13.1 Policy Statement

Tim Foster – dba MPC (Maintenance Projects & Construction) requires employees use personal protective equipment (PPE) appropriate to the hazards of their job. This equipment may include protection for the following:

- Eye
- Foot
- Head
- Face
- Hand
- Body

Employees required to use such equipment will be trained in all aspects of its use, maintenance and applicability.

The following list of PPE is available to employees and will be used as required:

basic PPE

13.2 Responsibilities

Ensuring the effective use of personal protective equipment is a cooperative effort between Tim Foster – dba MPC (Maintenance Projects & Construction) and its employees.

13.2.1 Employer Responsibilities

It is the responsibility of Tim Foster – dba MPC (Maintenance Projects & Construction) to:

- perform a hazard assessment of the workplace to identify and control physical and health hazards with PPE, as appropriate;
- identify and provide PPE for employees;
- train employees in the use and care of PPE;
- ensure employees maintain PPE;
- replace worn or damaged PPE; and
- periodically review, update and evaluate the effectiveness of the PPE program.

13.2.2 Safety Committee Responsibilities

It is the responsibility of the Tim Foster – dba MPC (Maintenance Projects & Construction) safety committee to:

- develop, conduct, and document training for PPE;
- assist in hazard assessments; and
- make recommendations to management concerning elements of the PPE program.
13.2.3 Employee Responsibilities

Tim Foster — dba MPC (Maintenance Projects & Construction) employees are expected to:

- Properly wear PPE;
- Attend training sessions on PPE;
- Care for, clean and maintain PPE; and
- Inform a supervisor of the need to repair or replace PPE.

13.3 Training

Tim Foster — dba MPC (Maintenance Projects & Construction) will ensure every employee is provided training on personal protective equipment. This training will be provided at no cost to the employee during working hours.

Tim Foster — dba MPC (Maintenance Projects & Construction) will use only training material appropriate in content and vocabulary to educational level, literacy, and language of employees.

13.3.1 Training Components

Tim Foster — dba MPC (Maintenance Projects & Construction) will ensure training for every employee in the following minimum elements:

- When PPE is necessary;
- What PPE is necessary;
- How to properly put on, take off, adjust and wear PPE;
- The limitations of PPE; and
- The proper care, maintenance, useful life and disposal of the PPE.

Effected employees must demonstrate an understanding of all training and the ability to use PPE properly before they will be permitted to perform work requiring PPE.

Tim Foster — dba MPC (Maintenance Projects & Construction) will retrain any effected employee who has been trained but lacks the understanding and skills to use PPE properly. Circumstances that require retraining include, but are not limited to the following:

- When there have been changes in the workplace that have rendered previous training obsolete;
- When there have been changes to PPE used that render previous training obsolete; or
- When an employee demonstrates or expresses inadequacies in understanding or skill needed to use assigned PPE properly.
13.3.2 **Training Records**

Training records will include the following information:

- The dates of the training sessions;
- The contents or a summary of the training sessions;
- The names and qualifications of persons conducting the training; and
- The names and job titles of all persons attending the training sessions.

Employee training records will be maintained for 3 years from the date on which the training occurred.

13.4 **Policy**

13.4.1 **General**

*Tim Foster — dba MPC (Maintenance Projects & Construction)* will manage or eliminate hazards in the workplace to the greatest extent possible with engineering controls and work practice controls. However, if such controls fail to provide employees sufficient protection, *As Designated by Company* or designate will provide employees with personal protective equipment (PPE) and ensure proper use thereof. PPE minimizes exposure to a range of hazards. All protective devices must meet the following minimum requirements:

- Provide adequate protection against the hazards for which they are designed;
- Be of safe design and construction for the work to be performed;
- Be reasonably comfortable when worn under the designated conditions;
- Fit snugly and not unduly interfere with the movements of the wearer;
- Be durable;
- Be capable of being disinfected;
- Be easily cleanable; and
- Be distinctly marked to facilitate identification only of the manufacturer.

**Hazard Assessment**

As explained in the chapter on Job Hazard Analysis, hazard assessment is the backbone of the *Tim Foster — dba MPC (Maintenance Projects & Construction)* injury and illness prevention program. Recognizing and documenting hazards is the first step to protecting employees from them. An initial walkthrough to develop a list of potential hazards should be followed by a review of records and an analysis of the facility layout to determine what controls would best protect workers. If engineering and administrative controls are unable to protect employees from hazards they face, *Tim Foster* and the safety committee will determine what personal protective equipment will provide the protection employees need.
Personal Protective Equipment

*Tim Foster – dba MPC (Maintenance Projects & Construction)* job hazard analysis is an ongoing process. As Needed inspections and periodic reassessments will look for changes that may affect occupational hazards for workers and will determine if PPE remains viable (in terms of condition, age and appropriateness) to protect a worker from hazards on the job.

*Tim Foster – dba MPC (Maintenance Projects & Construction)* must certify and document the required workplace hazard assessment in a way that identifies the following:

- The workplace evaluated;
- The person certifying the evaluation has been performed;
- The date of the hazard assessment; and
- The document as a certification of hazard assessment.

**Selection**

*Tim Foster – dba MPC (Maintenance Projects & Construction)* will select only PPE of safe design and construction and will work with employees to ensure PPE remains clean and reliable. In selecting PPE used to control hazards in the workplace, *Tim Foster – dba MPC (Maintenance Projects & Construction)* will give consideration to comfortable fit, providing sizes appropriate to the affected employees, and ensure any PPE used will be compatible to provide sufficient protection. Comfort and ease of use is an important consideration because workers are more likely to wear comfortable PPE.

