ISEA
INTERNATIONAL SAFETY EQUIPMENT ASSOCIATION

J. J. Keller & Associates, Inc.®
Since 1953

Head Protection Practices and Challenges:

A J. J. Keller and ISEA Collaborative Study

Foreword

A Turning Point for Head Protection

Why a collaborative study on head protection?

Head protection isn't new, of course. The hard hat was invented in the early 1900s, and regulations requiring head protection have been in place since the 1960s, with OSHA §1910.135 and OSHA §1926.100 and hard hats providing protection primarily for the top of a worker's head. Since that time, the industry's collective safety knowledge has grown, along with the availability of head protection solutions. However, the myriad solutions – hard hats, safety helmets, climbing helmets, bump caps, Type I, Type II – while they are valuable advancements, also have the potential to create confusion for safety professionals. Which protection is most effective for the situation at hand? Which standards should be followed, and which protections are required by those standards?

J. J. Keller & Associates, Inc. and ISEA were each founded with a focus on worker safety. Both, in different but complementary ways, advise safety professionals and industries on workplace safety standards and best practices. Through conversation, we discovered both of our organizations believe that, right now, the safety field is at a turning point for optimizing head protection.

This is a time when the nomenclature, definitions, options and uses of head protection require clarification, which will in turn lead to increased safety.

A critical first step toward that end is discovering what safety professionals and those who use head protection understand, where confusion lies, how they are using head protection and what challenges they face. Thus, our collaborative study on head protection was launched, with a purpose of listening, learning and sharing information with regulators, safety professionals and industry.

With the data from this study, J. J. Keller and ISEA hope to inspire discussion that will further clarify effective head protection practices to keep workers safe and at home with their loved ones at the end of every shift.

With best regards,

Cam Mackey
President & CEO
ISEA

Bob Larsen
Vice President of Research & Developement
J. J. Keller & Associates,Inc.

About the Study Sponsors

International Safety Equipment Association (ISEA)

ISEA is the voice of the safety equipment industry. For 90 years, we have been a recognized leader in the development of ANSI-accredited safety equipment standards. We advocate on behalf of the industry for policies that improve worker safety, deliver actionable insights on the safety equipment market, develop critical skills for safety sales professionals, and provide a unique forum for collaboration, learning and growth.

J. J. Keller Center for Market Insights

The J. J. Keller Center for Market Insights is the collaborative research arm of J. J. Keller & Associates, Inc. The center originated in 2019 with a focus on sharing with the public trends and insights from an abundance of safety and compliance data gathered by J. J. Keller over decades serving more than 500,000 customers across the United States.

The center publishes ongoing reports to spur discussion and advancements in safe, respectful workplaces, job sites, and highways through historical data, new proprietary studies, and partnerships with reputable, research-focused third-party organizations.

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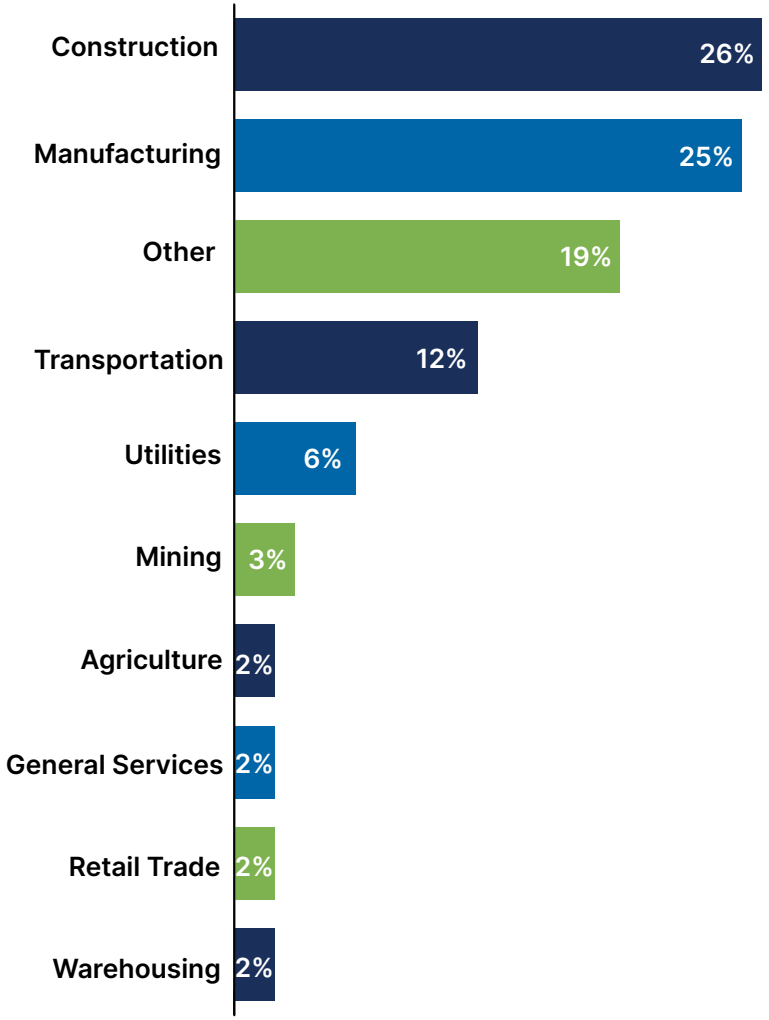
Respondent Characteristics

