By Nov. 24, 2008, all workers within the right-of-way of a federal-aid highway who are exposed either to vehicle traffic or construction equipment must wear high-visibility safety apparel. The Federal Highway Administration (FHWA) published the new regulations in 2006 as part of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users. These garments must meet the Performance Class 2 or 3 requirements of the American National Standard Institute's High Visibility Apparel provisions (ANSI/ISEA 107-2004). With the deadline less than a year away, contractors must understand the regulation and become familiar with options for compliance.

Justifying the Regulation

An estimated 700,000 roadway workers are involved in highway construction and maintenance across the United States. The Bureau of Labor Statistics reported 336 fatalities and 40,000 injuries to highway workers on the ground during 2005 alone. When vehicle operators are included, the 2005 motor vehicle accident death toll in construction and maintenance zones rises to 1,074.

Road workers’ likelihood of injury is eight times greater than the general public’s and twice that of other construction workers. A 2001 report from the National Institute for Occupational Safety and Health concluded that flaggers and other highway workers on foot are exposed to an elevated risk of being hit by vehicles or construction equipment when they are not clearly visible.

In 2002, an American Traffic Safety Services Administration report estimated that outfitting construction workers with high-visibility safety apparel could prevent 5,000 accidents and 66 roadside fatalities every year. In addition, it concluded that consistent use of high-visibility garments could be expected to pay back $5 for every $1 expended in direct and indirect accident cost savings.

High-visibility garments enhance both daytime and nighttime visibility using fluorescent colors that clearly distinguish the wearer from background colors. The garments have a retro-reflective component that takes on a visible glow when illuminated by external light at night.

Retro-reflective and diffuse reflective material technologies have advanced substantially during the past few decades. And, while the reflective vest has been the traditional means of increasing worker visibility, new apparel meets high-visibility standards and provides more compliance options. These include T-shirts, short- and long-sleeved shirts, shorts, gloves, headgear, sweatshirts, coveralls, trousers, harnesses, jackets and parkas.
Such apparel options make it easier for crews to supplement or replace the conventional reflective vest with high-visibility garments that have seasonally appropriate fit, weight, insulation and moisture transmission properties. Durable fabrics available today provide improved comfort and do not restrict free movement. In addition, high-visibility garments can be layered, ensuring that worker conspicuity will be maintained as conditions change during the workday and year. Reflective webbing, trim and graphic transfer forms are useful for clothing as well as distinctive badges and logos.

**Positive Results**

Contractors and departments of transportation (DOTs) across the country already report measured benefits as they adapt to new FHWA regulations. For example, the Maryland DOT has adopted a new high-visibility garment policy that includes reflective vests, shirts and jackets. “Since adopting high-visibility primary apparel in 2005, we’ve seen dramatic improvements in how workers are dressed and how much more visible they are versus when they simply were asked to don a vest over non-compliant garments,” says Samuel Hall, state highway administration safety management consultant for the Maryland DOT. “Now, we’re going into the field to continuously evaluate our apparel needs and any changes we need to put into place.”

DOT officials in Missouri have reported similar results and tout the benefits of new high-visibility T-shirts for road crews. “First and foremost on our minds is the safety and comfort of our employees,” says Jean Endsley, employee safety and health manager for the Missouri DOT. “These men and women work in dangerous situations on a daily basis, and it is our responsibility to make sure they are as visible as possible in the field. We, therefore, left no stone unturned when developing these T-shirts — every decision was based on compliance, visibility and comfort.”

**Steps to Compliance**

Managers responsible for compliance with new visibility standards should approach the task as a series of steps. First, review standards and regulations in light of local work and weather conditions.

Next, conduct a worksite survey to determine which workers are at risk, by job description. Then, select garments based on design functionality, comfort, durability and appearance.

Finally, provide worker training on the purpose and mandated use of new high-visibility garments. A written specification based on desired performance criteria for each required garment may also be beneficial.

**Apparel Selection**

Compliance with ANSI/ISEA 107-2004 requires a garment’s background material and retro-reflective or combined-performance material be tested and certified by an independent, accredited third-party laboratory. The manufacturer then verifies the item meets all of the requirements of the standard and provides a certificate of compliance for each model. Appendix B of ANSI/ISEA 107-2004 is a useful resource for employers as they assess worker needs for high-visibility garments. This document, which can be viewed at www.safetyequipment.org/hivisscl.htm, organizes resources on the basis of performance class and work zone conditions.

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