OSHAssociation UK

Occupational Safety and Health Training

for

International Professional Certificate in Occupational Safety and Health

COURSE 108 GUIDE

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Personal Protective Equipment

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Course Introduction

The Regulations are made under the Health and Safety at Work etc. Act 1974 (HSW Act) and apply to all workplaces in Great Britain.

The Regulations are based on European Community (EC) Directive 89/656/EEC requiring similar basic laws throughout the Community on the use of PPE in workplaces.

The revised guidance on the Regulations has been prepared by the Health and Safety Executive (**HSE**) on behalf of the Health and Safety Commission (HSC) after consultation with industries. It sets out the main steps required to comply with the Regulations.

There is existence of hazards in every workplace in many different forms: sharp edges, falling objects, flying sparks, chemicals, noise and a myriad of other potentially dangerous situations. Controlling a hazard at its source is the best way to protect employees. Depending on the hazard or workplace conditions, it is recommended to make use of engineering or work practice controls to manage or eliminate hazards to the greatest extent possible.

For example, building a barrier between the hazard and the employees is an engineering control; changing the way in which employees perform their work is a work practice control.

When elimination, substitution, engineering, and administrative controls are not feasible or do not provide sufficient protection, employers must provide personal protective equipment (PPE) to their employees and ensure they are used properly. Personal protective equipment, commonly referred to as "PPE" are equipment worn to minimize exposure to a variety of hazards.

Examples of PPE include such items as gloves, foot and eye protection, protective hearing devices (i.e., earplugs, and muffs), hard hats, respirators, and full body suits. Remember, PPE is the last resort in hazard control, not the first choice. Some employers may mistakenly believe PPE is the end of it all.

This course will help both employers and employees do the following:

- understand the various types of PPE;
- know the basics of conducting a "hazard assessment" of the workplace;
- select appropriate PPE for a variety of circumstances; and
- Understand what kind of training is needed in the proper use and care of the various types of PPE.

Personal protective equipment (PPE) is the last resort in controlling hazards and risks to the health and safety of employees.

In many cases, the use of PPE is unavoidable because of the type of work being done – employees working in cold stores need warm clothes and construction workers need protective gloves, forexample.

Key Words and Phrases

CE mark – the official safety marking required by the European Union for certain equipment that would be sold or put into service for the first time, anywhere in the European Union.

Hierarchy of control – a well-tested system of graded health and safety controls.

Personal protective equipment (PPE) – anything designed to be worn or held by someone at work to protect against one or more workplace hazards.

Respiratory protective equipment (RPE) – personal protective equipment such as masks, respirators, and breathing apparatus that protect against hazards such as dust, Vapour, gas or oxygen-deficient atmospheres.

What is Personal Protective Equipment (PPE)?

Personal protective equipment (PPE) is anything designed to be worn or held by someone at work to protect against one or more workplace hazards.
Examples of these types of equipment are:

- Gloves
- Safety footwear
- Safety helmets
- Eye goggles
- Hearing protectors
- Respiratory protective equipment
- Safety harnesses
- Life jackets
- High-visibility jackets
- Aprons and overalls
- Clothing to protect against cold

Personal protective equipment does not include cooperate uniforms (unless they are branded PPE items) or ordinary working clothes.

Where PPE is the only effective means of controlling the risk of injury or ill health, employers must ensure that it is available for use at work free of charge.

The Requirement for PPE

To ensure the greatest possible protection for employees in the workplace, the cooperative efforts of both employers and employees will help in establishing and maintaining a safe and healthy work environment.

In general, employers are responsible for:

- performing a "hazard assessment" of the workplace to identify and control physical and health hazards;
- identifying and providing appropriate PPE for employees;
- training employees in the use and care of the PPE;
- maintaining PPE, including replacing worn or damaged PPE; and
- Periodically reviewing, updating and evaluating the effectiveness of the PPE program.

In general, employees should:

- properly wear PPE;
- attend training sessions on PPE;
- care for, clean and maintain PPE;
- Inform a supervisor of the need to repair or replace a PPE.

What is required?
It is required to use personal protective equipment (PPE) to reduce employees' exposure to hazards when engineering and administrative controls are not feasible or effective in reducing these exposures to acceptable levels.

