

August 23, 2010

OSHA Docket Office  
U.S. Department of Labor  
200 Constitution Ave., NW  
Washington, DC 20210

Re: Proposed Rule: Walking-Working Surfaces and Personal Protective Equipment (Fall Protection Systems); Docket No. OSHA-2007-0072

The International Safety Equipment Association (ISEA) is pleased to offer comments on the proposed Walking Working Surfaces rule. ISEA is the trade association for personal protective equipment (PPE), including head, eye and face, hearing, respiratory and fall protection; protective clothing and gloves; high visibility safety apparel; emergency eyewash and showers; first aid kits and gas detection instruments. Its member companies are world leaders in the design and manufacture of PPE for workers.

ISEA members design, manufacture, sell and service the full range of PPE, including fall protection used in a broad array of workplaces. ISEA recognizes the importance of comprehensive, relevant and practical OSHA regulations that will result in meaningful protection of the nation's workforce from falls to a lower level.

#### **Safe Work Practices on Stacked Materials**

In the preamble, before OSHA addresses Subparts D or I, the Agency says that some commenters have recommended that OSHA allow the use of safe work practices by trained employees in lieu of conventional fall protection for employees standing or climbing on stacked materials (page 28868, issue #2). OSHA seeks comment on the current fall protection measures that are in use, and the degree to which conventional fall protection is infeasible or creates a greater hazard.

ISEA comment: Fall protection manufacturers supply and create systems to protect workers from fall hazards while they work on stacked materials. Some examples include trailer-mounted systems, A-frames, rope grab systems and ropes at tie-off points.

Fall protection systems are not infeasible. In fact, manufacturers routinely create custom fall arrest systems for employers. However, all fall protection systems have some degree of difficulty in setting up and maintaining. OSHA clearly recognizes this, as the proposed rule also includes a provision that requires a competent person to be on-site, or otherwise available to the employer.

#### **Qualified Climber Exemption**

In the preamble (*Issue #3-Qualified Climber*, page 28869), OSHA asks about the exemption from fall protection for qualified climbers in outdoor advertising.

ISEA comment: ISEA opposes the exemption for qualified climbers. Their situation is not unique. Right now there are many systems available to provide fall arrest as soon as these workers leave the ground. In fact, this type of equipment is used today, so the burden on employers is slight.

OSHA asks about technological and economic feasibility of fall protection for this type of work. Because this industry is constantly improving its offerings and developing new solutions for employers and employees, it is safe to say there has been marked improvement in ladder systems over the past 20 years. In addition, ladder climbing systems are becoming increasingly common.

Finally, Assistant Secretary Michaels has been speaking about fostering a greater culture of safety in U.S. workplaces. Providing an exemption from use of fall protection for those working at dangerous heights seems to run counter to this message.

### **Technological Advances in Fall Protection and Fall Arrest**

In the preamble, before OSHA address Subparts D or I, the Agency asks about “Technological Advances in Fall Protection and Fall Arrest” and for “information on other new fall protection and fall arrest equipment that is not mentioned in this proposal” (page 28870, issue #5).

ISEA Comment: New fall protection and fall arrest equipment not mentioned in the proposal includes:

**Tie-back lanyards.** Fall protection manufacturers provide a number of choices for tie-back applications. Tie-back lanyards are designed to be wrapped around a suitable anchor structure, like a beam. These products have the advantage of eliminating a separate component for anchorage connection. Tie-back lanyards are typically used in fall arrest and are available in single leg or Y-lanyard configurations. Tie-back lanyards are generally constructed of very high-tensile, abrasion resistant webbing. They are fitted with specially designed snaphooks for the application.

ISEA does not recommend tying the end of a fall protection lanyard back onto the lanyard material unless the product is designed for this purpose. Misuse of a conventional fall arrest or positioning lanyard connected back onto itself can result in serious injury or death.

