PPE Hierarchy

Introduction

With ever-changing risks confronting workers daily, there is a constant challenge to educate them and up their competency which is the key to keeping them safe. While the development of new technology is crucial to the goal of eliminating work-place injuries, it presents unique challenges for the safety professionals tasked with keeping employees safe. How does one ensure they are up-to-date on the latest safety measures and personal protective equipment (PPE), rollout a safety program that incorporates the new technology and adapt that program amidst constant change, while supporting quality and efficient work?
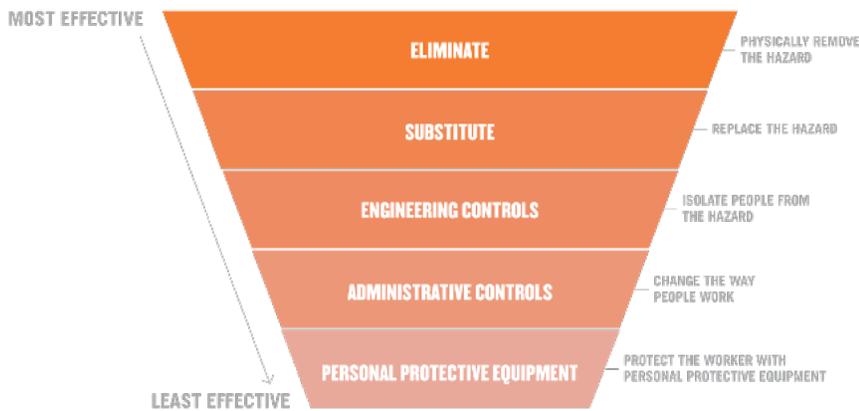
The first step is a better understanding of PPE and the role it plays in a comprehensive safety program.

This series of Planning Advisory Notices (PAN) will illustrate the proper approach to PPE programs, highlighting proper planning, procurement, in-field deployment and product safety education.

Part One: Remember the Hierarchy

The hierarchy is a well-known and tested sequence of controls that safety professionals follow when implementing risk solutions: eliminate, substitute, engineering controls, administrative controls and PPE. It's important for safety professionals to remember these steps are not exclusive of one another — the most effective plans are often a coordinated combination of these various hierarchy steps.

MOST EFFECTIVE

ELIMINATE — PHYSICALLY REMOVE THE HAZARD

SUBSTITUTE — REPLACE THE HAZARD

ENGINEERING CONTROLS — ISOLATE PEOPLE FROM THE HAZARD

ADMINISTRATIVE CONTROLS — CHANGE THE WAY PEOPLE WORK

PERSONAL PROTECTIVE EQUIPMENT — PROTECT THE WORKER WITH PERSONAL PROTECTIVE EQUIPMENT

LEAST EFFECTIVE

Eliminate and Substitute

The most effective control is eliminating the risk altogether and replacing it with a safer solution. For instance, if a worker is at risk of falling when changing lightbulbs at heights, removing that particular light would eliminate the risk entirely. Using more efficient lightbulbs or replacing the lightbulbs at heights with lightbulbs lower to the ground would be a substitute. By eliminating or substituting the risk, the worker now does not need to go to height at all or as often.

Engineering and Administrative Controls

If elimination or substitution aren't viable options (which is many times the case), one must look at engineering and administrative controls. The key to engineering controls is prevention, i.e. finding a way to isolate the workers from the hazard. In the light bulb example, a telescoping pole might be used to enable the worker to safely replace the bulb from the ground or a staircase might be built to give the worker safe access while keeping them isolated from the edge that creates the risk of falling. These solutions are used or installed to prevent a fall from occurring, but do not eliminate or substitute the act of changing the lightbulb.

Administrative controls are educational measures and policies intended to improve worksite safety by changing worker habits and uplifting their competency. Administrative controls can be implemented in a variety of ways, such as printed materials, training, improved procedures, communication and even barricading/directing certain areas of the worksite. Returning to our lightbulb example, teaching the worker to use three points of contact and a proper fall protection plan when climbing up to change the light would be an administrative control.

Personal Protective Equipment

If the other controls are impracticable or do not fully eliminate the exposure, PPE shall be utilized to protect the worker. PPE should be a last resort when attempting to mitigate a risk. PPE is equipment worn by the worker to create a barricade or attenuate the risk of injury. In the lightbulb example, an example of PPE use would be if the worker used a fall protection system, in conjunction with a fall protection plan to climb and complete the task. This system would decrease the distance the worker would fall and absorb energy to minimize bodily damage from that fall. Note the fall protection plan helps the worker ensure that they are selecting the proper PPE for the SOW (Scope of Work) and allows them to determine clear distances and if a rescue plan is required.

Despite being a last resort, there's a reason PPE has been used for decades; it's often the only option. Because of this, manufacturers are constantly improving and developing PPE, which, consequently, creates a challenge for safety professionals to understand PPE advancements and determine which PPE should be incorporated in order to properly mitigate risks at the worksite and the specific SOW it is being utilized for.

Conclusion

Although our lightbulb example provided straightforward solutions, it is important to remember that in most instances the hierarchy controls will be used in combination with one another supporting a quality work site and ensuring a safe working environment. Unless it is possible to eliminate the risk entirely, ensuring the safest possible worksite often involves multiple controls for the same risk. For instance, knowing how to climb with three points of contact (administrative control) does not mean the worker should not utilize fall protection (PPE). Using PPE that has been properly inspected and knowing the proper way to climb is a combination of controls that leads to a safe working environment.

As this PAN series unfolds, we'll look at different forms of PPE and how to navigate their evolution, application and improvement by constantly reconnecting with the hierarchy to explain how it all fits together. It is our hope that this plan along with the regulations, standards and best practices will support safety professionals and their organizations as they in turn support the men and women that are critical to the advancement of telecommunications infrastructure. ■