Guidelines for the Use of Personal Protective Equipment



職業安全健康局
OCCUPATIONAL SAFETY & HEALTH COUNCIL

工作安全健康 Safety at work.

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* This booklet is also available in Chinese version

Introduction

Personal protective equipment (PPE) is an important means of preventing work injuries. Ideally, the best approach is to maintain a safe work environment and eliminate any potential hazards. PPE should only be relied upon as a last line of defence in places where it is not practicable to control the hazards at source.

The use of PPE generally implies working in a potentially hazardous work environment and its use is a major means of injury prevention. Therefore, it is of prime importance to ensure that the equipment chosen is both reliable and effective, it is being properly used and maintained, and the user has undergone adequate training. The aim of this booklet is to raise the awareness of occupational safety and health practices and the proper use of PPE of people from all walks of life.



Key Points on the Proper Use of Personal Protective Equipment

(1) Proper selection

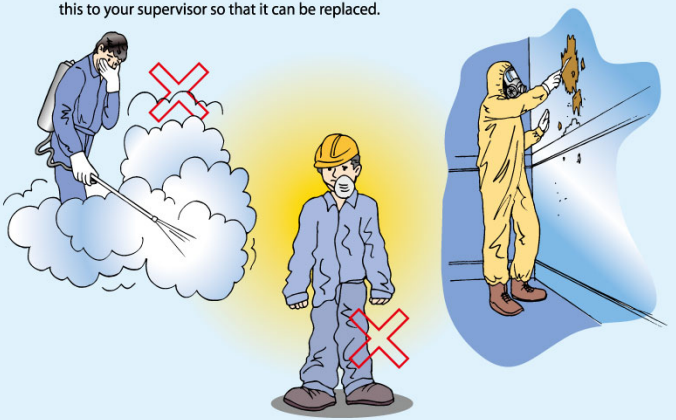
You must first understand the nature and degree of the potential hazards, and then select appropriate PPE that meets the relevant standards. Furthermore, some PPE (such as breathing apparatus) must properly fit the physique of the user before they can be effective. PPE must meet the demands of the work environment and should be as comfortable and easy to use as possible.

(2) Correct use

You must fully understand and abide by the correct usage methods of the PPE. Examples of incorrect use include different brands of filter being fitted to a respirator or the filters being cleaned with water.

(3) Correct maintenance

PPE should be cleaned and dried after use, properly stored and regularly inspected. If you discover any damage to the PPE, you should immediately stop using it and report this to your supervisor so that it can be replaced.



Safety Helmets

The "Construction Sites (Safety) Regulations" clearly state that no person shall enter a construction site without wearing a suitable safety helmet. In other places where there is the risk of falling objects, workers must also correctly wear safety helmets to avoid head injury.

Safety helmets must:

- Be kept clean
- Be inspected regularly
- Be replaced every two years
- Meet relevant safety standards
- Be adjusted to the correct tightness
- Be maintained an appropriate buffer distance between the top of the head and the helmet shell



Safety helmets require proper maintenance. You must not:



Clean them with organic solvents



Drill holes in them



Paint or spray them



Use them when they are damaged



Throw or strike them



Wear any other hat under the safety helmet

Standards for Safety Helmets around the World

China GB 2811	European Union EN 397	Canada CSA Z94.1	United States ANSI Z89.1
International Organization for Standardization ISO 3873	Japan JIS T 8131	France NF EN 397	Singapore SS 98
		Great Britain BS EN 397	Australia AS/NZS 1801

Eye Protectors

Our eyes are highly susceptible to injury from external hazards that can lead to partial or complete blindness. The "Factories and Industrial Undertakings (Protection of Eyes) Regulations" state that proprietors must provide suitable eye protection to employees undertaking certain processes and to others affected by those processes.

Introduction to various kinds of eye protection equipment:

(1) Protective goggles

Suitable for protection from dust, particles, flying chips, chemical splattering and smoke.



(Goggles with direct vents are not suitable for protection from chemical splattering or smoke)



(Fitted with indirect vents)

(2) Safety glasses

Suitable for protection from particles, flying chips and the impact of fragments.



(Frontal protection)



(Fitted with side protection)

(3) Goggles for protection from glare, gas welding and smelting furnaces

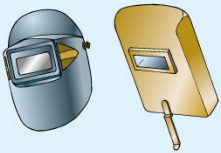
Suitable for smelting furnace work (with an added face shield), glare, molten metal, strong light and gas welding etc.





