



September 18, 2023

The Hon. Douglas Parker  
Assistant Secretary  
Occupational Safety and Health Administration  
US Department of Labor  
200 Constitution Ave., NW  
Washington, DC 20210

Re: Personal Protective Equipment in Construction  
88 FR 46706; OSHA-2019-0003

Dear Assistant Secretary Parker,

The International Safety Equipment Association (ISEA) appreciates the opportunity to comment on this important proposed rule. ISEA members design, test, manufacture and supply a wide range of personal protective equipment (PPE).

ISEA members are global leaders in PPE compliant to the two consensus standards mentioned in the proposed rule: ANSI/ISEA Z87.1-2020 and ANSI/ISEA Z89.1-2019<sup>1</sup>. ISEA is secretariat for these two, and many other, national consensus standards.

In addition, ANSI/ISEA 101-2014 (R2019) American National Standard for Limited-Use and Disposable Coveralls—Size and Labeling Requirements provides height and weight recommendations for manufacturers. The smallest size provides recommendations for those who are 5-foot and 90-115 lbs. (extra small) those who are 6-foot, 10-inches and 300-360 lbs. (6X).

Nationwide, more than 124.6 million workers across the U.S. are protected by safety equipment. In addition, the safety equipment industry supports 345,001 total jobs and generates economic activity of more than \$71.6 billion.

### **Structure of ISEA's Comments**

First, we offer a general statement on how modern PPE is designed to fit as wide an array of people as possible. Second, the association answers questions posed in the preamble, Section E., and the Economic Analysis. Finally, ISEA concludes with a proposed plan of action to make the proposed rule a lasting success when published as a final rule.

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<sup>1</sup> More information about these standards can be found at ISEA's website: [www.safetyequipment.org](http://www.safetyequipment.org)

## General Statement

PPE manufacturers design, test, manufacture, and supply PPE designed to fit the US – and global – workforce. PPE manufacturers have designed their safety equipment with sizes and adjustability to allow for fit of the wide array of body and head shapes and sizes. The manufacturer’s instruction on how to assess and achieve proper fit allows employers to fit a vast swath of the construction workforce into appropriate PPE.

Patterns and molds are part of the PPE manufacturing process. In some cases, there may not be molds or patterns for PPE on the sizing extremes of those on the ends of the bell curve of the body shapes and sizes in the construction workforce. Orders of PPE for those extreme sizes will require time to create patterns and molds (patterns for cut-and-sewn PPE; molds for other types of PPE).

OSHA should be aware customized large-size safety wearing apparel has a significant lead time. Coveralls can require up to weeks-long lead times. High-visibility vests made in sizes larger than 7XL are generally only made in the U.S.

Coveralls and garments worn over work clothes are generally one or two sizes larger than the worker generally wears. However, workers using tape or other means to keep the garment from getting in the way of tasks, this suggests the employer is not stocking the appropriate size. Even in those cases, a working person of non-common size, for whom a garment cannot be readily obtained, can be outfitted with a coat-and-pants ensemble, lab coat, apron, or other combinations, provided that these alternatives are task-appropriate. The PPE industry has options that employees and employers can use for protection from occupational hazards.

Many gloves are available in sizes 6 (XS) – 12 (3XL). Employees and their representatives must communicate PPE needs to their employers, who can work with their distributors to find PPE that fits the employer’s workforce. If there is national demand for smaller sizes, manufacturers will respond.

Protective eyewear meeting ANSI/ISEA Z87.1 is discussed in the proposed rule. While a goggle’s frame is fixed, the straps and buckles are adjustable. In addition, safety eyewear with adjustable temples and nosebridges are common among distributors and at retail locations. Some manufacturers offer safety eyewear with lower base-curve lenses for smaller faces (a base-curve of 6 suggests a sharper/tighter curved lens; a base-curve of 10 is a flat lens;). Employers and employees should consult with the employer’s distributor to find PPE that fits appropriately.

