Standards Developments

ISA Standard Covers Toxic Gas Detection

ISA's new standard, Toxic Gas Detection as a Method of Protection (BSR/ISA 92.00.03-200x), is available. The standard offers guidance on the use of a toxic gas detection system as a method of personnel protection as defined within OSHA's 29 CFR 1910 regulations. (*Adapted from* ANSI Standards Action, *Vol. 38, No. 43.)*

New ISEA Standard Available

International Safety Equipment Association (ISEA) has released BSR/ISEA 203-200x, Flammability of Garments for Use Over Thermally Protective/Flame-Resistant Clothing. The standard provides requirements for testing, categorizing and labeling of clothing designed for use over thermally and/or electric arc flash protective clothing. Such clothing may be constructed in disposable, limited-use or reusable configurations. Garments covered by this standard may include coveralls, lab coats, aprons and high-visibility clothing. (*Adapted from* ANSI Standards Action, *Vol. 38, No. 44.)*

ASSE Approved as TAG Administrator of ISO Working Group

The accreditation of the U.S. Technical Advisory Group (TAG) to a new ISO Technical Management Board Working Group on Risk Management (ISO/TMB/RM), has been approved. ASSE will serve as TAG administrator. In recent years, Japan proposed a new international standards project to create ISO standards that address general guidelines for principles and implementation of risk management. That project was recently approved and has been launched. To learn more about the project, contact ASSE's Tim Fisher at tfisher@asse.org.

NFPA 101 Mercantile & Business Committee Meeting Report

On Oct. 22, 2007, National Fire Protection Association (NFPA) Life Safety Code Committee on Mercantile and Business Occupancies met to discuss and vote on public comments to the committee's approved changes to the code made in January 2007. David A. Dodge, P.E., CSP, ASSE's representative on the committee, offers this summary report.

Public comments and committee discussion addressed "areas of refuge" in new high-rise buildings. The committee decided that it would support a proposal requiring communication devices at elevator landings. Several other committees are working on the areas of refuge issue. The group also reaffirmed that a 2-hour fire separation is required between parking garages and tenant spaces.

Public comments and committee discussion focused on the use of a public address system as a fire

Fall Protection PPE & Third-Party Testing

By W. David Lough

For years, it has been a buyer beware mentality for SH&E professionals responsible for procurement of workplace fall protection equipment. The acquisition of equipment that does not meet the standards implied by the manufacturer is a real concern to the consumer—whether the consumer is a large entity making a million dollar purchase or a small business spending its safety budget for the year.

Unless the SH&E professional making the purchase is well educated in fall protection systems and equipment, it is possible that equipment which does not meet ANSI standards will be purchased. Companies that wish to provide standardized equipment to their employees have had a difficult time doing so because proper quality control procedures are not in place at all manufacturing levels and are not required by ANSI/ASSE Z359.1.

The ANSI/ASSE Standard

ANSI recently revamped and expanded the Z359 series of standards into the Z359 Fall Protection Code. The code now incorporates equipment-testing procedures and design requirements, as well as guidance and clarification on training, procedure writing, positioning and travel restraint systems, rescue and numerous other issues that have historically been confusing in the world of fall protection.

Third-Party Certification

In the past, ANSI has not required third-party testing of fall protection equipment, which means that manufacturers perform their own compliance testing. Testing facilities, testing practices and testing methods vary among manufacturers, leading to inconsistent results from manufacturer to manufacturer.

A new standard currently in draft form as ANSI Z359.7, Third-Party Certification of Fall Protection Products and Components, would change that by providing minimum requirements for third-party certification. Third-party certification of fall protection equipment would mean that an unbiased testing facility (outside of the manufacturer) would assess whether the equipment meets the design, performance and testing requirements of the applicable standard. This would assure the consumer that the intent of the standard is being met as attested to by an unbiased certification organization, meaning the consumer need not rely solely on a manufacturer's affirmations.

This is not an uncommon practice for standards organizations. For example, the Canadian Standards Association (the ANSI

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Hotlinks

ANSI
American National Standards Institute
www.ansi.org

ASSE
American Society of Safety Engineers
www.asse.org

ASTM
ASTM International
www.astm.org

CEN
European Committee for Standardization
www.cenorm.be

ISO
International Organization for Standardization
www.iso.ch

JCAHO
Joint Commission on Accreditation of Healthcare Organizations
www.jcaho.org

NFPA
National Fire Protection Assn.
www.nfpa.org

NIST
National Institute of Standards and Technology
www.nist.gov

SCC
Standards Council of Canada
www.scc.ca

UL
Underwriters Laboratories Inc.
www.ul.com

notification method. One public comment placed too many restrictions on the system. The committee maintained that a public address system can be used as a notification system as the code allows.