Employers are required to determine if PPE should be used to protect their workers and have an obligation to provide PPE, including personal protective equipment for eyes, face, head, and extremities, and protective clothing and barriers. Employers must also make sure employees use and maintain PPE in a sanitary and reliable condition.

What is proper use?

Personal Protective Equipment must be worn and used in a manner which will make full use of its protective qualities. Low rates of compliance in wearing PPE usually indicate the safety management system is failing in some way. Any one of the following root causes may result in general non-compliance:

- the employer does not provide quality PPE
- the employer does not properly supervise the use ofPPE
- the employer fails to enforce the use of PPE
- the employer does not properly train employees on the use of PPE

A form of control

Personal protective equipment is the final control in the general **hierarchy of control** used to reduce the risk of harm from work activities.

The provision of items for personal protection should always be regarded as the last resorts in protecting workers against risk to their health and safety because:

- It is always better to eliminate a hazard from the work environment than to protect someone against harm (because it is far better to have control measures that protects all workers, rather than just individual workers)
- Total protection is rarely achieved with PPE
- Wearing PPE can be restrictive – for example, by affecting visibility or mobility or increasing bodytemperature.

Even so, there are many situations where there is no alternative but to provide personal protective equipment.

Legs amputated after cement burn

A maintenance worker was helping to resurface concrete yard. He was wearing ripped jeans and rubber boots and he knelt on the concrete to level it off. He developed a severe rash on his legs and suffered chemical burns that penetrated the full thickness of his skin.

He failed to notice the damage immediately because the wet alkaline cement destroyed the nerve ending in his knees. His legs felt numb, but he did not realize this was a chemical burns.

As a consequence, his right leg had to be amputated below the knee. The company had provided no personal protective equipment (knee pads and/or protective trousers) and it failed to warn the worker about the dangers of wet cement.

When and where is PPE required?

PPE is required wherever the conditions listed below are encountered that are capable of causing injury or impairment by being absorbed, inhaled, or physically contacted.

- hazards of processes
- environmental hazards
- chemical hazards
- radiological hazards
- mechanical irritants

Who pays for PPE?

Personal protective equipment (PPE), used during work must be provided by the employer at no cost to employees. However, the employer is not required to pay for non-specialty safety PPE.
-toe protective footwear (including steel)
-toe shoes or steel
-toe boots
-specialty prescription safety eyewear, provided that the employer permits such items to be worn off the job-site.

When the employer provides metatarsal guards and allows the employee, at his or her request, to use shoes or boots with built-in metatarsal protection, the employer is not required to reimburse the employee for the shoes or boots.

The employer must pay for replacement of PPE, except when the employee has lost or intentionally damaged the PPE. Where an employee provides adequate protective equipment he or she owns, the employer may allow the employee to use it and is not required to reimburse the employee for that equipment.

PPE Design

All personal protective equipment must be of safe design and construction for the work to be performed.

What should not be worn?

The PPE rules require that rings, wristwatches, earrings, bracelets, and other jewelry must not be worn if it is possible for it to come into contact with power driven machinery or electric circuitry.

What about back belts?

It's important that you understand that back belts should not be considered personal protective equipment in that they physically "protect" you from back injuries.

Devices such as back belts are not recognized to control measures to prevent back injury. While they may be accepted by individual workers because they feel as if they provide additional support, if used improperly, they may restrict the body's range of motion and possibly aggravate other ergonomic stressors in the job.

Research indicates that the primary value in back belts, when used properly, is that they "remind" the employee to use proper lifting techniques. As a result, fewer back injuries occur.

Work Clothing

Clothing must be worn which is appropriate to the work performed and conditions encountered.

Loose sleeves, ties, lapels, cuffs and loose clothings must not be worn near moving machinery.

Make sure that you immediately remove clothing that becomes saturated or impregnated with flammable liquids, corrosive or toxic substances, irritants, or oxidizing agents. Do not wear it again until it is properly cleaned.

Defective and Damaged Equipment

Defective or damaged personal protective equipment must not be used. It is important to inspect PPE regularly, and before each use to make sure it is capable of adequately protecting an employee from exposure to hazards.