Head protection such as hard hats is often associated with construction workers, so it's no surprise that the largest percentage of survey respondents (26%) come from construction companies. Manufacturing companies are a very close second, however, at 25% of respondents. The remaining 49% is split among a number of industries, including "other," transportation, and utilities. Most respondents work for small to medium sized companies, with 67% working for companies with 10-500 employees. Only 28% of respondents hail from companies with more than 500 employees.

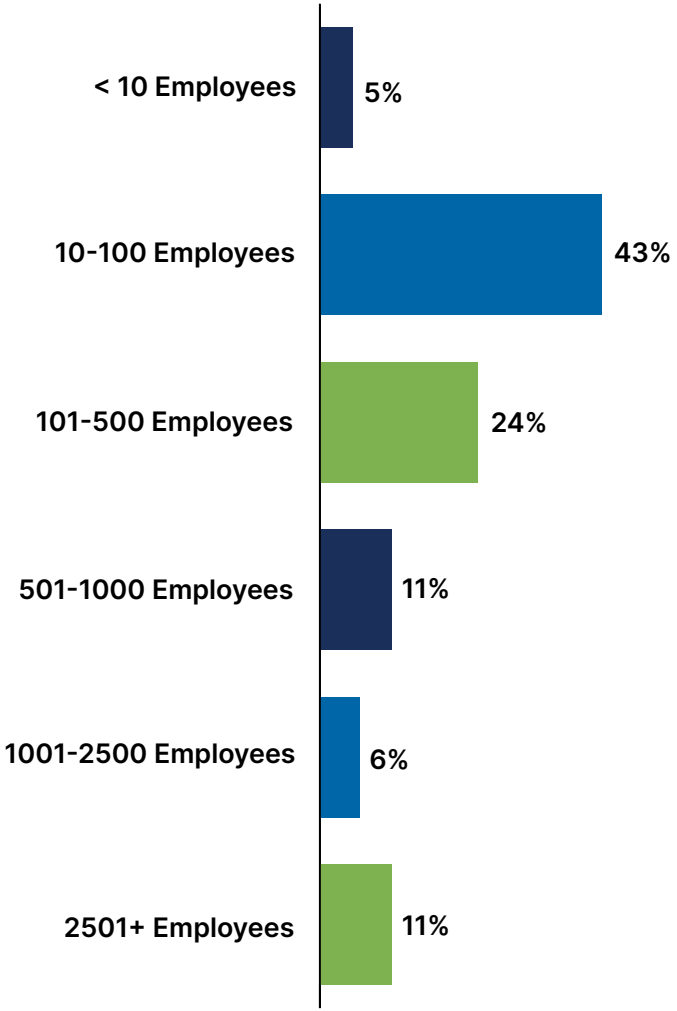
An overwhelming 90% of respondents are involved in making decisions related to head protection, which makes their feedback especially meaningful and valuable.

90% of respondents are involved in making decisions

Industries



Employees in Company



Summary of Findings

The head protection landscape continues to evolve. With more choices than ever before, it's becoming increasingly complicated for safety professionals to maintain an effective head protection program.

Terminology — While most respondents were confident when asked about the definitions of various head protection terms, our survey revealed significant confusion and over-simplification in the differences (and similarities) between hard hats and helmets.

Pain Points — Key pain points include navigating a more complicated decision process (with more options than ever before), getting employees to consistently wear head protection, and finding head protection that's comfortable for all workers.

Care & Maintenance — Only 54% of respondents train workers on how to maintain their head protection, suggesting a significant opportunity.

Education — Survey results indicate an opportunity for standards organizations, manufacturers and other experts to provide clarity, guidance and education on the various types of head protection.

Bottom Line: Despite more options than ever, selecting head protection is confusing and complicated, especially when trying to discern the key differentiators among them. Additional education is needed.