All PPE at *Tim Foster – dba MPC (Maintenance Projects & Construction)*, including any employee-owned PPE, will meet at least the minimum standards and requirements to provide sufficient protection for workers. Following are the standards referenced by OSHA for select groups of PPE:

- Head: ANSI Z89.1-1986 (or 1997, or 2003)
- Foot: ANSI Z41.1-1991

However, alternative protective equipment is acceptable if *Tim Foster – dba MPC (Maintenance Projects & Construction)* demonstrates it is at least as effective as equipment constructed according to the above standards.

**Payment**

*Tim Foster – dba MPC (Maintenance Projects & Construction)* will provide all PPE and replacement PPE at no cost to employees except for the following:

- Non-specialty safety-toe protective footwear, non-specialty prescription eyewear, provided they may be worn away from work;
- Shoes or boots with metatarsal protection if *Tim Foster – dba MPC (Maintenance Projects & Construction)* provides separate metatarsal guards;
- Logging boots;
- Everyday clothing;
- Clothing worn only for protection from weather;
- Replacement PPE the employee has intentionally damaged or lost;
- Where the employee provides his or her own adequate PPE.

### 13.4.2 Eye and Face Protection

*Tim Foster – dba MPC (Maintenance Projects & Construction)* will ensure adequate protection against the following:

- Flying particles;
- Molten metal;
- Liquid chemicals;
- Acids or caustic liquids;
- Chemical gases or vapors;
- Potentially infected material; or
- Potentially harmful light radiation.

When there is a hazard from flying particles, eye protection will provide side protection, or *Tim Foster – dba MPC (Maintenance Projects & Construction)* will provide effected employees with detachable side protectors.

#### Prescription Lenses

Everyday glasses will not provide sufficient protection against the types of hazards that require eye protection. Employees who wear prescription lenses to correct their vision must wear either eye protection that incorporates their prescription or that can be worn over glasses without compromising the glasses' ability to correct the wearer's vision.

#### Eye Protection for Exposed Workers

*Tim Foster – dba MPC (Maintenance Projects & Construction)* will consider eye protection for employees in the following job categories:

- carpenters,
- electricians,
- machinists,
- mechanics,
- millwrights,
- plumbers and pipe fitters,
- sheet metal workers and tinsmiths,
- assemblers,
- sanders,
- grinding machine operators,
- sawyers,
- welders,
- laborers,
- chemical process operators and handlers,
- timber cutting and logging workers.

If *Tim Foster – dba MPC (Maintenance Projects & Construction)* requires more than one worker to wear the same piece of eyewear, employees must disinfect the protective eyewear after each use.

#### Types of Eye Protection

**Safety Spectacles:** These protective eyeglasses have safety frames constructed of metal or plastic, and impact-resistant lenses. Side shields are available on some models.

**Goggles:** These are tight-fitting eye protection that completely cover the eyes, eye sockets, and the facial area immediately surrounding the eyes. They provide protection from impact, dust and splashes. Some goggles will fit over corrective lenses.
**Welding Shields:** Constructed of vulcanized fiber or fiberglass and fitted with a filtered lens, welding shields protect eyes from burns caused by infrared or intense radiant light; they also protect both the eyes and face from flying sparks, metal spatter and slag chips produced during welding, brazing, soldering and cutting operations. OSHA requires filter lenses to have a shade number appropriate to protect against the specific hazards of the work being performed in order to protect against harmful light radiation.

**Laser Safety Goggles:** These specialty goggles protect against intense concentrations of light produced by lasers. The type of laser safety goggles an employer chooses will depend upon the equipment and operating conditions in the workplace.

**Face Shields:** These transparent sheets of plastic extend from the eyebrows to below the chin and across the entire width of the employee's head. Some are polarized for glare protection. Face shields protect against nuisance dusts and potential splashes or sprays of hazardous liquids but will not provide adequate protection against impact hazards. Face shields used in combination with goggles or safety spectacles will provide additional protection against impact hazards.

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**Footnote(*)** As a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to a lighter shade which gives sufficient view of the weld zone without going below the minimum. In oxyfuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation. Experience has shown that lighter filters may be used when the arc is hidden by the workplace.

**Footnote(***)** These values apply where the actual arc is clearly seen.
**Welding Operations**

The intense light associated with welding operations can cause serious and sometimes permanent eye damage if operators do not wear proper eye protection. The intensity of light or radiant energy produced by welding, cutting or brazing operations varies according to a number of factors including the task producing the light, the electrode size and the arc current. Table 1 shows the minimum protective shades for a variety of welding, cutting and brazing operations in general industry and in the shipbuilding industry.

**Laser Operations**

Laser light radiation can be extremely dangerous to the unprotected eye, and direct or reflected beams can cause permanent eye damage. Laser retinal burns can be painless, so it is essential that all personnel in or around laser operations wear appropriate eye protection.

Laser safety goggles should protect for the specific wavelength of the laser and must be of sufficient optical density for the energy involved. Safety goggles intended for use with laser beams must be labeled with the laser wavelengths for which they are intended to be used, the optical density of those wavelengths and the visible light transmission.