**3600 lb strength gate hooks – compressive strength.** OSHA should require that gatehooks have a 3600-lb strength for both tensile and compressive strength. In fact, snaphooks made to the ANSI/ASSE Z359-2007 standard are marked with an “07.” This identifies the snaphook as one with 3600 compressive gate load strength (the amount of force needed to open the gate)(see the discussion of snaphooks and D-rings below).

**Fall-factor 2 lanyards.** These shock-absorbing lanyards allow workers to tie off at their feet, as long as the maximum impact is 1800 lb or less.

**Twin-leg lanyards, or Y-lanyards** (for ladder climbing). Twin-leg lanyards, or Y-lanyards, are available as a means of connection in personal fall arrest systems. They are designed to be used when moving from one anchor point to another while remaining continuously connected. They are available in a number of materials and configurations. Some have an energy absorber at the stem of the Y, while others contain an energy absorber on, or as part of, each leg of the lanyard. OSHA should be aware of the nature of twin leg lanyards, including the following:

- Always connect the snaphook at the stem of the Y-lanyard to your harness fall arrest attachment (back D-ring).
- Never attempt to extend the reach of the lanyard by connecting one leg to the harness and the opposite end to an anchor structure as this will generate dangerously high forces and fall distances, resulting in serious injury or death.
- Connect the unused leg of the lanyard only to approved attachment points on the harness designated by the manufacturer for this purpose. Do not "park" the unused leg on the harness hip D-rings as this could result in unfavorable loading to the body in the event of an accidental fall.
- As with any lanyard, avoid passing the lanyard between the legs, under the arms or around the neck during use.

Training on these devices is critical, because they cannot be used in all situations.

**Twin-leg SRLs used in place of Y-lanyards.** Here, there are two lines in the self-retracting lanyard (SRL). This type of device is used like a twin-leg lanyard.

**Roof anchors.** Permanent roof anchors are currently available for workers conducting any type of task on a roof, such as inspection, snow removal, etc. Once roof joists are placed and stable, workers can tie off to the roof structure. There are a number of temporary and permanent roof anchors available. Most can be mounted to common roof structural materials using screws or

clamps. Roofers can then connect their personal fall arrest systems, including either self-retracting lanyards or vertical lifeline (rope grab) systems. A number of full body harnesses are available for any type of work on a roof that requires fall arrest equipment. Multiple sources offer complete kits for safe work while aloft on a roof.

**Fall arrest systems for rolling stock.** OSHA asks about fall protection solutions for rolling stock and vehicles in *Question #1* on page 28867. There are now overhead systems to protect workers from fall hazards when working on train/rail transportation. Some of these new systems include counterweight anchors and V-mounted systems.

In addition, employers have the option of permanently installed options. Some systems are installed on the rail car or vehicle cargo area. (See Appendix A for fall arrest systems for rolling stock and vehicles)

**Temporary Suspension Relief.** Many fall protection manufacturers and distributors supply devices to help workers avoid orthostatic intolerance situations.

Medical experts caution that prolonged suspension in a full body harness is associated with a serious health risk, known as orthostatic intolerance, or "suspension trauma." The beginning of suspension trauma can occur within a few minutes, especially if a fall protection user is suspended unconscious in a full body harness. It is therefore imperative that employers have a rescue plan in place and the means to retrieve a fallen worker quickly after an accidental fall has been arrested. OSHA regulations (29 CFR 1926.502(d)(20) call for "prompt rescue" in the event of an accidental fall. ANSI Z359-2007 Fall Protection Code recommends that contact be made with a worker within six minutes after a fall.

The onset of orthostatic intolerance can be delayed or prevented by the use of simple, portable and lightweight equipment workers can carry as part of a personal fall arrest system. These devices, which are widely available for use with a fall arrest harness, permit a conscious worker to maintain circulation in the large muscles of the legs, reducing the potential for suspension trauma until help arrives.

OSHA should include these temporary suspension relief devices in Section 1910.140 and in the definition of "personal fall arrest system."