Remember, PPE that is defective...is not PPE, because it exposes an employee to danger.

Hazard Assessment

A first critical step in developing a comprehensive safety and health program is to identify physical and health hazards in the workplace. This process is known as a "hazard assessment." Potential hazards may be physical or health-related and a comprehensive hazard assessment should identify hazards in both categories.

Examples of physical hazards include moving objects, fluctuating temperatures, high intensity lighting, rolling or pinching objects, electrical connections and sharp edges. Examples of health hazards include over exposure to harmful dusts, chemicals or radiation.

The hazard assessment should begin with a walk-through survey of the facility to develop a list of potential hazards in the basic hazard categories below.

- Impact
- Penetration
- Compression (roll-over),
- Chemical
- Heat/cold
- Harmful dust
- Light (optical)radiation
- Biological contaminants

Hazard Assessment for PPE

For _____

(Name of Company)

JOB/POSITION/DEPARTMENT:_____ DATE:_____

NAME OF PERSON PERFORMING THE ASSESSMENT:_____

FOOT HAZARDS (A)	
EYE/FACE HAZARDS (B)	
RESPIRATORY HAZARDS (C)	
HEAD HAZARDS (D)	
ELECTRICAL HAZARDS (E)	
HAND HAZARDS (F)	
TORSO, ARM, AND LEG HAZARDS (G)	
HEARING/NOISE HAZARDS (H)	
BLOOD/BODY FLUID EXPOSURES (I)	

A. Examples of exposures requiring foot protection: Falling and rolling objects, object piercing the sole, electrical hazards.

B. Examples of exposures requiring eye and face protection: Flying particles; molten metal; liquid chemicals, acids, or caustics; chemical gases or vapors; potentially injurious light radiation. Note: Slide protection required for flying objects.

C. Examples of exposures requiring respiratory protection: Asbestos and lead removal, insufficient ventilation for chemical and dust exposures, emergency response.
Note: Monitoring of the employee's breathing zone for air contaminants is part of hazards assessment.

D. Examples of exposures requiring head protection: Falling objects, exposed electrical conductors that could make contact with the head.

E. Examples of exposures requiring electrical protection: Working on or near energized parts, installations, etc.

F. Examples of exposures requiring hand protection: Skin absorption of harmful substances, severe cuts or lacerations, severe abrasions, punctures, chemical or thermal burns, harmful temperature extremes, radiation, fire, and sparks.

G. Examples of exposures requiring torso protection: heat sources, hot metal exposure during welding operations, mixing of dangerous drugs

H. Examples of exposures requiring hearing protection: Noise hazards = 85 decibels (mandatory at = 90 decibels) based on an 8-hour time weighted average.

I. Examples of exposure to blood/body fluid requiring protection: touching/cleaning body fluids, non-intact skin, contaminated sharp objects, items/surfaces contaminated with body fluids, splashing/spraying/spattering of blood/body fluids to: head, torso or mucous membranes (eyes, nose, and mouth), first aid, CPR.

Choosing PPE

Employers must provide suitable PPE for employees who may be exposed to risks to their health and safety, except where other adequate controls have been made which are equally or more effective.

The employer must also assess the suitability of the PPE for the job to be undertaken and keep a record of the risk assessment of the work activities.
The protective equipment must be selected carefully to fit the wearer correctly after adjustment, also to be effective in controlling the specific risk involved, without increasing the risk overall.

Comfort is very important, although employees tend not to use PPE thinking it is uncomfortable. Most equipment will not cause any problem to an average healthy adult.

Where problems do occur (such as an allergy to latex), employers need to take medical advice as to whether the individual can tolerate wearing the equipment. Where hygiene is an issue – for instance, with respiratory equipment – the PPE must be provided for individual personal use.

All protective items must be maintained correctly to ensure that they are effective in protecting the wearer against any hazard.

Standards

European Union standards apply to the manufacture of PPE and every item should have 'CE' marked on it. The **CE mark** is the official safety marking required by the European Community for all equipment that will be sold, or put into service for the first time, anywhere in the European Community. It proves to the buyer and user that the product meets all the essential safety and environmental requirements defined in European directives.