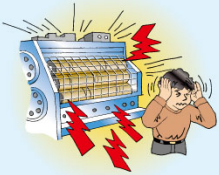
(4) Electric arc welding helmets and face shields

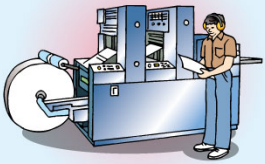
Suitable for protection from electric arc welding, electric sparks, strong UV-radiation (can be used together with safety goggles) etc.



Ear Protectors

Working under prolonged exposure to high levels of noise can lead to hearing loss. Intermittent exposure to high noise levels can lead to irritability, a reduced ability to concentrate, hearing damage and can even lead to accidents. Once hearing is damaged, it cannot be restored so we must protect our hearing. The "Factories and Industrial Undertakings (Noise at Work) Regulation" requires proprietors to provide their employees with approved ear protectors.





Different types of ear protectors:

(1) Cotton earplugs



Disposable earplugs for short-term use - not suitable for high noise levels.

(2) Elastic earplugs



Cleanable, reusable earplugs

(3) Foam earplugs



When compressed and inserted into the ear cavity, they expand to completely fill the ear cavity.

(4) Ear muffs



Ear muffs offer a high level of sound reduction and are suitable for high noise levels. They can be used in combination with a safety helmet

The correct use of earplugs

Pass your left hand behind your head and lift up the top of your right ear to open up the ear cavity. Insert the earplug into the ear cavity, pressing and turning lightly. As for the left earplug, the wearing method is similar.



Masks and Respirators

The air quality of the work environment has a direct influence on the safety and health of employees. Ideal protective measures are to control any source of pollution and reduce the amount of pollutants entering the air supply. If circumstances do not allow such measures to be immediately taken, the best strategy is to ensure proper selection and use of appropriate masks or respirators.



Common kinds of air pollution

If you encounter any of the following hazardous situations, you may require the protection of an appropriate masks / respirators:

(1) Inadequate oxygen supply in the air (less than 19% oxygen)

(2) Presence of toxic gases
Including gases (such as hydrogen sulfide) and volatile substances (such as benzene)

(3) Harmful particles
Including noxious dust (such as marble, chalk etc.), pneumoconiosis causing dust particles (such as silica and asbestos) and toxic particles (such as lead dust and acid mist)

(4) Virus exists in the air
Such as clinical ward for patients who have infectious diseases (eg. influenza)





Masks and Respirators

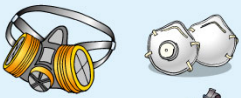
Different types of masks / respirators

There are several types of mask and respirators for protection from the above-mentioned hazards:

(1) Surgical masks
(Not suitable for oxygen deficient environments)



(2) Dust respirators
(Not suitable for oxygen deficient environments)



(3) Cartridge or canister
(Not suitable for oxygen deficient environments)



(4) Breathing apparatus



(a) Self-contained Breathing apparatus

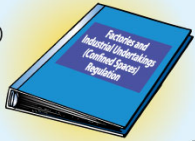
(b) Linked to an air supply system

Essential points to consider before using a respirator:

1. Selection of appropriate respirators according to the results of risk assessment, and provision of training and information in the proper use and care of the respirators.
2. Medical examinations should be carried out to screen which employees are suitable to carry out certain tasks that need wearing the respirators.
3. Inspection of the respirators should be carried out before work is commenced to ascertain whether there are any damages to the respirators and whether they are suitable for the existing work environment.
4. Checking whether the cartridge or canister works effectively.
5. Carrying out a proper fit test to ensure the respirator fits tightly against the face.

Regulations currently in effect regarding respirators:

1. Factories and Industrial Undertakings (Confined Spaces) Regulation
2. Factories and Industrial Undertakings (Asbestos) Regulation
3. Factories and Industrial Undertakings (Dangerous Substances) Regulations
4. Factories and Industrial Undertakings (Blasting By Abrasives) Special Regulations
5. Construction Sites (Safety) Regulations

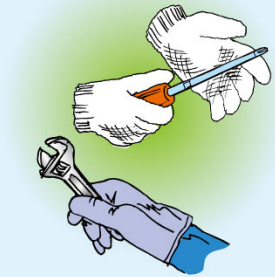


Protective Gloves

Using your hands is an almost indispensable part of any job and thus there is always the risk of getting your hands injured. You must therefore select appropriate hand protection. Furthermore, if your hands are likely to come into contact with harmful or corrosive chemicals resulting in rashes or skin inflammations, products such as protective ointments can be used to provide extra protection. The regulations also expressly state that proprietors shall provide sufficient supply of protective skin ointments to workers involved in electrolytic chromium processes.