**SRLs used in a horizontal orientation.** Workers in both general industry and construction use self-retracting lanyards in horizontal positions. In general industry, order pickers will use these devices in warehouses, when working at heights.

**SRLs used in fall arrest or descent modes.** Some self-retracting systems can be changed to descent mode after a fall occurs. This allows a worker to safely descend to a lower level after a fall is arrested. These devices can also be set to a certain mode to let a worker automatically descend to a lower level.

**Counterweight anchors.** These devices are becoming more common, but are not addressed by OSHA. Some types of counterweight anchors can be water bladders or stacks of metal plates. These devices have a safety factor of 2.

### **Fixed Ladder Cages**

Cages for fixed ladders are discussed in proposed 1910.28 (b)(9). Here OSHA proposes that fixed ladders be provided with cages, wells, ladder safety systems, or personal fall protection systems where the length of the climb is less than 24 feet (7.3 m) but the top of the ladder is more than 24 feet (7.3 m) above lower levels.

Cages and wells are also discussed in proposed 1910.29(g), which allows for cages and wells on fixed ladders. Proposed 1910.29(g) notes that cages and wells must be designed and constructed to contain employees in the event of a fall and to direct them to a lower landing.

ISEA Comment: ISEA believes cages should not be used as an individual method of fall protection, but only in conjunction with a personal fall arrest/cable-and-rail system or a twin-leg lanyard.

ISEA recognizes that a cage system allows a measure of security. However, if a person does fall in a cage, OSHA is correct that the cage will direct the person to the ground, likely resulting in a severe injury or fatality.

ISEA opposes OSHA's proposed provision in 1910.28(b)(9) that no fall protection is required when employees are exposed to falls from fixed ladders of less than 24 feet. OSHA gives no explanation for this. OSHA should maintain consistency and require that fall protection is required when employees are exposed to falls of 4 feet or more.

Right now, there are many ways to protect workers climbing ladders, such as ladder safety systems, rail/cable systems or twin-leg lanyards. The current proposed rule presents an opportunity for OSHA to break from what has been a dangerous tradition of allowing workers to climb, unprotected, to heights of up to 24 feet.

### **Ladder Systems**

In proposed 1910.28(b)(9) *Fixed ladders*, OSHA requires a personal fall protection system only when employees are exposed to falls from fixed ladders of more than 24 feet (7.3 m). See discussion at page 28891 in the preamble.

ISEA comment: As we state in the discussion of "fixed ladder cages" ISEA opposes OSHA's proposed provision that no fall protection is required when employees are exposed to falls from fixed ladders of less than 24 feet. OSHA gives no explanation for this. OSHA should maintain consistency and require that fall protection is required when employees are exposed to falls of 4 feet or more.

Right now, there are many ways to protect workers climbing ladders, such as ladder safety systems, rail/cable systems or twin-leg lanyards.

The current rule presents an opportunity for OSHA to break from what has been a dangerous tradition of allowing workers to climb, unprotected, to heights of 24 feet. In addition, OSHA would improve worker safety and compliance, and minimize confusion by requiring positive (active) fall arrest systems on all fixed ladders. The current proposal offers different requirements for:

- ladders less than 24 feet (no fall protection).
- ladders where the length of the climb is less than 24 feet (7.3 m) but the top of the ladder is more than 24 feet (7.3 m) above lower levels (some fall protection).
- ladders where the total length of a climb equals or exceeds 24 feet (7.3 m) (different types of fall protection from the previous requirement).

### **Body Belts**

Body belts are discussed throughout the proposed rule, at locations such as the following:

- 1910.28(b)(10), *outdoor advertising (billboards)*, which requires use of body harness or bodybelt with a rest lanyard. Proposed paragraph (b)(10)(i) would apply whenever the length of the climb is 50 feet (15.2 m) or less or where the total fall distance does not exceed 65 feet (19.8 m) above grade. In this situation, OSHA proposes that each employee who climbs a combination of a portable and a fixed ladder must wear a body belt or body harness equipped with an 18 inch (46 cm) rest lanyard that will enable the employee to tie off to the fixed ladder.