The manufacturer carries out the test for the equipment to achieve the CE mark standard. In the UK, trading standard officers enforce the legislation covering equipment standards and they check that equipment comes up to the standard required.

Making the choice

A number of factors need to be taken into account when choosing suitable PPE, including:

- The nature of the job to be done
- The conditions where the exposure occurs
- The risk involved
- The demand placed on the worker – for example, the physical effort required to do the job
- How long the PPE has to be worn
- Ergonomic requirements (people should be able to move as freely as possible)
- The need for communication and visibility while wearing PPE during work activities
- Whether the PPE needs to be cleaned regularly, sometimes or after every use

- The wearer's physical characteristics – for example, whether they have a beard or wear spectacles or are especially tall
- Whether the PPE can be adjusted
- The state of health of the wearer
- The characteristics of the workstation of the employee
- The initial cost and maintenance costs

Using PPE

PPE needs to be maintained in efficient working order and in good repair. The type of maintenance depends on the type of PPE – for example, breathing apparatus needs specialist technical maintenance at regular intervals, but safety helmet requires only periodic inspection, plus a daily check before use by the wearer.

Some PPE can be used by several people, so it needs to be cleaned and, in some cases, disinfected between uses. Some other items are designed for single use and are disposable – for example, disposable overalls used for cleaning processes or disposable ear plugs.

Appropriate storage must be provided for the PPE so it can be kept safely when it is not in use – for example, a carrying case for eye goggles.

Training and instruction

Employees must be provided with information, instruction and training so that they:

- Are aware of the risks which the PPE will avoid or limit.
- Understand the purpose of its use.
- Know how to keep the PPE in efficient working order and in good repair.

The training could also include how to:

- Select the appropriate PPE for the job in hand
- Correctly put on, fit and wear the PPE
- Maintain and store the PPE

The appropriate level of instructions and training depends on the type of PPE. For example, wearing of gloves requires the minimal instruction, but the use of full breathing apparatus may require intensive theoretical and practicing training.

Whenever it is appropriate, employers must organise demonstrations for the correct way to use and wear PPE.

Supervision

Employers must take all reasonable steps to ensure that any PPE provided for employees is used properly. Managers need to establish disciplinary procedures to deal with staff who persistently fails to use the appropriate PPE.

Supervisors are probably in the best position to control the use and effectiveness of PPE, but safety representatives may also be able to play a part in disseminating information about safe use and monitoring how PPE is used.

You may be involved in organising the storage, cleaning, distribution, issuance and replacement of PPE.

This should be recorded and audited and reviewed at appropriate intervals. M onitor the use of personal protective equipment, ensuring that staff use them for relevant tasks. Clean and store them correctly. If an equipment is damaged or lost, staff should know to report it to their supervisors as so on as possible.

Make sure that information signage is kept in place, for example, signs about wearing hard hats on construction sites.

Risks

The use of personal protective equipment can sometimes increase risk. With some breathing apparatus, for instance, there is an increased risk that the user will trip or knock things over because vision is slightly impaired and the weight of the visor can make the wearer get tired quickly. As the apparatus can also reduce the wearer’s sense of smell, it is also possible that the user will be less alert to the smell of anything burning in the workplace.

Some protective clothing can make the wearer uncomfortably hot. Some full protective suits have loose fittings, so it is more likely that they could catch on something or become entangled in machinery. Some suits and breathing apparatus reduce movement, so they can restrict the wearer's reaction to danger.

The use of ear defenders (or hearing protectors) can make communication between employees difficult, while some types of protective gloves (such as latex ones) can lead to dermatitis for some wearers.

If PPE is not cleaned properly after use, other users could be exposed to the hazard that the equipment is designed to guard against. Faulty maintenance of PPE can also lead to exposure to hazards.

Poorly designed or loosed PPE increases the likelihood that the wearer will be harmed, as the equipment may not be effective against hazards. Workers must be trained in the proper use of the equipment.

There is a wide variety of PPE available which are specific to the part of the body that needs to be protected. The PPE can also be designed with the hazard in mind.

Head Protection

Head protection is used to protect against falls, falling objects, impact against fixed objects and entanglement. Crash helmet protects motor cycle couriers, riding helmet protects horse riders and safety helmet protects construction sites and slaughter house workers.