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<tr>
<th>Intensity, CW maximum power density (watts/cm²)</th>
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<td>Optical density (O.D.)</td>
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<td>10⁻¹</td>
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Table 2

**13.4.3 Head Protection**

*Tim Foster — dba MPC (Maintenance Projects & Construction)* will protect employees from potential head injuries. Wearing a safety helmet or hard hat is one of the easiest ways to protect an employee's head from injury. Hard hats can protect employees from impact and penetration hazards as well as from electrical shock and burn hazards.

*Tim Foster — dba MPC (Maintenance Projects & Construction)* will ensure employees wear head protection if any of the following apply:

- Objects might fall from above and strike them on the head;
- They might bump their heads against fixed objects, such as exposed pipes or beams; or
- There is a possibility of accidental head contact with electrical hazards.

Some examples of occupations in which employees should be required to wear head protection include construction workers, carpenters, electricians, linemen, plumbers and pipefitters, timber and log cutters, welders, among many others. Whenever there is a danger of objects falling from above, such as working below others who are using tools or working under a conveyor belt, head protection must be worn. Hard hats must be worn with the bill forward to protect employees properly.
Personal Protective Equipment

In general, protective helmets or hard hats should do the following:

- Resist penetration by objects;
- Absorb the shock of a blow;
- Be water-resistant and slow burning; and
- Have clear instructions explaining proper adjustment and replacement of the suspension and headband.

Hard hats must have a hard outer shell and a shock-absorbing lining that incorporates a headband and straps that suspend the shell from 1 to 1¼ inches away from the head. This type of design provides shock absorption during an impact and ventilation during normal wear.

**Types of Hard Hats**

*Tim Foster – dba MPC (Maintenance Projects & Construction)* will select protective headgear that meets ANSI standard requirements and ensure employees wear hard hats to provide appropriate protection against potential workplace hazards. Hard hat selection must consider all hazards on the worksite, including electrical hazards. This can be done through a comprehensive hazard analysis and an awareness of the different types of protective headgear available.

Hard hats are divided into three industrial classes:

- **Class G (formerly Class A) hard hats (General)** provide impact and penetration resistance along with limited voltage protection (up to 2,200 volts).
- **Class E (formerly class B) hard hats (Electrical)** provide the highest level of protection against electrical hazards, with high-voltage shock and burn protection (up to 20,000 volts). They also provide protection from impact and penetration hazards by flying/falling objects.
- **Class C hard hats (Conductive)** provide lightweight comfort and impact protection but offer no protection from electrical hazards.

Another class of protective headgear on the market is called a “bump hat,” designed for use in areas with low head clearance. They are recommended for areas where protection is needed from head bumps and lacerations. These are not designed to protect against falling or flying objects and are not ANSI approved. It is essential to check the type of hard hat employees are using to ensure that the equipment provides appropriate protection. Each hat should bear a label inside the shell that lists the manufacturer, the ANSI designation and the class of the hat.

**Size and Care Considerations**

Head protection that is too large or too small is inappropriate for use, even if it meets all other requirements. Protective headgear must fit for the head size of each individual. Most protective headgear comes in a variety of sizes with adjustable headbands to ensure a proper fit (many adjust in 1/8-inch increments). A proper fit should allow sufficient clearance between the shell and the suspension system for ventilation and distribution of an impact. The hat should not bind, slip, fall off or irritate the skin.
Some protective headgear allows for the use of various accessories to help employees deal with changing environmental conditions, such as slots for earmuffs, safety glasses, face shields and mounted lights. Optional rims may provide additional protection from the sun and some hats have channels that guide rainwater away from the face. Protective headgear accessories must not compromise the safety elements of the equipment.

Periodic cleaning and inspection will extend the useful life of protective headgear. A daily inspection of the hard hat shell, suspension system and other accessories for holes, cracks, tears or other damage that might compromise the protective value of the hat is essential. Paints, paint thinners and some cleaning agents can weaken the shells of hard hats and may eliminate electrical resistance. Consult the helmet manufacturer for information on the effects of paint and cleaning materials on their hard hats. Never drill holes, paint or apply labels to protective headgear as this may reduce the integrity of protection. Do not store protective headgear in direct sunlight, such as on the rear window shelf of a car, since sunlight and extreme heat can damage them.

Hard hats with any of the following defects should be removed from service and replaced:

- Perforation, cracking, or deformity of the brim or shell;
- Indication of exposure of the brim or shell to heat, chemicals or ultraviolet light and other radiation (in addition to a loss of surface gloss, such signs include chalking or flaking).

Always replace a hard hat if it sustains an impact, even if damage is not noticeable. Suspension systems are offered as replacement parts and should be replaced when damaged or when excessive wear is noticed. It is not necessary to replace the entire hard hat when deterioration or tears of the suspension systems are noticed.

Accessories

Faceshield Protection: Faceshield devices can be attached to the helmet without changing the helmet strength and electrical protection. A metal faceshield bracket system can be used on a Class G helmet; however, if a Class E helmet is to be used in an area where Class E protection is required, a type of bracket and shield system that will not conduct electricity (has a dielectric rating) should be used.

Ear Muffs: The required degree of hearing protection should be considered before selecting ear muff attachments. If ear muffs are to be attached to helmets, metal attachments are acceptable for Class G helmets. Attachments with a dielectric rating must be used for Class E helmets.