Another public comment sought to require that mall tenant space separation walls extend to the roof instead of to the lower ceiling as is now required. The committee will leave the present requirement in place because the added space above the ceiling allows for smoke dissipation in the area so that it takes longer to flow into the mall pedestrian way.

In January 2007, the committee decided to add the requirement that no more than 50% of the required means of egress in a mall shall be through the main entrance. This regulation was reaffirmed.

The committee also reaffirmed the allowance of additional travel distance to exits within a mall pedestrian way under certain circumstances.

Other NFPA 101 committees have attempted to increase the minimum stairway width in new structures from 44 in. to 56 in. The Mercantile and Business Committee finds no justification for this.

This meeting concluded the committee meeting schedule for the 2009 edition of the Life Safety Code. The next meeting is scheduled for November 2009 in preparation for the 2012 edition.

Z136 ASC: An Update on Laser Safety Standards

Thomas Fleming, ASSE's representative on the Z136 Accredited Standards Committee for the Safe Use of Lasers, recently submitted his annual activity report for 2007. His report highlighted the status of several standards.

- ANSI Z 136.1-2007, American National Standard for the Safe Use of Lasers. The 2007 revision of this standard was published this year.
- ANSI Z136.3-2005, American National Standard for the Safe Use of Lasers in Healthcare Facilities. On June 1, 2007, the ballot to change the title and scope of this standard was approved. Lasers as medical devices have safety concerns that include "anyone who might be exposed." This means the patient (human or otherwise), laser assistant, laser operator and anyone else who uses a medical laser device. This proposal broadens the current standard to include spas, salons, home use, veterinary medicine, etc. (to protect those who might be exposed), by expanding the scope to use of medical laser devices beyond healthcare facilities.
- ANSI Z136.5, American National Standard for the Safe Use of Lasers in Educational Facilities. The revision of this standard is complete. Committee draft for vote (CDV) will be issued to balloting group in the near future.
- ANSI Z136.7, Draft American National Standard for Manufacture of Laser Eye Protection. On Jan. 12, 2007, a ballot was sent to establish a balloting group for the CDV. To date, no other action has been taken because of the committee review of the new ANSI Z136.1-2007 standard.
- ANSI Z136.8, American National Standard for Safe Use of Lasers in Research, Development and Testing. The inaugural subcommittee meeting was held in March 2007.

NFPA 101 Means of Egress Committee Meeting Highlights

The NFPA 101 Life Safety Code Means of Egress Technical Committee met in October 2007. Committee member Steven Di Pilla shares the following summary report.

Key Proposals Voted Affirmative

The Report on Proposals meeting covered proposed changes to NFPA 101, Means of Egress, and corresponding changes in the same section of NFPA 5000, Building Construction and Safety Code. Following is a brief listing of key proposals that were voted as affirmative

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Standards Developments

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and will be proceeding to final ballot. It is likely that all (except the 56-in. minimum stair width) will pass on the pending final ballot. In most cases, identical proposals to revise NFPA 5000 were also accepted.

•**Supplemental escape device/system.** ASSE has successfully opposed these provisions because there was no consensus standard against which to evaluate them. Since then, the ASTM standards have been completed and are pending publication. NFPA specifies compliance with these ASTM standards. The vote was in favor of placing this section in a nonmandatory appendix outside of the Means of Egress chapter to provide some guidance for authorities having jurisdiction that encounter these systems without specifying requirements which need to be met.

•**Exit stair path markings** (7.2.2.5.5). Where permitted by the occupancy chapter, this proposal provides specifics on how to apply photoluminescent exit stair path markings.

•**Marking of tread nosings** (7.2.2.3.6.3). These are required for stairways where there are irregular stair treads.

•**Inspection of door openings** (7.2.1.15). Where required by the occupancy chapter (currently in Assembly, Educational and Day Care chapters). This proposal requires documented, annual inspection of fire doors requiring a leaf (larger doors).

•**Handrails for new stairs** (7.2.2.4.1.2). New stairs require handrails within 30 in. of all portions of the required egress width. Previously, this was required only for stairs wider than 6 ft 3 in.

•**Requirements for signage on stair doors** (7.2.1.5.7):

1) Doors allowing reentry shall be identified as such on the stair side of the door.

2) Doors not allowing reentry shall be provided with a sign on the stair side indicating the location of the nearest door, in each direction of travel, that allows reentry or exit.