Eye Protection

Eye protection protects the wearer from flying debris, splashes from chemicals, molten metals, dust and laser light. Examples include safety spectacles, eye shields, goggles, face shields and hoods.

The different types of eye protection equipment are designed to protect the wearer against a particular hazard. They are used in work activities such as harsh chemicals in laboratories, schools and catering kitchens; carrying out metal grinding work or wielding operations in engineering factories; working with molten metal in foundries; and using lasers in hospitals or in the entertainment industries.

Hearing Protection

Hearing protection is used in any work activity where noise cannot be controlled by any other means. Hearing protectors (also known as ear defenders) and ear plugs are the most common types of ear protective equipment. Hearing protectors cover the whole ear and ear plugs fit into the ear canal. Some ear plugs can be used indefinitely, some are disposable, while others are reusable. They come in graded sizes.
Hearing protectors are more effective and reliable than ear plugs because they are adjustable and cover the whole ear.

Another type of hearing protection is a semi-insert. Pre-molded ear caps are attached to a headband which presses the ear caps against the entrance to the ear canal.

Hearing protection can be designed to protect the ear against a specific type of noise such as a high pitched sound. Some specialized protectors can detect a noise and generate a sound that partly cancels out the unpleasant noises.

Hand and Arm Protection

Different types of gloves protect against cuts and abrasions, hot and cold temperatures, skin irritation and contact with toxic or corrosive liquids.

They can, for example, provide protection against bricks in the construction industry and rough, abrasive objects in warehouses and retail shops. Thermal gloves should be used when staff needs to hold hot or cold objects – for example, in the retail and catering industries. Situations where protections against toxic substances are necessary include the maintenance of machinery and the preparation of pesticides on golf courses or in horticulture. Hairdressers should wear protective gloves when using chemical hair preparations. Chain-mail gloves are used by butchers to protect against knife cuts.

Foot Protection

Safety footwear protects the wearer from things falling unto the foot or lower leg, or sharp object penetrating the sole. Footwear can also be designed to reduce the amount of static electricity on the feet and improve slip-resistance in high-risk work environments. Examples of foot and leg protection include safety boots or shoes, clogs, foundry boots, wellington boots, anti-static footwear, gaiters and leggings.

Food protection is used, for example, in the construction industry and in manual handling activities. People who work in cold conditions need thermal footwear. Foresters and tree surgeons need boots that protects against contact with a moving chainsaw, foundry workers need protection against molten metal. Workers who have to enter flammable atmosphere, need anti-static footwear to prevent ignition due to static electricity. Catering workers need footwear that is slip resistant.

Respiratory Protective Equipment

Respiratory protective equipment (RPE) is designed to be worn in a contaminated atmosphere. There are two basic types of respiratory protective equipment. Simple respirators give basic protection against harmful dust, gases or micro-organisms. There are face masks with filters or powered respirators which take contaminated air from the work environment and filter or clean it before it is inhaled.

Self-contained respirators or breathing apparatus of the type used by fire service departments, deliver uncontaminated air to the wearer from an independent source. They are used in emergencies, in which the wearer would not survive without the breathing apparatus.

Body Protection

Various types of garments are used to protect the body against different hazards. Overalls and aprons protect against hazardous substances in the chemical industry; thermal overalls and suits protect against hot and cold weather or working conditions in farming, forestry, horticulture, warehousing, retail and food production; life jackets help to prevent drowning in the fishing and leisure industries, while high-visibility jackets help to stop the wearer from being hit by motor vehicles, train or aircraft and in the construction, oil, shipping and aircraft industries. Bullet-proof and knife-proof vests are worn by the police and security personnel to protect them againstviolence.

Legal requirements

The health and safety at work etc. Act 1974 prohibits employers from charging employees for personal protective equipment that is needed to carry out their work safely.

Employees must not damage or misuse equipment that is provided in the interest of health and safety at work. The main requirements for PPE are covered in the Personal Protective Equipment at Work Regulations 1992. PPE must be properly assessed before it is used to establish its suitability for purpose. It must fit properly and be maintained and stored properly.

