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September 18, 2023

Occupational Safety and Health Administration
OSHA Docket Office, Room N-2625

Docket No. **OSHA-2019-0003**
Occupational Safety and Health Administration
United States Department of Labor
200 Constitution Avenue, NW
Washington, DC 20210

Submitted via Regulations.gov

RE: Personal Protective Equipment in Construction
Docket No. OSHA-2019-003

Dear Sir or Madam:

North America's Building Trades Unions (NABTU) is pleased to submit comments on the Occupational Safety and Health Administration's (OSHA's) proposed rule on Personal Protective Equipment in Construction. NABTU is submitting these comments on behalf of its fourteen affiliated national and international unions, which together represent more than three million men and women employed in the construction industry.

NABTU applauds OSHA's proposal aimed at ensuring personal protective equipment fits construction workers. We fully support this rulemaking to clarify employers' obligations in providing a safe workplace and urge OSHA to complete the final rule as quickly as possible.

Attached to our comments is an appendix containing references cited in the comments.

Thank you for the opportunity to submit these comments and please do not hesitate to reach out to me with any questions or clarification.

Sincerely,

Chris Trahan Cain
Director of Safety and Health

Comment of North America’s Building Trades Unions to OSHA Proposed Rule on Personal Protective Equipment Fit in Construction

These comments are submitted by North America’s Building Trades Unions (NABTU) on behalf of its fourteen affiliated national and international unions, which together represent more than 3 million men and women employed in the construction industry. NABTU strongly supports the Occupational Safety and Health Administration’s (OSHA) proposed rule to clarify that personal protective equipment (PPE) must properly fit workers in the construction industry.

Properly fitting PPE is essential in the construction industry because poorly fitting PPE does not provide the wearer with adequate protection. PPE fit may vary based on a range of factors that can affect anthropometry such as gender, sex, race, ethnicity, age, shape, and size. Construction is a hazardous industry,¹ and equipment that fits and protects one worker may not provide the same protection for another worker. Shifting demographics in the construction workforce such as growing sex and gender diversity,² Latino/a and Hispanic workforce participation,³ and an increasingly aging workforce⁴ necessitate and will continue to support the need for PPE that fits a wide range of construction workers.

This issue is particularly important for women and transgender workers in the construction industry who often work without properly fitting PPE. In a 2021 survey of 2,635 tradeswomen and non-binary tradespeople in the United States,⁵ only 19.1 percent of participants said that they were always provided with gloves or safety equipment in sizes that fit them while working.⁶ In 2022, CPWR – the Center for Construction Research and Training (hereafter, CPWR) conducted a survey of nearly 200 workers targeting women, finding that many were provided with PPE that did not fit them well. Almost nine in ten respondents – 89 percent – said they had

¹ Harris, W., Yohannes, T., & Trueblood, A. (2023). “Fatal and Nonfatal Focus Four Injuries in Construction.” CPWR – The Center for Construction Research and Training. <https://www.cpwr.com/wp-content/uploads/DataBulletin-March2023.pdf>.

² Trueblood, A., Harris, W., & Yohannes, T. (2023). “Women in Construction: Employment, Business Owner, and Injury Trends.” CPWR – The Center for Construction Research and Training. <https://www.cpwr.com/wp-content/uploads/DataBulletin-May2023.pdf>

³ CPWR – The Center for Construction Research and Training. (2018). “The Construction Chart Book: The US Construction Industry and Its Workers. Sixth Edition.” https://www.cpwr.com/wp-content/uploads/publications/The_6th_Edition_Construction_eChart_Book.pdf.

⁴ *Id.*

⁵ Hegewisch, A. & Mefferd, E. (2021a). “A Future Worth Building: What Tradeswoman Say about the Change They Need in the Construction Industry.” Institute for Women’s Policy Research. https://iwpr.org/wp-content/uploads/2022/02/A-Future-Worth-Building_What-Tradeswomen-Say_FINAL.pdf.

⁶ Hegewisch, A & Mefferd, E. (2021b). “2021 IWPR Tradeswomen’s Retention and Advancement Survey.” Institute for Women’s Policy Research. https://iwpr.org/wp-content/uploads/2021/11/Tradeswomens-Retention-Advancement-Survey_2021.pdf.

experienced difficulties getting PPE that fit them well at work (e.g., harnesses, gloves, high visibility clothing). In turn, 77 percent of respondents reported that, as a result of improper fitting PPE, they were exposed to a range of hazards.⁷ Focus groups with tradeswomen have found similar results, with authors describing inadequate access to PPE and resulting occupational safety hazards as a common theme.⁸ As such, proper PPE fit based upon female anthropometric data is an especially important consideration within the construction industry.

