Safety

Getting Noticed on the Job: Who Needs Hi-Vis PPE (and When)

James Langford | Sep 07, 2023

The purpose of high-visibility safety apparel is obvious: protecting the people wearing it from injury by making it easier for others to see them.

Exactly who is required to wear it and when, however, isn't as clearly defined—with the exception of workers handling construction, traffic management and other jobs on federally funded highways.

They're covered by the Federal Highway Administration's ***worker visibility rule***, which took effect in 2009. The U.S. Occupational Safety and Health Administration enforces that rule under the "general duty" clause of a federal law requiring employers to provide hazard-free work environments.

The workplace safety regulator uses the same provision—along with a general requirement that companies provide appropriate ***personal protective equipment*** in any hazardous conditions—to regulate high-visibility clothing in settings including manufacturing facilities, where visibility requirements aren't spelled out.

Violations of the PPE rule alone led to $1.99 million in citations in the 12 months through September 2022, more than half of which OSHA imposed on manufacturers.

While visibility is often overshadowed in PPE selection by safety considerations from ***toxic fumes*** to ***flying debris***, it's a first line of defense for workers whose occupations involve moving equipment from machining devices to forklifts and even cars and trucks.

High-visibility garments have been proven to protect people close to moving machinery or doing their jobs "in low light, in inclement weather or at night," PPE-maker *360 USA* explains in ***Safety + Health magazine***, a publication of the National Safety Council.

In the U.S., requirements for high-visibility safety apparel rely heavily on guidelines established by the industry-led American National Standards Institute, or ANSI.

High-Visibility PPE Requirements

The group merged two previous sets of specifications for high-visibility garments into ***ANSI/ISEA***

107-2015—spelling out requirements such as types, amounts and colors of materials—in early 2016, then updated them again a few years later.

Generally, the current standard—***ANSI 107-2020***—requires that high-visibility garments include background fluorescent material, retroreflective material that returns light back toward the direction from which it originated or combined performance material that has the properties of both the other types.

> **When operating a machine or driving a car, the bright colors from high-visibility safety apparel are more noticeable than they would be with everyday clothing, which might blend into the surroundings.**
> ANSI

It also mandates bands that contrast with surrounding material in color, texture or material and divides the garments into types with varying requirements for materials and designs based on the activities for which they're used: off-road (Type O), roadway and temporary traffic control (Type R) and public safety activities (Type P).

Performance classes within each type specify the minimum amounts of high-visibility materials necessary.

Type O: Meant for workers who aren't exposed to street traffic, this type provides heightened visibility in environments with slower-moving vehicles, equipment and machinery, according to ***PPE-maker PIP Global***.

- **Class 1:** Requires the smallest amount of high-visibility materials needed to differentiate wearers from simple backgrounds in situations where vehicles are traveling below roadway speeds—typically less than 25 mph. Class 1 PPE has at least one band of retroreflective material around the torso as well as retroreflective bands on the sleeves or retroreflective material in the shoulders.

Type R: Covers people doing daytime or nighttime work in environments with highway traffic—typically higher than 25 mph—and temporary roadwork zones.

- **Class 2:** Requires larger amounts of high-visibility materials than Class 1, allowing designs that highlight human forms more effectively and enabling vehicle operators to identify workers more quickly. Type R Class 2 PPE has at least one retroreflective band around the torso as well as retroreflective bands on the sleeves or retroreflective material in the shoulders.
- **Class 3:** Provides even more visibility in complex backgrounds through placement of larger retroreflective bands that highlight body movement. Class 3 garments have at least one retroreflective band around the torso and at least one encircling retroreflective band around each sleeve. A sleeveless garment or vest alone doesn't meet Class 3 requirements.

Type P: Designed for emergency responders in both highway and off-road locations, it allows colored panels that distinguish workers from each other, and provides easier access to equipment belts, PIP says.

- **Class 2:** Requires larger amounts of high-visibility materials than Class 1, allowing designs that highlight human forms more effectively and enabling vehicle operators to identify workers more quickly. Type P Class 2 PPE has at least one retroreflective band around the torso as well as retroreflective bands on the sleeves or retroreflective material in the shoulders. The amount of background fluorescent material required is lower than in Type R Class 2.
- **Class 3:** Provides even more visibility in complex backgrounds through placement of larger retroreflective bands that highlight body movement. Class 3 garments have at least one retroreflective band around the torso and at least one encircling retroreflective band around each

sleeve. A sleeveless garment or vest alone doesn't meet Class 3 requirements, though the amount of background fluorescent material required is lower than in Type R Class 3.

The ANSI standard also designates a supplemental category, Class E, that covers pants, bib overalls, shorts and gaiters—clothing items that, when worn by themselves, don't meet the requirements for high-visibility PPE. When Class E items are worn with Class 2 or Class 3 items, the outfit is considered Class 3.

Attention-Grabbing Colors

Background materials for all high-visibility apparel should be fluorescent yellow-green, fluorescent orange-red or fluorescent red, according to the standard.

"As with animals in nature, bright colors attract people's attention in everyday life," a blog post on ANSI's website explains, and the commonly used colors of red, orange and yellow are associated with warning.

"Due to evolutionary and cultural forces, these colors grab our attention and give us warnings that help us make quicker decisions," the post says. "When operating a machine or driving a car, the bright colors from high-visibility safety apparel are more noticeable than they would be with everyday clothing, which might blend into the surroundings."

In the U.S., high-visibility garments are among a variety of PPE types that businesses must consider in job-risk assessments required by OSHA.

When to Wear High-Visibility PPE

The ***workplace safety agency in Canada***, whose high-visibility standards are similar to rules in the U.S., suggests companies look at the following criteria in assessments:

- Whether workers encounter moving equipment
- Whether workers ***control traffic*** or interact with the public
- Whether some workers need to be visually distinguishable from others in the same area
- Which industry specifications or best practices apply
- Whether workers are ***exposed to heat or flames***
- Work conditions, such as indoor or outdoor work, temperature, work rates, traffic flow, traffic volume and visibility
- Workplace environment and the background: Is the visual area behind the workers simple, complex, urban, rural, highway, filled with equipment, cluttered, etc.?
- Lighting conditions and how natural light might be affected by changing weather (e.g., sunlight, overcast sky, fog, rain or snow)
- Factors that affect warning distances and times, such as the volume of traffic, the size of vehicles, their potential speeds and the ability to stop quickly
- Any distractions that could draw workers' attention away from hazards
- The sightlines of mobile equipment and vehicle operators, especially when vehicles are operated in reverse

As with all PPE, ensuring it fits well is vital, since studies show that incorrectly sized gear inhibits movement and makes workers uncomfortable, prompting some to discard it when they shouldn't.

Ready to buy? *Click here* to see high-visibility PPE on MSCDirect.com.

Ultimately, high-visibility PPE helps "limit job injuries and fatalities," the ANSI blog post says. "With this

attention-grabbing apparel, it is easier to notice personnel and stop."

Where is high-visibility PPE needed in your business? Tell us in the comments below.