Culture and Confidence

A vast majority of respondents indicate their company's safety culture is strong, with 83% describing it as "excellent" or "good." They feel their employees are mostly wearing their head protection correctly, with responses indicating employees wear it properly on average 75% of the time.

Respondents are also confident their company is consistently using the correct head protection for the job, with just over half expressing they are "very confident" and 41% indicating they are "somewhat confident." Reasons given for being very confident revolve around the fact that it meets OSHA regulations and safety standards. For those in the minority of just over 8% expressing a low level of confidence or none at all, reasons mentioned include resistance to using safety helmets and insufficient safety culture.

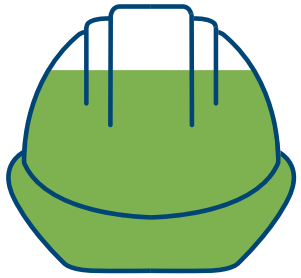
Company Safety Culture

32% Excellent

51% Good

16% Satisfactory

1% Poor



On average, safety professionals believe employees are wearing head protection correctly **75%** of the time.

How Confident Are You That Proper PPE Is Consistently Used?

REASONS GIVEN FOR "VERY CONFIDENT"

- 30 years of 100% compliant with zero head injuries.
- All PPE gear is set and determined per the contract documents and cross referenced through the OSHA standards.
- Because they are ANSI/ISEA Z89.1.
- Head protection conforms to the ANSI/ISEA Z89.1 standard.
- It must fit the head correctly. If it doesn't feel comfortable no one will want to wear a hard hat. Most importantly it must meet the EN 12492, EN 397.
- The company provides the correct PPE.
- We are electrical contractors and meet OSHA, NFPA 70 E requirements.

REASONS GIVEN FOR "SOMEWHAT CONFIDENT"

- Elevated work, ladder use would necessitate a Type II Safety Helmet. Helmets are class E.
- Getting feedback from supervisors and having them follow up makes making sure all is correct somewhat difficult.
- I am a proponent of safety helmets and company management favor Hard Hats over Safety Helmets.
- I recently learned head protection has an expiration date.
- No written policy specifying the use of a safety helmet for tower work.
- We have been evolving with the new styles of head protection, but there is still the mindset that as long as there is something on the head, the worker is protected.

REASON GIVEN FOR "NOT VERY CONFIDENT"

- Over reliance on traditional hard hats for 90% plus of our job sites even when a helmet would be a better choice.
- Reluctance on the part of management and staff to move to Type II safety helmets where needed.
- Safety culture is not where I feel it should be to promote PPE usage of all types.

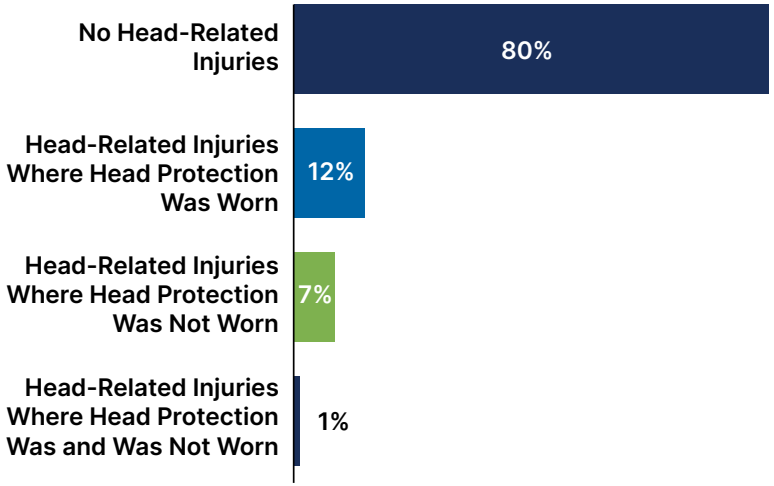
Head-Related Injuries

Although 80% of respondents stated workers had not experienced a head injury at their company in the past year, an alarming 20% had, suggesting there is more work to be done with regards to head protection. Of those who had workers experiencing injuries when head protection was worn, reasons cited include the wrong protection being worn for the hazard involved and improper fit.

For workers experiencing a head injury, what was the number-one reason they weren't wearing head protection? Because the employee didn't want to wear it.

20% of respondents said someone had a head injury at their company in the last year.

Head-Related Injuries in the Past 12 Months



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Head and central nervous system injuries averaged $94,285 per workers' compensation claim in 2020 and 2021.