As discussed below, PPE is readily available for the wide range of worker anthropometrics, and OSHA’s proposed clarification on proper fit will not impose undue burdens on individual employers in the construction industry. First, as OSHA explains in its proposed rule, the agency currently requires that PPE fit properly. The proposed rule merely clarifies this well-established policy. Second, over 90 percent of construction establishments employ less than 20 workers. As such, to the extent some construction employers are not already in compliance, the cost of doing so will not be substantial.⁹

Answers to Select Questions Posed in the Notice

Will this proposal effectuate the purposes of the OSH Act better than the applicable national consensus standards?¹⁰

NABTU agrees with OSHA’s approach. While some national consensus standards address fit, there is no requirement that employers follow consensus standards. The evidence presented in these comments clearly demonstrates that this proposed rule is needed.

Are there types of PPE that are not available in varying sizes?¹¹

Construction PPE is available in a range of varying sizes to fit workers with varying size needs and anthropometry. CPWR maintains a non-exhaustive list of companies focused exclusively on women’s workwear, such as Libaerty, Dovetail Workwear, and Safety Girl.¹² CPWR also maintains lists of PPE for women workers and workers who require smaller or adjustable sizes. These lists include construction footwear, cold climate accessories for construction footwear, ear protection, harnesses for personal fall arrest systems, hard hats, high-visibility clothing, flame resistant clothing, safety glasses and goggles, safety gloves, and more. CPWR regularly updates these lists, as PPE options for women expand constantly. Although this list is not exhaustive of

⁷ Greenberg, R. (2023). “CPWR PPE Fit Survey.” CPWR – The Center for Construction Research and Training. [Unpublished survey analysis].

⁸ Curtis, H. M., Meischke, H. W., Simcox, N. J., Laslett, S., Monsey, L. M., Baker, M., & Seixas, N. S. (2022). Working Safely in the Trades as Women: A Qualitative Exploration and Call for Women-Supportive Interventions. *Frontiers in public health*, 9, 781572; Onyebekwe, L. C., Papazaharias, D. M., Freund, A., Dropkin, J., McCann, M., Sanchez, S. H., Hashim, D., et al. (2016). Access to properly fitting personal protective equipment for female construction workers. *American Journal of Industrial Medicine*, 59(11), 1032–1040.

⁹ U.S. Census Bureau, 2011-2020 County Business Patterns. <https://www.census.gov/programs-surveys/cbp/data/datasets.html>.

¹⁰ Personal Protective Equipment in Construction, 88 Fed. Reg. 46706, 46712 (proposed July 20, 2023) (to be codified at 29 C.F.R. pt. 1926).

¹¹ *Id.*

¹² <https://www.cpwr.com/research/research-to-practice-r2p/r2p-library/resources-for-stakeholders-and-researchers/construction-personal-protective-equipment-for-the-female-workforce/>.

all PPE options for women, it provides resources on PPE options for workers and employers and examples of the range of commercially available options.

OSHA seeks comment on all aspects of its preliminary economic analysis, including 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.¹³

In its proposed rule, OSHA preliminarily determines that body harnesses used in construction are an item of “universal fit,” which OSHA defines as PPE that is “completely adjustable and capable of fitting any person.”¹⁴ Our research suggests that there are a very limited number of harnesses available on the market that are truly “universal fit” harnesses.¹⁵ NABTU therefore disagrees that all harnesses should be categorized as “universal fit” and recommends that OSHA reconsider this categorization. Not all body harnesses provide universal protection to all workers. A 2012 study on the impact of harness fit on suspension tolerance (Sample of 37 workers with construction experience; 20 men and 17 women), found that women had a higher fail rating than men for harness static fit, with 35 percent versus 15 percent, respectively.¹⁶ Authors evaluated harness static fit based on harness ring locations, defining the measure as: “locations of the chest D-ring and the dorsal D-ring while standing, per the harness manufacturer’s instructions. If the chest D-ring base was 0 to 10 cm below the armpits and the dorsal D-ring was 0 to 5 cm above or below the armpits, the static fit was recorded as pass. Otherwise, it was recorded as fail.”¹⁷

Moreover, in CPWR’s PPE Fit Survey, workers reported that falls were the hazard they were most frequently exposed to due to ill-fitting PPE. Over two thirds – 67 percent – of participants said they had been exposed to falls unnecessarily because of improperly fitting PPE.¹⁸ In the qualitative sections of the survey that asked participants to describe a situation in which their ill-fitting PPE put them at risk and to share their experiences with PPE generally,¹⁹ participants described some of the ways that harnesses did not fit them properly.²⁰ Workers reported that their harnesses were too large. Others explained that their harnesses were designed in ways that did not fit their anthropometry. As one worker explained, “safety harnesses never fit right, because [they are designed for men and] men don’t have hips or breasts.” Participants said that their harnesses were not designed to fit their bodies and specifically did not fit their chests.

¹³ 88 Fed. Reg. at 46716.

¹⁴ *Id.* at 46714.

¹⁵ MSA V Series Full Body Harnesses: https://us.msasafety.com/Fall-Protection/Full-Body-Harnesses/c/10101?content_index_en_us%5Bquery%5D=%3AdefaultSort%3ABrand%3AV-Series&product_index_us_en%5Bconfigure%5D%5BhitsPerPage%5D=20&product_index_us_en%5Bconfigure%5D%5BclickAnalytics%5D=true&product_index_us_en%5Bconfigure%5D%5BfromCategoryListing%5D=true

¹⁶ Hsiao, H., Turner, N., Whisler, R., & Zwiener, J. (2012). Impact of harness fit on suspension tolerance. *Human Factors*, 54(3), 346–357.