Common protective gloves:

(1) Gloves for common tasks (cotton/leather)



(2) Gloves for handling chemicals



(3) Heat-resistant gloves



(4) Cold-resistant gloves



Protective Gloves

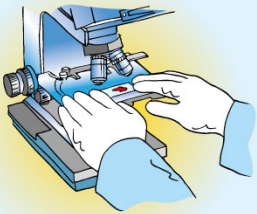
(5) Cut-resistant gloves



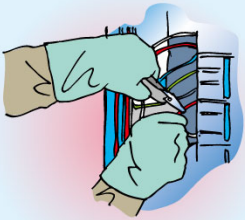
(6) Anti-shock gloves



(7) Disposable gloves



(8) Gloves for electrical work



Protective gloves must have a good tactile sense, elasticity and dexterity. They must not be slippery and must be easy to put on and take off. They can be made of materials such as cotton, latex, nylon or leather. The appropriate kind of gloves should be selected according to the nature of the work. The only places gloves may not be used are situations where the gloves might get tangled up in moving parts of machinery such as drill spindles and revolving cutting tools.

Regulations currently in effect regarding protective gloves:

(1) Factories and Industrial Undertakings (Electrolytic Chromium Process) Regulations

(2) Factories and Industrial Undertakings (Dry Batteries) Regulations

(3) Factories and Industrial Undertakings (Dangerous Substances) Regulations

Safety Belts

For working at heights, the safety regulations require employers to adopt basic safety precautions including the provision of suitable working platforms, safe access and egress and the erection of suitable guardrails at hazardous locations. If these safety precautions are not feasible, safety belts must be used.

The regulations require safety belts to be use in the following hazardous situations:

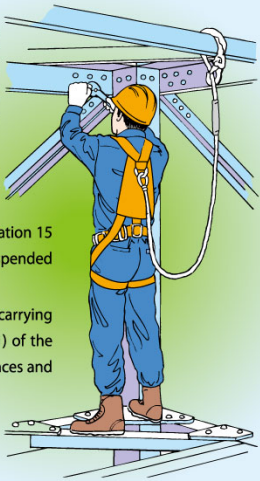
(1) Regulation 38H of the "Construction Site (Safety) Regulations" states the condition where and when safety belts are used.

(2) Regulation 38I of the "Construction Site (Safety) Regulations" describes the duty to wear safety belts.

(3) The use of suspended working platforms under regulation 15 of the Factories and Industrial Undertakings (Suspended Working Platforms) Regulation

(4) The use of a receptacle of less than 900mm deep for carrying persons by a lifting appliance under regulation 18B(1) of the "Factories and Industrial Undertakings (Lifting Appliances and Lifting Gear) Regulations".

(5) Working in a confined spaces under sections 9 and 10 of the "Factories and Industrial Undertakings (Confined Spaces) Regulation".



Other examples of situations where safety belts are required:

(1) Working on container tops under regulation 10B of the Factories and Industrial Undertakings (Cargo & Container Handling) Regulations

(2) Working at a dangerous place such as platform, opening of floor, etc. under regulation 24(a) of the Factories and Industrial Undertakings Regulations.

(3) Working at a dangerous place under section 6(1)(b) of the "Occupational Safety and Health Regulation", request the same as above point (2).

Safety Belts

Common types of safety belt:

(1) Full body harness is used to prevent falls.

(2) General purpose safety belt and its lanyard are used to restrict movement while working.



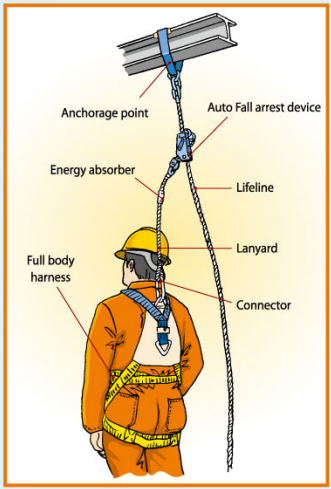
Illustration of full body harness



General purpose safety belt and its lanyard

Fall protection system for working at heights

In addition to a safety belt, the entire fall protection system for working at heights must also consider the area surrounding the worksite so as to, for example, prevent striking against nearby structures in the event of a fall. Environmental factors should also be taken into account so as to avoid high temperatures or smoke affecting the performance of each of the components of the system.



