

Fall Protection Standards — A Global Snapshot

Hazards are ever-present in the steel plant environment, and a heightened awareness and emphasis on safety is a necessary priority for our industry. This monthly column, coordinated by members of the AIST Safety & Health Technology Committee, focuses on procedures and practices to promote a safe working environment for everyone.



Author

Ray Mann
Senior Specialist Application Engineer,
3M Personal Safety Division, Concord,
N.C., USA

The hazards of occupational workers performing tasks at height is a globally recognized concern. In every region around the globe, workers are often required to perform tasks while at height, exposing them to the inherent risks and dangers of falling while performing their assigned work tasks. While many regions around the world have some level of regulations in place to address these hazards, data collected on injuries and fatalities indicate that there is room for improvement. This fact is certainly not lost on the steel industry as the World Steel Association has identified working at height as one of the top 5 causes of safety incidents and has suggested preventive measures to address this.

According to the World Health Organization, falls are one of the leading causes of death in the world — second only to traffic accidents — and accounting for more than 684,000 fatalities each year. Many of these fatalities are as a result of falls from a height.

A U.S. Bureau of Labor Statistics news release dated 16 December 2021 states that in the U.S. alone, a worker died every 111 minutes from a work-related injury in 2020. In 2020, 645 of the 4,764 occupational fatalities in the U.S. were a result of a worker falling from height to a lower level.

In the U.S., the fabricated metal manufacturing industries experienced nine fatalities as a result a slip, trip or fall including falls to a lower level in 2020.

The risks of working at a height are typically controlled through a combination of fall prevention and mitigation efforts. These can include use of guardrails and other barriers, fall restraint systems, worker training and education, and fall protection systems. It is important

to remember that proper hierarchy of controls must be followed and use of personal protective equipment (PPE) including fall protection should only be considered when other controls are not adequate of feasible.

All available controls should be addressed and outlined in facilities' fall prevention programs. One element often overlooked by employers when developing a fall prevention program is the role of fall protection equipment performance standards.

What Are Product Performance Standards and How Are They Developed?

Performance standards are a key global element in defining the operational and performance characteristics. These standards are often identified as voluntary consensus standards or are considered regulatory control measures. There are different implementation and enforcement levels around the globe, therefore, it is always recommended to learn and understand your local requirements.

Specifically, within the fall protection equipment manufacturing platform, these standards provide requirements for categories such as dynamic performance, static strength, environmental and conditioning testing, control measures for average and maximum arresting forces, product labeling, and instructions for use requirements.

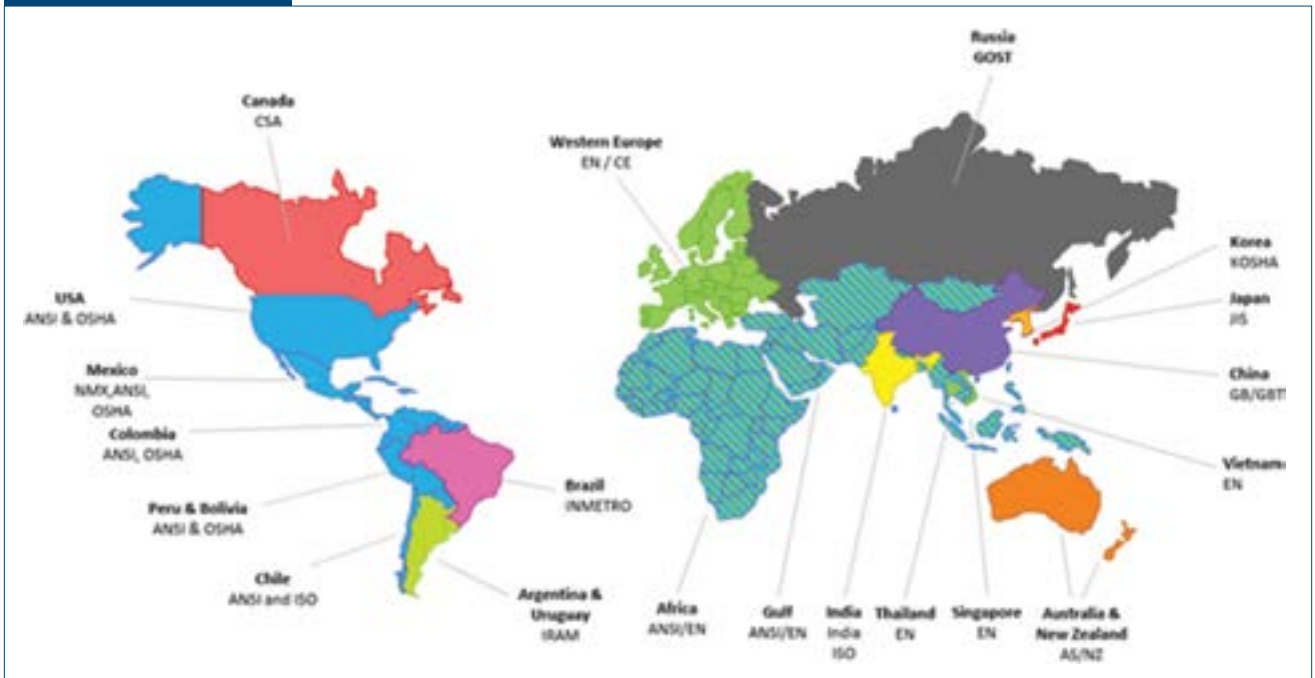
There are numerous global standards used and referenced within the fall protection equipment world providing guidance for equipment manufacturers to design, test and certify their products to comply with local and jurisdictional

Comments are welcome.

If you have questions about this topic or other safety issues, please contact safetyfirst@aist.org.

Please include your full name, company name, mailing address and email in all correspondence.