ANSI/ISEA Z89.1 covering hard hats<sup>2</sup> is also mentioned in the proposed rule. Hard hats are adjustable between hat sizes 6 – 8.5<sup>3</sup> (19in – 26.5in / 48cm – 67.5cm). Many have vertical adjustment capability for a secure fit to different head sizes.

The association notes ANSI/ISEA 107-2015 added a special small size vest. For many years, Class 2 high visibility vests required 775 square inches of background material. However, the 2015

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<sup>2</sup> And soon to be safety helmets

<sup>3</sup> Size 6 hat is considered as XXXS; size 8.5 is considered as XXXL

version allowed for special small size Class 2 vest of 540 square inches of background material<sup>4</sup>. The provision has carried forward into the 2020 standard (and this provision will continue to be part of the standard). This provision allows for a small vest that would still identify the wearer as a person (not a barrel or other object) by a driver of a vehicle traveling 50 mph from 1,000 feet away. This smaller sized high visibility apparel also prevented loose fabric, of a large vest on a small worker, from getting caught in moving parts or machinery.

If an ANSI/ISEA 107-compliant vest is too large for a small worker, there are many options for high-visibility shirts, which also meet the standard’s conspicuity requirements.

As we discuss below, there are several ways OSHA can partner with the occupational safety and health community for all to better understand the range of PPE fit issues in the nation’s construction workforce, bring continued attention to PPE fit, and work to integrate the construction PPE focus into the general and maritime industries.<sup>5</sup>

### **Fall Protection**

In the Proposed Rule’s Table 1 (88 FR 46714), OSHA notes personal fall arrest systems are of “universal fit,” meaning they can be adjusted to fit any person. However, when NIOSH investigated PPE equity and challenges<sup>6</sup>, a number of respondents said women cannot find fall arrest harnesses that fit. In fact, NIOSH’s representative to the OSHA Advisory Committee on Construction Safety and Health (ACCSH), Scott Ernest, noted, in 2019, that “There’s been a lot of research over many years on fit for personal protective equipment. I’ve had numerous publications that have come out, specifically the construction industry, where there are . . . issues with harnesses in the past, with women wearing harnesses that didn’t fit, and there were a lot of changes made to make those fit.”<sup>7</sup> Indeed, there have been. ISEA would like to address personal fall arrest harnesses as follows:

#### ***End-user weight ranges***

Full Body Harnesses are designed, tested and certified with a user capacity range of 130 lbs. to 310 lbs. as defined by ANSI/ASSP Z359.11, and capacities over 310 lbs. conforming with OSHA 29 CFR 1926.502(d)(16)(v). However, OSHA’s guidance for workers who weigh over 310 lbs. is vague. For end-users below the weight capacity range of 130 lbs., personal fall arrest harnesses are available, but the fall protection system should be evaluated by the employer’s Competent Person to determine alternate or applicable protection methods.

#### ***Adjustability***

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<sup>4</sup> ANSI/ISEA 107-2015, Table 1

<sup>5</sup> ISEA recommends OSHA review ASSP Technical Report “Guidance of Personal Protective Equipment for Women,” when it is published.

<sup>6</sup> [86 FR 33296](#). Note – comments sent to a NIOSH email address; no docket for comment submissions.

<sup>7</sup> OSHA/ACCSH; July 17, 2019; Transcript, pages 108-109. (regulations.gov; Doc. ID: OSHA-2019-0003-0009)

There are many harness types, such as those for construction, climbing, positioning and more. These different designs are commonly offered in sizes ranging from extra small to triple extra-large. This variety of harness size and styles combined with buckle/strap adjustability should allow for a proper fit for those in the construction workforce working at height.

### ***Fall Protection Harnesses for Women***

Modern fall protection harnesses are ergonomically engineered for women, such those with an adjustable hip belt. Like the comment above, these are: (1) adjustable, (2) range from sizes XS – 3X, and (3) are rated for end-users who weigh upwards of 310 lbs. In fact, some unisex sized harnesses on the market today were designed for women but also fit men. As we have noted here earlier, employers and their distributors should work with employees to identify a harness that fits properly and is designed to protect against the hazards at hand.