Sweat Bands: If sweat bands are necessary, they must not interfere with the effectiveness of the helmet headband system. Some sweatband devices are made to fit on the headband. For electrical work, metal components must not be used to attach sweat bands to helmets.

Winter Liners: There are many varieties of winter liners. One type fits over the hard hat assembly. It is flame retardant and elasticized to give the user a snug, warm fit. Other styles fit under the helmet. If the liner is to be used with a Class E helmet, it must have a dielectric rating. Regardless of the warmth characteristics, the liner and helmet combination must be compatible. The liner and helmet must fit properly for proper impact and penetration protection.
Chin Straps: When wind or other conditions present the possibility of the hard hat being accidentally removed from the head, chin straps can be used. If chin straps are used, they should be the type that fastens to the shell of the hard hat. If the chin straps fasten to the headband and suspension system, the shell may blow off and strike another employee.

13.4.4 Foot & Leg Protection

Employees who face possible foot or leg injuries from falling or rolling objects or from crushing or penetrating materials must wear protective footwear. Also, employees whose work involves exposure to hot substances or corrosive or poisonous materials must have protective gear to cover exposed body parts, including legs and feet. If an employee's feet may be exposed to electrical hazards, nonconductive footwear must be worn. On the other hand, workplace exposure to static electricity may necessitate the use of conductive footwear.

Examples of situations in which an employee may be required to wear foot and/or leg protection include:

- When heavy objects such as barrels or tools might roll onto or fall on the employee's feet.
- Working with sharp objects such as nails or spikes that could pierce the soles or uppers of ordinary shoes.
- Exposure to molten metal that might splash on feet or legs.
- Working on or around hot, wet or slippery surfaces.
- Working when electrical hazards are present.

Foot and leg protection choices include the following:

- **Leggings** protect the lower legs and feet from heat hazards such as molten metal or welding sparks. Safety snaps allow leggings to be removed quickly.
- **Metatarsal guards** protect the instep area from impact and compression. Made of aluminum, steel, fiber or plastic, these guards may be strapped to the outside of shoes. Footwear designed to newer versions of ANSI Z41 and the ASTM standards require metatarsal protection to be built into the footwear.
- **Toe guards** fit over the toes of regular shoes to protect the toes from impact and compression hazards. They may be made of steel, aluminum or plastic.
  
  Note: ANSI Z41-1991 requires the toe box be incorporated into the footwear during construction and shall be an integral part of the footwear. An employer who chooses to provide employees with toe guards must demonstrate that they are as equally protective as the ANSI Z41-1991 standard.

- **Combination foot and shin guards** protect the lower legs and feet, and may be used in combination with toe guards when greater protection is needed.
- **Safety shoes** have impact-resistant toes and heat-resistant soles that protect the feet against hot work surfaces common in roofing, paving and hot metal industries. The metal insoles of some safety shoes protect against puncture wounds.
Special Purpose Shoes

Electrically conductive shoes provide protection against the buildup of static electricity. Employees working in explosive and hazardous locations such as explosives manufacturing facilities or grain elevators must wear conductive shoes to reduce the risk of static electricity buildup on the body that could produce a spark and cause an explosion or fire. Foot powder should not be used in conjunction with protective conductive footwear because it provides insulation, reducing the conductive ability of the shoes. Silk, wool and nylon socks can produce static electricity and should not be worn with conductive footwear. Conductive shoes must be removed when the task requiring their use is completed. Note: Employees exposed to electrical hazards must never wear conductive shoes.

Electrical hazard, safety-toe shoes are nonconductive and will prevent the wearers' feet from completing an electrical circuit to the ground. These shoes can protect against open circuits of up to 600 volts in dry conditions and should be used in conjunction with other insulating equipment and additional precautions to reduce the risk of a worker becoming a path for hazardous electrical energy. The insulating protection of electrical hazard, safety-toe shoes may be compromised if the shoes become wet, the soles are worn through, metal particles become embedded in the sole or heel, or workers touch conductive grounded items. Note: Nonconductive footwear must not be used in explosive locations.

Foundry Shoes

In addition to insulating the feet from the extreme heat of molten metal, foundry shoes keep hot metal from lodging in shoe eyelets, tongues or other shoe parts. These snug-fitting leather or leather-substitute shoes have leather or rubber soles and rubber heels. All foundry shoes must have built-in safety toes.

Care of Protective Footwear

As with all protective equipment, safety footwear should be inspected prior to each use. Shoes and leggings should be checked for wear and tear at reasonable intervals. This includes looking for cracks or holes, separation of materials, broken buckles or laces. The soles of shoes should be checked for pieces of metal or other embedded items that could present electrical or tripping hazards. Employees should follow the manufacturers' recommendations for cleaning and maintenance of protective footwear.

13.4.5 Hand & Arm Protection

If a workplace hazard assessment reveals employees face potential injury to hands and arms that cannot be eliminated through engineering and work practice controls, Tim Foster – dba MPC (Maintenance Projects & Construction) will ensure employees wear appropriate protection. Potential hazards include skin absorption of harmful substances, chemical or thermal burns, electrical dangers, bruises, abrasions, cuts, punctures, fractures and amputations. Protective equipment includes gloves, finger guards, and arm coverings or elbow-length gloves.
Personal Protective Equipment

Tim Foster – dba MPC (Maintenance Projects & Construction) will explore possible engineering and work practice controls to eliminate hazards and use PPE to provide additional protection against hazards that cannot be completely eliminated through other means. For example, machine guards may eliminate a hazard. Installing a barrier to prevent workers from placing their hands at the point of contact between a table saw blade and the item being cut is another example of an engineering control.