- 1910.29(j), *Personal fall protection systems* states that “Body belts, harnesses, and other components used in personal fall arrest systems, work positioning systems, and travel restraint systems must meet the applicable requirements of subpart I of this part.”
- In the discussion of the definition of *Personal fall arrest system* in proposed 1910.140(b), *Personal fall protection systems* (page 28905, third column), OSHA notes that a ladder safety system is not considered a personal fall arrest system within the meaning of this proposed definition even though it is designed to arrest a fall. Therefore, the use of a body belt in a ladder safety system is permitted.
- At proposed 1910.140(d)(3), where OSHA states that “Body belts are prohibited as part of a personal fall arrest system.”

ISEA Comment: OSHA is correct in banning the use of body belts in fall arrest systems – workers can fall out of body belts or become inverted if they fall while wearing these devices. Manufacturers and distributors supply harnesses with body belts. These are inherently safer and can be used for work positioning on towers and in bucket trucks.

In addition, a belt/harness combination eliminates the risk that a worker might not change out of a belt into a harness to conduct a single task that requires a harness. Issues related to donning and doffing belts and harnesses are removed by requiring these combined products.

Regarding the preamble statement on page 28904, if a ladder safety system is designed to arrest a fall, it is a fall arrest system, in which body belts are not permitted under the definition in 1910.140(b).

For example, in proposed 1910.28(b)(10)(i), if the climber were to fall, a body belt would not be appropriate. Harnesses should be required for those climbing and working aloft, exposed to a fall to a lower level.

#### **Four-Foot Trigger Height**

In the preamble’s discussion of proposed 1910.28, *Duty to Have Fall Protection* (page 28887), OSHA requests more recent studies or information that support or contradict its requirement for fall protection when an employee is exposed to a fall above 4 feet.

ISEA Comment: ASSE is currently working on a standard for self-retracting lanyards that can provide fall protection to workers exposed to a 4-foot fall. OSHA should include a reference to this standard when it becomes available.

#### **Other Standards – Power Generation, Transmission and Distribution**

In the discussion of qualified climbers, on page 28869, OSHA invites comment on fall protection for electric power and telecommunications work covered by other OSHA standards; specifically, whether §§ 1910.268(n)(7) and (n)(8) and 1910.269(g)(2)(v), which generally require fall protection only after the employee reaches the working position, adequately protect employees. In addition, the Agency requests information on the technological feasibility of requiring fall protection for employees climbing and changing position on electric power and telecommunications poles and structures, and the costs and benefits of complying with such a requirement.

ISEA comment: Solutions are available today to protect workers whose jobs require utility pole climbing. In Europe, pole climbing fall protection systems are widely used. Canada also has regulations covering the use of pole climbing safety equipment. ISEA knows of no reason why these systems cannot be used in the U.S.

#### **Deceleration Device**

In the preamble, on page 28904, OSHA invites comment on whether to remove the term “deceleration device” from subpart I and instead define the terms “fall arrester” and “energy absorber.”

ISEA comment: ISA agrees that OSHA should remove the term “deceleration device” and instead define other components of a personal fall arrest system. “Deceleration device” is not a commonly used term. “Rope grabs,” and “energy absorbing lanyards” are more commonly used terms.

### **Rope Descent Systems**

In the discussion of rope descent systems (RDS) and powered platforms (page 28885) OSHA requests information regarding any other provisions that should be included in the final rule to increase worker safety, including whether or not RDS should be prohibited or should be allowed only when the employer can demonstrate that other methods, such as powered platforms, are not feasible or pose additional safety risks.

ISEA comment: ISEA believes that anchor systems need to be available on the building. This applies to anchor for rope systems, powered platforms, or for rope-based emergency descent systems for those working on powered platforms.

### **Rope Descent System Compatibility**

In the discussion of rope descent systems on page 28886, OSHA asks about rope descent system component interchangeability.