(Source: National Safety Council)

Expert Insight

Robin Marth
EHS Editor
J. J. Keller & Associates, Inc.

While the majority (80%) of our survey participants did not report any head-related injuries in the past 12 months, the potentially devastating effects of not wearing head protection remain. In 2021-2022, nearly 196,000 private sector workers nationwide experienced an occupational head injury resulting in days away from work, job restriction or transfer. Traumatic brain injuries are a significant public health concern, identified by the Centers for Disease Control as the leading cause of injury-related death and disability, responsible for 20 – 25% of work-related head trauma. The use of personal protective equipment, such as type I and type II helmets, is essential in preventing head-related injuries.

4 Biggest Challenges

An overwhelming 88% of respondents face challenges with selecting and implementing head protection. These challenges can be grouped into four main areas.

1. Getting Employees To Wear It Correctly

Only 15% of respondents indicated they felt head protection was being worn correctly 100% of the time, showing that there is room for improvement, particularly in ongoing training and compliance programs.

2. Enforcement

Respondents expressed difficulty enforcing the use of head protection among employees.

Comments included:

"We give them the PPE, but I cannot stand there every day and force them to put it on!"

"Employees not wearing them until told to."

"Employees at times feel that where they are working hard hats are not necessarily needed. However it is the company policy that if you are on a job site you are to have a hard hat or some type of head protection. It is very important that the supervisor is aware when an employee does not have the correct PPE."

3. Comfort/Fit

Despite the number of head protection options available in the market, respondents revealed they struggle to find head protection that is comfortable and fits their employees properly.

"A head injury not only can impair an employee for life, but it can also be fatal. Effective protection requires wearing protective headgear correctly. It must be worn appropriately, fit comfortably, and be adjusted to the wearer's head size and shape."

Robin Marth, J. J. Keller EHS Editor

4. Heat-Related Concerns

With recent record-breaking temperatures, it's no surprise that heat is a factor, causing employees to not wear their head protection or take it off.

Comments included:

"Most head protection is too hot causing removal or not even wearing it."

"Due to the hot climate, employees take off the hard hats to feel more comfortable."

"Workers complain about them being hot."

(Mis)Understanding Terminology

Respondents expressed confidence in knowing the difference among hard hats, helmets and bump caps, with less being confident about the difference between Type I and Type II head protection and the ANSI/ISEA Z89.1 and EN 12492 standards.

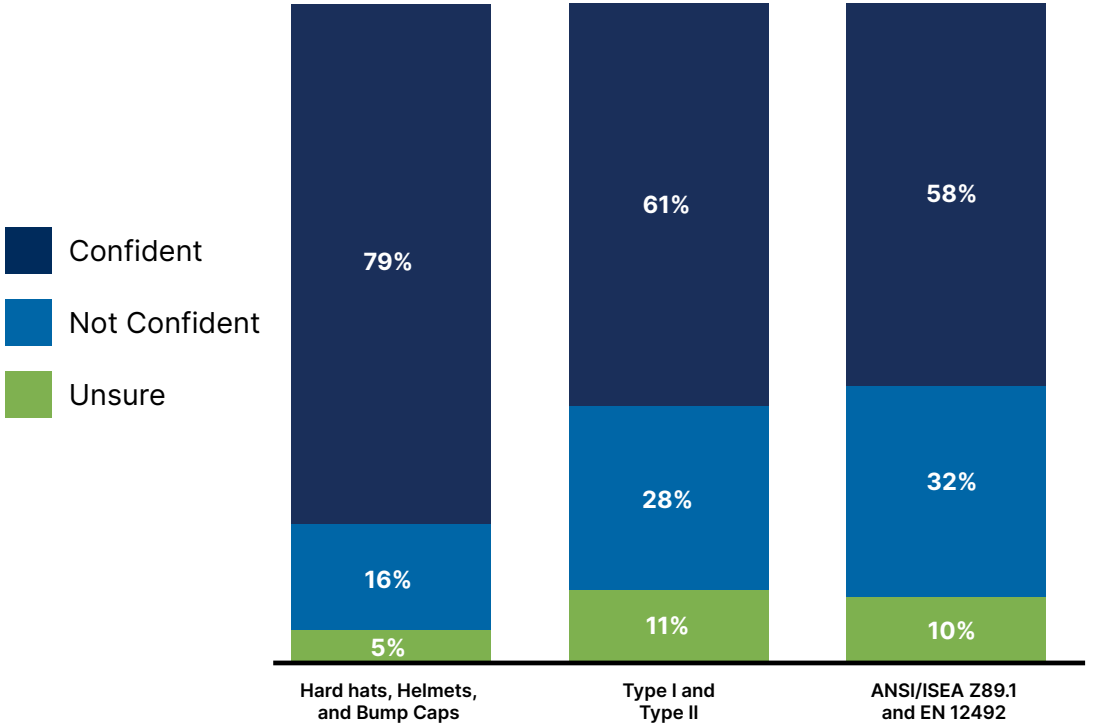
However, 80% of respondents thought that only helmet-style head protection offered impact protection on the top, sides, front and back. This isn't true - this level of protection (referred to as Type II) can be offered in both hard hat and helmet styles. This shows that safety pros are in need of additional education on the key differences.