Types of Protective Gloves

There are many types of gloves available today to protect against a wide variety of hazards. The nature of the hazard and the operation involved will affect the selection of gloves. The variety of potential occupational hand injuries makes selecting the right pair of gloves challenging. No gloves can provide protection against all potential hand hazards. It is essential employees use gloves specifically designed for the hazards and tasks found in their workplace because gloves designed for one purpose may not protect against hazards elsewhere even though they may appear to be an appropriate protective device.

The following are examples of some factors that may influence the selection of protective gloves for a workplace:

- Type of chemicals handled (toxic properties of the chemical(s));
- Chemical concentration and temperature (the higher the concentration and temperature, the shorter the breakthrough time);
- Nature of contact (total immersion, continual contact, splash, etc.);
- Duration of contact;
- Area requiring protection (hand only, forearm, arm);
- Degree of dexterity (fine motor work);
- Grip requirements (dry, wet, oily);
- Thermal protection;
- Size and comfort;
- Abrasion/cut resistance requirements;
- Other job hazards (such as biological, electrical, and radiation hazards);
- Gloves made from a wide variety of materials are designed for many types of workplace hazards. In general, gloves fall into four groups:
  - Gloves made of leather, synthetic fibers or metal mesh;
  - Fabric and coated fabric gloves;
  - Chemical protective gloves; and
  - Insulating rubber gloves (See 29 CFR 1910.137, Electrical Protective Equipment, for detailed requirements on the selection, use and care of insulating rubber gloves).
Leather, Canvas or Metal Mesh Gloves
Sturdy gloves made from metal mesh, leather or canvas provide protection against cuts and burns. Leather or canvas gloves also protect against sustained heat.

- **Leather gloves** protect against sparks, moderate heat, blows, chips and rough objects. These gloves can be used for tasks such as welding.
- **Aluminized gloves** provide radiant heat protection by reflection and insulate/reduce heat conduction with a liner or insert. Employees working with molten materials would benefit from this type of glove.
- **Aramid fiber gloves** such as Kevlar, protect against heat, are cut- and abrasion-resistant and wear well. Employees working in jobs such as firefighting, automotive work, metal fabrication, glass and ceramic handling would benefit from this type of glove.
- **Synthetic gloves** of various materials offer protection against heat and cold, are cut- and abrasion-resistant and may withstand some diluted acids. These materials do not stand up against alkalis and solvents.
- **Metal mesh** hand, wrist, arm and finger protective wear protects against knife cuts; however, it offers very little, if any, protection against punctures. Plastic dots can be adhered to the metal mesh to facilitate gripping.

Fabric and Coated Fabric Gloves
Fabric and coated fabric gloves are made of cotton or other fabric to provide varying degrees of protection.

- **Fabric gloves** protect against dirt, slivers, chafing and abrasions. They do not provide sufficient protection for use with rough, sharp or heavy materials. Adding a plastic coating will strengthen some fabric gloves.
- **Coated fabric gloves** are normally made from cotton flannel with napping on one side. By coating the unnapped side with plastic, fabric gloves are transformed into general-purpose hand protection offering slip-resistant qualities. These gloves are used for tasks ranging from handling bricks and wire to chemical laboratory containers. When selecting gloves to protect against chemical exposure hazards, always check with the manufacturer or review the manufacturer's product literature to determine the gloves' effectiveness against specific workplace chemicals and conditions.

Chemical- and Liquid-Resistant Gloves
Chemical-resistant gloves are made with different kinds of rubber: natural, butyl, neoprene, nitrile and fluorocarbon (viton); or various kinds of plastic: polyvinyl chloride (PVC), polyvinyl alcohol and polyethylene. These materials can be blended or laminated for better performance. As a general rule, the thicker the glove material, the greater the chemical resistance, but thick gloves may impair grip and dexterity, having a negative impact on safety.
Some examples of chemical-resistant gloves include:

- **Butyl gloves** are made of a synthetic rubber and protect against a wide variety of chemicals, such as peroxide, rocket fuels, highly corrosive acids (nitric acid, sulfuric acid, hydrofluoric acid and red-fuming nitric acid), strong bases, alcohols, aldehydes, ketones, esters and nitrocompounds. Butyl gloves also resist oxidation, ozone corrosion and abrasion, and remain flexible at low temperatures. Butyl rubber does not perform well with aliphatic and aromatic hydrocarbons and halogenated solvents.

- **Natural (latex) rubber gloves** are comfortable to wear, which makes them a popular general-purpose glove. They feature outstanding tensile strength, elasticity and temperature resistance. In addition to resisting abrasions caused by grinding and polishing, these gloves protect workers' hands from most water solutions of acids, alkalis, salts and ketones. Latex gloves have caused allergic reactions in some individuals and may not be appropriate for all employees. Hypoallergenic gloves, glove liners and powderless gloves are possible alternatives for workers who are allergic to latex gloves.

- **Neoprene gloves** are made of synthetic rubber and offer good pliability, finger dexterity, high density and tear resistance. They protect against hydraulic fluids, gasoline, alcohols, organic acids and alkalis. They generally have chemical and wear resistance properties superior to those made of natural rubber.