•**Minimum stair width of 56 in. for new buildings** (7.2.2.2.1.2). New buildings require a minimum stair width of 56 in. where serving an occupant load of more than 2,000. *Note: This proposal did not pass by two-thirds of the committee, so it may be overridden.*

•**Basement/attic/stories.** An extensive list of changes clarifies the definitions and use of these terms and seeks to eliminate inconsistencies of these and related terms in the code. When stories relate to the height of the building, basements do not count; when stories are used inside the building to determine stair and other requirements, basements do count.

Key Definition Changes

1) **Attic**

•*Old definition:* The space between the ceiling of the top habitable story and the roof that may be used for storage.

•*New definition:* The space located between the ceiling of a story and the roof directly above that story. The attic space may be used for storage. The concealed rafter space between the ceiling membrane and the roof sheathing that are attached to the rafters is not considered an attic.

2) **Basement**

•*Old definition:* Story of a building wholly or partly below grade plane.

•*New definition:* Any story of a building wholly or partly below grade plane that is not considered the first story above grade plane.

3) **First story above grade plane**

•*New definition:* Any story having its finished floor surface entirely above grade plane, except that a basement shall be considered as a first story above grade

Fall Protection Equipment & Third-Party Testing

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equivalent in Canada) has long provided testing certification for its many standards through an in-house testing facility and accredited testing laboratories.

In addition, some of the larger fall protection equipment manufacturers, such as Sperian (Miller brand) and MSA (among others), have had third-party testing conducted on their products to ensure uncontested compliance with the standards. Many of these manufacturers are taking this proactive stance as members of the Safety Equipment Institute (SEI), a nonprofit organization established to administer third-party certification programs to test and certify a broad range of safety equipment. SEI's certification programs are accredited by ANSI.

Under ANSI Z359.7, organizations such as Underwriters Laboratories, SEI and affiliated testing labs that are permitted to perform the physical testing would adhere to this document. The standard would dictate that all certifications of fall protection equipment to the applicable ANSI standard be performed by a certification organization which meets specific requirements.

The standard could be written to prevent manufacturers from testing their equipment to select portions of the standard, then certifying that their equipment is compliant to the entire standard. In addition, it could help to ensure that manufacturers do not use the ANSI designation in any statements about their product unless the product has been certified as compliant by an appointed certification organization.

Requirements for the testing laboratories with regard to equipment calibration, proper testing facilities, documentation, quality assurance and staff qualifications will also be detailed. Certification organizations would need to meet stringent requirements to ensure that they are not affiliated with any manufacturer and do not gain financially from a product meeting the applicable ANSI standard. It could also be their responsibility to ensure that the testing laboratory is in compliance with the standard.

Quality Control Q&A

The new standard will set guidelines for providing quality control for fall protection equipment. Quality control or quality assurance programs are not required to meet the present ANSI Z359.1 standard. It is left to the integrity of manufacturers and the checks and balances that they enforce to ensure a consistently high-quality product which meets the standard's requirements. Many of the larger manufacturers are ISO 9001 certified and already have rigorous quality control systems; however, many smaller manufacturers do not.

Commonly asked questions regarding quality control include the following:

Q: If a product was tested to the applicable standard 5 years ago, how do I know whether it still meets the standard's requirements?

A: Currently, consumers do not know how long it has been since the manufacturer has tested its product to ensure that it still meets the applicable ANSI standard. The frequency of testing is not detailed in ANSI Z359.1.

Common practice among manufacturers is to perform testing on each lot, although depending on the manufacturer, this may or may not occur. Common practice also changes depending on the product. In many cases, each carabiner may be tested to a proof load, but this cannot be the same for a personal energy-absorbing lanyard. ANSI Z359.7 could detail requirements for annual audits and recertification of equipment, and a mandatory quality assurance program to be maintained by the manufacturer.

plane where the finished surface of the floor above the basement is 1) more than 6 ft (1,830 mm) above grade plane or 2) more than 12 ft (3,660 mm) above the finished ground level at any point.

4) **Level of exit discharge**

•*Old definition:* 1) The lowest story form, which not less than 50% of the required number of exits and not less than 50% of the required egress capacity for such a story discharge directly outside at the finished ground level; 2) the story with the smallest elevation change needed to reach grade where no story has 50% or more of the required number of exits and 50% or more of the required egress capacity from such a story discharge directly outside at the finished ground level.

•*New definition:* The story that is either 1) the lowest story from which not less than 50% of the required number of exits and not less than 50% of the required egress capacity from such a story discharge directly outside at the finished ground level or 2) where no story meets the conditions of (1), the story that is provided with one or more exits that discharge directly to the outside to the finished ground level via the smallest elevation. Low-occupancy, ancillary spaces with exit doors discharging directly to the outside, such as mechanical equipment rooms or storage areas, and located on levels other than main occupiable floors should not be considered in the determination of level of exit discharge.

