

## PERSONAL PROTECTIVE EQUIPMENT – HEAD PROTECTION

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This SOP provides information on the selection and use of helmets, bump caps, and hard hats to protect the head from injury. Welding operations are beyond the scope of this SOP. Refer to the EHS SOP, ***Welding Lens Shade and Personal Protective Equipment (PPE) Selection***.

### Head Hazards

Head protection is necessary when there is risk of:

- Falling or moving objects striking the top or sides of the head. This is commonly encountered during construction and renovation activities.
- Bumping the head against fixed objects. This is commonly encountered by persons who occasionally work in tight or cramped spaces such as crawl spaces, tunnels, mechanical spaces, and who use mechanical devices to approach ceilings to conduct work (such as using a lift to reach and change or adjust light fixtures, etc.).
- Accidental contact with energized electrical conductors. This type of situation might be encountered when working from ladders or aerial lifts.
- Head injury while riding horses, operating All Terrain Vehicles, and similar situations.

### Models of Head Protection

Protective helmets (formerly, and still commonly referred to as hard hats) are designed to reduce the amount of force from an impact blow from falling or moving objects. While protective helmets are designed to robust standards, they do not provide complete head protection from severe impact and penetration.

Another model of protective headgear is called a “bump hat or cap.” This type of headgear can be used when protection is needed from minor head bumps and lacerations. Bump hats/caps are not designed to protect against falling or flying objects and are not ANSI-approved.

DOT-rated helmets must be worn while operating an ATV (All Terrain Vehicle), motorcycle, or similar vehicle.

ASTM (American Society for Testing and Materials) - approved headgear is appropriate when riding a horse or bicycle. Medical studies show that the most common riding-related injuries are to the head.

## General Guidance on Proper Use

Regardless of the type of protective headwear used:

- Headgear must conform to the design specifications of the controlling authority (e.g., ANSI, DOT, ASTM), based on the particular hazard.
- Headgear must be properly fitted to the user. Poor fit will compromise the protection that would ordinarily be afforded by the device.
- Read and observe the manufacturer's fitting and use instructions.
- When there are circumstances that require additional protection that affects fitting of the headgear, select a model that has been designed to accommodate the specific optional equipment. For example, if earmuffs or a face shield is needed in combination with a hard hat, select a model that has been specifically designed to accommodate this optional equipment. Do not modify headgear from the manufacturer's original design or use optional equipment that has not been approved by the manufacturer.
- Inspect the headgear prior to each day's use to verify integrity. Remove defective or compromised (e.g., perforation, cracking, deformity, loss of surface gloss, chalking, flaking, worn or frayed suspension system components or padding, etc.) headgear from service.
- Replace protective headgear if it sustains an impact, even if damage is not noticeable.
- Handle protective headgear with care. Don't toss it, use it as a support, or subject it to other unnecessary force.
- Do not carry or wear objects inside of a hard hat between the suspension and the shell. The clearance must be maintained between the hard hat shell and the wearer's head for the protection system to work properly. A ball cap or other object inside of a hard hat may limit this clearance. An object with metal parts placed under a hard hat may also diminish the dielectric (electrical non-conducting) protection.

## Types of Protective Helmets (Hard Hats)


All protective helmets must conform to the ANSI Standard for Industrial Head Protection, ANSI Z89.1. Under this Standard, protective helmets are classified as either Type I or Type II.

- Type I helmets are intended to reduce the force of impact resulting from a blow only to the top of the head
- Type II helmets are intended to reduce the force of impact resulting from a blow to the top **or** sides of the head.

Type I and Type II helmets are further described by their protectiveness relative to electrical energy.

- Class C (Conductive) helmets are **not** intended to provide protection against contact with electrical hazards.
- Class G (General) helmets are intended to reduce the danger of contact with low voltage conductors.
- Class E (Electrical) helmets are intended to reduce the danger of contact with higher voltage conductors.

Manufacturers may also design helmets to meet certain optional criteria. These include:

- Reverse wearing. If a helmet has been tested and certified to provide protection regardless of whether it is worn forward- or rear-facing, it will have the reverse donning marking, which is two opposing arrows as shown. A hard hat without this marking must NEVER be worn backwards. 
- High Visibility. If a helmet meets the fluorescent yellow-green, orange-red, or red high visibility criteria, it will bear a “HV” marking.
- Lower Temperatures. If a helmet has been tested for its impact resistance at low temperatures it will bear a “LT” marking.

An example of a hard hat marking is shown below. This marking indicates that the hard hat was made by Sellstrom Manufacturing. It meets the ANSI Type I criteria, as published in the 1997 version of ANSI Z89.1. It is a class “G” or “General” helmet, meaning that it provides protection against contact with low voltage conductors.

Sellstrom Mfg.  
Type I  
ANSI Z89.1-1997  
Class G