

# IS YOUR FALL PROTECTION EQUIPMENT A SILENT HAZARD?

Proper training, inspection and maintenance of safety equipment is key to safety at height.

By Tom Dillon



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**EACH YEAR OVER 100,000** injuries and deaths are attributable to work-related falls. According to the National Safety Council, falls are one of the leading causes of deaths in the workplace. In addition to permanent injuries and lost lives caused by falls, businesses lose billions of dollars each year from significant increases in insurance premiums, workers' compensation claims, product liability costs, and other related expenses.

The manufacture and sales of fall protection products have steadily grown over the past decade, however the number of injuries and deaths associated with falls from heights has also increased.

## WHAT'S THE PROBLEM?

Several factors have contributed to these alarming and disturbing statistics:

- All fall protection equipment deteriorates with use and exposure over time, regardless of brand and/or manufacturer.
- Equipment is not inspected often enough for wear and damage.
- Proper training is not provided — often, the wrong equipment is selected for a particular situation, and equipment is not worn properly.



Those specifying or using fall protection equipment know these factors to be valid (at least at some subliminal level). Yet, it is very likely that a high percentage of equipment used on jobsites throughout North America, today, would 'fail' to meet industry standards if exposed to a fall. Meaning, someone could be seriously injured or die.

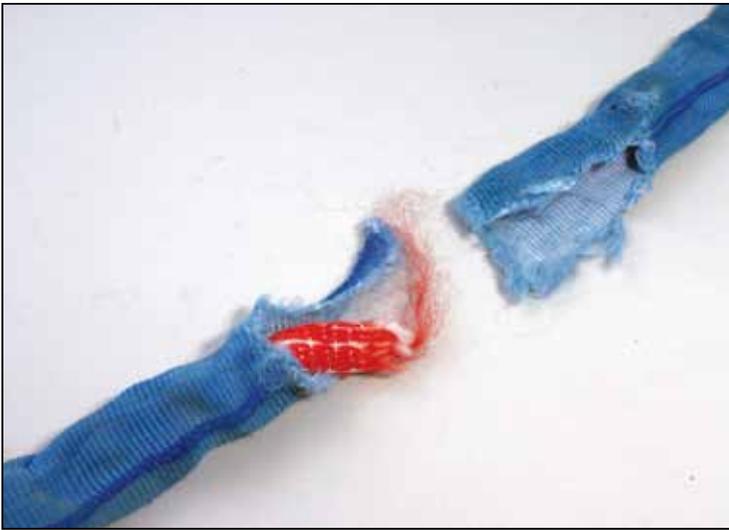
### HOW DO WE KNOW?

On any given day, a visit to any job site in the country will unveil fall protection equipment being used that is potentially dangerous because of wear, neglect, misuse or age/exposure. Over the

past several months, shock-absorbing lanyards from a variety of manufacturers have been voluntarily removed from job sites for safety qualification, and 85 percent of the product samples FAILED standard safety tests (in accordance with ANSI Standards). These are surprising and alarming facts that the fall protection community has overlooked, while touting the many standards and regulations to which their products are tested and deemed 'safe'. (See photos of used and abused equipment in Figure 1.)

The recent test program focused on shock-absorbing lanyards from eight manufacturers and showed a variety of performance failures (Lanyard test, 220 lbs. @ 6 ft. free fall):

- 100 percent did not pass visual inspection criteria [weld splatter, webbing cuts/abrasions, broken stitching, frayed/burned webbing, chemical dam-



Broken shock-absorbing webbing



Damaged shock-absorber pack cover



Frayed webbing

age, discoloration, deformed hardware (cracks/rough or sharp edges) and/or loose, distorted or broken grommets, etc.]

- 6 percent the webbing actually broke
- 24 percent elongated beyond the standard
- 83 percent had fall arrest forces over 900 lbs. (ANSI), with 9 percent over 1,800 lbs. (OSHA)
- 6 percent were previously deployed, but still in active service when removed from the job site
- 42 percent had hardware with visible defects
- 9 percent had snap hooks that opened during testing
- 9 percent had webbing that was knotted

The safety community must recognize these facts and take a proactive approach. Workers are being seriously injured in falls with equipment that initially passed industry safety standards. More troubling, worn and damaged equipment is still accessible even though it will not perform as designed in the event of a fall.