- **Nitrile gloves** are made of a copolymer and provide protection from chlorinated solvents such as trichloroethylene and perchloroethylene. Although intended for jobs requiring dexterity and sensitivity, nitrile gloves stand up to heavy use even after prolonged exposure to substances that cause other gloves to deteriorate. They offer protection when working with oils, greases, acids, caustics and alcohols but are generally not recommended for use with strong oxidizing agents, aromatic solvents, ketones and acetates.

**Care of Protective Gloves**

Protective gloves should be inspected before each use to ensure they are not torn, punctured or made ineffective in any way. A visual inspection will help detect cuts or tears but a more thorough inspection by filling the gloves with water and tightly rolling the cuff towards the fingers will help reveal any pinhole leaks. Gloves that are discolored or stiff may also indicate deficiencies caused by excessive use or degradation from chemical exposure.

Any gloves with impaired protective ability should be discarded and replaced. Reuse of chemical-resistant gloves should be evaluated carefully, taking into consideration the absorptive qualities of the gloves. A decision to reuse chemically-exposed gloves should take into consideration the toxicity of the chemicals involved and factors such as duration of exposure, storage, and temperature.
13.4.6 **Body Protection**

Employees who face possible bodily injury of any kind that cannot be eliminated through engineering, work practice or administrative controls, must wear appropriate body protection while performing their jobs. In addition to cuts and radiation, the following are examples of workplace hazards that could cause bodily injury:

- Temperature extremes;
- Hot splashes from molten metals and other hot liquids;
- Potential impacts from tools, machinery and materials;
- Hazardous chemicals.

There are many varieties of protective clothing available for specific hazards. Employers are required to ensure that their employees wear personal protective equipment only for the parts of the body exposed to possible injury. Examples of body protection include laboratory coats, coveralls, vests, jackets, aprons, surgical gowns and full body suits.

If a hazard assessment indicates a need for full body protection against toxic substances or harmful physical agents, the clothing should be carefully inspected before each use, it must fit each worker properly, and it must function properly for the purpose for which it is intended.

Protective clothing comes in a variety of materials, each effective against particular hazards, such as:

- **Paper-like fiber** used for disposable suits provide protection against dust and splashes.
- **Treated wool and cotton** adapts well to changing temperatures, is comfortable and fire-resistant, and protects against dust, abrasions and rough, irritating surfaces.
- **Duck** is a closely woven cotton fabric that protects against cuts and bruises when handling heavy, sharp or rough materials.
- **Leather** is often used to protect against dry heat and flames.
- **Rubber, rubberized fabrics, neoprene and plastics** protect against certain chemicals and physical hazards. When chemical or physical hazards are present, check with the clothing manufacturer to ensure that the material selected will provide protection against the specific hazard.

13.4.7 **Hearing Protection**

Determining the need to provide hearing protection for employees can be challenging. Employee exposure to excessive noise depends upon a number of factors, including:

- The loudness of the noise;
- The duration of each employee’s exposure to the noise;
- Whether employees move between work areas with different noise levels; and
- Whether noise is generated from one or multiple sources.
Generally, the louder the noise, the shorter the exposure time before hearing protection is required. For instance, employees may be exposed to a noise level of 90 dB for 8 hours per day (unless they experience a Standard Threshold Shift) before hearing protection is required. On the other hand, if the noise level reaches 115 dB hearing protection is required if the anticipated exposure exceeds 15 minutes. For a detailed discussion of the requirements for a hearing conservation program, see the chapter on hearing protection.

If engineering and work practice controls do not lower employee exposure to workplace noise to acceptable levels, employees must wear appropriate hearing protection. It is important to understand that hearing protectors reduce only the amount of noise that gets through to the ears. The amount of this reduction is referred to as attenuation, which differs according to the type of hearing protection used and how well it fits. Hearing protectors worn by employees must reduce an employee's noise exposure to within the acceptable limits.

Some types of hearing protection include:

- **Single-use earplugs** are made of waxed cotton, foam, silicone rubber or fiberglass wool. They are self-forming and, when properly inserted, they work as well as most molded earplugs.
- **Pre-formed or molded earplugs** must be individually fitted by a professional and can be disposable or reusable. Reusable plugs should be cleaned after each use.
- **Earmuffs** require a perfect seal around the ear. Glasses, facial hair, long hair or facial movements such as chewing may reduce the protective value of earmuffs.

### 13.4.8 Other PPE

#### Cooling Vests and Suits

Personal cooling vests and suits are available for wear in operations involving extreme heat conditions. One design requires the use of a supplied air system. The air enters the vest or coverall through a tube in which it is cooled by as much as 40 degrees. The cooled air is channeled out over the upper torso and around the neck area when only the vest is being used. When the coverall or full body cooling type of PPE is used, the cooling air is also channeled to the leg and arm areas.

There is also a type of body cooling system that does not require an electrical, air or water supply. This vest is made of durable flame-resistant cotton shell fabric. Sewn underneath the outer shell are layers of light metallic insulation that reflect radiant heat outward and cooling inward toward the body. Pouch-like areas are accessible for quick and easy installation of segmented, semi-frozen gel cooling packets. These gel packs, often referred to as plastic ice, provide approximately twice the cooling effect of the same volume of water ice. The gel packs will not leak, even if punctured. They can be refrozen overnight in an ordinary freezer.