ISEA comment: Any device that rides along a line, rope or wire should be used as a system. Life lines and descent devices are tested and qualified as a system, and that is the way the association believes they should be used.

### **Self-Retracting Lifelines & Lanyard Performance – Limit of 2 Feet or Less**

In the general requirements at proposed 1910.140(c), OSHA includes the following specifications for self-retracting lifelines and lanyards:

(5) Self-retracting lifelines and lanyards that automatically limit free fall distance to 2 feet (0.61 m) or less must have components capable of sustaining a minimum tensile load of 3,000 pounds (13.3 kN) applied to the device with the lifeline or lanyard in the fully extended position.

(6) Self-retracting lifelines and lanyards that do not limit free fall distance to 2 feet (0.61 m) or less, ripstitch lanyards, and tearing and deforming lanyards must be capable of sustaining a minimum tensile load of 5,000 pounds (22.2 kN) applied to the device with the lifeline or lanyard in the fully extended position.

In the preamble at page 28907, OSHA requests specific comment on whether the requirement in proposed paragraph (c)(6) is necessary, since it is essentially the same as the requirement in proposed paragraph (c)(4).

ISEA Comment: The association believes OSHA does not need paragraph (c)(6). However, if OSHA keeps paragraph (6), it should be reworded to:

(6) Lanyards that do not limit free fall distance to 2 feet (0.61 m) or less, ripstitch lanyards, and tearing and deforming lanyards must be capable of sustaining a minimum tensile load of 5,000 pounds (22.2 kN) applied to the device with the lifeline or lanyard in the fully extended position.

Regarding paragraph (4) the horizontal or vertical orientation of a SRL is important because SRLs used in a generally horizontal orientation rather than overhead may be subject to higher loadings and greater exposure to sharp or abrasive surfaces. Because the devices are typically anchored at waist height or below, free fall potential is greater. Manufacturers will typically include additional provisions to absorb energy and protect the lifeline from damage (against edges) before allowing an SRL to be used horizontally. There are also additional use and training considerations that need to be addressed when using SRLs in horizontal orientations.

### **D-Rings and Snap Hooks**

In the general requirements section at proposed 1910.140(c)(8), OSHA requires that “D-rings and snaphooks must be proof tested to a minimum tensile load of 3,600 pounds (16 kN) without cracking, breaking, or incurring permanent deformation.”

ISEA comment: ISEA asks OSHA to include in the rule a requirement that gate strength of snaphooks be proof-tested to a minimum compressive load of 3,600 lb.

This issue has come up to OSHA before. In a Letter of Interpretation (letter # 20070920-8088, date of answer Oct. 13, 2009), in which an individual asked OSHA about the proper snaphooks, OSHA responded that it was aware of an ANSI standard for snaphooks with 3600 lb compressive strength gates, but that OSHA regulations only addressed tensile loads, not compressive strength, of snaphooks.

Many users contact fall protection manufacturers for clarification of this issue. OSHA’s inclusion of compressive gate strength would go a long way towards ending workplace confusion of this issue.

### **Knots in Lanyards**

In the discussion of general requirements for personal fall arrest systems (preamble, page 28907) OSHA notes that the proposal reflects the information currently available to the Agency—that knots can be used safely in some circumstances, so employers should be allowed the flexibility to use knots as long as they verify that proposed strength requirements for the entire rope have been met.

The follow allowance for using knots is included in non-mandatory appendix C on page 29149:

#### **Appendix C to Subpart I of Part 1910—Personal Fall Protection Systems Non-Mandatory Guidelines**

1. *Tie-off using a knot in the lanyard or lifeline (at any location).* The strength of the line can be reduced by 50 percent or more if a knot is used. Therefore, a stronger lanyard or lifeline should be used to compensate for the knot, or the lanyard length should be reduced (or the tie-off location raised) to minimize free fall distance, or the lanyard or lifeline should be replaced by one which has an appropriately incorporated connector to eliminate the need for a knot.

