# Electrical Work PPE Policy

The best way to safeguard workers from the risk of electrical shock and arc flash is to ensure that equipment is completely deenergized and isolated from its power source before work begins and isn’t put back into an energized state until the work is completed. When lockout and de-energization isn’t practicable, you’ll need to implement alternative safety measures, not the least of which is to ensure that workers use PPE that’s appropriate to protect them from hazards. Here’s an electrical safety PPE policy template that you can adapt for use at your own workplace.

POLICY

Individuals working in areas where there are potential electrical hazards must be provided with and use personal protective equipment (PPE) that’s appropriate for the specific work. Electrical tools and protective equipment must be specifically approved, rated and tested for the level of voltage relevant to the work activity.

INSULATING PPE

Insulating PPE, such as insulating gloves, must be rated for the voltage for which they’ll be exposed. Tests to verify the insulating properties of the PPE must be conducted every 36 months (3 years). ABC Company department heads are responsible for maintaining records of these tests.

CLOTHING & UNDERLAYERS

Exposed workers must wear clothing that is loose fitting to provide additional thermal insulation due to the air spaces beneath the clothing, along with underlayers generally consisting of non-melting, flammable materials, such as untreated cotton, wool, rayon, or silk, or blends of these materials, with a fabric weight of at least 4.5 oz/yd2. Workers may not use meltable fibres, such as acetate, nylon, polyester, polypropylene and spandex as underlayers. However, non-melting fabric undergarments or socks that contain incidental amounts of elastic are permissible.

HEAD, FACE, CHIN & NECK PROTECTION

Workers must wear non-conductive protective equipment for the face, neck, and chin whenever there is a danger of injury from exposure to electric arc or flashes or from flying objects resulting from electrical explosion.

4.1 Hardhats

Hardhats must meet the most current version of CSA Z94.1: Industrial Protective Headwear.:

Type 2, Class ‘E’ (Electrical): rated for 20,000 volts, must be worn for construction projects including electrical construction projects.
Type 2, Class ‘G’ (General): rated for 2,200 volts, provides head protection against low voltage conductors (general trades).
Type 2, Class ‘C’ (Conductive), does not offer electrical protection and is not suitable for electrical work.

“Type 2” refers to headwear that provides protection from impact, penetration at the top and laterally (sides and back). Type 1 headwear only provides impact and penetration at the top.

4.2 Long Hair & Facial Hair

Loose hair must be fully restrained via use of a non-conductive hairnet, cap or hard hat. Hairnets and beard nets, if worn, must be non-melting and arc-rated.

PROTECTIVE EYEWEAR & FACEWEAR

Exposed workers must use eyewear that meets the most current version of CSA Z94.3. Note: Eye protection that meets or exceeds American National Standards Institute (ANSI) Z87.1-89 and Z87.1A-91 may not meet Canadian impact-protection standards.

When working on live electrical equipment, non-conducting frames with scratch resistant clear polycarbonate lenses or CR-39 (plastic) lenses with ultraviolet (UV400) protection are acceptable. Shaded lenses with ultraviolet protection to a maximum shade rating of 1.7 may only be worn when the work area is bright. Face shields must be arc rated to at least 8 cal/cm2 and be worn with safety glasses which have side shields. Workers must wear a chin cup if their chin is not fully protected by the design of the face shield.

HAND PROTECTION

Exposed workers must wear rubber insulating gloves that are air (inflation) tested and inspected. Maximum use voltages for rubber insulating gloves must not exceed the following:

Table 1. Maximum Use Voltage for Rubber Insulating Gloves

Class designation of glove or sleeve Maximum AC use Voltage RMs, V Maximum DC use Voltage avg, V Distant between gauntlet and cuff, min.
00 500 750 13 mm (0.5 in.)
0 1000 1500 13 mm (0.5 in.)
1 7500 11 250 25 mm (1 in.)
2 17 000 25 500 51 mm (2 in.)
3 26 500 39 750 76 mm (3 in.)
4 36 000 54 000 102 mm (4 in.)

The top of the cuff of the protector glove shall be shorter than the rolled top of the cuff of the rubber insulating glove by at least the distance specified in Table 1 above.

Rubber insulating gloves or sleeves that have been electrically tested but not issued for service must not be placed into service unless they have been electrically tested within the previous 12 months with the test voltages as listed in Table 2 below.

Table 2. Rubber Insulating Equipment Test Intervals

Type of rubber insulating equipment When to test Governing Standard for test voltage Blankets Before first issue and every 12 months after ASTM F479

Covers Upon indication that insulating value is suspect ASTM F478
Gloves Before first issue and every 6 months after ASTM F478
Line hose Upon indication that insulating value is suspect ASTM F478
Sleeves Before first issue and every 12 months after ASTEM F478

SHOCK PROTECTION

Where it is not practicable to turn off or isolate electrical power, workers must wear rubber gloves, leather protectors and other appropriate PPE to guard against risk of electrical shock and burn. Rubber gloves must be tested and certified and meet the requirements of Section 6 above. Leather protectors should be used with insulating gloves – contact your supervisor if it is not possible to use leather protectors. Additional measures may be required in these situations.

Class 0 and Class 00 gloves must be air tested and visually inspected for damage and adequacy immediately before each use. They are exempt from regular recertification unless work is carried out under the Electrical Utility Safety Rules.

Rubber gloves rated for use with voltages above 5000 volts AC must be regularly tested and certified to ensure they can withstand the voltages they are rated for at least once every three months if they are in service or once every six months if they are not in service. Additional protection may be required if there is a danger of arm contact with exposed energized electrical conductors or circuit parts.

ARC FLASH PROTECTION

Exposed workers must wear arc-rated clothing wherever exposure to an electric arc flash above the threshold incident-energy level for a second-degree burn, i.e., 1.2 cal/cm2 (5 J/cm2 ), is possible. Appropriate arc flash PPE should be selected in accordance with either:

The incident energy analysis method; or
The Arc flash PPE category method.

All parts of the body inside the arc flash boundary must be protected including the hand, arm and back of the head. When workers wear arc-rated clothing, it must cover all ignitable clothing and allow for movement and visibility. If workers wear outer layers, any garment worn over arc-rated clothing should also be made of arc-rated materials.

FOOT PROTECTION

Exposed workers must wear protective footwear that meets the most current version of CSA Z195-M92: Protective Footwear. Protective footwear must have an external rectangular patch colour with the Greek letter omega in orange, denoting electrical shock resistant soles like the image below:

INSULATED TOOLS & ELECTRICAL PROTECTIVE EQUIPMENT

All tools and handling equipment within the restricted approach boundary must be insulated. All tools must be insulated and certified for voltages above any expected voltages, inspected before each use and used/stored/maintained in accordance with the manufacturer’s instructions.

Proper/certified fuse pullers and other specialized electrical tools must be used to remove or install a fuse if the fuse terminals are energized.

Ropes and hand-lines used within the limited approach boundary must be non-conductive.

Fibreglass-reinforced plastic rods and tubes used for live line tools must meet the

requirements of CAN/ULC-60855 or ASTM F5711.

## TRAINING

Workers must be provided with training and/or instruction on the proper use, care and storage of PPE. PPE must be used and maintained in accordance with the manufacturer’s instructions and inspected before each use.

## POLICY MONITORING & EVALUATION

This Policy will be reviewed, in consultation with the JHSC or Representative, at least once a year and more often in response to incidents, injuries and changes affecting workers’ health and safety.