Other systems use supplied cooling air and a manifold system of tubes to channel the cool air to the body extremities. Outer surfaces are frequently made of aluminum or other heat-reflective material, depending on the type and source of the heat conditions.
High Visibility Apparel

High visibility apparel must be used by workers involved in traffic control, such as flaggers or law enforcement officers, or for employees who work on the roadways, such as sanitation, utility or construction workers, and emergency responders. The apparel should be high visibility orange, yellow, yellow-green or a fluorescent version. Apparel can be procured with reflective and/or luminescent trim, or vertical or horizontal stripes, which offers greater day and night visibility.

Flotation Vests

Employees working over or near water, where the danger of drowning exists, will be provided with approved life jackets or buoyant work vests. These vests are available as flotation pads inside high visibility international orange nylon shells or as vinyl coated flotation pads of international orange. The flotation vests must be U.S. Coast Guard approved.

Additionally, in any other workplace where employees work over or near water, or use boats, appropriate approved life jackets, buoyant work vests or other flotation devices must be provided.

Welding and High Heat

Coveralls, jackets, pants and aprons are available for operations involving high heat or molten metal splashes. Leather is the traditional protective material for many welding operations. Where there is exposure to radiant heat as well as molten metal splashes, aluminized garments may be used. They reflect up to 95 percent of the radiant heat. Flame-resistant cotton coveralls designed for comfort as well as protection are sometimes preferred. Whatever the type of clothing used for welding operations, it should not have external pockets or cuffs. Fabrics of silica, ceramic and fiberglass eliminate the need for asbestos and are now available for welding operations. These fabrics are available in many combinations of color and weight. The fabrics are functional over a temperature range of 700 to 2,000 degrees Fahrenheit.

13.5 Forms and Attachments

On the following pages, please find the following documents:

- PPE Hazard Assessment Certification Form
- Personal Protective Equipment Training Documentation

These form may be reproduced freely by Tim Foster – dba MPC (Maintenance Projects & Construction) for the purposes of implementing and maintaining an injury and illness prevention program.
### 13.5.1 PPE Hazard Assessment Certification Form

**Workplace:**

**Conducted By:**

**Address:**

**Date:**

**Area(s):**

**Job or Task:**

#### EYES

**Work activities, such as:**

- [ ] abrasive blasting
- [ ] chopping
- [ ] cutting
- [ ] drilling
- [ ] welding
- [ ] soldering
- [ ] torch brazing
- [ ] working outdoors
- [ ] computer work

**Work-related exposure to:**

- [ ] airborne dust
- [ ] dirt
- [ ] UV
- [ ] flying particles/objects
- [ ] blood
- [ ] hazardous liquid chemicals & mists
- [ ] chemical splashes
- [ ] molten metal splashes
- [ ] glare/high intensity lights
- [ ] laser operations
- [ ] intense light
- [ ] hot sparks
- [ ] other:

**Can hazard be eliminated without the use of PPE?**

- [ ] Yes
- [ ] No

*If no, use:*

- Safety glasses
- Shading/Filter (# ___)
- Safety goggles
- Welding shield
- Dust-tight goggles
- Other:
- Impact goggles
- Welding helmet/shield
- Chemical goggles
- Chemical splash goggles
- Laser goggles
- Other:

#### FACE

**Work activities, such as:**

- [ ] cleaning
- [ ] cooking
- [ ] siphoning
- [ ] painting
- [ ] dip tank operations
- [ ] pouring
- [ ] other:

**Work-related exposure to:**

- [ ] foundry work
- [ ] welding
- [ ] mixing
- [ ] pouring molten metal
- [ ] working outdoors
- [ ] hazardous liquid chemicals
- [ ] extreme heat
- [ ] extreme cold
- [ ] potential irritants
- [ ] other:

**Can hazard be eliminated without the use of PPE?**

- [ ] Yes
- [ ] No

*If no, use:*

- Face Shield
- Shading/Filter (# ___)
- Welding shield
- Other:
- Side shields
- Face shield
- Shaded
- Prescription
# PPE Hazard Assessment Certification Form (page 2)

## HEAD

<table>
<thead>
<tr>
<th>Work activities, such as:</th>
<th>Work-related exposure to:</th>
<th>Can hazard be eliminated without the use of PPE?</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ building maintenance</td>
<td>□ walking/working under conveyor belts</td>
<td>□ Yes □ No</td>
</tr>
<tr>
<td>□ confined space operations</td>
<td>□ working with/around conveyor belts</td>
<td></td>
</tr>
<tr>
<td>□ construction</td>
<td>□ walking/working under crane loads</td>
<td></td>
</tr>
<tr>
<td>□ electrical wiring</td>
<td>□ utility work</td>
<td></td>
</tr>
<tr>
<td>□ walking/working under catwalks</td>
<td>□ other:</td>
<td></td>
</tr>
<tr>
<td>□ walking/working on catwalks</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**If no use:**

- □ Protective Helmet
- □ Type G (low voltage)
- □ Type E (high voltage)
- □ Type C
- □ Bump cap (not ANSI-approved)
- □ Hair net or soft cap
- □ other:

