PERSONAL PROTECTION || Head Protection

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Protective helmets, like hard hats, are meant to reduce the amount of force when there is an impact to the head but may not be enough to provide complete protection from a severe blow to the head or penetration.

- Hard hats should be effective against small tools, small pieces of wood, bolts, nuts, rivets, sparks and similar hazards.
- The use of head protection should never be considered a substitute for good safety practices and engineering controls.

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OSHA requires hard hats for employees working in areas where there is a possible danger of head injury from impact, falling or flying objects, or electrical shock and burns.

- Even where there may not be an OSHA requirement to wear head protection, employers may require 100% hard hat use as a company policy.

OSHA Standard 1926.100(a) *Employees working in areas where there is a possible danger of head injury from impact, or from falling or flying objects, or from electrical shock and burns, shall be protected by protective helmets.*

This safety topic provides information on how head injuries may be prevented by the selection and use of appropriate head protection.

OSHA standards state that head protection must comply with any of the following: ANSI Z89.1-2009, ANSI Z89.1-2003, or ANSI Z89.1-1997.

- ANSI/ISEA Z89.1-2014 (R2019) has also been released and is the newest version of the ANSI hard hat standard available.

Based on OSHA's de minimis policy, where OSHA has adopted an earlier consensus standard, employers who are in compliance with the updated version will not be cited for a violation of the old version as long as the new one is at least equally protective.[1]

Hard hats must be worn correctly in order to be effective.

- Some hard hats are designed to fit one size, while others are adjustable.
- Always follow the manufacturer's instructions for proper fitting procedures.

Because hard hats are engineered to keep a designed distance between the hard hat shell and the worker's head, it is important to not add any accessories or liners that are not approved by the manufacturer or compatible with the helmet.

- OSHA recommends that employers permit only liners that are specifically designed to be compatible with the protective properties of the hard hat.[1]
- Baseball caps should not be worn underneath hard hats.

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ANSI/ISEA Z89.1-2014 (R2019) Section 5 *Accessories or replacement components, when installed, shall not cause the helmet to fail the requirements of this standard. The entity claiming that an accessory or replacement component, when installed, does not cause the helmet to fail the requirements of this standard is responsible for providing justification upon request.*

Hard hats are classified by 1) **Impact Type** (Type I or II) and also by 2) **Electrical Class** (Class C, E or G).

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Every hard hat will be either Type I or Type II.

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

Additionally, every hard hat will also have an electrical class designation.

- **Class C** (Conductive) hard hats do not provide protection against contact with electrical hazards.
- **Class G** (General) hard hats provide electrical protection from low-voltage conductors (less than 2,200 volts).
- **Class E** (Electrical) hard hats provide electrical protection from high voltage conductors (less than 20,000 volts).

ANSI cautions, "*The maximum voltage against which helmets will protect the wearer depends on a number of variable factors, such as the characteristics of the electrical circuit and the equipment involved, the care exercised in maintenance of equipment, and weather conditions*."

If a hard hat has optional performance features, as approved by ANSI testing requirements, there may be an additional symbol on the hard hat as follows:

- **LT** – Lower Temperature
- **HV** – High Visibility
- **HT** – Higher Temperature
-  – Reverse donning

Hard hats marked with a "reverse donning arrow" can be worn frontward or backward in accordance with the manufacturer's wearing instructions.

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Before wearing, carefully inspect the hard hat, including all components and accessories, for any signs of damage.

- Look for dents, cracks, holes due to penetration, or any other damage due to impact, wear, or rough treatment that might reduce the degree of protection originally provided with the hard hat.
- A hard hat with excessively worn, damaged, or defective areas should be removed from service.
- Any hard hat that has received an impact may have a reduced ability to protect a worker and should be removed from service.
- During inspection if there are signs that a hard hat has lost the glossy finish, a chalky appearance is beginning to emerge, or the shell is starting to flake away, these may be signs of UV radiation damage, which can cause a hard hat to lose some effectiveness.

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Potential workplace or job site hazards that may require head protection:

- Falling, flying or moving objects
- Electrical shock or burns due to contact with exposed electrical conductors
- Environments with low overhead or fixed objects like piping, beams, pallet racks, heavy equipment, or inside confined spaces where a worker has the potential to bump their head

- Hard hats must be worn when working below other workers who are using tools and materials which could fall.
- Aluminum hardhats should not be worn in areas where a worker may come in contact with energized circuits. [2]
- Do not store or carry hard hats on the rear window shelf of a vehicle. Sunlight and extreme heat can cause the hard hat to degrade faster, and the helmet can become a flying object hazard in an emergency braking situation.
- Do not intentionally drop or throw hard hats, or use them as supports, because damage can adversely affect their level of protection.
- Do not alter or modify a hard hat to add accessories unless it's an approved method provided by the manufacturer.

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FOOTNOTES

[1] OSHA Standard Interpretation Letter Re: Hard Hats; osha.gov/laws-regs/standardinterpretations/2006-04-17-0

[2] OSHA Standard Interpretation Letter Re: Aluminum Hard Hats; osha.gov/laws-regs/standardinterpretations/2002-06-25

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