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How the U.S. Navy Incorporates Z359 Fall Protection Code Into its SH&E Practices

Basil Tominna, P.E., is a safety engineer for the U.S. Department of the Navy and vice chair of the Z359 Accredited Standards Committee (ASC) for Fall Protection/Arrest. In this interview, Tominna explains how the Navy incorporates the ANSI/ASSE Z359 Fall Protection Code into its SH&E practices and discusses how future revisions and additions to the code will impact Navy fall protection program requirements.

Q: Please describe your professional background and your position as a safety engineer for the U.S. Department of the Navy.

A: I hold B.S. and M.S. degrees in civil engineering. I am a registered civil engineer in the State of California and a professional engineer in Michigan. I am also trained as a competent and qualified person for fall protection. I provide fall protection expertise Navy-wide and to other Department of Defense (DOD) agencies. I also chair the Chief of Naval Operations' Fall Protection Task Action Team. The team serves as the fall protection technical and policy advisor for the prevention of falls within the Navy by providing tools, criteria and safe work practices to ensure Navy ashore and afloat commands establish and manage viable fall protection programs.

Q: What are the most common fall hazards and exposures facing those in the Navy? How do these hazards and exposures differ among ships, submarines and shipyards?

A: The most common fall hazards in the Navy include falls from roofs, ladders, equipment, cranes and during aircraft maintenance and other typical general industry exposures. Fall hazards and exposures in ships, submarines and shipyards may include falls from ships and submarines in the water, when climbing masts or ladders and other falls to lower surfaces.

Q: In what ways does the Navy incorporate the Z359 Fall Protection Code into its SH&E practices?

A: Most Navy safety and health instructions, technical manuals and guidance documents adopt and reference the Z359 Fall Protection Code, including best practices and applications of fall protection systems and equipment. Additionally, many Navy design criteria documents for designing buildings, facilities and structures already reference the code as a compliance document. Additionally, the fall protection training requirements for various personnel involved in the fall protection program are similar to the training requirements in the code.

Q: How does the Navy use the Z359 Fall Protection Code when working with contractors and subcontractors on fall protection/arrest-related issues?

A: Contractors and subcontractors performing construction and demolition work on DOD sites are required to comply with the fall protection requirements specified in the EM 385-1-1 Health and Safety Requirements Manual. The fall protection requirements in EM 385-1-1 (latest version) are based on and reference the Z359 Fall Protection Code by incorporating best practices and applications of fall protection systems and equipment.

Per EM 385-1-1, contractors as part of the contract are required to develop a fall protection program and to submit a site-specific fall protection and prevention plan to the government-designated authority. The fall protection and prevention plan requirements are similar to the written fall protection procedures specified as part of the ANSI/ASSE Z359.2-2007 standard. Additionally, The Unified Facilities Guide Specifications for Design Build/Design Bid Contracts were updated to reflect best practices and applications from the code.

Q: How does the Navy use the Z359 standards to conduct workplace surveys and to assess fall hazards?

A: As part of the Navy Health and Safety Instruction Manual, Navy ashore commands are required to identify potential fall hazards by conducting fall hazard surveys and preparing survey reports. After conducting the surveys, Navy commands are required to perform fall hazard analysis to determine the risk assessment, hazard severity and fall mishap probability to help prioritize the hazard ranking and to select the most viable fall protection solution. Requirements for the survey reports are similar to the Z359.2 standard.

Q: ANSI/ASSE Z359.2-2007, Minimum Requirements for a Comprehensive Managed Fall Protection Program, defines the roles and responsibilities of the fall protection program administrator, competent person and qualified person. What criteria does the Navy follow, in addition to the guidelines given in the standard, when selecting people for each of these positions?

A: The fall protection program manager/administrator and the competent person roles and responsibilities are similar to the requirements defined in the Z359.2 standard. With regard to a qualified person, the Navy requires the person selected to be an engineer. The qualified person's responsibilities are also similar to the requirements defined in the Z359.2 standard.



Q: How does the Navy use the code to address a combined fall hazard and confined space? Where are combined fall hazards and confined spaces most often found in Navy operations?

A: When entering a confined space, and if there is a hazard of exposure to a vertical fall, the person entering such space is required to use fall protection and rescue/retrieval equipment. A coworker should be able to retrieve the person using the retrieval mechanism addressed in ANSI/ASSE Z359.1-2007. Confined spaces with potential fall hazards found in Navy operations include manholes, vaults/pump stations and haul of ship.

Q: How is use of the code helping the Navy reduce falls from masts, aerials, scaffolding, cranes, hoists and other elevated work surfaces?