ISEA Comment: OSHA should prohibit knots in personal fall arrest systems. In addition, knots are not generally used in modern fall arrest applications.

### **Definitions**

ISEA offers the following comments to definitions in §1910.140(b):

**Body Harness.** The proposed definition specifies that the harness must “distribute fall arrest forces over at least the thighs, pelvis, waist, chest and shoulders.” In the preamble at page 28903, OSHA asks whether there is a need to define other types of harnesses, such as body harnesses that do not use a waist component but still distribute the forces over the torso. These harnesses have assemblies that prevent the shoulder straps from separating enough to allow the employee to fall out of the harness. OSHA does not intend to prohibit the use of this type of harness.

ISEA Comment: ISEA’s fall protection member companies report that it is more common not to have a waist strap.

**Competent Person.** OSHA’s proposed definition reflects a belief that the competent person in general industry serves a different role from the competent person in construction jobs. Therefore the definition does not require that the competent person have the authority to take prompt corrective action.

ISEA Comment: OSHA's proposal defines a subject matter expert, not a competent person. ISEA believes this rule must define as a competent person one who is on site and has authority to shut down work operations if there are imminent hazards and take PPE, fall protection in particular, out of service if needed. ISEA understands this means that employer representatives will need to be fully trained on fall protection matters. However, it is in the best interest of worker protection to have an on-site accountable decision maker to be competent in fall protection, because if that person knows the risks involved with using fall protection products that should be taken out of service or about improper connections he or she is less likely to take risks with workers' lives. Moreover, manufacturers and other knowledgeable sources cannot make service life decisions about fall arrest equipment over the phone.

**Lanyard.** The proposed definition includes "a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline, or anchorage."

ISEA Comment: OSHA should remove the term "body belt" or indicate that these body belts must be part of a body harness.

**Personal Fall Protection System.** Under its definition of Free Fall, on page 28905, OSHA notes that it "proposes to use the phrase personal fall *protection* system in this proposed rule, rather than personal fall *arrest* system which is used in some of the above-mentioned standards, to indicate clearly that the requirements, when the term is used, apply to both personal fall arrest systems and positioning systems."

ISEA Comment: The association believes the term "personal fall protection system" could also include passive devices, such as guard rails. For clarity, OSHA should only use the term "personal fall arrest system."

**Snaphook.** OSHA's proposed definition specifically prohibits non-locking snaphooks, consistent with other OSHA standards and national consensus standards.

ISEA Comment: ISEA agrees with OSHA. The association asks OSHA to include carabiners in this performance criteria as well. By including carabiners, OSHA would be limiting them to the shape most commonly used today.

### **Inspection and Removal of Impact Loaded Fall Protection Equipment**

In proposed §1910.140(c)(17), OSHA requires that a fall protection system be taken out of service if the system or a component is subject to impact loading, and kept out of service until a competent person decides it is undamaged and suitable for reuse. In the preamble, on page 28909, OSHA solicits comments on whether the proposed approach provides adequate protection, or whether the final standard should require the destruction of ropes, lanyards, belts, and harnesses once they have been subjected to impact loading.

ISEA Comment: Some fall protection components have an impact load indicator that alerts users when a product must be taken out of service. Manufacturers commonly indicate in user instructions and product labels how a device should be handled after impact. OSHA should err on the side of worker protection and recommend that when components of personal fall arrest system such as ropes, lanyards or harnesses are impact loaded, they should be permanently taken out of service and disposed of.

### **Interchangability/RollOut**

In proposed §1910.140(c)(19), OSHA proposes that ropes, belts, lanyards, lifelines, and harnesses be compatible with all connectors used. OSHA includes this requirement "because it believes the use of incompatible equipment leads to rollout" (preamble, page 28909).

ISEA Comment: The 2010 draft of ANSI/ASSE Z359 addresses snaphooks that are designed to prevent rollouts. In some workplaces, components from different personal fall arrest manufacturers are used.

ISEA believes this requirement is too broad as written to be useful to personal fall arrest system manufacturers and users of this equipment.