After stating their awareness in the difference, 7% of respondents indicated they are not aware of what constitutes a safety helmet after being presented with the characteristics listed below.

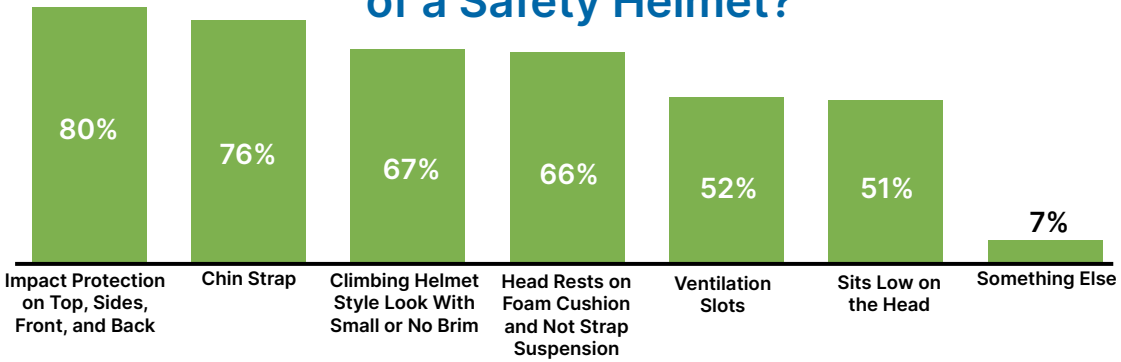
72% of respondents believe they understand the differences between hard hats and safety helmets.

When it comes to head protection, it's essential to select the appropriate type and class of head protection for the specific work environment and potential hazards. While they're widely used by the industry, terms like "hard hat" or "safety helmet" aren't currently defined in ANSI/ISEA Z89.1. Further complicating matters, styles vary by manufacturer and are constantly evolving. You can't simply look at a piece of head protection and know what level of protection it offers. To pick the right protection for the job at hand, read the label. For more information, click here.

Confidence in Knowing the Difference Between Terms



Responses to What Are the Characteristics of a Safety Helmet?