Employees must be provided with adequate instructions on how to use them safely and wear them correctly. Apart from the regulations about compatibility of PPE, The Personal Protective Equipment at Work Regulations 1992 do not apply where the following regulations apply. The control of substances hazardous to health Regulations 2002; the ironizing radiation regulations 1999; the noise at work regulations 1989 and the construction (Head Protection) regulations 1989.

INSTRUCTIONS ON HOW TO USE PPE

a) Always use PPE according to the manufacturer's instructions. The Personal Protective Equipment Regulations 2002 state that PPE on the market must be supplied with relevant information in the official language(s) of the country of destination on:

(i) Storage, use, cleaning, maintenance, servicing and disinfecting;

(ii) the level of protection provided by the PPE;

(iii) suitable PPE accessories and appropriate spare parts;

(iv) limitations on use;

(v) The expiration period for the PPE or certainty of its components.

b) Ensure items of PPE used together are compatible with each other to ensure they continue to be effective against risks.

c) Train and instruct workers to put on and remove contaminated clothing without contaminating themselves.

d) **Do not** reuse disposable PPE.

e) **Do not** leave contaminated work areas without removing the contaminated clothing in appropriate changing areas.

f) **Do not** store PPE in direct sunlight or in hot and humid places as this can cause damage.

g) **Do not** use PPE if it is damaged or heavily worn. If it is unfit for use or past its usable protective life, dispose of it properly and replace it.

All PPE clothing and equipment should be of safe design and construction, and should be maintained in a clean and reliable fashion.
Employers should take the fit and comfort of PPE into consideration when selecting appropriate items for their workplace.

PPE that fits well and is comfortable to wear will encourage employee use of PPE. Most protective devices are available in multiple sizes and care should be taken to select the proper size for each employee.

If several different types of PPE are worn together, make sure they are compatible. If PPE does not fit properly, it can make the difference between being safely covered or dangerously exposed. It may not provide the level of protection desired and may discourage employee use.

Controlling Hazards

To control hazards, a hierarchy of controls has been used as a means of determining how to implement feasible and effective controls.

Occupational Health and Safety Management Systems encourage employers to employ the hierarchy of hazard control strategies listed below

- Elimination
- Substitution
- Engineering controls
- Administrative controls
- Personal protective equipment

The idea behind this hierarchy is that the control methods at the top of the list are potentially more effective and protective than those at the bottom. Following the hierarchy normally leads to the implementation of inherently safer systems, where the risk of illness or injury has been substantially reduced. Let us take a closer look at the hierarchy of control strategies.

Elimination and Substitution

Elimination and substitution are most effective at reducing hazards, they also tend to be the most difficult to implement in an existing process. If the process is still at the design or development stage, elimination and substitution of hazards may be inexpensive and simple to implement. For an existing process, major changes in equipment and procedures may be required to eliminate or substitute a hazard.

These strategies are considered first because they have the potential to completely eliminate hazards, thus greatly reducing the probability of an accident.

Redesigning or replacing equipment or machinery may be expensive, but remember that the average direct and indirect cost of a lost work time injury is higher than cost and fatality claims. Below are examples of these two strategies:

- Removing the source of excessive temperatures, noise, or pressure
- Substituting a toxic chemical with a less toxic or non-toxic chemical

Engineering Controls

Workplace hazards may be corrected using engineering controls which may be thought of as replacing or redesigning machinery, equipment, and tools, and/or substituting materials. Engineering controls are the "first line of defense" against injury/illness, because they have the potential to completely eliminate a hazard, and do not rely on human behavior to be effective.

For instance, rather than require employees to wear respiratory protection which must be monitored, inspected, trained, managed, it is much more effective to install a ventilation system that does not require any of those management activities.

Administrative Controls

Administrative controls can be accomplished with the stroke of the pen. It involves changing or redesigning work procedures, rescheduling breaks, changing the number of workers doing a job, and using personal protective equipment to reduce the frequency and duration exposure to the hazards associated with the tasks.

Using administrative controls alone is not as effective as engineering controls because, in most cases, they only reduce exposure -they don't eliminate the hazard. And even more importantly, administrative controls rely on human behavior (which introduces many variables in the long run) that must be continually managed.

