Personal Protective Equipment (PPE)

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INDICE

1 SCOPE AND FIELD OF APPLICATION

The scope of this procedure is to provide basic information on the choice and correct use of the main PERSONAL PROTECTIVE EQUIPMENT (PPE) within Trevi Division.

Personal Protective Equipment is used as a last resort in the hierarchy of controls after hazard elimination, substitution, engineering and administrative controls.

2 DEFINITIONS

PPE	**Personal Protective Equipment**: Any kind of equipment worn by the worker in order to protect himself from one or more risks, which could jeopardise health and safety at work. Also any aid or accessory with the same aim. PPE are divided into the following categories: **Category I – Simple PPE** PPE in this category is designed to protect users against minimal risks. These include as examples: • superficial mechanical injury • contact with water or cleaning materials of weak action • contact with hot surfaces not exceeding 50°C • damage to the eyes due to exposure to sunlight (other than during observation of the sun) • atmospheric conditions that are not of an extreme nature **Category II – Intermediate PPE** Category II includes risks other than those listed in Categories I and III. The following products are included as examples: • Safety spectacles and goggles • Industrial helmets and bump caps • Hi visibility clothing **Category III – Complex PPE** PPE falling under this category 'includes exclusively the risks that may cause very serious consequences such as death or irreversible damage to health' Risks include: • substances and mixtures which are hazardous to health • atmospheres with oxygen deficiency • harmful biological agents or ionising radiation • high-temperature environments the effects of which are comparable to those of an air temperature of at least 100 °C • low-temperature environments the effects of which are comparable to those of an air temperature of – 50 °C or less • falling from a height

- electric shock and live working
- drowning
- cuts by powered tools
- high-pressure jets
- knife stabs
- harmful noise

3 RESPONSIBILITIES

Employer and Managers	Evaluate risks, identify the PPE suitable to the kind of work to be carried out and provide it to workers. Guarantee the appropriate training to the workers in order that they understand the limitations and cares of the PPE. Make sure that PPE suitable for the relevant activities are always available on the workplace. ensure that workers actually use them, furthermore he has to check if them is effective, point out the inefficiencies and suggest to SPP the solutions for the situations to be protected. Ensure that the requirements of this instruction are enforced within their area of responsibility.
Supervisors	Ensure that the requirements of this instruction are enforced within their area of responsibility.
HSE Dept.	Identifies, together with Workers' Safety Representative, the most suitable PPE from an ergonomic point of view, while fulfilling all technical requirements. Monitor the implementation of this instruction and undertake audits to confirm compliance.
Procurement Dept.	Is responsible for buying type approved and EU standard PPE only (other std are authorized depending on the working context. i.e. US, Australia, etc..). Shall receive all documentation, certificates, and instructions for use (or information) about the correct use of PPE, at the moment of buying.
Workers	are responsible for wearing each PPE according to the instructions provided. In no way and for no reason, they modify the equipment provided. Must follow what is indicated in this procedure and the working instructions received. Participate in training where requested.

4 TRAINING

Personnel receive PPE training such that they:

- Are aware of the basic PPE requirements, and of situations requiring additional PPE in their work area;
- Are able to select the appropriate PPE based on the potential hazards and risk to be encountered;
- Are able to put on and take off the PPE;
- Are able to care for and keep clean the PPE;
- Understand the limitations of the PPE.

Provision of training shall be sourced from appropriate qualified trainer as determined on a case by case basis.

5 PROCEDURE

5.1 GENERAL

- PPE is specified for all work activities based on the risk assessment.

  Based on typical construction activities the basic PPE in the work areas is:

  - hard hat
  - safety-toed shoes
  - safety glasses
  - gloves
  - hearing protection (ear plugs and/or ear covers)
  - hi visibility jacket or coveralls.
- Additional PPE use is based on risk. A risk assessment is completed to identify PPE needs based on the site conditions and the scope of work. Where job conditions change, PPE selection is reviewed to ensure it is still valid.

  When several PPE are used simultaneously, they shall be compatible with no efficiency reduction.

  The PPE shall not increase the risks for the user, not even in relation to risks not directly covered by the PPE itself (i.e. if an operation generating powder is carried out on a site where the danger of falls from above is present, the use of a protective mask must not prevent the use of a helmet.

  Specialty PPE (e.g. flame resistant clothing, fall protection, goggles, face shields, specialty gloves, respiratory protection, personal floatation devices) is specified by procedure and work activity or work area.

All the Trevi authorized PPE are listed in the matrix TABLE OF AUTHORIZED PPE (such list is approved by the Safety Workers Representatives also) or other Project Authorized PPE Lists.

Areas where specialized PPE is required (e.g. high noise, radiation, chemical storage areas, hydrocarbon process areas) are marked with prominent signage, universal symbols or language of the workforce to ensure that personnel are aware of the additional hazards and requirements for PPE.