Fall protection system for working at heights

Safety Footwear



Accident statistics from the Labour Department reveal that there are many accidents annually caused by stepping on objects and slips. So how can we reduce the risk of foot injuries to employees? Wearing appropriate safety footwear is one of the easy and effective ways.

Selection of suitable safety footwear

Before making a selection, you must understand the major hazards causing direct or indirect foot injuries to employees.



(1) Being struck by hard, rolling or falling objects.

(2) Sharp objects piercing the sole or body of the shoe.

(3) Being scratched by sharp objects, resulting in epidermal laceration.



(4) Slipping on wet floors.

(5) Contact with chemicals, molten metals and hot or cold surfaces.

(6) If electrostatic discharge is inadequate, explosions may be triggered in environments containing flammable gases. Furthermore, the electrical conductivity of the feet can also affect the risk of electrical shock.

Use and maintenance of safety footwear

Safety footwear can only work effectively and protect the feet if they are properly used and looked after.

(1) You must not alter the structure of the safety footwear yourself.

(2) You must wear safety footwear of a suitable size.

(3) You must pay attention to personal hygiene and keep your feet and footwear clean and dry.

(4) Regularly clean your safety footwear. In addition, the soles of safety shoes must also be cleaned regularly to avoid the build-up of grime. This is because the grime on and texture of the sole of footwear can affect the electrical conductivity of the soles and may also reduce their anti-slip properties.

(5) Store your safety footwear in a shaded, dry and well-ventilated place.

Protective Clothing

Protective clothing provides physical protection and can increase comfort levels while on the job.

We should consider the following aspects during the selection of protective clothing, and analyze if it will create safety and health hazard:

(1) Workplace – Road, waterside, sea, workplace that have vehicles or machine movement, etc.

(2) Working Environment – High or low temperature, inadequate illumination, static electricity, etc.

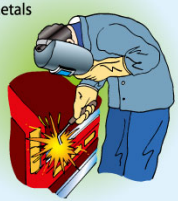
(3) Materials to be handled – Dangerous chemical, Blood, sharp edge, etc.

(4) Tools to be used – Knife, dangerous machine, etc.

(1) General purpose protective clothing
Including raincoats



(2) Heat-resistant work clothing/aprons
Used for welding to prevent burns from sparks, fragments and flying molten metals



(3) High-temperature work clothing
For employees working around smelting furnaces, firemen etc.



(4) Low-temperature work clothing
For employees working for long periods in refrigerated conditions



Protective Clothing

(5) Anti-electrostatic work clothing
Suitable for workplaces where flammable materials are handled or where static charges might affect the quality of electronic products



(6) Impermeable work clothing for protection against chemicals
Chemical spill handling and asbestos handling etc.



(7) Life jackets
Reduce the risk of drowning when an employee falls into water



(8) Reflective clothing
Such as for working in busy traffic; brightly-coloured reflective clothing can increase the visibility of employees and reduce their chances of being struck by vehicles or machinery



(9) Work clothing to prevent cuts
Suitable for employees operating sharp blades and machines



(10) Anti-virus coverall
Suitable for medical staff to avoid contact with virus



Regulations related to protective work clothing:

Factories and Industrial Undertakings (Electrolytic Chromium Process) Regulations

Factories and Industrial Undertakings (Dry Batteries) Regulations

Factories and Industrial Undertakings (Dangerous Substances) Regulations

Factories and Industrial Undertakings (Asbestos) Regulation



職業安全健康局
OCCUPATIONAL SAFETY & HEALTH COUNCIL

香港北角馬寶道28號華匯中心19樓
19/F, China United Centre, 28 Marble Road,
North Point, Hong Kong
電話 Tel : 2739 9377　　傳真 Fax : 2739 9779
電子郵件 E-mail : oshc@oshc.org.hk
職安熱線 Hotline : 2739 9000
職安資訊傳真服務 SafeFax : 2316 2576
網址 Website : www.oshc.org.hk

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