### **Hearing Protection (“Ear Inserts”)**

Table 1 indicates “ear inserts” are of universal fit; however, earplugs (foam and reusable types) and earmuffs are designed and manufactured in multiple sizes and shapes to accommodate the wide range of sizes and shapes of ear canals and heads.

ISEA notes the existing hearing protection regulations for construction only require PPE to be used if engineering and administrative controls cannot reduce hazardous occupational noise to the PEL (29 CFR 1926.52(b)). The Hearing Conservation Amendment (29 CFR 1910.95) requires employers to provide employees with the “opportunity to select their hearing protectors from a variety of suitable hearing protectors provide by the employers” (1910.95(i)(3) and that employers train workers on, among other aspects of hearing protection, “fitting, use and care” (1910.95(k)(3)(ii))<sup>8</sup>. In addition, 1910.95(i)(5) states that the employer shall ensure proper initial fitting and supervise the correct use of all hearing protectors<sup>9</sup>.

Foam ear plugs are available in different shapes and sizes. Foam ear plugs can be matched to the shape and size of a person’s ear canal – and tested to be certain the correct shape and size is provided to the employee.

In fact, hearing protection fit testing, a best practice since 2008, is now a growing workplace technology<sup>10</sup>. This practice allows an employer to identify workers who might be under- or over-protected. The benefits of this include the following:

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<sup>8</sup> ISEA believes a future OSHA effort should add the general industry hearing protection regulations to the construction regulations.

<sup>9</sup> An additional reference is the ANSI/ASSP A10-46-2020 Hearing Loss Prevention for Construction and Demolition Workers standard which specifies that hearing protection should be selected based on numerous factors, including ear canal size. Clause 5.3.1 states that hearing protection fit testing should be conducted to ensure proper attenuation is achieved.

<sup>10</sup> Hearing protector fit testing has been recognized by OSHA as a best practice since 2008 and continued to be adopted as an integral part of employer hearing conservation programs. The National Hearing Conservation Association, Aug. 18-19, 2023, held its inaugural two-day International Hearing Protector Fit-Testing Symposium to

Under-protected workers can be retrained, refitted and retested during a hearing protector fit-test session. Over time, the percentage of under-protected population should decrease with improved training outcomes.

The percentage of workers who achieve adequate noise reduction, as indicated by a hearing protector fit test, should increase.

Hearing protector fit testing can result in recommendations such as switching to an alternative earplug or earmuff with a more suitable fit for a given individual.

Including a fit requirement for hearing protection offers many benefits from the potential to prevent hearing loss and improve quality of life to potential medical savings from private, public (state and federal) and union healthcare programs.

### **Role of Distributors**

Most PPE in the US supplied to end-users through employers is moved through distribution channels. Having a variety of PPE of all types, including in extreme sizes held at distributors' facilities would enable end-users and employers to obtain it quickly. We ask OSHA to begin a dialog on PPE fit with the nation's distributors who carry safety equipment. Distributors can alleviate issues by carrying a wider array of sizes and make such sizes part of "quick ship" and similar programs. A requirement that each construction site have at least one of the very-small and very-large versions on hand or nearby may help make this more palatable for distributors.<sup>11</sup>

### **Responses to Questions**

On page 88 [FR 46710](#) OSHA requests comment on the proposed language in §1926.95(c). Specifically, is the proposed language, which is consistent with OSHA's general industry and maritime standards, appropriate? Why or why not? Should subparagraph (c) include different language regarding the proper fit of PPE? If yes, what should the different language be, and why?