- PPE is high quality and readily available to workers at no cost, including regular supply of PPE and replacement in case of damage or wear and tear.
  - If the PPE no longer provides the intended level of protection, it is repaired or replaced immediately again at no cost to the worker.
  - All PPE types are certified and CE marked by recognized authorities. The TABLE OF AUTHORIZED PPE and Technical Specifications/Certifications are filed at HSE Department.
  - All PPE are inspected, used, stored, and maintained in alignment with manufacturer's requirements and recommendations and inspection records maintained Proper fit of PPE is checked when issued.
  - PPE which is no longer usable is destroyed before being discarded or otherwise disposed of where it cannot be returned to service.
  - Baggy or loose clothing is not allowed.
  - Respiratory protection is used according to manufacturer's recommendations.
- Management has a verification system in place to ensure that personnel are complying with the established requirements for PPE. This through supervision and HSE Inspection and audit.

5.2 PPE DELIVERY PROCESS

Following the TABLE OF AUTHORIZED PPE, the PPE are delivered to the workers.

The Emloyer/Managers shall deliver the PPE through Warehouse Dept. and HSE Dept.. Such Department record the PPE delivery on PPE delivery form, which are signed for acceptance by worker. The HSE Department will file the original forms.

When PPE no longer provides the intended level of protection, it is repaired or replaced immediately again, upon worker request.

5.3 MANDATORY PPE REQUIREMENTS

Within Trevi sites, with the exception of green areas and the offices (explained during Induction Training), the use of PPE is mandatory. The minimum PPE are (including visitors):

- Head protection - hard hat
- Feet Protection - safety-toed shoes

- Eye Protection - safety glasses
- Hand Protection - gloves
- hearing protection - ear plugs and/or ear covers
- Hi visibility jacket or coverall

The need for additional PPE is determined through proper risk assessment.

Trevi keeps PPE available for visitors at each site. These shall be used in case visitors need to visit working areas (always escorted by Trevi reference person).

5.4 STANDARD PERSONAL PROTECTIVE EQUIPMENT

The following indicates general rules for the use of the main PPE within Trevi sites.

More details on PPE are reported into:

- Risk Assessment/Project HSE Plans;
- TABLE OF AUTHORIZED PPE, issued for single Company;
- PPE's user instructions manual;
- Trevi Procedures and Work Instruction.

5.4.1 Head protection

Fabrication and construction areas have a risk of Impact from falling or flying objects, risk of head bumping, hair entanglement so hard hat is mandatory. A hard hat protects the wearer from severe head injury as a result of impact from small objects.

The following rules apply for a correct use of the hard hats:

- hard hat should be properly adjusted for correct fit;
- No other hats or caps shall be worn under hard hats (unless designed for this purpose);
- The use of bump cap is not allowed;
- to prevent hard hat falling off when working at height or in particular circumstances, chin strap shall be used;
- Under no circumstances hard hat is painted or written on in any fashion (Solvents seriously affect the properties of the materials used in helmets). For similar reasons, helmets will not be otherwise altered;
- hard hat that have suffered any significant impact shall be replaced, even if the visual examination doesn't detect any serious damage;
- hard hat will be replaced every 5 years from date of issue, unless other specifications from the manufacturer.

5.4.2 Eyes and face protection

The minimum eye protection to be worn by all personnel at operational areas will be safety spectacles with side shields (or wrap around type), to protect eyes mainly from flying particles.

The standard safety glasses for use in workshops and inside modules (e.g. poorly lit, confined spaces, inside buildings etc.) shall be clear lenses (or inside / outside). Shaded safety glasses shall be worn for outside day work only.

Persons using prescription lenses must have hardened lenses in an approved frame with the glasses, or prescription lenses and safety goggles both. For those employees who have the right for safety prescription glasses, Trevi will provide for prescription lens fitted to safety spectacles.

Damaged safety glasses must be replaced immediately.

Additional eye protection such as goggles or face shields will be required for specific tasks, e.g. grinding, welding, drilling, and handling chemicals or if a task will generate excessive dust / high speed particles.

During grinding activities it's mandatory the use of safety spectacles with face shield both;

For oxy-cutting operation it is necessary to wear glasses with green lenses DIN $\geq$3.

5.4.3 Hearing protection

Hearing protection shall be worn for activities and areas where the Personal Noise Exposure exceeds the 85 dB(A). However, hearing protection shall be available within Trevi workplaces even when the Personal Noise Exposure is over 80 dB(A).

Ear plugs, helmet attachable ear muffs or separate ear muffs are the typical PPEs for eraring protection.

Ear plugs may be required to supplement muffs when employees are exposed to excessive noise for short periods of time (according to the risk assessment results).

Ear plugs / muffs must be correctly fitted to ensure a proper protection. Any disturbance of the sealing surface of ear muffs or any tearing of the lining indicates immediate replacement.

5.4.4 Safety Footwear

Safety footwear shall be worn across all the fabrication and erection area to protect feet from main construction hazards.