A: Masts, aerial work platforms, scaffolding, cranes, hoists and other elevated work surface are considered walking/work surfaces and must comply with the Navy fall protection program requirements. Since the development of the Navy fall protection program requirements in December 2005, fall mishaps from heights are on the decline. The program's requirements are based on Navy criteria/instruction and Z359 Fall Protection Code requirements.

Q: How does the Navy manage fall protection in its construction operations?

A: The Navy-designated personnel to manage and administer construction projects receive 40 hours of construction safety training. Fall protection is included as part of this training. Training requirements include best practices and applications of fall protection systems and equipment and the latest requirements of EM 385-1-1 enforced on Navy construction projects. The fall protection section in EM 385-1-1 is based on Z359 Fall Protection Code requirements.

Q: Do fall protection requirements for ashore and afloat facilities reference the code?

A: Yes, the fall protection requirements for ashore and afloat reference the code. Additionally, all personal fall arrest equipment used when working at heights must comply with the Z359.1 standard.

Q: Does the Navy use rigid lifelines or traditional horizontal flexible lifelines in its fall protection systems? Or does it use a combination of both?

A: Both systems are installed and used as part of the fall hazard abatement alternatives.

Q: Is rope access ever used when working from height in Navy operations?

A: Not to my knowledge. However, the rope access system is introduced as part of fall protection awareness training provided to various safety professionals.

Q: What methodology does the Navy follow when conducting job hazard analyses of tasks that must be performed from height?

A: Navy commands are required to assign each identified hazard by annual surveys or inspections. Navy commands are required to assign a risk assessment code (RAC) to each identified hazard that cannot be corrected immediately. RAC represents the degree of risk associated with the hazard combined with the elements of hazard severity and mishap probability.

However, for existing fall hazards, Navy commands are required to develop, implement and use a fall protection solution.

Q: How does the Navy perform qualification testing of test equipment and specimens for fall protection systems?

A: The Navy does not perform qualification testing of test equipment and specimens for fall protection systems. Equipment manufacturers perform qualification testing. However, for the past 4 years, the Navy ashore fall protection instruction manual requires all personal fall arrest equipment, from the anchorage connector to the full body harness, to be purchased from manufacturers that can substantiate through third-party certification that their equipment meets the Z359.1 standard.

Q: Of the Z359 standards currently in development, which do you believe will have the most impact on Navy fall protection practices once approved?

A: The Navy is a governmental/employer organization, and the Z359.2 standard will definitely have the most impact on Navy fall protection practices because this standard is presently being updated and is structured similar to the Navy instruction and guidance document. The ANSI/ASSE Z359.6-2009 standard will assist our professional engineers who have expertise in fall protection design of active fall protection systems.

Also, the ANSI/ASSE Z359.7-201x standard will impact the Navy because for more than 4 years, Navy ashore instruction requires that all personal fall arrest equipment purchased from manu-



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to reduce fall mishaps within the Navy. He is also vice chair of the Z359 Accredited Standards Committee for Fall Protection/Arrest. Tominna's prior experience includes design, construction and environmental work. He previously worked for several consulting engineering firms, municipalities and the U.S. Army. He holds B.S. and M.S. degrees in civil engineering.

facturers meet the Z359 Fall Protection Code. The rest of the product standards are usually geared for the equipment manufacturer and yet they also will affect the Navy because of the technical knowledge they provide.

Q: You are vice chair of the Z359 Accredited Standards Committee (ASC) for Fall Protection/Arrest. Why do you feel it is important for the Navy to be represented on this particular committee?

A: As the Navy representative, attending the Z359 ASC meetings provides me with knowledge and understanding of the best practices and applications of fall protection systems and equipment and the requirements of various standards. I incorporate this knowledge and understanding in Navy fall protection program requirements. This knowledge is also shared with other DOD agencies that are not represented on Z359 ASC.

Q: Z359 ASC met at ASSE headquarters in April 2010. What were the major outcomes of this meeting and what are Z359 ASC's plans for the remainder of the year?

A: The major outcomes included addressing the status and progress of developing the rest of the Z359 product standards as part of the Fall Protection Code and including the possibility of revising other existing standards, such as Z359.2, .3 and .4. Some of the standards under development have finished balloting, other standards are ready for balloting and the rest are in the early stages of development. Z359 ASC met again in November 2010.

ANSI 01.1 Committee Seeks General Interest Members

The ANSI 01.1 committee, which addresses safety requirements for woodworking machinery, seeks members for its new general interest group. Any safety engineer with experience in the woodworking field would be considered. This person(s) would not necessarily represent ASSE but would instead be another member(s) with general interest on the committee. For more information, contact Al Weaver at aweaver1@bellsouth.net.