The proposed language is appropriate. It will help to make certain the nation's construction workforce has appropriately sized PPE. However, OSHA must realize – and it likely does – the construction workforce is transient and can change daily. On a construction site, should a worker or workers, whose body shapes are on either end of the spectrum of shapes and sizes, arrive for duty, it may be difficult to provide the worker(s) with properly fitting PPE. In these cases, the employer's distributor would carry uncommon sizes for such

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further explore the benefits and implementation of hearing protector fit testing in the workplace. Keynote speakers included Dr. John Howard of NIOSH and Dr. Melanie Hayes of OSHA. A growing body of research has revealed multiple benefits of hearing protector fit testing. A highlighted need is for extensive instruction and fit guidance for all types of hearing protectors, including earmuffs and helmet-attached earmuffs.

<sup>11</sup> Manufacturers, wholesalers, and distributors hold inventory in decreasing quantities along the supply chain to the user. As the entity that is most agile, closest to the user, and with fastest access to smaller quantities, distributors are best positioned to make unusual PPE sizes available when needed.

occasions. ISEA believes distributors should have some responsibility for holding PPE designed to fit the size extremes of today’s workers.

Some employees at the upper and lower 5% of size extremes might see longer lead times to receive properly fitting PPE. These are not requested often and not stocked by distributors. However, manufacturers can produce PPE to these sizes. Finally, ISEA suggests workers weighing over 300 lbs. are not uncommon.

OSHA requests comment on whether the inclusion of an explicit requirement in § 1926.95(c) would help clarify construction employers’ obligations to provide properly fitting PPE to their employees.

ISEA believes explicit requirements in 29 CFR 1926.95(c) would help clarify employers’ obligations<sup>12</sup>.

OSHA requests comment on the availability of PPE for persons who may be smaller or larger than the average worker in the construction industry or for persons with other physical characteristics that differ from the average worker.

PPE manufacturers provide safety equipment in size ranges and adjustability to fit a vast majority of the construction workforce. ISEA members are willing to work with occupational safety stakeholders to make sure all workers have PPE that is required (by both OSHA and/or the employer); of safe design and construction and properly fits the affected worker.

**On page 88 FR 46712, OSHA asks about other topics not included in the pre-amble, including:**

Will this proposal effectuate the purposes of the OSH Act better than the applicable national consensus standards?

Section 6(a) of the OSH Act instructed the secretary to “as soon as practicable... promulgate as an occupational safety or health standard any national consensus standard...” So, by definition, National consensus standards ANSI/ISEA Z87.1 and ANSI/ISEA Z89.1 effectuate the purposes of the OSH Act.

Regarding sizing, national consensus standards ANSI/ISEA Z87.1 and ANSI/ISEA Z89.1 are designed to protect workers from common workplace hazards. As noted elsewhere in

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<sup>12</sup> Where a standard does not provide employers with fair notice, the Secretary has the authority to amend it. As the Eleventh Circuit stated in *Georgia Pacific Corp. v. OSHRC*, 25 F.3d 999 (11th Cir. 1994):

The Secretary, as enforcer of the Act, retains the responsibility to state with ascertainable certainty what is meant by the standards she has promulgated...[A regulation must] give sufficient guidance to those who enforce OSHA penalties, to those who are subject to civil penalties, or to those courts who may be charged to interpret and apply the standards. When a regulation fails [to do this]..., the Secretary should remedy the situation by promulgating a clearer regulation than forcing the judiciary to press the limits of judicial construction. (Quoted in: OSHRC: *OSHA vs. Eric Ho*, page 25; [link](#))

our comments, safety eyewear compliant with ANSI/ISEA Z87.1 is available in a range of base-curve lenses. The straps for Z87.1-compliant goggles are adjustable. Head protection compliant with ANSI/ISEA Z89.1 ranges from size 6 to size 8.5.

Adding a requirement that PPE fit properly will help to make certain that workers get PPE that meets these standards and fits the wearer.

ACCSH recommended that OSHA consider developing additional guidance to explain what “properly fits” means for PPE used in construction. (ACCSH Meeting Transcript, July 17, 2019). Is existing OSHA guidance regarding PPE “proper fit” in construction adequate? If not, what type of additional guidance should OSHA provide?