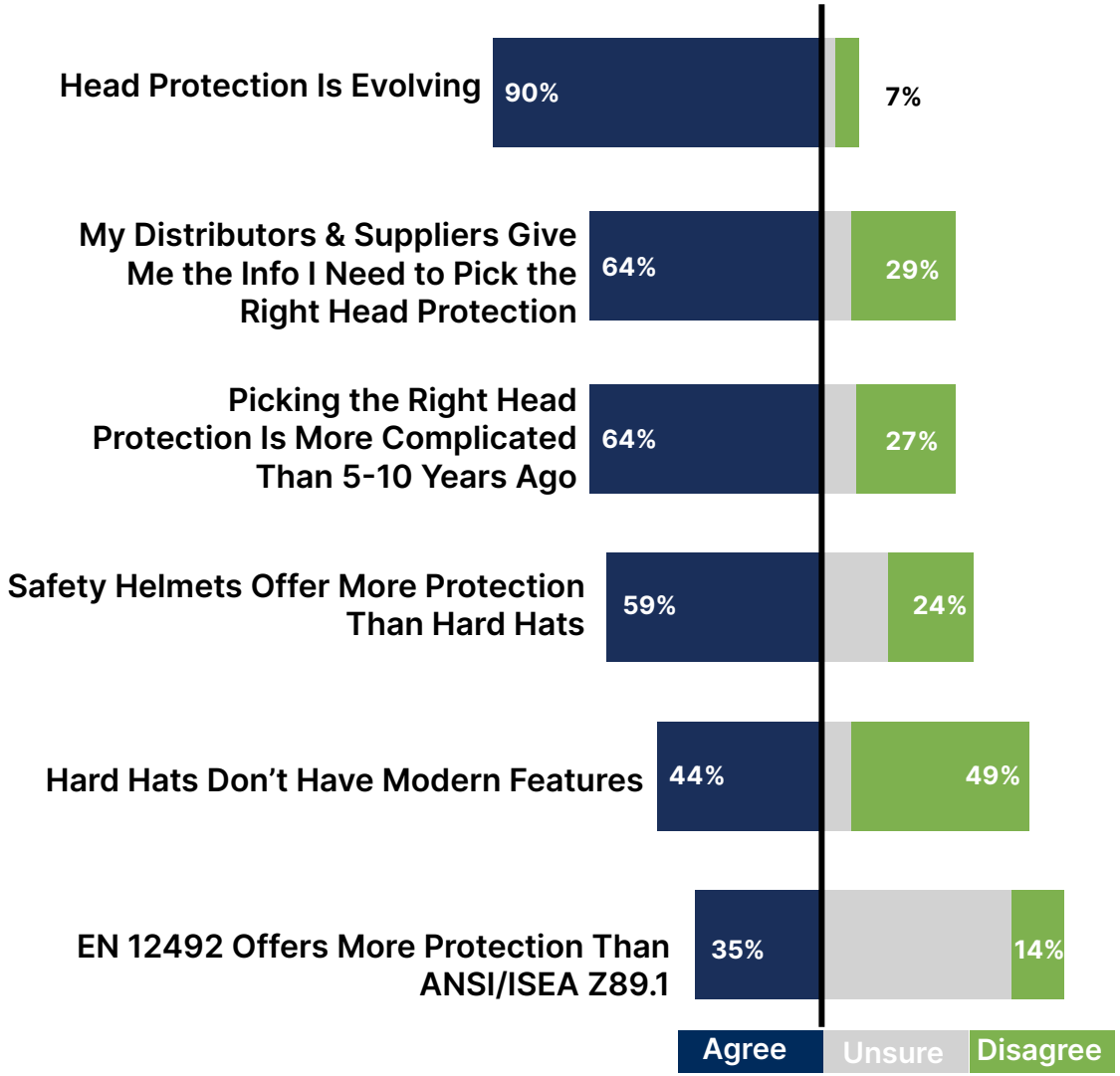
Consensus, Yet Confusion, Among Professionals

Purchasers recognize that the market is evolving, and that more information is needed to make a more complicated purchase decision.

Underscoring how important updated, hot-off-the-presses information is to a well-informed purchase decision, our data showed that there is still confusion (or at the very least oversimplification and inaccurate blanket statements), such as misconceptions that helmets are always safer, hard hats don't have modern features, or that EN 12492 offers more protection than Z89.1.

Nearly 6 out of 10 perceive safety helmets as offering more protection than hard hats.

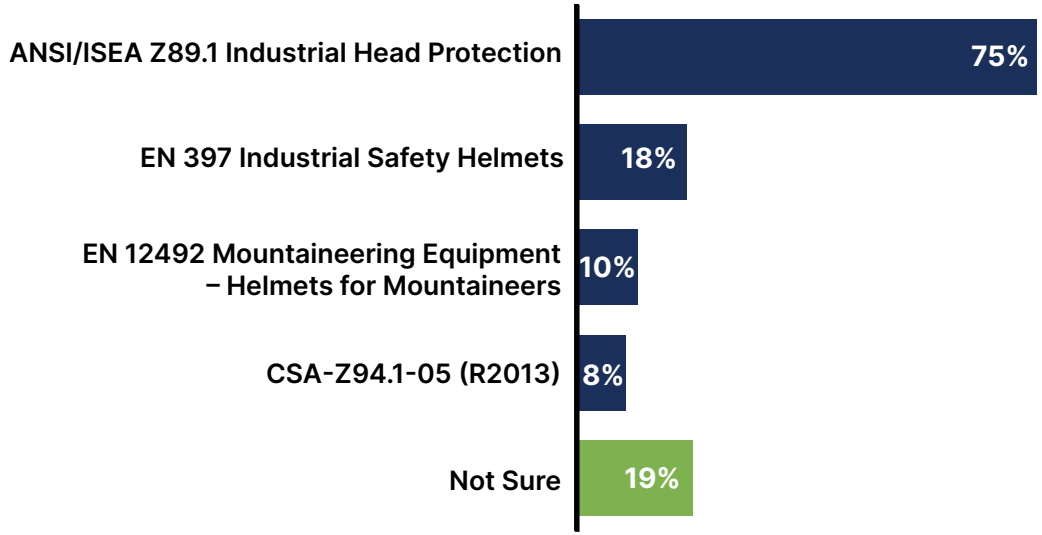
Level of Agreement With Each



Standards Considered When Purchasing

Respondents indicated that standards play a large role in their selection of head protection, with 75% reporting that it must meet the ANSI/ISEA Z89.1 standard, and European standards playing a much smaller role.