KEY INFORMATION

The important thing to remember here is that PPE alone should not be relied on to provide protection against hazards, but should be used in conjunction with engineering controls and other administrative controls.

Let us start with this scenario!

You are told to mix a certain chemical with water to use as a cleaning agent to wash clean your company trucks. You check out the chemical. It looks like water, does not feel any different than water...so you assume PPE isn't really necessary.

So, you go about washing the trucks. Your hands and arms get pretty wet with the solution you've mixed, but, heck...no pain, no sting...must be safe. No worse than water, right? Wrong, very wrong.

You have been using a mixture of hydrofluoric acid and water. By the time you get home your arms are hurting like crazy. You hurry off to the hospital, but by the time you arrive, it is too late.

The hydrofluoric acid has penetrated your skin on both of your arms, clear through to the bone. Fluorine ions have replaced calcium ions in the bone, effectively turning it into a sponge-like consistency. But, you are lucky; only one arm must be amputated. The doctors were able to save the other arm.

Throughout this module, you will learn to ably participate in, conduct, or manage PPE training that is beneficial to the employee and cost effective for the employer.

What subjects must be trained?

According to the standard, to meet the minimum training requirements, each employee receiving PPE training must be trained to know at least the following:

1. **When PPE is necessary;**
2. **What PPE is necessary?**
3. **How to properly, "don", "doff", adjust, and wear PPE;**
4. **The limitations of specific PPE; and**
5. **The proper care, maintenance, useful life, and disposal of the PPE.**

The PPE standard does not specifically require education on "why" PPE is necessary.
So, why is this element so important? Because study after study tells us the most common reason employees do not follow rules in the workplace is because they don't know why the rules are important.

Educate the **"why"** as well as train the **"how"!**

It's important to understand that whenever we conduct PPE training, educating the "why" and training the "how" must always occur. If we neglect the educational component, we jeopardize the long-term effectiveness of the overall training.

The first five elements in the list describe the what, when, and how about PPE use. The goal is to increase both knowledge and skill so that the employee is better able to properly use PPE.

The methods used to train the employees are primarily discussion and demonstration. To measure knowledge and skill, the instructor usually tests the employee by asking them to do something.

The final "why" element addresses the importance of using PPE and what the consequences of behavior (compliance and failure to comply) will be. The natural consequences include some form of resulting injury or ill-health to the employee. The system consequently describe the nature of the discipline or recognition that will result from a performance. The goal of this last element is to increase employee motivation to use PPE so that the employee is more likely to use PPE properly.

The method used to educate is primarily classroom lecture or discussion. To measure motivation, the instructor usually tests the employee by asking them to write or say something.

Demonstration is the key

Before an employee is allowed to do work requiring PPE, the employer must require each affected employee to:

- Demonstrate an understanding of the training elements listed above;
- Demonstrate the ability to use PPE properly.

Demonstration is really the most common and probably the most efficient method to determine employee knowledge and skills. How does the employee demonstrate an understanding of the five PPE training subjects listed above? Simple, their level of knowledge is measured by asking the employee questions similar to those listed below.

1. What PPE is required for your particular job?
2. When is the PPE required to be used in your job?
3. What are the possible defects your PPE might have?
4. How do you properly care for and maintain/store your PPE?
5. What is the useful life of your PPE?
6. From what hazards does the PPE protect you?

The form of the "test" may be either written or oral.

If you are training a number of employees, you should give them a written test to best measure individual knowledge. In addition to the oral or written test, the standard requires some kind of method that provides an opportunity for the employee to demonstrate adequate skills. Here is a simple training strategy that ensures the student will have an opportunity to demonstrate well.

On-the-Job Training (OJT) Strategy

On-The-Job (OJT) is the most common training strategy used in the workplace and for a good reason. OJT can be very effective because it tests both knowledge and skills during the training process.

Let's take a look at the OJT steps!

Step 1:Introduction

State and discuss the learning objectives and answer any questions the employee may have. Discuss the acceptable standards of knowledge and performance. Tell the trainee what you are going totrain on.

Emphasize the importance of the procedure to the success of the production/service goals. Invite questions. Emphasize the natural and system consequences of their performances. The natural consequences describe the hurt or health that automatically shows up as results.