“Properly fits” means the PPE is the appropriate size to provide an employee with the necessary protection from hazards and does not create additional safety and health hazards arising from being either too small or too large... OSHA is not concerned with the cosmetic appearance, or “exact fit” of PPE. (88 FR 46711)

ISEA agrees with OSHA’s assessment and believes the agency will need additional FAQs and stakeholder engagement to minimize confusion and answer general questions about this new fit requirement – when a final rule is published.

Is there confusion about what “properly fits” means for PPE used in the construction industry?

To minimize confusion, OSHA should craft messaging about fit and share such information as widely as possible.

On-boarding new employees will allow for a fit assessment for PPE expected to be required for common tasks. Employees can take this information to future employers.

OSHA should be clear on whether employers will need to record fit assessments of PPE.

How would the proposed revision impact the construction industry? Specifically, would revising the construction standard to mirror the language in the current general industry and maritime standards change how employers choose PPE for their employees? How?

The proposed new language should not radically change the way the construction industry provides PPE to employees. As noted elsewhere in our comments, there may be more engagement between employers, employees and distributors to make sure workers have PPE that fits properly.

Are there differences between general industry and maritime, and the construction industry, that impact whether OSHA should include the phrase “properly fits” in the construction standard?

No. OSHA should require this phrase in the construction regulations.

Are there types of PPE that are not available in varying sizes? If yes, please give specific examples of the PPE and how you address this in the workplace.

PPE is available in different sizes. In addition, most PPE is adjustable, and available in a range of sizes, meaning the wearer can achieve a proper fit.

Finally, what, if any, burden will the proposed change to section 1926.95(c) impose on employers in the construction industry?

Rather than burden, ISEA believes a fit requirement would have a financial benefit as it would be a step toward preventing injuries and fatality that might occur should loose, oversized garments get caught in moving parts.

**On page 88 FR 46716, OSHA seeks comment on all aspects of its preliminary economic analysis.**

OSHA seeks comment on all aspects of its preliminary economic analysis, including:

The types of PPE that construction employees use;

OSHA covers most of the PPE in construction. However respiratory protection should be included. Respiratory protection follows the same pattern as other PPE. Disposable respirators are available in multiple sizes across different models. If a worker is not able to pass an OSHA fit test or wears facial hair that does not allow for disposable respirator use, there are other respirator options including elastomeric full- and half- mask respirators, and loose- and tight-fitting powered air purifying respirators – all which are available in multiple sizes.

The types of PPE that are available in different sizes;

Hard hats come in different hat sizes and are adjustable.

Safety eyewear models have various base-curve lenses and goggles have adjustable straps.

Disposable and elastomeric half-mask, and full-facepiece respirators are available in small, medium and large sizes. Loose-fitting headtops and hoods for powered air purifying respirators and supplied-air respirators also come in multiple sizes.

High visibility vests range from small to 7XL.

High visibility shirts, some which are also designed as heat stress prevention solutions, are available in a range of sizes. Phase change vests and other vest-style heat stress prevention solutions are available in various sizes.

Disposable coveralls also are available in various sizes.

Fall protection harnesses are available in XS – XXXL, and are adjustable.

Gloves are available from size 6 – 12 (XS – 3XL).



Hearing protection, such as ear plugs, are available in multiple sizes varying in length and diameter. Hearing protectors can also be custom made to a specific ear canal if a standard ear plug does not fit appropriately.

The types of PPE that are universal fit (i.e., they can be adjusted to fit any person);

PPE listed above can be adjusted to fit nearly any person.

Whether there are types of PPE that only come in one standard size that is not adjustable. If yes, give examples;

Modern PPE is readily available in different sizes and are offered in versions with some levels of adjustability.

The extent of employer reimbursement for employee purchases for various types of PPE;

N/A

Whether the agency’s categorization of the various types of PPE into the three categories in Table 1 (provided by the employer, not universal fit; provided by the employee and reimbursed; and universal fit) is accurate, and why or why not;

ISEA is not certain what purpose Table 1 serves or whether OSHA needs it.

