

**OCCUPATIONAL SAFETY
AND HEALTH STANDARDS BOARD**

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**PROPOSED PETITION DECISION OF THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
(PETITION FILE NO. 514)****INTRODUCTION**

The Occupational Safety and Health Standards Board (Board) received a petition on January 4, 2010, from Mr. Arnold Timothy Galpin, P.E., Engineering Manager, Spanco, Inc. (Petitioner). The Petitioner requests the Board to amend Title 8, California Code of Regulations, Section 1670 to require the use of rigid horizontal lifelines (HLL) as part of a personal fall arrest system in order to increase worker safety.

Labor Code section 142.2 permits interested persons to propose new or revised regulations concerning occupational safety and health and requires the Board to consider such proposals, and render a decision no later than six months following receipt. Further, as required by Labor Code section 147, any proposed occupational safety or health standard received by the Board from a source other than the Division of Occupational Safety and Health (Division) must be referred to the Division for evaluation, and the Division has 60 days after receipt to submit a report on the proposal.

SUMMARY

The Petitioner, the engineering manager of Spanco, a company that manufactures rigid horizontal lifeline systems, maintains that the HLL requirements in Section 1670 are not consistent with Federal OSHA standards or the American National Standard (ANSI) Z359 fall protection standards.

The Petitioner stated that the inherent flexibility and deflection characteristic of flexible HLL, may lead to increased free fall distances and greater body velocity during fall arrest events. These conditions expose workers to greater risk of injury due to:

1. Inadvertent contact with immovable objects or the work platform,
2. Excessive fall arresting forces,
3. Possible suspension trauma.

Additionally, the Petitioner noted that the movement of the wire ropes of the flexible HLL from one person falling may cause other workers also to fall. The Petitioner feels that these hazards can be avoided with the use of rigid horizontal track and trolley system, here referred to as rigid HLL systems, from which vertical lifelines are suspended. According to the Petitioner, these types of systems have much smaller deflection distances and therefore provide shorter free fall distances.

The Petitioner recommends prohibiting or limiting the use of flexible HLL as part of a personal fall arrest system by providing maximum lifeline deflection, rigging and anchorage point requirements, and specific design, installation and use requirements for rigid HLL.

The Petitioner proposes to amend Section 1670(b)(2) as follows:

(b) Personal fall arrest systems and their use shall comply with the provisions set forth below. Effective January 1, 1998, except as permitted in subsections (c) and (d), body belts shall not be used as part of a personal fall arrest system.

(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.

The Petitioner provides a 2nd option for Section 1670(b)(2) as follows:

(c) Flexible horizontal lifelines shall not be used as part of a personal fall arrest system. Rigid Hhorizontal 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.

The Petitioner suggests amending Section 1670(b)(10) by adding the following:

(C) Anchorages 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 Petitioner further proposes Section 1670(g) be amended as follows:

(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 subsection (b)(2).

DIVISION'S EVALUATION

The Division's evaluation report dated June 1, 2010, recommends that the Petitioner's request be denied. The Division is of the opinion that limiting the amount of deflection allowed in a flexible HLL creates the hazard of increased axial loading transmitted in the event the worker were to fall, resulting in the "bowstring" effect which can damage the wire rope and/or anchors, resulting in a catastrophic failure of the entire system. The qualified person designing the system is responsible under Title 8 standards to set the amount of tension in the HLL according to how far the worker could fall before striking a service below. Therefore, the Petitioner's first proposal is both a bad idea and unnecessary. The rest of the Division's comments demonstrate that there is a lack of necessity for the Petitioner's other proposed amendments as the issue is already effectively addressed by existing Title 8 construction industry standards.

STAFF'S EVALUATION

The Petitioner's rigid HLL system consists of steel rail sections, a rail trolley, end stops and mounting hardware. The rail sections generally are made of channel steel, I-beam or pipe, and are secured in a manner that provides a continuous and substantial horizontal anchorage for fall arrest systems. Rigid HLL systems are generally straight, level runs, but can be designed to go around corners.

A flexible HLL system consists of a wire rope cable attached to two or more anchor points and personal protective equipment secured to the horizontal cable. As with rigid systems, flexible horizontal lifeline systems can arrest a fall and limit the amount of force that is transferred both to the worker and the fall arrest system. These actions are designed (by the qualified person) to occur before the employee can come in contact with a surface below.

