American National Standard for Industrial Protection ANSI/ISEA Z89.1-2014

This is the seventh revision of the standard that provides performance and testing requirements for industrial helmets, commonly known as hard hats. The American National Standards Institute (ANSI) and the Industrial Safety Equipment Association (ISEA) worked together on this 2014 standard. It is a revision of ANSI/ISEA Z89.1, which continues to include specifications for helmets designed to offer protection from lateral impact, or top-only impact, giving employers and users the flexibility to specify the helmet that best meets the needs of their specific workplace.

Industrial head protective helmets meeting the requirements of the 2014 standard are classified as Type I for top protection or Type II for lateral impact protection. Both types are tested for impact attenuation and penetration resistance. Type II helmet performance requirements include criteria for impact energy attenuation from impacts from the front, back and sides, as well as the top, off-center penetration resistance and chin strap retention.

The three classes indicate the helmet's electrical insulation rating, unchanged from 2009:
- Class E (electrical) are tested to withstand 20,000 volts;
- Class G (general) helmets are tested at 2,200 volts; and
- Class C (conductive) provide no electrical protection.

Changes 2009 to 2014

- Under the section of Accessories and Replacement Components there is further clarification that accessory or component manufacturers are required to prove that their components do not cause the helmets to fail. Helmet accessory or component suppliers must provide justification upon request that their product would not cause the helmet to fail the requirements of the Head Protection Standard.
- Some additional language added under the Instructions and Markings section to help clarify that "useful service life" for helmets is not required by the Standard. It is up to helmet manufacturers if they want to include specific service life in terms of years. Manufacturers could elect to specify the number of years for their helmet's service life or elect to identify certain conditions that may affect a helmet's protection capability over time.
- The last section revised was the Higher Temperature section for users who work in hot environments. This section was updated to incorporate an optional preconditioning at a higher temperature of 140º F +- 3.6º F (60º C +- 2º C). Previously hot temperature preconditioning was conducted at 120º F +- 3.6º F (48.8º C +- 2º C) under the 2009 Standard. Helmets that meet the performance criteria after being preconditioned to these higher temperatures (140º F) will be designated with a HT marking.

Markings

According to the ANSI/ISEA standard, hard hats must also contain user information such as instructions pertaining to sizing, care and service life guidelines. Every hard hat conforming to the requirements of ANSI Z89.1-2014 must be appropriately marked to verify its compliance. The following information must be marked inside the hard hat:
- The manufacturer’s name or identifying mark
- Date of Manufacture
- The legend, “ANSI Z89.1-2014”
- The Type and Class Designation
- The approximate head size range

If optional performance features are applicable, the appropriate marking(s) below must be applied in the sequence as shown:
- - Reverse Donning
- LT - Lower Temperature
- HV - High Visibility
- HT - Higher Temperature
**New ANSI/ISEA Standard for Head Protection**

**Technical Bulletin**

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NOTE: Changes in this revision of the standard include 3 new optional criteria:

- **Reverse Wearing:** Helmets marked with ![arrow] can be worn facing frontwards or backwards in accordance with the manufacturer's wearing instructions. They pass all testing requirements, whether worn frontwards or backwards. All Bullard Type I industrial hard hats can be worn backwards, per instructions included with the hard hat. Bullard Type II hard hats (Advent, Vector) can not.

- **Extreme Cold:** A helmet with the optional mark "LT" indicates that the hard hat meets all testing requirements of the standard when preconditioned at a temperature of -30°C (-22°F), instead of the normal cold preconditioning done at -18°C (0°F). All Bullard industrial hard hats have been tested and are certified at this new lower temperature, and are marked "LT" on the label.

- **High Visibility:** A helmet with the optional mark "HV" meets new requirements in the standard for high visibility colors. (Currently, Bullard's "hi-viz" yellow meets the chromaticity and luminance requirements and can be labeled "HV").

### Changes 2003 to 2009

The following Bullard hard hats/helmets meet the revised ANSI/ISEA Z89.1-2014 standard:

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard Type and Class</th>
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<tbody>
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<td>C30</td>
<td>ANSI/ISEA Z89.1-2014, Type I, Class E &amp; G</td>
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<tr>
<td>C33</td>
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<td>ANSI/ISEA Z89.1-2014, Type I, Class C</td>
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<td>ANSI/ISEA Z89.1-2014, Type I, Class E &amp; G</td>
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<td>Vector</td>
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