The categories might be better if divided into (1) fully adjustable; (2) semi adjustable; and (3) size specific. Accordingly, OSHA might rename the first box, “Provided by the employer, not universal fit” might be called “PPE of multiple sizes, some adjustability”

OSHA is right to include a category for “Provided by employee and reimbursed,” presumably, employees are purchasing PPE that fits.

The PPE included in “universal fit” is often provided by the employer.

OSHA might rename the last box as “Provided by the employer, full adjustability”

In “Provided by the Employer, not universal fit” OSHA might use the broad category of “gloves” without specifying the type. OSHA is missing impact-resistant gloves; cut resistant gloves; heat-resistant gloves; vibration resistant gloves and more.

The average useful life of various types of PPE;

OSHA’s estimates of useful life of PPE are accurate. (Table 2, 88 FR 46714). Users must follow manufacturers’ recommendations for useful life, maintenance and inspection. Exposure to certain conditions or improper storage may impact the useful life of PPE. Also, depending on the task, some PPE may be short-lived. For example, face shields may be rendered unusable once the task, such as sandblasting or grinding, is completed.

The benefits of, and productivity increases from, wearing properly fitting PPE.

OSHA correctly assesses the benefits of wearing properly fitting PPE and the hazards of wearing improperly fitting PPE.

Workplace accidents related to improperly fitting PPE;

ISEA looks forward to reviewing others' comments covering data on injuries proximately resulting from PPE that did not fit properly.

The average cost for each PPE item, including whether there are price differences for different sizes of PPE, as well as the average cost to outfit an employee in necessary PPE;

All PPE have price ranges. However, a recent search on a national distributor's website shows no price difference between fall harness designed for women and other fall protection harnesses, consistent with quality.

Whether employers will need to provide their workers with different sizes of PPE than they are currently providing them, and what specific changes employers will make to their current practices if this rule is finalized as proposed;

The association believes OSHA's estimate in Table 4 "Construction Employees Who May Require Non-Standard Sizes of PPE" is likely to be accurate. (About 10% of the construction workforce: including men and women over 300 pounds and women under 5 foot tall).

Whether there are other significant cost elements that have not been accounted for in OSHA's analysis that extend beyond simply acquiring properly fitting PPE;

There may be costs for special orders of PPE of extremely small or large sizes. However, the size ranges of current PPE are likely to be able to provide a proper fit to the vast majority of the nation's construction workforce.

Whether employers have incurred additional costs in fitting employees who need non-standard sizes of PPE with PPE that fits properly;

N/A

Whether there will be ongoing costs to employers to provide correctly sized PPE. In particular, OSHA is interested in what ongoing activities employers anticipate they would need to undertake in response to this rule clarification and how much time and expense those activities would require.

As ISEA has noted above, right now PPE is available in a wide range of sizes, and nearly all (save for coveralls and gloves) are adjustable.

## **OSHA Partnership on PPE**

As we conclude, ISEA asks for partnership on making this regulation work. We ask OSHA in FY24 to fund (through acquisition of a dataset or through other means) research to assess the shapes and sizes of bodies in the US workplace, particularly in the construction workforce.

OSHA can also gather information about PPE during informal citation conferences. During the first two or three years of this rule, ISEA asks that a National Emphasis Program be established for it. This would have multiple benefits: (1) make known that PPE fit is a national priority; (2) allow OSHA field staff to gather information about employer compliance with the new rule; (3) allow manufacturers and distributors to better understand the PPE sizing needs of the construction workforce; (4) send a message to workers in the construction industry that they can call OSHA if their PPE does not fit properly; and (5) the US OSH community will gain improved understanding and expectations of PPE versatility and availability.

Thank you for the opportunity to comment on this proposed rule. Please contact me at [cmackey@safetyequipment.org](mailto:cmackey@safetyequipment.org) or at 202-445-8454 with any questions or for more information about these comments, or about the PPE industry in general.

**Sincerely,**

Cam Mackey  
President & CEO