Required Standards for Respondents' New Purchases



Know Your Standards

ANSI/ISEA Z89.1

Head injuries can occur from impacts, falling or flying objects, or from electrical shock and burns. Head protection meeting ANSI/ISEA Z89.1 ensures workers are protected from these hazards. Industrial helmets are classified by the level of protection they offer. Classes C, E, and G helmets all offer protection from light impacts and penetration hazards. Class E helmets offer electrical protection of up to 20,000 volts, and Class G helmets offer dielectric protection up to 2,200 volts (phase to ground). OSHA requires U.S. employers to provide head protection that meets or exceeds this standard.

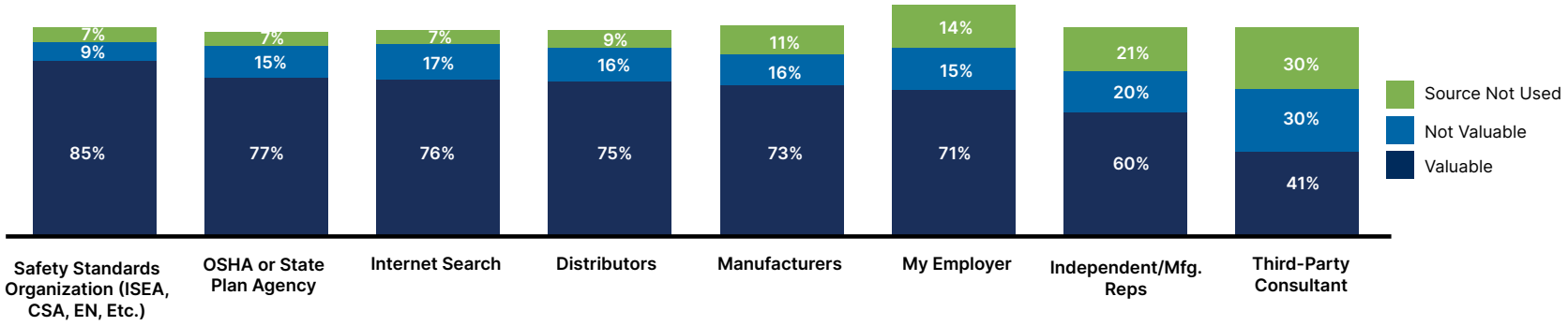
EN 397 and EN 12492

EN 397 is a European standard that specifies the requirements for industrial safety helmets, which primarily provide protection against falling objects, whereas EN 12492 is the European standard that covers helmets for use in mountaineering, which includes a risk of side or lateral impact. Some employers in the U.S. require head protection to meet sections of these standards, in addition to ANSI/ISEA Z89.1 conformation.

Sources for Determining Head Protection Needed

When making the determination of what head protection is needed for their employees, respondents again rely heavily on safety standards from various organizations, followed closely by a variety of sources, including OSHA, the internet, distributors and manufacturers.

Value of Sources for Determining Head Protection Needed



Diana Jones
Senior Director of Technical Programs
ISEA

"ISEA, in partnership with safety equipment experts around the world, develops the standards used to enhance worker safety across industries," said Diana Jones, Senior Director of Technical Programs & Development at ISEA. "The insights gleaned from reports like this allow us to ensure that trusted product standards will continue to reflect the latest advancements and best practices, ultimately providing better protection for workers and fostering a safer work environment."

Expert Insight

Ray Chishti
Senior EHS Editor
J. J. Keller & Associates, Inc.

"Employers should keep in mind that head protection should not be a "one size fits all" approach. Instead, it's important for employers to conduct a job hazard analysis and/or a personal protective equipment (PPE) assessment to determine which style of head protection is best for their workers. Distributors, suppliers, industry associations, and third-party experts and consultants can all offer valuable information and support."

Value of Features

When asked about the future innovation of head protection, the issue of heat rose to the top, with 47% of respondents finding a self-cooling feature “very valuable.” Better impact and rotational protection followed close behind. The idea of renting helmets was deemed the least valuable feature, with only 7% of respondents finding it very valuable.