Figure 1



A map of the global footprint of the many performance standards used to provide guidance to the fall protection equipment manufacturing, system designers and engineers, health and safety executive (HSE) professionals, employers and end-user communities.

requirements. A global assortment of these standards consists of European Norm (EN) for European Standards, American National Standards Institute (ANSI/ASSP), Canadian Standards Association (CSA), China National Standards (GB/GBT), Australian/New Zealand Standards (AS/NZ), Mexican Standards (NMX) and Japanese Industrial Standards (JIS).

These standards are often developed by an organization, company, government agency, individual, etc., having expressed a direct and material interest in having the right to participate in their development. This participation includes the right to express a position and its basis, having that position considered and having the right to repeal. Each standards organization controls and may imply different requirements for membership and participation.

The map in Fig. 1 depicts a global footprint of the many performance standards used to provide guidance to the fall protection equipment manufacturing, system designers and engineers, health and safety executive (HSE) professionals, employers and end-user communities.

Why Is It Important for Employers To Be Familiar with Performance Standards?

It is a critical element for employers to maintain an understanding of current fall protection product

performance standards. Product performance standards are generally under a continuous state of revision, often being mandated by the associated standards organization itself to be updated every five years.

These updates may consist of significant product performance, testing and design changes that may be crucial to the employer's fall prevention programs. In general, product performance standards are copyrighted materials and purchase is often required to obtain a controlled copy.

What Role Do Performance Standards Have in Worker Health and Safety?

There are varying levels of hazards and risks associated with working at height. A key factor in identifying these hazards can often be supported by developing a clear understanding of local fall protection product performance standards and identifying the proper knowledge for their use. Understanding how components of a personal fall protection system are designed, tested, certified and instructed for use should be viewed as a best practice by all HSE professionals on a jobsite.

Why Is Ensuring Equipment Meets Current Standards Important?

It is important for employers to ensure that their products meet the most current and relevant product performance standards as it helps to ensure their employees are utilizing products that conform to the latest design and testing requirements based on technologies available in present time.

Employers and HSE professionals should be aware that there are outdated fall protection product performance standards that have not been subjected to current technology-driven updates and often these standards have not been updated in 20 or more years. Ensure products manufactured to current performance standards are being utilized and confirm the most current product performance standards by checking them online. If a product is manufactured to a previous revision, consult with the equipment manufacturer to understand if and how the product may remain conformant to the applicable performance standards.

How Can Performance Standards Be Incorporated Into a Fall Prevention Program?

In addition to performance requirements, fall protection performance standards will often provide additional guidance on a variety of related topics. These may include language or guidance on inspecting equipment, anchorage strength and design, application support, and labeling knowledge. Each region globally may have different requirements, so understanding these variables is critical to each local fall prevention program.

Are There Fall Protection Products and Systems Consistent for Use Within the Steel Manufacturing Industries?

There are multiple product selection preferences by steel mills and other similar environments when it comes to working at height. Many variables must be considered when working in these environments. One significant challenge in the steel industry is the availability to access of an overhead anchorage support structure. Oftentimes there are a variety of moving components and machinery, high heat exposures, lifting and rigging components.

The environment also presents challenges with dusty and abrasive environments. The collection of dust, grit and other contaminants can often interfere with the safe working functions of a personal fall arrest system. It is imperative that proper equipment inspection intervals are determined to best maintain a conforming personal fall arrest system and program.

Often, fall protection systems can be implemented in the form of mobile elevated work platforms or even custom-engineered fall protection systems such as davit arms, A-Frame systems or rail systems. Each application should ultimately be reviewed for a hazard assessment to properly identify the most appropriate solutions. Keep in mind that often an exposure can be eliminated by engineering out the hazards. Staircases, mobile steps systems, guardrails, etc., can often eliminate the need for worker exposure to a fall hazard.

Another common concern is wear and tear on the user's full-body harness. The harsh working environment found in the steel manufacturing process often exposes the personal fall arrest system to extensive grit and grime, heat exposures or contact, sharp edges, sheet and roll stock, etc. Repeated exposures may often apply concentrated wear and abrasion within certain areas of the safety harness. Workers in these cases will often elect to acquire a safety harness manufactured with additional padding or thicker webbing that may extend the life of the fall arrest system.

For applications such as high heat/welding, many manufacturers of fall protection equipment offer products designed for high heat exposures. In either scenario, implementation of an effective maintenance and inspection program is critical in these environments.

The application of rescue and retrieval is also a critical element of any well-designed fall prevention program. There is a wide selection of product available today designed to support self and/or assisted rescue programs. As part of a well-developed fall prevention program, consideration of suspension trauma should also be examined. There are a variety of products designed to help with suspension intolerance post-fall arrest. These are generally small in design so as to not interfere with normal working activities and are available as aftermarket products to be affixed to a previously acquired safety harness. In a fall event, these devices are manually deployed by the wearer to provide an opportunity for the conscious worker to relieve the stresses associated with prolonged suspension.

Trending of Standards Regionally and Globally

As it was mentioned earlier, there are many fall protection/prevention standards applicable around the globe. There are several fall protection product performance standards trending in the industry today, including the ANSI/ASSP Z359 Fall Protection Code, CSA Z259 Codes of the Canadian Standards Association and EN Standards for European Standards. These standards are in a continuous state of revision with an emphasis

on current data supported by scientific studies of global applications.

Training

Training is a crucial element in every fall prevention program around the globe. Many regions and jurisdictions mandate that employers are required to actively ensure their employees have been trained in their specific task, trained in a language they understand, and receive additional training as needed or if their job task changes.

Every day on the job, climb to new heights with two things in mind: getting your work done well and returning home safely. Knowing and understanding the local requirements for working at height will help to ensure this happens.

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