Board staff believes that the Petitioner's proposal in Section 1670(b)(2), to limit the total lifeline deflection to 4 inches maximum during a fall event, would have the same effect as the Petitioner's alternate proposed Section 1670(b)(2) to prohibit the use of flexible HLL, since such deflection limit for flexible HLL systems cannot be met. The Petitioner's proposal would only provide employers with the option to use rigid HLL systems for fall arrest purposes.

Board staff agrees with the Petitioner that properly rigged rigid lifeline systems can effectively reduce the fall arrest system's free fall distance and by design provide significantly less deflection than flexible horizontal lifeline systems. Additionally, Board staff notes that in industrial settings where employees are constantly required to move horizontally on unprotected elevated locations during the course of their work shift, the rigid HLL system may be the only reasonable and effective means of meeting current fall protection requirements. Board staff also recognizes that there are instances where the use of rigid lifelines would not be practical or reasonable, whereas properly rigged flexible HLL systems would be effective in providing fall protection. Staff is also of the opinion that the unique and site-specific design of the rigid HLL system, its initial cost, and the time and cost of relocation and reconfiguring the rigid HLL for installation at other work sites, are the primary reasons rigid HLL systems would not be practical

or reasonable fall protection systems for each and every application. Examples of situations where rigid HLL would not be practical include temporary worksites, such as construction and temporary staging operations. Consequently, the Petitioner's proposal to prohibit flexible HLL is unsupportable.

With regard to the Petitioner's reference to language in 29 CFR 1910.66, Appendix C, Section (III)(h)(6) to justify amending the 5000 lbs anchorage point requirement in Section 1670(b)(10) to at least 10,800 lbs for flexible HLL, Board staff notes that this federal language consists of non-mandatory guidelines regarding the various considerations to be addressed when designing, installing and using HLL for building maintenance operations. Similar language is found in Section 3299, Appendix (C)(h)(6) of the General Industry Safety Orders for building maintenance operations. Board staff reviewed the additional standards in the 29 CFR 1910.66 and concluded that they are consistent with HLL requirements in the California standards summarized above. Board staff concludes that the California standard regarding HLL is consistent with Federal OSHA requirements.

Board staff disagrees with the Petitioner's proposal to amend the 5000 lbs anchorage point requirement for flexible lifeline installations in Section 1670(b)(10). Board staff notes that horizontal lifeline design and installation and use are regulated under Section 1670(b)(2), which mandates this to be 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. Because of the many variables at each work site, the current California and Federal OSHA performance standards are effective in regulating HLL installations.

Board staff reviewed the relevant ANSI Z359- 2008/09 subchapter requirements for the use of HLL with fall protection systems to evaluate the Petitioner's claim that the California requirements are not as effective as the ANSI Z359. Board staff notes that the ANSI Z359.6-2009 does not mandate a 4" maximum deflection limit for rigid HLL, and Board staff notes that there is no inconsistency between Title 8 and the ANSI Z359.6. There may be an inconsistency with the ANSI Z359.17, Safety Requirements for Horizontal Lifelines for Personal Fall Arrest Systems; however, this standard is still under review by the ANSI committee, and as of this writing, has yet to be adopted and finalized by the ANSI Z359 committee.

Board staff reviewed accident data provided by the Division. The data, related to the use of HLL, covered the years from 2000-2009 and found no reported employee accidents that were the result of the failure or ineffectiveness of fall arrest systems rigged with flexible HLL. Board staff notes that the use of rigid HLL systems is permitted under current fall protection standards and would in many instances provide superior fall protection for employees, however flexible HLL systems have an exemplary safety record for both temporary and permanent fall arrest systems.

Board staff recognize the effectiveness of rigid HLL in many worksite applications; however, the Petitioner's proposal to mandate its use in all applications and jobsites raises safety issues and is unreasonable and unnecessary. Therefore, for the reasons set forth in this evaluation, Board staff

agrees with the Division that the Petitioner's request lacks merit and recommends the Petition be denied.

CONCLUSION AND ORDER

The Occupational Safety and Health Standards Board has considered the petition of Mr. Arnold Timothy Galpin, P.E., Engineering Manager, Spanco, Inc., to amend Section 1670 of the Construction Safety Orders to require the use of rigid horizontal lifelines as part of a personal fall arrest system in order to increase worker safety. The Board has also considered the recommendations of the Division and Board staff. For reasons stated in the preceding discussion of the Division and Board staff evaluations, the Petition is hereby DENIED.