The system consequences are those consequences the organisation applies as a result of an employee's performance, discipline or positive recognition.

Step 2: Trainer tells and does.
In this step the trainee becomes familiar with each work practice and why it is important. Review the initial conditions for the procedure.

Demonstrate the process, carefully explaining each step as you go. Answer questions and continue to demonstrate and explain until the employee understands what to do, when and why to do it, and how to do it.

Step 3: Learner tells -Trainer does.
This step is necessary when exposure to hazards inherent in the procedure could cause serious harm. It protects the trainee because the trainer performs the procedure.
The trainee explains the procedure to the trainer, while the trainer does it. This gives the trainer an opportunity to discover whether there were any misunderstandings in the previous step. The trainee also responds to trainer's questions.

Step 4: Learner tells and does.

The trainer asks the trainee to do it. The trainee performs the procedure but remains protected because the trainee explains and gets permission to do the step before proceeding to do it.

Step 5: Conclusion.
Recognize accomplishment - **"Good job!"** Reemphasize the importance of the procedure and how it fits into the overall process.

Try the training again to accountability by discussing the natural and system consequences of performance.

Step 6: Document.
Training documentation should be more than an attendance sheet.

Be sure to include the information below to properly document (certify) training in specific safety procedures and practices. Include all of the following:

- Trainee's and trainer's name.
- Date oftraining.
- Subject(s) being trained -procedures, practices, related policies, rules, etc.
- Certification -trainee and trainer signatures.
- Trainee's statement of understanding and intent to comply.
- Trainee's statement that he/she was provided opportunity to practice.
- Trainer's statement that testing of knowledge and skills was conducted.
- Trainer's statement that student demonstrated adequate knowledge and skill.

Step 7: Validate.
At some point in time after the conclusion of the OJT session, observe and question the employee to validate that the training has been successful and that the employee has developed a proper attitude related to the work. What about online training?

An employer may not rely solely on the use of an online or video training program when training in the use of PPE. The trainee must be able to "don, doff, touch, feel and otherwise manipulate a

particular piece of personal protective equipment that an employer may require or provide to protect their employees to prevent injury or illness." In addition to the online training (including this course), PPE training must also include a hands-on portion so that the employee can practice using the PPE.

WHEN IS RETRAINING REQUIRED?

When the employer has reason to believe that any affected employee who has already been trained does not have the understanding and skill required by the PPE standard, the employer must retrain the employee. Circumstances where retraining is required include, but are not limited to, situations where:

- changes in the workplace render previous training obsolete;
- changes in the types of PPE to be used render previous training obsolete; or
- Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.

Who should conduct the training?

This is a very important question. Whoever the person training on PPE is, he or she needs to be an expert who not only understands how to use PPE correctly, but has a thorough understanding of the importance of doing so. It is critical that the employee understands the importance of wearing PPE, not only for their safety, but their "continuing employment." If it isn't in writing...it didn't happen!

To meet minimum rule requirements, the employer must verify that each affected employee has received and understood the required training. This must be done using a written certification that contains:

1. **The name of each employee trained;**
2. **The date(s) of training; and**
3. **The subject of the certification.**

However, when it comes to documentation of PPE training, it is a good idea to go beyond the minimum requirements stated in the standard to make sure the employer can demonstrate (prove) they have met or exceeded their legal obligations with respect to safety training.
Solid PPE training documentation will contain the elements below:

- A statement by the employee that they have received training by the employer on the subjects listed above, and that the trainer has demonstrated proper use of the PPE and answered all the employee's questions about the PPE satisfactorily.

- A statement by the trainer that, through oral/written test, the employee has satisfactorily demonstrated an understanding of the subjects covered during training, and has, through practice, demonstrated the ability to properly don, use, doff, care for, and maintain the PPE.

Revision Question

Do the following quiz to evaluate your performance of study and review with your course tutor.
Good starting for you:-)

1. Explain the term “Personal Protective Equipment”

2. Give seven (7) examples of PPE you know and when to use them

3. What are the processes of selecting appropriate PPE for a job/task?

4. Explain how you can conduct PPE training for an employee?