Value of Head Protection Features

1. Self-Cooling for Heat

2. Better Crown Impact Protection

3. Better Side Impact Protection

4. Better Rotational Impact Protection

5. UV Protection

6. Built-In Hearing Protection

7. Ambient Air Quality Monitoring (Silica Dust)

8. Active Heating System (For Extreme Cold Environments)

9. Better Recyclability

10. Built-In Communication Systems

11. Impact Sensors

12. Chemical Monitoring

13. Green Materials

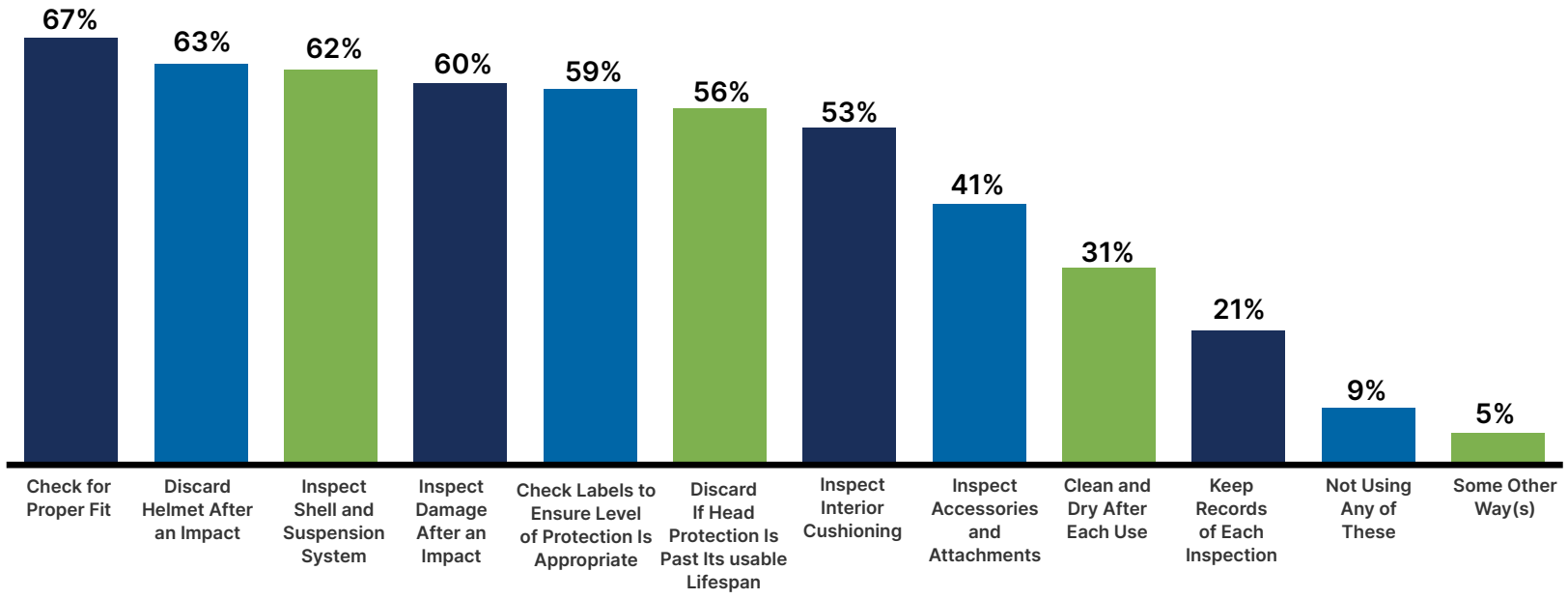
14. “Helmets as a Service” Rentals

Training and Care

Proper training is essential for head protection use and care. The best head protection won't protect your employees if it's not worn, not worn correctly, or not maintained. **A little over half (54%) of survey respondents are training on the use and care of head protection**, with most conducting training when an issue with safe work practices arises, followed by the company acquires new/updated equipment.

The most common ways companies care for their head protection are by checking for proper fit, discarding after impact, inspecting the shell and suspension system, and inspecting for damage after an impact.

Ways the Respondents' Companies Care for Head Protection



Proper Head Protection Maintenance

Headgear should be inspected every day. Here are some suggestions for maintaining your headgear:

- Check your head protection for cracks (even hairline cracks), dents, and wear every time it is worn. Discard head protection that is cracked or looks chalky or dull.

- Wash your head protection (especially the sweatbands and cradles) monthly in warm, soapy water and rinse thoroughly. Replace worn sweatbands, if needed.

- Avoid painting your helmet. Paint contains solvents that may reduce the dielectric properties, if applicable, or affect the actual shell.

- Check the condition of the suspension system. Look for torn cradle straps, broken sewing lines, loose rivets, defective lugs, and other defects.

- Avoid using stickers on hard hats, as they can obscure cracks or damage. OSHA allows stickers only if the manufacturer approves or if the employer proves the adhesive does not impact helmet reliability.

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