### BEST INTENTIONS

Safety directors and supervisors need to make a concerted effort to keep unsafe and potentially life-threatening equipment out of the hands of those working at heights. Workers, through proper training and attentive daily inspection, will be safer and injury-free. Taking equipment out of service too early is a better alternative than explaining to a worker's family that there has been a serious accident. Adopt a smart policy — when in doubt, throw it out! In addition, some manufacturers have implemented a return-and-inspect program for equipment, ask your supplier for details.

### PERSONAL FALL ARREST SYSTEM

A Personal Fall Arrest System is comprised of three key components — anchorage connector,



Knotted webbing with weld splatter

body wear, and connecting device. While a lot of focus has been given to anchorage connectors and body wear (full-body harnesses) when discussing fall protection, the connecting device (a shock-absorbing lanyard or self-retracting lifeline) between these two components actually bears the greatest fall forces during a fall.

Historically, harnesses are replaced on the job site more often than connecting devices. The connecting device is by far the most critical component in surviving a fall safely and should be carefully inspected and replaced prior to use at the slightest indication of wear or damage. While each component of a personal fall arrest system is

vital to worker safety, the connecting device — selection, materials, construction and inspection/maintenance needs — make it the critical link in assembling a safe fall protection system. Careful consideration and attention must be given before, during and after a connecting device has been selected. Figure 2 shows an example of a Personal Fall Arrest System offered by Miller Fall Protection.

For example, once an anchorage, such as an I-beam, is located, its strength or its ability to arrest a fall can be determined easily. Likewise, the full-body harness offers an inherently high safety factor, since fall forces are distributed throughout the body over many webbing components, including chest, shoulder, waist and legs. No single component is subjected to the total fall force; however, a shock-absorbing lanyard or self-retracting lifeline is comprised of only one strength member (i.e., webbing, rope, steel cable). Substandard design, poor-

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quality workmanship, excessive exposure to UV light or chemicals, physical damage, improper storage or inadequate inspection can lead to lanyard/lifeline failure.

### WHAT'S NEEDED?

Proper training, maintenance and inspection of all components of the Personal Fall Arrest System are crucial in creating a safe work environment. Even the highest quality products require regular inspection, especially when safety and well-being of the user are at stake.

Specific wind energy safety-at-height training courses are available from leading training organizations that include courses such as Competent Climber, Basic Height Safety and Wind Energy Train-the-Trainer. For optimum training, look for courses taught by experienced, certified instructors that also include 'live' demonstrations, as well as practical hands-on training. Course content should conform to emerging industry 'best practices'. In addition to Competent Climbing courses, many training programs include Equipment Inspection courses that are a requirement for most job sites.

This excerpt from OSHA's non-mandatory guidelines for personal fall arrest systems states: "Before purchasing or putting into use a personal fall arrest system, an employer should obtain from the supplier information about the system based on its performance during testing so that the employer will know if the system meets this standard. Testing should be done using recognized test methods."

It is imperative to underscore the importance of buying from well-known, reputable manufacturers that adhere to ANSI standards, and can readily supply documentation of test performance. Often, third-party certification is available from the manufacturer to assure compliance. Certification to ISO-quality is another measure of a reliable supplier.

### CONTINUAL INSPECTION

To maintain long service life and to meet OSHA regulations, certain inspection procedures should be followed for all fall protection equipment:

- All components of a fall protection system should be visually inspected prior to each use, and defective units removed from service.
- Any fall protection equipment (harness, lanyard or self-retracting lanyard) that has been subjected to impact loading must be immediately removed from service.

### CARE AND MAINTENANCE

Simple care and adhering to the manufacturer's instructions will prolong the durable life of fall protection equipment and ensure reliable performance. Here are some other important tips:

- For all webbing components, wipe off surface dirt with a sponge dampened with plain water and squeezed dry. Dip the sponge in a mild solution of water and commercial soap or detergent. Work up a thick lather with a vigorous back-and-forth motion, then wipe with a clean cloth. Allow the webbing to dry away from excessive heat or sun.
- Store equipment after use in a clean, dry area, free from excessive heat, steam, fumes and corrosive agents. Avoid long exposures to sunlight.

### CONCLUSION

- Train employees in regulations and proper equipment use.
- Closely follow the use and inspection guidelines and purchase only the highest-quality products from reputable manufacturers.
- Request performance test data or verification of third-party testing from the manufacturer.
- Call upon the manufacturer to help answer questions and to recommend appropriate equipment systems. ✎