

Fixed Ladders Can Be Hazardous

JIM SMITH IS MANAGING DIRECTOR, SOUTHEAST REGION RISK CONTROL SERVICES, FOR ARTHUR J. GALLAGHER RISK MANAGEMENT SERVICES FLORIDA.

James D. Smith, CSP, is chair of the American National Standards A14.3 Subcommittee. In this interview, Smith provides an overview of fixed ladders and explains how the latest version of the A14.3 standard addresses the unique safety hazards fixed ladders can present.



Blueprints: Please provide a brief description of your professional background and of your position as managing director, Southeast Region Risk Control Services, for Arthur J. Gallagher Risk Management Services.

Jim Smith: To summarize my position, I provide risk management, safety and loss control consultative services to various clients in a variety of different industries. Additionally, I provide technical support and am a professional resource to our clients.

Blueprints: You are chair of the ANSI A14.3 Subcommittee, which oversees the “American National Standard for Ladders—Fixed—Safety Requirements” (ANSI A14.3). Why did you decide to get involved in this group?

JS: In 1982, my previous employer had more than 200 fixed ladder installations, plus microwave tower installations in excess of 100 feet in height. Safety concerns, a few ladder injuries plus the fact that the

organization was installing new towers to replace existing ones led me to get more involved as the organization’s Safety and claims manager.

I worked with project engineers to add my professional review and input into the engineering plans and specifications. Climbing devices were added to the microwave tower design and during this period, research on fall protection equipment efficacy was not what it is today. Therefore, as part of the team for fixed ladder design, training and education, I felt this was important enough for me to become involved in the standard development process.

In 1990, I was accepted to the A14.3 Subcommittee because of my experience with fixed ladder installation.

Blueprints: How does ANSI define a fixed ladder and what unique safety hazards do fixed ladders present?

JS: In Section 2 of the A14.3 standard, a fixed ladder is defined as a ladder that is permanently attached to a structure. Section 1.5 of the standard provides exceptions and explains how fixed ladders are used but does not cover all fixed ladders. Anything connected to a building or structure will typically be covered by the A14.3 standard, while the authority having jurisdiction may approve the installation of use. As a subcommittee, we define what a fixed ladder is, then look at the application and intent.

Some unique safety hazards that fixed ladders present include the ability to climb a ladder with a three-

point contact and for outdoor fixed ladder installation, exposure to environmental elements while maintaining good slip resistance on the user’s footwear and ladder rungs can be challenging. Many fixed ladders have an inclination of 90° to horizontal, so it is important to keep rungs and footwear clean while a climbing fixed ladder, especially when factoring into account the gravitational forces placed on a person climbing at a 90° to horizontal ladder. Therefore, protective features like the cage and ladder safety climbing device can be important when designing and installing a fixed ladder.

Blueprints: How has the A14.3 standard changed or improved in the years you have served on the subcommittee?

JS: We have enhanced the ladder safety system, which now includes performance testing criteria, such as uniformity, materials used and dimensions. A power grip definition and the ability to change the height of the first rung to allow consistency of rung spacing throughout the length of

Some unique safety hazards that fixed ladders present include the ability to climb a ladder with a three-point contact and for outdoor fixed ladder installation, exposure to environmental elements while maintaining good slip resistance.

climb have been improved. We have also included provisions for hand grasps when exiting through a roof hatch, which were never addressed in previous editions of the standard. The standard is always a work in progress but it is a good standard.

Blueprints: *How did the A14.3 subcommittee ensure that the latest version of the standard best reflects the needs of ladder manufacturers and component suppliers? In turn, how can these two groups, as well as ladder users, best comply with the standard?*

JS: Many fixed ladders are field-built using designs by engineers and installed on location. This is different

Common concerns in fixed ladder accidents are ladder designs of side rails and rungs, clearances of the ladder and consistent rung spacing, to name a few.

from other types of ladders made in manufacturing facilities. The A14.3 standard gives sound criteria to build a fixed ladder using performance criteria that engineers can use to create field drawings and component specifications. Engineers can

design fixed ladders according to these specifications that will have sufficient safety factors to ensure the user's safety.

The standard offers figures to visually display the standard text allowing the users of the document to better understand the standard.

Blueprints: *Who conducts annual inspections of fixed ladders and ladder safety systems and what do they look for?*

JS: First, the owner is responsible for inspection and maintenance of the fixed ladder. Section 9 of the standard addresses the inspection process and places the responsibility on the owner to inspect the fixed ladder.

Furthermore, Section 7 discusses ladder safety systems, which require the ladder safety system device man-

ufacturer to provide sufficient information on what the owner should inspect. For fixed ladder inspection, the standard describes identifiable performance criteria for various components, such as rung designs, side rails, ladder anchor spacing and clearances for the side and back side of the ladder. Platform and hatch designs and protecting openings are clearly identified for inspectors to assess. In my view, the standard is user-friendly when it comes to an effective inspection process.

Blueprints: *Are fall protection systems commonly used in conjunction with fixed ladders? If so, what safeguards are the systems required to have?*

JS: Fall protection requirements are set forth in the standard. The standard has height criteria, that trigger when ladder safety devices or cage requirements exceed a certain height. For example, when a fixed ladder exceeds 24 ft above floor or ground-height level, a fall protection system is required in the form of a cage or ladder safety device. Where the ladder exceeds 50 ft in height, only a ladder safety device can be used.

