

California Occupational Safety and Health Standards Board
2520 Venture Oaks Way
Suite 350
Sacramento, CA 95833

Monday, December 28, 2009

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JAN 04 2010

Dear California Occupational Safety and Health Standards Board,

**OCCUPATIONAL SAFETY AND HEALTH
STANDARDS BOARD**

Please accept the following petition to amend the California Occupational Safety and Health standards 1670 to more effectively increase the safety of workers and decrease the chance of injury when using a flexible horizontal lifeline. We propose to increase the existing restrictions on the use of flexible wire rope, synthetic rope, and natural rope horizontal lifelines used in fall arrest applications.

Horizontal flexible ropes used in fall arrest applications are inherently flexible and deflect significantly, sometimes exceeding 8 feet, during a fall arrest event (please see the included dummy drop test video showing a wire rope system). This significant deflection of the fall protection attachment point and subsequent increased free fall distance results in a greater body velocity.

If any part of the worker's body contacts an immovable object, or the work platform itself before the fall is arrested, that part of the body is subjected to tremendous impact forces that must be absorbed by the body part. These impacts most likely result in injuries and possible unconsciousness.

If the worker is injured to the point where he/she cannot rescue him/herself, or is unconscious, the worker may suffer further injury or death due to the effects of suspension trauma (harness restriction of blood flow to the upper torso and brain). Unfortunately, this suspension trauma will quickly lead to death in a few short minutes if the worker is unconscious. A conscious worker who is injured, or cannot lift himself to safety will eventually succumb to suspension trauma if not rescued quickly.

First requested change- To increase worker safety, we propose that 1670 (b)(2) be rewritten as follows:

Proposed wording for 1670 (b)(2):

Horizontal lifelines shall be designed, installed, and used, under the supervision of a qualified person, as part of a complete personal fall arrest system, which maintains a safety factor of at least two and limits total lifeline deflection to 4 inches maximum during a fall event.

(Alternate proposed wording for 1670 (b)(2):

Flexible Horizontal Lifelines shall not be used as part of a personal fall arrest system. Rigid horizontal lifelines shall be designed, installed, and used, under the supervision of a qualified person, as part of a complete personal fall arrest system, which maintains a safety factor of at least two and limits total lifeline deflection to 4 inches maximum during a fall event.)

Second requested change- To increase worker safety, we propose that 1670 (g) be rewritten as follows:

1670 (g) If an employee's duties require horizontal movement, rigging shall be provided so that the attached lanyard will slide along with the employee. Such rigging shall be provided for all suspended staging, outdoor advertising sign platforms, floats, and all other catwalks, or walkways 7 1/2 feet or more above the ground or level beneath. Rigging shall comply with 1670 (b)(2).

Third requested change- To increase worker safety on wire rope systems, we propose the addition of 1670 (b)(10)(C) be written as follows:

Anchorage used for attachment of flexible horizontal lifelines shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 10,800 pounds per employee attached, or shall be designed, installed, and used as follows:

(i) as part of a complete flexible horizontal lifeline personal fall arrest system which maintains a safety factor of at least two; and (ii) under the supervision of a qualified person.

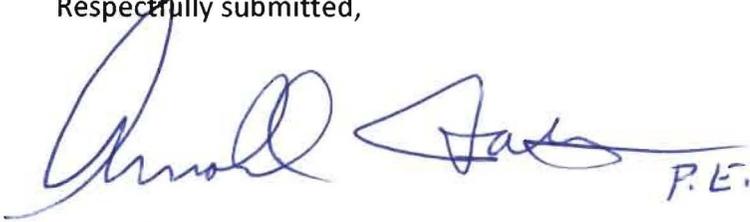
The above proposed wording will keep Cal OSHA text congruent with current OSHA and ANSI wording, and will increase worker safety:

- 1) The 10,800 lb anchorage requirement change in wording is required to keep CAL-OSHA congruent with current OSHA text. As per OSHA 1910.66 App C III(h)(6) *"Horizontal lifelines may, depending on their geometry and angle of sag, be subjected to greater loads than the impact load imposed by an attached component. When the angle of horizontal lifeline sag is less than 30 degrees, the impact force imparted to the lifeline by an attached lanyard is greatly amplified. For example, with a sag angle of 15 degrees, the force amplification is about 2:1 and at 5 degrees sag, it is about 6:1."* Using a personal energy absorbing lanyard with 900 lb MAF, the OSHA defined lateral force at 5 degrees sag would be 5,400 lbs. Multiplying this by the required safety factor of 2, we get 10,800 lb lateral anchorage strength requirement.

- 2) The 4" deflection is the maximum deflection limit for a rigid horizontal lifelines as defined in the just released Fall Protection Standard ANSI Z359.6

Please contact me if I can be of further assistance.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "Arnold Galpin", followed by the initials "P.E." written in a smaller, simpler font.

Arnold Timothy Galpin, P.E.

Engineering Manager

SPANCO, Inc.

604 Hemlock Road: Morgantown, PA 19543

Phone: 610-286-7200 ext. 120 Fax: 610.286. 0502

Email: agalpin@spanco.com

Website: www.spanco.com :: <https://dealer.spanco.com>