Such safety boots or shoes must be provided with:

- safety toecap;
- penetration resistant sole;
- anti-static and dieletric sole;

- anti-slippery sole;
- full foot enclosure;

Safety footwear must be maintained in a good state and replaced if damaged. Reasons for replacement include any separation of the upper from the sole, holes or tearing of any kind, impact damage, or damage that prevents proper fastening of the footwear;

Laces (if any) should be checked regularly and replaced if defective;

Welders and steel workers shall wear safety boots with additional metatarsal protection and quick release device.

5.4.5 Hand protection

Personnel are expected to wear protective gloves to protect hands from abrasion, temperature extremes, cuts and punctures, impact, chemicals, electric shock, skin infection, disease or contamination.

When selecting and using gloves, the following notes have to be considered:

- Avoid gloves when operating machines such as bench drills where the gloves could get caught. Some materials are quickly penetrated by chemicals so be careful when you are selecting them.
- Wearing gloves for long periods can make the skin hot and sweaty, leading to skin problems; using separate cotton inner gloves can help prevent this. Furthermore, some people may be allergic to materials used in gloves (eg. latex).

5.4.6 Respiratory Protective Equipment

There are two main categories of Respiratory Protective Equipment:

- Respirators – filter the air taken from the immediate environment around the wearer.
- Breathing apparatus – provides breathable air from a separate source.

Respirators

Respirators are used to remove a contaminant from the air. They cannot be used in an environment where there may be a lack of oxygen (as they can only “filter”, they cannot “add oxygen”), and they should not be used to remove a contaminant which is very toxic or within confined spaces (due to the potential for the filter to become saturated and the contaminant to “breakthrough” and into the breathing air of the user).

If the material is very toxic, e.g. H2S, then breathing apparatus would be used.

Respirators come in a variety of types (but not limited to):

- **Filtering face-piece respirator** – the simplest, consisting of a filtering material held over the nose and mouth by an elastic headband.

This is mainly useful to prevent inhalation of dust, but is not suitable for high concentrations of contaminant, for substances with high toxicity, or for long duration use.

- **Half-mask or ori-nasal respirator** – a rubber face-piece that fits over the nose and mouth with one or two cartridges that contain the filtering material.

  This gives a much higher level of protection than the filtering face-piece respirator, but does not protect the eyes. When the wearer inhales, they create negative air pressure inside the face-piece. This means that any leaks in the respirator will allow contaminated air in, and extra care shall be taken in sealing against the face and in the integrity of the mask. Care must be also taken to select the correct filters.

- **Full face respirator** – similar to the half-mask but has a built in visor that seals in the eyes and face; again care must be taken to select the correct filters. The full face respirator gives a high level of protection against airborne contaminants and protects the eyes. This can be important where the contaminant can cause eye irritation or be absorbed through the eye.

Breathing Apparatus

As breathing apparatus provides a stream of fresh, clean air and does not rely on filters, it can be used in an atmosphere where contaminants may be toxic or where there may be a lack of oxygen. There are several different types of breathing apparatus (BA):

- **Fresh air hose BA**
- **Compressed air BA**
- **Self-contained BA**

5.4.7 Body protection

Overalls are a type of safety clothing made of tough cotton, used as protective clothing while working. They are long sleeves jacket and trousers or full body coveralls to protect workers from heat, cold, splashes, sparks, flames and flying debris etc. in the workplace.

Some basic reasons to use overalls include:

- Protect the body - They protect the body like a piece personal protective equipment (PPE);
- Warmth - They retain heat radiated from the body and keeps the wearer warm in the cold weather;
- As a uniform - Overalls are also used as a uniform and come in various colors and designs to recognize which role the wearer belongs to.

Overalls come in a variety of different kinds, such as:

- Work overall - overall normally used by the workers in the workplace;
- Flame retardant overalls - Used by welders and steel workers;
- Hi-vis overalls - High visibility overalls are used by banksman, flagman, etc.

5.4.8 Fall protection

Fall protection systems shall be used when working at height of more than 1,8 metres where there is no barricade or other collective protection system in place.

There are three fundamental types of fall protection systems:

- **Travel restraint systems** - Prevents a person from reaching a position from where a fall could occur.
- **Work positioning systems** - Provides a worker with continuous tension, thereby freeing both hands to be used for a task – e.g. reporting, photography, maintenance etc.
- **Fall-arrest systems** - Does not prevent a fall from occurring in the first instance but arrests a fall after it has occurred. A shock absorber must be used.

These fall arrest equipment usually consists of a full body harness connected to one or two lanyards (or wire rope on an inertia reel). The lanyard is connected to an anchor point during use.

Personal fall arrest equipment should only be used by trained workers. Harnesses, lanyards and anchor points should be routinely inspected to ensure they are in safe working order.

6 REFERENCES

National and EU Legislation

Standards UNI EN ISO

PPE User Manual

TABLE OF AUTHORIZED PPE for single Company