Successful Proposals Submitted on Behalf of ASSE

•Section/Paragraph: 7.2.2.4.5. Add "See 7.1.8 for guard requirements." Section 7.1.8 is easily overlooked, as most users of the document are referred to (and usually access) 7.2.2.4.5 on guard details. By placing a reference in this section, the base requirement for guards is less likely to be missed.

•Section/Paragraph 7.9.3.1.1(1). "Functional testing shall be conducted at 30-day intervals monthly for not less than 30 seconds."

•Section/Paragraph 7.3.3. New: A7.3.3. In determining the most restrictive components, use standard rounding techniques.

•Appendix 7.10.8.5 (amended): Add reference to E2238, Standard Guide for Evacuation Route Diagrams, to the appendix of 7.10.8.5 Evacuation Diagram (NFPA 101 and 5000).

ISO on Preparedness & Business Continuity

ISO has published the first internationally ratified benchmark document that addresses incident preparedness and continuity management. The Publicly Available Specification (PAS) ISO/PAS 22399:2007, Societal Security: Guideline for Incident Preparedness and Operational Continuity Management, is based on best practices from five national standards from Australia, Israel, Japan, the U.K. and the U.S.

"Natural disasters, acts of terror, technology-related accidents and environmental incidents have demonstrated that neither public nor private sectors are immune from crises, either intentionally or unintentionally provoked," ISO explains. "This has led to a global awareness that organizations must know how to prepare for and respond to unexpected and potentially devastating incidents."

ISO/PAS 22399 establishes the process, principles and terminology of incident preparedness and operational (business) continuity management within the context of societal security. According to ISO, it describes a holistic management process that identifies potential impacts which threaten an organization and provides a framework for minimizing their effect. ISO also reports that companies which use the documents will develop greater confidence in organization-to-community, business-to-business and organization-to-customer/client dealings.

Q: Who do I call if I suspect that a piece of equipment with an ANSI logo is not ANSI-compliant?

A: Currently, if a question arises concerning a product and compliance, or the right of the manufacturer to attest that its product meets or exceeds a standard, the consumer has no avenues through which to report the issue and get a consistent result. The manufacturer may contend that its interpretation of the standard, design and testing requirements for the equipment meets the Z359.1 requirement. How does a consumer contest this point? ANSI does not have the resources or testing facilities to investigate such discrepancies.

The new standard could dictate that one responsibility of the certification organization is to ensure that products marked with its logo as well as the ANSI standard are in compliance. Products simply marked with the ANSI standard may not be third-party certified and may not meet the new standard.

Q: What happens when a manufacturer changes a component on a piece of fall protection equipment? Is it still certified?

A: No. The new standard may require that when a product is updated or changed, or when new models are introduced, new samples will have to be inspected, assessed and tested in accordance with the applicable standard.

Q: If a piece of fall protection equipment is faulty or a product recall is issued, how do I know that the manufacturer will notify the users?

A: No current ANSI requirement ensures that a manufacturer will notify users when a faulty or noncompliant piece of equipment is identified. The draft ANSI Z359.7 standard could require the manufacturer to provide corrective action and notifications to the public when a potential product safety issue is recognized. This safety alert and/or product recall system could be part of the overall quality control program. The system may be required to detail methods for notifying distributors and users, timeframes for notifications as well as procedures for removing the product from service and replacement plans.

Looking to the Future

As noted, ANSI Z359.7 is in draft form and it is impossible to predict how detailed the final document will be. Several events must occur before the draft can become an official standard. First, the ANSI subcommittee must approve the standard, then the full ANSI Z359 committee must vote to determine whether the standard can be released for public review. It must then pass public review before reaching its completed form.

No matter how detailed the final document eventually is, SH&E professionals can expect that third-party testing will bring fall protection equipment quality control into this century and create a level playing field for equipment manufacturers—further ensuring the safety of the workers.

W. David Lough *is operations manager for Gravitec Systems Inc. (www.gravitec.com), a Bainbridge Island, WA, consulting company that specializes in fall protection engineering, education and equipment. He has been designing, consulting and training on fall protection systems for more than 12 years and is on the ANSI Z359 Committee. Lough has also aided in writing Canadian Standards Association documents and has written several articles on fall protection.*

To learn more about the ANSI/ASSE Z359 Fall Protection Code, the first update to consensus fall protection standards in nearly 15 years, visit www.asse.org/fallprotection.