## HANDS/ARMS

<table>
<thead>
<tr>
<th>Work activities, such as:</th>
<th>Work-related exposure to:</th>
<th>Can hazard be eliminated without the use of PPE?</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ baking</td>
<td>□ blood</td>
<td>□ Yes □ No</td>
</tr>
<tr>
<td>□ cooking</td>
<td>□ irritating chemicals</td>
<td></td>
</tr>
<tr>
<td>□ grinding</td>
<td>□ tools or materials that could scrape, bruise, or cut</td>
<td></td>
</tr>
<tr>
<td>□ welding</td>
<td>□ extreme heat</td>
<td></td>
</tr>
<tr>
<td>□ working with glass</td>
<td>□ extreme cold</td>
<td></td>
</tr>
<tr>
<td>□ using computers</td>
<td>□ animal bites</td>
<td></td>
</tr>
<tr>
<td>□ using knives</td>
<td>□ electric shock</td>
<td></td>
</tr>
<tr>
<td>□ dental and health care services</td>
<td>□ vibration</td>
<td></td>
</tr>
<tr>
<td>□ using power tools</td>
<td>□ musculoskeletal disorders</td>
<td></td>
</tr>
<tr>
<td>□ working outdoors</td>
<td>□ sharps injury</td>
<td></td>
</tr>
<tr>
<td>□ other:</td>
<td>□ other:</td>
<td></td>
</tr>
</tbody>
</table>

**If no use:**

- □ Gloves
- □ Chemical resistance
- □ Liquid/leak resistance
- □ Temperature resistance
- □ Animal bites
- □ Electric shock
- □ Vibration
- □ Musculoskeletal disorders
- □ Sharps injury
- □ Other:
## PPE Hazard Assessment Certification Form (page 3)

### FEET/LEGS

**Work activities, such as:**
- building
- maintenance
- logging
- construction
- plumbing
- demolition
- food processing
- foundry work
- working outdoors
- other:

**Work-related exposure to:**
- explosive
- atmospheres
- explosive
- wiring or components
- exposed electrical
- heavy equipment
- slippery surfaces
- impact from objects
- pinch points
- crushing
- other:

**Can hazard be eliminated without the use of PPE?**
- Yes
- No

**If no, use:**
- safety shoes or boots
- leggings or chaps
- toe protection
- foot-leg guards
- chemical splash
- chemical
- anti-slip soles
- other:

### BODY/SKIN

**Work activities, such as:**
- Baking or frying
- battery charging
- dip tank operations
- fiberglass installation
- sawing
- other:

**Work-related exposure to:**
- chemical splashes
- extreme heat
- extreme cold
- irritant chemicals
- other:

**Can hazard be eliminated without the use of PPE?**
- Yes
- No

**If no, use:**
- vest
- coveralls, body suit
- abrasion/cut resistance
- rain gear
- apron

### BODY/WHOLE

**Work activities, such as:**
- building maintenance
- construction
- logging
- computer work
- working outdoors
- utility work
- other:

**Work-related exposure to:**
- working from heights of 10 feet or more
- impact from flying objects
- impact from moving vehicles
- sharp points
- blood
- other:

**Can hazard be eliminated without the use of PPE?**
- Yes
- No

**If no, use:**
- fall arrest/restraint
- traffic vest
- static coats/overalls
- flame resistant jacket/pants
- insulated jacket
- cut-resistant sleeves/wristlets
- other:

**With**
- hood
- full sleeves

---

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### Lungs/Respiratory

<table>
<thead>
<tr>
<th>Work activities, such as:</th>
<th>Work-related exposure to:</th>
<th>Can hazard be eliminated without the use of PPE?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleaning</td>
<td>Dust or particulates</td>
<td>Yes</td>
</tr>
<tr>
<td>Mixing</td>
<td>Organic vapors</td>
<td></td>
</tr>
<tr>
<td>Painting</td>
<td>Oxygen deficient</td>
<td>No</td>
</tr>
<tr>
<td>Fiberglass installation</td>
<td>Environment</td>
<td></td>
</tr>
<tr>
<td>Compressed air or gas</td>
<td>Paint spray</td>
<td></td>
</tr>
<tr>
<td>Confined space work</td>
<td>Extreme heat/cold</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asbestos</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pesticides</td>
<td></td>
</tr>
</tbody>
</table>

- **If no, use:**
  - Dust mask
  - Disposable particulate respirator
  - Replaceable filter particulate w/cartridge
  - PAPR (air recycle)
  - PPSA (Air supply)
  - Acid/gas crtg
  - Organic crtg
  - Pesticide crtg
  - Spray paint crtg
  - Half-faced
  - Full-faced
  - Hooded

### Ears/Hearing

<table>
<thead>
<tr>
<th>Work activities, such as:</th>
<th>Work-related exposure to:</th>
<th>Can hazard be eliminated without the use of PPE?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generator</td>
<td>Loud noises</td>
<td>Yes</td>
</tr>
<tr>
<td>Ventilation fans</td>
<td>Loud work environment</td>
<td></td>
</tr>
<tr>
<td>Motors</td>
<td>Noisy machines/tools</td>
<td></td>
</tr>
<tr>
<td>Sanding</td>
<td>Punch or brake presses</td>
<td></td>
</tr>
<tr>
<td>Pneumatic equipment</td>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

- **If no, use:**
  - Ear muffs
  - Ear plugs
  - Leather welding hood
# Personal Protective Equipment Training

**Trainer (include qualifications):**

**Date:**

**Content of Training:**

<table>
<thead>
<tr>
<th>Attendees</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Print Name</strong></td>
</tr>
</tbody>
</table>

(Retain at least 3 years)