The A14.3 standard is different from OSHA's standard where fall protection systems are required. OSHA has 20-ft height criteria whereas ANSI A14.3 has 24-ft height criteria. The A14.3 fixed ladder standard has more progressive fall protection safeguards than OSHA.

What is interesting about the ladder safety system used for fall protection is the connection length between the carrier and the safety sleeve—it is at 9 in. maximum with the maximum length of movement of the safety sleeve at 6 in. This is much more stringent and different than traditional fall protection systems standards.

Blueprints: *What is the primary cause of fixed ladder injuries and accidents and how does the A14.3 standard address this?*

JS: Fortunately, fixed ladder falls



A high-exposure area for an accident to occur is getting off an elevated platform to the fixed ladder.

and accidents are not common. Various reasons may exist for this, but the use of these ladders is generally different from other types of ladders where people often work off the ladder compared to a fixed ladder used to transition from one working surface to another elevated location.

Common concerns in fixed ladder accidents are ladder designs of side rails and rungs, clearances of the ladder and consistent rung spacing, to name a few. In my view, a high-exposure area for an accident to occur is getting off an elevated platform to the fixed ladder.

Blueprints: *What was the most challenging part of the A14.3 Standard's recent revision process?*

JS: Challenges faced during the revision process included means/methods to achieve slip resistance of rungs and how to measure it and ladder safety climbing devices (application of fall protection to ladder). Additionally, a fixed ladder in a manhole has it challenges for clearance of the back side of the ladder, which allows proper foot placement for optimal support while climbing. Today, a conflict exists between the ANSI standard and ASTM's manhole ladder installation standard. The same holds true for tower designs with fixed ladders. OSHA's transmission communication tower standard has different spacing requirements when compared

to the A14.3 standard. In my view, 18-in. spacing between rungs or allowing varying spacing between different ladder designs for towers is not a good means to allow for standardization for the user. Consistency in design is important, but that is just my view of the situation.

Blueprints: What revisions are planned for the next version of the Standard?

JS: It is too soon to tell what revisions will be needed, but the A14.3 Subcommittee welcomes any suggestions with supporting documentation/research for improving the current version of the standard.

Blueprints: Do you have any closing comments?

JS: Yes, I have been fortunate to work with great subcommittee members in the past, some of whom have served the committee for 30 years, such as Ron Bennett, Tom Bresnahan and Nigel Ellis. In addition, subcommittee members such as Sharon Morales and Tom Wolner, have made significant contributions to the standard over the years. We continue to refresh the committee with new talent, such as the recent addition of Thomas Heebner, to bring different experience levels and viewpoints.

In closing, I cannot forget the late Bernie Enfield, past chair and member since the 1960s, whose influence in this standard set the bar high with user safety always in mind, which continues today by our subcommittee members. ☺

James D. Smith, CSP, was safety and claims (liability) manager for 18 years with South Florida Water Management. He currently serves on ASSE's Board of Directors as Vice President of Finance. Smith is chair of the American National Standards A14.3 Subcommittee and served on several other ANSI national standards committees, including ANSI Z590, Z10, A10.33, A1264.1 and A1264.2. Smith holds B.S. and M.S. degrees in Industrial Safety from the University of Central Missouri. He is a recipient of ASSE's Edgar Monsanto Queeny Safety Professional of the Year Award, President's Award and Charles V. Culbertson Award for Outstanding Volunteer Service.

CCHEST to Launch New Construction Examination

The Council on Certification of Health, Environmental and Safety Technologists (CCHEST) will phase-out the current edition of the Safety Trained Supervisor (STS) construction examination. The updated examination will better reflect what construction safety supervisors need to know and the skills required for the tasks and functions in today's practice.

The new STS construction examination features ethics as a new task area. Candidates must demonstrate their knowledge of the STS Code of Ethics and how to apply it. Additionally, new emphasis will be placed on ensuring that supervisors demonstrate an understanding of how to coach employees to perform their work safely, how to model safe work and how to hold employees accountable for safe work. Another new emphasis is ensuring that supervisors demonstrate an understanding of emergency action planning.

No areas on the new examination are associated with demonstrating knowledge of the content of specific regulations, codes and standards. The board has determined that STS candidates must already have an acceptable knowledge of the relevant regulations, codes and standards associated with the specific areas where the candidate practices. U.S. federal regulations may not apply in lieu

of stricter state or local regulations, etc. Therefore, BCSP expects all STS candidates to possess the necessary regulatory knowledge when they apply for the STS credential.

The examination will continue to be multiple-choice and computer-based. Details about the blueprints, which identify



STS PROGRAM

what will be covered on the examination and how the content should be distributed in the respective domains, topics, tasks, knowledge areas, skill areas, frequently asked questions and examination cross tables are available at <http://www.cchest.org>.

Those interested in pursuing the STS certification in construction will take the new examination when submitting an application on or after Sept. 15, 2010. Those individuals who purchase an examination on or after Oct. 1, 2010 will receive the new examination. ☺