### **Rescue Equipment**

In proposed §1910.140(c)(21), OSHA requires that the employer to provide for prompt rescue in the event of a fall. OSHA discusses this requirement in the preamble (page 28910) noting the danger of suspension trauma. The agency suggests that in some circumstances it may be appropriate to use equipment such as a mechanical device that has descent capability, for self rescue.

ISEA Comment: As ISEA notes in its comments to the “Technological Advances” section (above), devices are available that permit a suspended worker to relieve pressure from the harness and permit circulation in the legs until rescue. ISEA believes these devices should be included in the definition of fall arrest system.

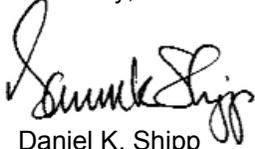
### **Harness Attachment Points**

In proposed §1910.140(c)(22), OSHA requires all personal fall protection systems to be worn with the attachment point in the center of the wearer’s back near the shoulder level or above the wearer’s head. There is an exception that allows pre-sternal attachment if the free fall distance is limited to 2 feet (0.6 m) or less and the fall arrest forces are limited to 900 pounds (4 kN).

ISEA Comment: While connected to their fall arrest systems in the pre-sternal position, workers conduct a variety of tasks, such as rotating and leaning. There is currently no ANSI standard for a 900 lb shock absorbing lanyard. The proposed rule is too prescriptive and restrictive. In Europe, fall protection regulations allow for fall arrest forces of 6 kN for frontal fall arrest connections.

ISEA appreciates the opportunity to comment. Please feel free to contact ISEA for additional information about our comments.

Sincerely,

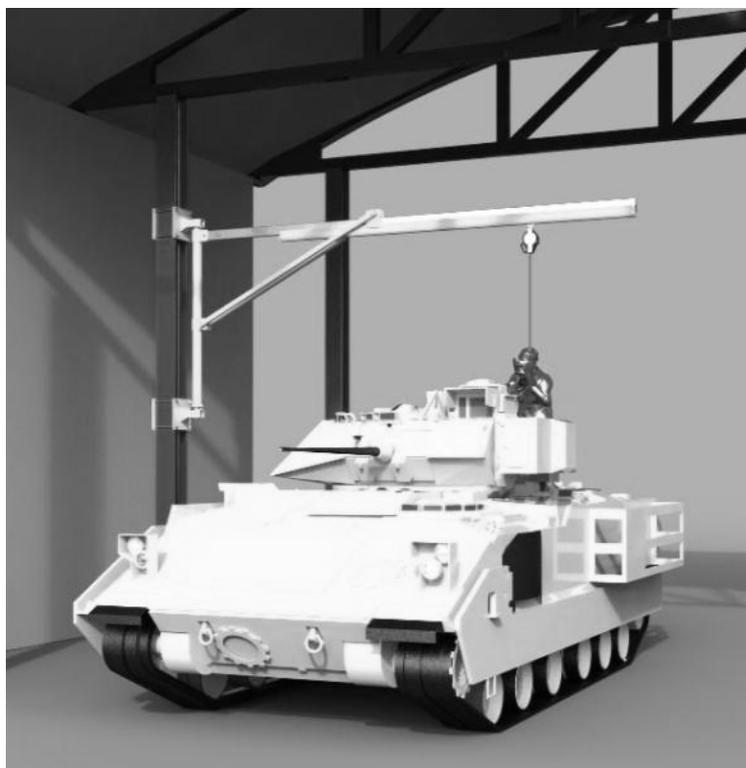
A handwritten signature in black ink, appearing to read "Daniel K. Shipp". The signature is fluid and cursive, with the first name being the most prominent.

Daniel K. Shipp  
President

## Appendix A – Examples of Rolling Stock Fall Arrest Systems



Portable overhead rail



Cantilever Rotating Davit with Rail



Portable Overhead Rail Counterweight



Trailer Mounted Overhead Rail with Ladder Access