¹⁷ *Id.*

¹⁸ Greenberg, R. (2023). “CPWR PPE Fit Survey.” CPWR – The Center for Construction Research and Training. [Unpublished survey analysis].

¹⁹ CPWR – The Center for Construction Research and Training. (2022). “PPE Fit Survey.” [Unpublished raw data].

²⁰ Minor grammatical and spelling revisions were made to some of the quotes from respondents of the CPWR PPE Fit Survey. None of those minor edits altered the meaning or substance of the responses.

Workers described their concerns that ill-fitting harnesses may not protect them in the case of a fall. As one participant explained: “Harness too big; if there were a fall, it would not have protected me.” Similarly, another participant described her oversized harness as “an illusion of safety.”

Workers also explained how loose and ill-fitting harnesses could snag on equipment or cause a slip, trip, or fall. One worker described how her harness nearly caused a fall: “Climbing scaffolding with a harness that was too large the harness caught on multiple places, and almost caused me to fall off the scaffolding/ladders.” Since the respondent’s harness was too large, it was possible for it to get caught, which caused a fall hazard. Workers also explained how ill-fitting harnesses could cause new hazards in the form of injury from the equipment itself. One worker reported that her ill-fitting harness “left huge bruises and caused circulation issues.” Another worker explained the following: “[W]ith harnesses, I find the chest strap to be uncomfortable across my breast line. Mostly because it never stays in place, so when it slips down then comes back up, it pinches me until it passes my chest line [and] then [it] rockets into my throat...” Another worker agreed, explaining that “the ‘regular’ h style harness strap will end up across my neck and choking me.”

Moreover, commercial harnesses that have been produced specifically to fit women illustrate some of the ways in which this type of PPE is not universal fit. Product descriptions report that harnesses designed to fit women aim to provide improved protection against fall hazards and increased comfort. They offer a range of features tailored for varied anthropometry, including hip and chest adjustability, increased hip and back support, vertical shoulder straps, comfort padding and more. Examples include:

- French Creek Full Body Harness for Women 872²¹
- 3M DBI-SALA ExoFit NEX Cross-Over Harness 613M2016²²
- FallTech FT-One Fit for Women Full Body Harness²³
- Ms. Miller Women’s Fall Arrest Harness E570 and E570-7²⁴

These harnesses provide examples of ways in which manufacturers have updated traditional harness designs to fit other anthropometries.

OSHA seeks comment on all aspects of its preliminary economic analysis, including workplace accidents related to improperly fitting PPE.²⁵

Improperly fitting PPE can contribute to or cause workplace accidents and injuries. In CPWR’s PPE Fit Survey that targeted women, 77 percent of participants reported that they had been

²¹ <https://pksafety.com/french-creek-full-body-harness-for-women-872/>

²² https://www.3mnz.co.nz/3M/en_NZ/p/d/v000306346/

²³ https://falltech.com/fall-protection-products/body-wear/full-body-harnesses/ft-one-fit/?disable_semantics=1

²⁴ <https://www.charmandhammer.com/prod/Sperian-Miller-E570.html>

²⁵ 88 Fed. Reg. 46716.

exposed to a hazard unnecessarily because their PPE did not fit them properly.²⁶ The top reported hazards were falls (67 percent), skin exposures (49 percent), inhalation exposures (34 percent), and eye exposures (23 percent).

In their qualitative responses, participants explained that since their PPE did not fit, it did not provide adequate protection.²⁷ Participants described ways in which fall protection, respiratory protection, hand protection, hearing protection, eye protection, head protection, and other types of PPE failed to protect them against the intended hazards because of improper fit.

Workers also described how improperly fitting PPE caused new hazards. As one participant explained: “PPE needs to fit the wearer correctly; otherwise, it becomes a hazard.” Workers reported that PPE that was too large or ill-fitting could get caught or snagged on materials, tools, machinery, or equipment and could also create slip, trip, or fall hazards. In addition, they explained that ill-fitting PPE could cause pain or injury in itself, such as a harness that caused bruising or eye protection that caused exterior ear pain.

Conclusion

NABTU strongly supports OSHA’s proposal to clarify that PPE must properly fit each worker within the construction industry. PPE fit can vary based on many factors that can affect anthropometry such as gender, sex, race, ethnicity, age, shape, and size. There is clear evidence that some women working in construction do not currently have access to properly fitting PPE. Construction is hazardous, and construction workers face high rates of occupational injury and fatality. PPE is one of the last lines of defense for workers against injuries. To achieve the required level of protection, it is critical that every worker is provided with PPE that adequately fits.

²⁶ Greenberg, R. (2023). “CPWR PPE Fit Survey.” CPWR – The Center for Construction Research and Training. [Unpublished survey analysis].

²⁷ CPWR – The Center for Construction Research and Training. (2022). “PPE Fit Survey.” [Unpublished raw data].