects from the hazards of a specific job and adequately meet the specific tasks involved in the job. Consult the manufacturer's permeation and degradation charts for chemical compatibility.
- Follow the manufacturer's instructions for care, decontamination and maintenance of gloves.
- Be aware that some materials may cause reaction in some workers, such as allergies to latex. Offer alternatives where possible.
- Ensure gloves fit properly.
- Ensure all exposed skin is covered by gloves. Gloves should be long enough so that there is no gap between glove and sleeve.
- Do not wear gloves with metal parts near electrical equipment.
- Do not use gloves that are ripped, torn or brittle.
- Clean reusable gloves as instructed by the supplier.
- Do not clean and reuse disposable gloves. They must be discarded after use.
- Inspect and test all gloves (including new ones) for defects before using. This can be done by inflating them.

Table 1. HAND PROTECTION CHECKLIST	YES	NO
Are gloves used for chemical handling selected according to the manufacturer's permeation and degradation charts?		
Are employees trained in inspection, use and proper removal techniques?		
Are gloves inspected prior to each use?		
Is a selection of sizes available for employees and students?		
Are employees/students who demonstrate allergies provided with alternatives for use?		
Are appropriate decontamination and disposal guidelines in place?		

Table 2 EUROPEAN PERFORMANCE STANDARDS FOR GLOVES

TEST	PERFORMANCE LEVEL
Mechanical Hazards EN 388	
a. Resistance to abrasion	0-4 (0 is a fail or not tested)
b. Blade cut resistance	0-5
c. Tear resistance	0-4
d. Puncture resistance	0-4
e. Impact cut resistance	Pass
f. Antistatic	Pass
Chemicals and Micro-organisms EN 374	
Micro-organisms: Resistance to penetration by micro-organisms through porous materials, seams, pinholes or other imperfection in the glove material. Referred to as accepted quality level (AQL)	1-3
Resistance to Chemical Hazards: The measurement of time for a chemical to permeate through the glove material.	1-6
Thermal Hazards EN 407	
a. Resistance to flammability	0-4
b. Resistance to contact heat	0-4
c. Resistance to convective heat	0-3
d. Resistance to radiant heat	0-4
e. Resistance to small splashes of molten metal	0-4
f. Resistance to large splashes of molten metal	0-4
Protection from Cold EN 511	
a. Resistance to convective cold	0-4
b. Resistance to contact cold	0-4
c. Permeability of water	0-1

Code of Practice for Managing the Selection and Use of Personal Protective Equipment/SH/H,S&E/01.05.2013.